

Courses & Syllabus

Part 1

September 2023



LBS CENTRE
FOR SCIENCE AND TECHNOLOGY
(A Government of Kerala Undertaking)

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Summary of Courses

Sl. No	Title of the Course	Period of Course in Months/Year	Eligibility	Fees (Rs)
1	Certificate Course in CivilCAD	3 M	ITI/3 year Diploma /+2, SSLC (SSLC can be the qualification only for the applicant with practical experience in related area)	8000
2	Certificate Course in Plaxis 2D	3 M	BTech in Civil Engineering	40000
3	Certificate Course in Revit Architecture Expert	3 M	SSLC	14000
4	Certificate Course in Stadd Pro	3 M	BTech in Civil Engineering	6000
5	Certificate Course in Total Station	1 M	Diploma/ BTech in Civil Engineering	10000
6	Course on Expert in AUTOCAD	3 M	ITI/3 year Diploma /+2	6000
7	Diploma Course on Building Animation	6 M	SSLC	13000
8	Diploma Programme in Interior Designing	12 M	SSLC	30000
9	Basic Computer Familiarization	1 M	5th & above	600
10	Basic SQL Server Management	2 M	SSLC	5000
11	Certificate Course on Data Mining	3 M	Plus Two/3 year Diploma	8000
12	Certificate Course in Ethical Hacking	3 M	Plus Two/3 year Diploma	8000
13	Certificate Course in Internet of Things	3 M	SSLC/ITI/+2/3 Year Diploma	8000
14	Certificate Course in Linux Administration	3 M	ITI/3 year Diploma /+2	10000
15	Certificate Course in ORACLE Application	2 M	Plus Two/3 year Diploma	6000
16	Certificate Course in PHP & Mysql	2 M	Plus Two/3 year Diploma	5000
17	Certificate Course in Python	3 M	SSLC	5000
18	Certified Computer Operator	1 M	5th & above	700
19	Certified Professional in Dot Net	6 M	Plus Two/3 year Diploma	10000
20	Course on Digital Video Audio Processing	4 M	SSLC	18000
21	Course on Expert Web Designing	3 M	SSLC	6000
22	Course on Video Editing using Editing Software.(windows based)	1 M	SSLC	150000
23	Course on Video Editing using Final Cut Pro	1 M	SSLC	150000
24	Digital Literacy Certification	1 M	7th & Above	2000
25	Graphic Design using Adobe Corel Draw	1 M	7th & Above	3500
26	Graphic Design using Adobe Photoshop	1 M	7th & Above	4000
27	Junior Animator Course	1 M	7th & Above	700
28	Junior Programmer Course	2 M	7th & Above	1500
29	Certificate Course in Artificial Intelligence	3 M	Plus Two/3 year Diploma (Prerequisites courses may be suggested Such as Datastructures , Algorithm.Or else the duration may be increased to 150hrs)	8000
30	Certificate Course in Laptop Servicing	3 M	SSLC	10000
31	Certificate Course in in Robotics-Online	3 M	Plus Two/3 year Diploma	9000

32	Course on Digital Video Editing	1 M	7th & Above	3000
33	Certificate Course in Electrical Autocad	3 M	ITI/3 year Diploma /+2, SSLC (SSLC can be the qualification only for the applicant with practical experience in related area)	8000
34	Basic Course on Video and Audio Editing	1 M	7th & Above	5000
35	Diploma Course for Primary School Faculty	12 M	Plus Two	12000
36	Advanced Certificate Course in Mechanical AutoCAD	3 M	ITI/3 year Diploma /+2, SSLC (SSLC can be the qualification only for the applicant with practical experience in related area)	15000
37	Certificate Course in Expert 3D Printing	3 M	SSLC	15000
38	Diploma Course on Printing Technology	6 M	SSLC	10000
39	Certificate course on Web Design using HTML and CSS	2 M	For High school students	2000
40	Online Course – C Programming	50hrs Online Course	Plus Two	2000
41	Online Course – Java Programming	50hrs Online Course	Plus Two	2000
42	Back End Software Development using Python and starter kit to Machine learning	5 days	BTech / Diploma / BSc Comuter/Electronics ongoing Students	2000
43	Hurdles in Web Application Development : Made it Simple by ASP.NET	5 days	BTech / Diploma / BSc Comuter/Electronics ongoing Students	2000
44	How to do Online Transactions – A training programme for Housewives	2 Weeks	Housewives with basic computer awareness, having computers at home with internet connection or having smart mobile phones (preferably having Android operating system)	1000
45	A Makeover for a web developers using Node.Js and MongoDB	5 days	BTech / Diploma / BSc Comuter/Electronics ongoing Students	2000
46	Workshop on the Building Blocks of a PC and Make it live	5 days	BTech / Diploma / BSc Comuter/Electronics ongoing Students	2000
47	Dip in Hotel Management	1 Year	12	35000
48	Dip.in Front Office Operations	6 M	12	12500
49	Dip in Food and Beverages	6 M	SSLC	12500
50	Dip in MultiCusine Cook	6 M	SSLC	15000
51	Dip in Tourism Guide	6 M	SSLC	12500
52	Cert.in Food production	3 M	SSLC	8500
53	Cert.in House keeping	3 M	SSLC	6000
54	Dip in Hospitality Management	6 M	12	18000
55	Dip in Food Technology	6 M	12	18000

56	Diploma in Interior Designing	6 M	12	15000
57	Diploma in Exterior Designing	6 M	12	15000
58	Diploma in Interior and Exterior Designing	1 Year	12	25000
59	Diploma in Airport Operation & Hospitality(DAPH)	1 Year	12	35000
60	Diploma in Air cargo Practice and Documentation	6 M	12	25000
61	Diploma in Airport Ground Staff Training	6 M	12	25000
62	Certificate in Aviation Safety	3 M	12	15000
63	Professional in 3D Animation (PGDA)	1 Year	12	35000
64	Dip in Art Direction	1 Year	12	35000
65	Dip in Cinematography	1 Year	12	40000
66	Dip in Digital Photography	6 M	12	25000
67	Dip in Sound Designing	6 M	12	25000
68	Dip in Editing	6 M	12	25000
69	Dip in VFX	6 M	12	25000
70	Dip in Beauty Thearpist Assistant	6 M	8	10000
71	Dip in Aromatherapy	6 M	8	10000
72	Dip in Hair Stylist	6 M	8	12500
73	Dip in SPA Therapist	1 Year	SSLC	35000
74	Dip in Yoga Instructor	6 M	SSLC	12500
75	Dip in Beauty Technician	1 Year	8	20000
76	Certificate in Sketching and Oil Painting	6 M	SSLC	12000
77	Diploma in Fine Arts	1 Year	SSLC	35000
78	Certificate in Dance (Western/ Classical)	6 M	SSLC	12000
79	Diploma in Theatre Skills	1 Year	SSLC	25000
80	Dip in Public Relations and Media Management	1 Year	12	35000
81	Dip in Visual Communication	1 Year	12	35000
82	Dip in Digital Marketing	1 Year	12	15000
83	Diploma in ERP (D-ERP)	6 M	B.E./B. Tech or a master's degree (M.E./M. Tech) in engineering, computer science, business administration, or commerce (B. Com, M. Com, ICWA, or CA) with a minimum cumulative GPA of 50% or equivalent and 1 to 5 years of experience, or they must have relevant experience in ERP, BPM, or IT consulting.s	30000
84	PG Diploma in Tourism administration	1 Year	Degree	35000
85	Diploma in Interior Architectural Designing	1 Year	12	30000
86	Dip.in Live Action Director	1 Year	12	35000
87	Dip.in Automobile Service Technician	1 Year	SSLC	35000
88	PGDM in Advertising	1 Year	Degree	35000
89	Dip in Logistics Management	1 Year	12	35000
90	Dip.in Shipping and Port Management	6 M	12	15000
91	Dip in Export /Import Operations	6 M	12	15000
92	Dip in Freight Management	6 M	12	15000
93	Dip in Warehouse management	6 M	12	15000

94	Diploma in Graphics, Animation & Visual FX (DGAV)	1 Year	SSLC	40000
95	Diploma in Acupuncture Science	6 M	+2 Science / NIOS equivalent	9000
96	Certification in SELENIUM	2 M	SSLC	15000
97	Certification On Search Engine Optimization	4 weeks	SSLC	10000
98	Certification in Cloud Computing with Azure	1 M	BTech / 3-year Diploma / Degrees completed with basic computer knowledge / +2 computer	5000
99	Digital Office Essentials with Tally and Malayalam Typing Skills (Windows, MS Office & Tally with Malayalam)	3 M	SSLC or above	6000
100	International English Language Testing System	3 M	Anyone who is older than 16 years of age can appear for the test	15000
101	Occupational English Test	3 M	English language test for healthcare professionals	15000
102	German language Course A1 Level	6 M	Candidates above 15 years can enroll	20000
103	German language Course A2 Level	6 M	Candidates who have cleared the A-1 Level.	20000
104	Diploma in Mobile Phone Technology and Troubleshooting	6 M	SSLC or above	6000
105	Diploma in Refrigeration and Air Conditioning Technology	6 M	SSLC or above	6000
106	Diploma in Web Technology	6 M	+2/3 Year Diploma	8000
107	Computer Hardware & Networking	2 M	ITI/ Plus 2/3 Year Diploma/ Any Degree	6000
108	Certificate Course in Machine Learning Using Python	3 M	Plus 2/3 Year Diploma/BE/B.Tech	10000
109	Basics of Arduino based embedded system development	60 Hrs	+2	25000
110	Diploma in Logistics and Supply Chain Management	1 Year	+2	25000
111	Desk Top Publishing(Arabic & English)	3 M	SSLC	5000
112	Diploma in computer applications (Software)	6 M	+2 OR Three year Diploma in any branch of engineering	10000
113	Diploma in computerized financial accounting	6 M	Plus 2 (Commerce)/B.Com Or DCP (Diploma in Commercial Practice)/HDC/JDC/BBA.	10000
114	Diploma in computer applications	1 Year	10th standard pass or above.	15000
115	Integrated diploma in computer hardware maintenance & networking	1 Year	SSLC or Equivalent	18000
116	Post graduate diploma in computer applications	1 Year	Degree in any discipline	25000
117	Post diploma in computer applications	1 Year	3 year Polytechnic Diploma in any discipline	26000
118	Computerised financial accounting & gst using tally	3 M	+2 (commerce)/B.Com OR DCP (Diploma in Commercial Practice) /HDC/JDC/BBA	5000

119	Data Entry and Office Automation (English)	3 M	SSLC	5000
120	Data Entry and Office Automation (English & Malayalam)	4 M	SSLC	7000
121	Data Entry and Office Automation (Malayalam) - (For student who have passed DEOA (English) course)	1 M	SSLC	2000
122	Desk Top Publishing	3 M	SSLC	5000
123	Dip in Cruise Tourism	1 Year	12	12500

LBS Centre for Science and Technology (Offline Course)

Course Title	CERTIFICATE COURSE IN CIVILCAD			
Abbreviation of Course Title	CCCA			
Duration of the course in Hours	100			
Duration of the course in Months	3			
Course Fees	8000			
Eligibility	ITI/3 year Diploma /+2, SSLC (SSLC can be the qualification only for the applicant with practical experience in related area)			
About the Course				
To provide the student knowledge about AutoCAD 2D, 3D & 3Ds max.				
Objectives of the course				
<ul style="list-style-type: none"> • Understand the concept and techniques to draw. • Create multiple designs using several tools. • Plot or print the drawing by scale. • To use constraint for certain design. 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
CCCA 01	CERTIFICATE COURSE IN CIVILCAD	40	60	100
Syllabus of the course				
<p>Chapter 1: Getting Started</p> <ul style="list-style-type: none"> • Exploring AutoCAD User Interface • Exploring AutoCAD Workspaces • The AutoCAD Ribbon • Setting Drawing Unit <p>Chapter 2: Basic Drawing Skills</p> <ul style="list-style-type: none"> • Navigating 2D Drawings • Drawing Lines and Rectangles • Cancelling, erasing, Undoing • Drawing Circles, Arcs, Polygons • Filletting and Chamfering Lines <p>Chapter 3: Using Drawing Aids</p> <ul style="list-style-type: none"> • Grid and Snap • Ortho and Polar Snapping • Polar Snap • Running Object Snaps • Object Snap Tracking <p>Chapter 4: Editing Entities</p> <ul style="list-style-type: none"> • Move and Copy • Rotate and Scale • Arrays, Grip Editing • Trim and Extend • Lengthen and Stretch 				

- Offset and Mirror

Chapter 5: Shaping Curves

- Drawing and Editing Curved Polylines
- Drawing Ellipses
- Drawing and Editing Splines
- Blending between Objects and Splines

Chapter 6: Controlling Object Visibility

- Changing Object Properties
- Setting the Current Layer
- Altering Objects' Layer Assignments
- Controlling Layer Visibility
- Applying Linetype
- Assigning Properties by Object or by Layer
- Managing Layer Properties

Chapter 7: Organizing Objects

- Defining Blocks, Inserting Blocks
- Redefining Blocks, Editing Blocks
- Working with Groups

Chapter 8: Hatching and Gradients

- Specifying Hatch Areas
- Associating Hatches with Boundaries
- Hatching the Patterns
- Hatching the Gradients

Chapter 9: Working with Blocks and Xrefs

- Working with Global Blocks
- Searching for Content Across Multiple Drawings
- Storing Content on Tool Pallets
- Referencing External Drawings and Images

Chapter 10: Creating and Editing Text

- Creating Text Styles
- Writing Lines of Text
- Writing and Formatting Paragraphs (MTEXT)
- Editing Text

Chapter 11: Dimensioning

- Styling Dimensions
- Adding Dimensions
- Editing Dimensions

Chapter 12: Keeping In Control with Constraints

- Working with Geometric Constraints
- Applying Dimensional Constraints and Creating User Parameters
- Making Parametric Changes to Constrained Objects

Chapter 13: Working with Layouts and Annotative

- Creating Annotative Styles and Objects
- Creating Layouts

- Adjust Floating Viewports
- Overriding layer Properties in Layout Viewports
- Drawing on Layouts

Chapter 14: Printing and Plotting

- Configuring Output Devices
- Creating & Using Plot Styles Tables
- Plotting in Modelspaces&Paperspace
- Exporting to an Electronic Format

Chapter 15: AutoCAD 3D Drawing and Modelling

1. 3D Foundations

- Why use 3D?
- Introduction to the 3D Modeling Workspace
- Basic 3D Viewing Tools
- 3D Navigation Tools
- Introduction to the User Coordinate System

2. Simple solids

- Working with Solid Primitives
- Solid Primitive Types
- Working with Composite Solids
- Working with Mesh Models

3. Creating Solids & Surfaces from 2D Objects

- Complex 3D Geometry
- Extruded Solids and Surfaces
- Swept Solids and Surfaces
- Revolved Solids and Surfaces
- Lofted Solids and Surfaces

4. Advanced Solid Editing

- Editing Components of Solids
- Editing Faces of Solids
- Fillets and Chamfers on Solids

5. Working Drawings from 3D Models

- Creating Multiple Viewports
- 2D Views from 3D Solids

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

Software, Hardware and other infrastructural requirements for running this course

AutoCAD

**LBS Centre for Science and Technology
(Offline Course)**

Course Title	Certificate Course in Plaxis 2 D			
Abbreviation of Course Title	CCIP			
Duration of the course in Hours	36			
Duration of the course in Months	3			
Course Fees	40000			
Eligibility	BTech in Civil Engineering			
About the Course				
To provide an idea to model diverse geotechnical problems				
Objectives of the course				
To create FEM models quickly and efficiently To simulate various types of soils To analyze the deformation and stability of projects ranging from excavations, embankments, and foundations				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
CCIP101	INTRODUCTION TO PLAXIS 2D	1	3	4
CCIP102	PRACTICAL SESSION	2	3	32
Syllabus of the course				
Syllabus of CCIP101- INTRODUCTION TO PLAXIS 2D				
MODULE 1 – Material models-Linear Elastic model, Mohr-Coulomb model, Advanced soil models such as Hardening soil model, Creep model, Soft soil creep model, User defined soil models				
Syllabus of CCIP102- PRACTICAL SESSION				
MODULE 1 -Settlement of A Rigid Circular Footing, Settlement of A Flexible Circular Footing, Submerged Construction of An Embankment, Construction of A Road Embankment, Dry Excavation Using A Tie Back Wall, Analysis of stress and strain				
Method of Evaluation				
Academic Evaluation of the Course can be carried out by modeling of a real case problem Total marks for modeling – 100 marks Internal Evaluation marks are awarded as follows i) Two modeling problems of 3 hour duration (50 marks for each test)				
Software, Hardware and other infrastructural requirements for running this course Plaxis is basically licensed FEM software. Purchasing price - \$11250 Operating System Windows 7 Professional 64-bit Windows 8 Professional 64-bit Windows 10 Pro 64-bit Graphics Card				

Required: GPU with 256 MB OpenGL 1.3

Recommendation: Avoiding simple onboard graphics chips in favor of a discrete GPU from the Nvidia GeForce or Quadro range with at least 128-bit bus and 4 GB of RAM, or equivalent solution from ATI/AMD.

Processor

Required: Dual Core CPU, Recommended: Quad Core CPU

Hard Disk

Minimum 8 GB free space on the partition where the Windows TEMP directory resides, and 8 GB free space on the partition where projects are saved. Large projects may require significantly more space on both partitions.

Video

Required: 1024 x 768 pixels, 32-bit color palette, Recommended: 1920 x 1080 pixels, 32-bit color palette

LBS Centre for Science and Technology (Offline Course)

Course Title	Certificate course in Revit Architecture Expert			
Abbreviation of Course Title	CCRA			
Duration of the course in Hours	130 hrs			
Duration of the course in Months	3			
Course Fees	14000			
Eligibility	SSLC			
About the Course				
The course includes the basics of 3D modelling of a building according to their plan using Revit Software				
Objectives of the course				
<ul style="list-style-type: none"> • To help the student understand the basic concepts of Revit Architecture Software • To study the 3D modelling of building components 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
RA 01	Basic of Revit Architecture	50	-	50
RA02	Revit Architecture practical – BIM Modelling	-	80	80
Syllabus of the course				
Syllabus of the RA 01 – BASIC OF REVIT ARCHITECTURE				
<ul style="list-style-type: none"> • Introduction to BIM Softwares –Revit Architecture • Understanding the BIM and Revit Templates <ul style="list-style-type: none"> ➤ Familiarizing Revit Architecture user interface ➤ Guidelines for using the interface ➤ Using common modification tools • Viewing the model <ul style="list-style-type: none"> ➤ About Views and view properties ➤ About Elevation and Section views ➤ Guidelines for working with Elevation and Section views ➤ About 3D Views and Perspective view 				
Syllabus of the RA 02 - Revit Architecture practical – BIM Modelling				
<ul style="list-style-type: none"> • Starting a new project <ul style="list-style-type: none"> ➤ Creating project Templates ➤ Guidelines for creating Project Template files ➤ Adding and Modifying levels ➤ About grids ➤ Methods of creating and modifying grid lines • Walls and Curtain walls <ul style="list-style-type: none"> ➤ Creating generic walls ➤ Sketching walls ➤ Hosting element in walls ➤ Modifying walls ➤ Editing walls ➤ Creating curtain walls ➤ Adding curtain grids, mullions and 				

- panel
- Modifying curtain walls
- Editing curtain walls structure

- **Floors and Roofs**

- About floor elements
- Process of adding a floor element
- Sketching floors
- Editing Floors
- About roofs
- Process of sketching roofs
- Roof modification and example
- About Ceiling elements
- Creating ceiling
- Editing ceiling

- **Stairs and Railings**

- About stairs and railing
- Process for creating a staircase by component
- Process for creating a staircase by sketch
- Creating the generic railing

- **Adding Families**

- Adding families
- Loading families
- Placing families
- Editing families in project

- **Creating Construction Documentation**

- About Sheets and Title blocks
- Process of Creating Sheets by using customized title blocks
- Print settings
- Print setup setting
- Guidelines for printing sheets
- Setting for exporting content
- Process of exporting views to CAD formats
- Guidelines for exporting content to CAD format

Method of Evaluation

Academic evaluation should be based on continuous evaluation procedure. After completing the practical sessions, every student must carry out a project assigned by the instructor and submit the report. Only after the completion of project the course certificates should be issued.

Software, Hardware and other infrastructural requirements for running this course
Computer equipped with Revit architecture software -1 for one student

LBS Centre for Science and Technology (Offline Course)

Course Title	Certificate Course in Stadd Pro			
Abbreviation of Course Title	CCSTP			
Duration of the course in Hours	100			
Duration of the course in Months	3			
Course Fees	6000			
Eligibility	BTech in Civil Engineering			
About the Course				
To provide efficient knowledge to student foranalyzing and designing any engineering structure				
Objectives of the course				
<ul style="list-style-type: none"> • To learn students to learn and use the STAAD.Pro V8i. • To gain practical knowledge about the design and analysis of different engineering structures. 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
CCSTP1	Introduction to STAAD.Pro	2	3	5
CCSTP2	Structural Modeling	3	5	8
CCSTP3	Material Constants and Section Properties	2	5	7
CCSTP4	Loads and Performing Analysis	5	10	15
CCSTP5	Post Processing & Report Creation	5	15	20
CCSTP6	Analysis Case Studies / Workshops	15	30	45
Syllabus of the course				
Syllabus of the CCSTP1				
Introduction to STAAD.Pro				
Introduction to structural engineering: Structure, types of structures, basic definitions, Idealization of structures About Bentley STAAD.Pro, Starting STAAD.Pro, Graphical User Interface, Starting a New Project, Working with User Interface, Introduction to STAAD Editor				
Syllabus of the CCSTP2				
Structural Modeling				
Adding Beams using Tools, Creating Beams (Collinear, Along Axes), Creating Plates, Creating Surfaces, Creating Solid Elements, Creating Structure, Stretching and Intersecting Members, Merging Members and Nodes, Renumbering Nodes, Members and Elements, Splitting and Breaking Beams, Cutting Sections				
Syllabus of the CCSTP3				
Material Constants and Section Properties				
Material Constants, Creating and Editing Material Properties, Assigning Materials to the Structure, Orthotropic Materials, Section Properties, Prismatic Sections Node Specification, Member Specifications, Supports				
Syllabus of CCSTP4				
Loads and Performing Analysis				
Loads, Types of Loads: Self weight, Nodal, Member, Area, Floor, Plate, Surface and Solid, Load Generation, Load Combinations Pre Analysis - Problem Statistics, Joint Coordinates, Member Information, Material Properties, Support information, Element & Solid Information, Performing Analysis				
Syllabus of CCSTP5				

Post Processing & Report Creation Post Analysis Print, Load Lists, Joint Displacement, Member Forces, Support Reactions, CG, Mode Shapes, Section Displacement Analysis Results - Member Stresses, Element Forces/Stresses, Viewing Results, Output File, Post Processing Mode
Syllabus of CCSTP6
Analysis Case Studies / Workshops RCC Design & Analysis (Beams and Columns), Steel Design & Analysis (Frames and Trusses), Miscellaneous Analysis, Practice examples for Students Shear wall Design, Analysis of steel frame or truss, Wind definitions and loads in buildings, Seismic analysis in buildings Importing CADD drawings
Method of Evaluation Academic evaluation should be based on a continuous evaluation procedure. After completing all the practical sessions, every student must carry out a project assigned by the instructor and submit the report.
Software, Hardware and other infrastructural requirements for running this course Stadd pro V8i software

LBS Centre for Science and Technology (Offline Course)

Course Title	Certificate Course in Total Station			
Abbreviation of Course Title	CCTS			
Duration of the course in Hours	40			
Duration of the course in Months	1			
Course Fees	10000			
Eligibility	Diploma/ BTech in Civil Engineering			
About the Course				
This course teaches the advanced surveying terminology with total station				
Objectives of the course				
<ul style="list-style-type: none"> • To help the student to understand the basics of surveying • To familiarize the concepts of total station working mechanism • To gain practical understanding and essential skills in total station surveying 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
CCTS01	Surveying	10	-	10
CCTS02	Total Station Practical	-	30	30
Syllabus of the course				
Syllabus of the Subject 1 – Surveying (CCTS01)				
<p>Introduction to Surveying – Importance of Surveying in present day life, Principles, Instruments used for surveying presently and in earlier days, Triangulation and Traversing, Introduction to advanced surveying methods, Concept of EDM,</p> <p>Total Station –Principles, Types of total station, Parts of total station –accessories,Working, Surveying using Total Station - Flow chart of data collection, Fundamental Parameters of Total Station , Field Procedure for total station survey, Errors in Total Station Survey, Precautions to be taken while using total station Advantages and Applications</p>				
Syllabus of the Subject 2 – Total Station Practical (CCTS02)				
<p>All Experiments are mandatory.</p> <p>Introduction to basics of total station surveying (Initial settings, Centering, Levelling, back sight, azimuth marks)</p> <p>Creating new project/files, Digital level, Target setting downloading the data from total station)</p> <p>Heights and distances Difference in height between two inaccessible points Area computation Topographic survey using closed traverse method Contouring Stake out using total station Perform Road survey</p>				
Method of Evaluation				

Academic evaluation should be based on a continuous evaluation procedure. After completing all the practical sessions, every student must carry out a project assigned by the instructor and submit the report.

Software, Hardware and other infrastructural requirements for running this course

- **Total station – 1 for 5 students**
- **Personal Computer for data retrieval**

**LBS Centre for Science and Technology
(Offline Course)**

Course Title	COURSE ON EXPERT IN AUTOCAD
Abbreviation of Course Title	CFA
Duration of the course in Hours	100
Duration of the course in Months	3
Course Fees	6000
Eligibility	ITI/3 year Diploma /+2

About the Course

To provide the student knowledge about AutoCAD 2D & 3D.

Objectives of the course

- Understand the concept and techniques to draw.
- Create multiple designs using several tools.
- Plot or print the drawing by scale.
- To use constraint for certain design.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
CFA 01	COURSE ON EXPERT IN AUTOCAD	40	60	100

Syllabus of the course

Chapter 1: Getting Started

- Exploring AutoCAD User Interface
- Exploring AutoCAD Workspaces
- The AutoCAD Ribbon
- Setting Drawing Unit

Chapter 2: Basic Drawing Skills

- Navigating 2D Drawings
- Drawing Lines and Rectangles
- Cancelling, erasing, Undoing
- Drawing Circles, Arcs, Polygons
- Filletting and Chamfering Lines

Chapter 3: Using Drawing Aids

- Grid and Snap
- Ortho and Polar Snapping
- Polar Snap
- Running Object Snaps
- Object Snap Tracking

Chapter 4: Editing Entities

- Move and Copy
- Rotate and Scale
- Arrays, Grip Editing
- Trim and Extend
- Lengthen and Stretch
- Offset and Mirror

Chapter 5: Shaping Curves

- Drawing and Editing Curved Polylines
- Drawing Ellipses
- Drawing and Editing Splines
- Blending between Objects and Splines

Chapter 6: Controlling Object Visibility

- Changing Object Properties
- Setting the Current Layer
- Altering Objects' Layer Assignments
- Controlling Layer Visibility
- Applying Linetype
- Assigning Properties by Object or by Layer
- Managing Layer Properties

Chapter 7: Organizing Objects

- Defining Blocks, Inserting Blocks
- Redefining Blocks, Editing Blocks
- Working with Groups

Chapter 8: Hatching and Gradients

- Specifying Hatch Areas
- Associating Hatches with Boundaries
- Hatching the Patterns
- Hatching the Gradients

Chapter 9: Working with Blocks and Xrefs

- Working with Global Blocks
- Searching for Content Across Multiple Drawings
- Storing Content on Tool Pallets
- Referencing External Drawings and Images

Chapter 10: Creating and Editing Text

- Creating Text Styles
- Writing Lines of Text
- Writing and Formatting Paragraphs (MTEXT)
- Editing Text

Chapter 11: Dimensioning

- Styling Dimensions
- Adding Dimensions
- Editing Dimensions

Chapter 12: Keeping In Control with Constraints

- Working with Geometric Constraints
- Applying Dimensional Constraints and Creating User Parameters
- Making Parametric Changes to Constrained Objects

Chapter 13: Working with Layouts and Annotative

- Creating Annotative Styles and Objects
- Creating Layouts
- Adjust Floating Viewports

- Overriding layer Properties in Layout Viewports
- Drawing on Layouts

Chapter 14: Printing and Plotting

- Configuring Output Devices
- Creating & Using Plot Styles Tables
- Plotting in Modelspaces&Paperspace
- Exporting to an Electronic Format

Chapter 15: AutoCAD 3D Drawing

- 3D Foundations
- Simple solids
- Creating Solids & Surfaces from 2D Objects

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

Software, Hardware and other infrastructural requirements for running this course

AutoCAD

LBS Centre for Science and Technology (Offline Course)

Course Title	Diploma Course on Building Animation
Abbreviation of Course Title	DCBA
Duration of the course in Hours	300
Duration of the course in Months	6
Course Fees	13000
Eligibility	SSLC

About the Course

A course on understanding the modeling concepts in civil engineering using CAD.

Objectives of the course

To reflect the nature and need of the 3D in construction industry, students will be able to focus and understand on the following areas of specialization.

- Modeling
- Animation
- Visual Effects

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
SC1	Subject 1 Fundamentals of building components	50	50	100
SC2	Subject 2 Modelling of Building drawings	30	70	100
SC3	Subject 3 Animation and Visual effects in the building drawings	30	70	100

Syllabus of the course

Syllabus of the Subject 1

Fundamentals of Building Components

Module 1 : Basic components of a building - substructure and superstructure

Module 2 : Awareness of the use of building codes - NBC - KPBC - KMBC

Module 3: Building components - Types of Doors, Windows, ventilators, staircases.

Module 4 :Different types of buildings - (residential, commercial, highrise etc based on NBC)

Module 5 : Prepare the building components (different types of doors, windows, ventilators, staircase) using any of the drafting softwares.

Syllabus of the Subject 2

Modelling of Building Drawings:

Module 1 : Understanding the plan, section and elevation of buildings

Module 2 : Requirements of residential building - commercial building - apartments and high rise buildings

Module 3: prepare the models of plan section and elevation of residential, commercial, apartments and high rise buildings manually

Module 4 : Prepare the building plans, section and elevation of residential, commercial and industrial buildings using any of the drafting softwares (AutoCad).

Module 5 : Prepare the building plans, section and elevation of apartments and high rise buildings using any of the drafting softwares.

Syllabus of the Subject 3

Animation and Visual Effects in Building Components:

Module 1 : Concept of Animation and Visual Effects - Need of animation in building industry - general overview of various animation softwares

Module 2 : Previsualization concept - developing 2 D and 3 D building components

Module 3: Developing and Converting the building plans, section and elevation of residential, commercial, industrial apartments and high rise building to 3D visualization and animation effects - Autodesk Fusion 360 - 3 D CAD/ CAM software tool, BricsCAD 2D/ 3D drawing and Drafting tool can be used for the animation and visualization effects

Method of Evaluation

Subject 1: Fundamentals of Building Components

Written Test : 70 marks

Practicals : 30 marks

Subject 2: Modelling of Building Drawings

Written Test : 30 marks

Practicals : 70 marks

Subject 3: Animation and Visual Effects in Building Components

Written Test : 30 marks

Practicals : 70 marks

Software, Hardware and other infrastructural requirements for running this course

Software requirements : AutoCAD (latest versions), Autodesk Fusion 360, BricsCAD 2D/ 3D drawing and Drafting tool

Hardware Requirement : Operating System: Microsoft Windows 10 (64-bit only), 8.1 (64-bit only), or 7 SP1 (64-bit only)

Processor: 2.5 GHz (3+ GHz recommended)

Memory: 8 GB (16GB recommended)

Disk space: 6.0 GB.

Display: 1920 x 1080 resolution with True Color.

LBS Centre for Science and Technology (Offline Course)

Course Title	Diploma Programme in Interior Designing
Abbreviation of Course Title	DPID
Duration of the course in Hours	500
Duration of the course in Months	12
Course Fees	30000
Eligibility	SSLC

About the Course

To provide the students of Interior Design, a detailed information on various developments of Interior design

Objectives of the course

- To understand the various concepts of interior designs.
- To communicate the students regarding the recent advancements in interior design

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DPID101	ELEMENTS OF INTERIOR SPACE AND DESIGN	3	0	30
DPID102	BUILDING MATERIALS AND CONSTRUCTION-I	1	3	45
DPID103	COMPUTER GRAPHICS	0	4	30
DPID104	INTERIOR LANDSCAPE DESIGN	3	0	30
DPID105	INTERIOR SERVICES-PLUMBING	3	0	30
DPID106	COMPUTER APPLICATION IN DESIGN I	1	3	30
DPID107	INTERIOR DESIGN STUDIO-I	0	3	30
DPID108	WORKSHOP	0	3	30
DPID201	BUILDING MATERIALS AND CONSTRUCTION-II	1	3	45
DPID202	INTERIOR SERVICES II	3	0	30
DPID203	INTERIOR DESIGN CODES	3	0	30
DPID204	ESTIMATION AND COSTING	3	0	30
DPID205	COMPUTER APPLICATIONS IN DESIGN II	1	3	30
DPID206	INTERIOR DESIGN STUDIO II	3	0	30
DPID207	PROJECT	0	6	50

Syllabus of the course

Syllabus of DPID101-ELEMENTS OF INTERIOR SPACE AND DESIGN

MODULE I

INTERIOR SPACE-Space – definition; Interior space – spatial qualities: form, scale, outlook; structuring space with interior design elements; spatial form; spatial dimension – square, rectangle, curvilinear spaces; height of space; spatial transitions – openings within wall planes, doorways, windows, stairways.

MODULE II

ANTHROPOMETRICS-Definition, theory of standard dimension based on human figures for activities, functions, circulation, furniture design, spatial requirements etc. Study of Ergonomics, Design of Furniture for Living, Dining, Kitchen, Office etc.

MODULE III

WALL PLANES-Use of wall planes to create architectural effects - Natural patterns and textures obtained in masonry walls – articulation of openings in wall planes – effect of tilting the vertical axis of wall planes - niches and alcoves - cornices and moldings etc.

MODULE IV

ROOF AND FLOOR PLANES-Different types and their visual impact – articulation of skylights and roof apertures – false ceiling –materials, finishes & patterns - types of false ceiling – various types of lighting. Various types of flooring – Granite, Marble, Glass, Timber, mosaic, tile, stone etc. – aesthetic effects created by flooring material and pattern - graphic patterns and their visual effects – construction details – skirting, molding, embossing etc.

MODULE V

DOORS, WINDOWS AND VENTILATORS, ETC.-Doors – types – flush doors, paneled doors, braced doors, carved wooden doors, metal embossed doors, glazed doors and their relevance – various materials and articulation. Windows – various types (casement, horizontal sliding, vertical sliding, hopper, pivoted, bay window, bow window etc.) – various shapes(arched, circular, triangular etc) various materials (wood, aluminium, steel, pvc, concrete etc.) and their suitability to the space – ventilators – louvered, paneled etc

REFERENCE BOOKS.

1. The making of interiors – An introduction- Allen Tate- Harper & Row Publishers, New York, 1987.
2. Interior Design & Decoration, Fourth Edition, Sherrill Whiton- Prentice Hall, 1974.

Syllabus of DPID102-BUILDING MATERIALS AND CONSTRUCTION

MODULE I

INTRODUCTION TO MATERIALS-Wood - Soft and hardwood, plywood, laminated wood and particle boards – properties, manufacture &uses. Synthetic Materials – Different types of Glass, their properties, manufacturing processes and uses. Plastics – injection molding & other manufacturing methods, etc. Fabrics – textile, Jute, leather etc. different types and their uses

MODULE II

BUILDING COMPONENTS-Drawings of the components of a building indicating

- Foundation – Laterite masonry foundation, Random Rubble Masonry foundation, RCC column footing
- concrete flooring, plinth beam & floor finish
- superstructure- brickwork with sill, lintel, windows & sunshade
- Flat RCC roof with weathering course, parapet & coping.

MODULE III

TILED ROOFS

Drawings indicating various types of sloped & hipped roof

Types of sloping roof –lean to & couple roof with Mangalore tiles, country tiles & pan tiles.

MODULE IV

STRUCTURAL SYSTEMS-Structures – Components of a load bearing wall &RCC slab roof system with beams and columns in a framed structure.

MODULE V

BASIC SERVICES-Components of a toilet & bathroom – sanitary ware - WC, wash basin, bidet, bathtub, geyser, jacuzzi etc.Sanitary fittings – taps, angle cock, pillar taps, swan neck etc. mixers, shower units, bottle traps etc.

TEXT BOOKS

1. S. C. Rangwala - Engineering materials - Charotar Publishing, Anand
2. W.B.Mckay –Building construction Vol1 –Longmans, UK 1981

Syllabus of DPID103-COMPUTER GRAPHICS

MODULE I

INTRODUCTION TO SKETCHUP & ITS TOOLS -Startingadrawing–Concepts–Principaltoolsfordrawing,modification,construction,camera, walkthrough,sandboxetc–breakingedges,googletoolbar

MODULE II

USE & MANAGEMENT OF SKETCHUP-Modelsettingandmanagers–coloursandmaterials–entities–makinginput&output–technicalinformation–commontasks-applications

MODULE III

INTRODUCTION TO 3D HOME ARCHITECT-Startingadrawing–

<p>Drawing walls, windows, doors, staircases, columns, roof etc. modifying the properties of doors, window etc. – applying materials, colour</p> <p>MODULE IV APPLICATIONS OF 3D HOME ARCHITECT -Adding furniture, fittings etc. - camera positions & viewing angles – rendering views with trees, cars, people etc. – Choosing a suitable walkthrough path & creation of the same</p> <p>MODULE V EXERCISES USING INTERIOR DESIGN STUDIO PROJECTS-Exercises in the use of Sketchup & 3D Home Architect for the designs done as a part of the Design studio classes will be done</p> <p>TEXT BOOKS</p> <ol style="list-style-type: none"> 1. User manual & tutorials of Google Sketch Up software. 2. User manual & tutorials of 3D Home Architect software
<p>Syllabus of DPID104-INTERIOR LANDSCAPE DESIGN</p> <p>MODULE I INTERIOR LANDSCAPING-Definition, classification of plants, indoor plants and their functions, layout & components, Floriculture –commercial, ornamental, Selection of plants & pest control.</p> <p>MODULE II PHYSICAL REQUIREMENTS OF PLANTS-Physical requirements of plants – light, temperature, water, planting medium, soil separator, weight of plants, acclimatization & maintenance. Techniques to meet physical requirements.</p> <p>MODULE III INTERIOR LANDSCAPING ELEMENTS & PRINCIPLES-Various interior landscaping elements – water bodies - pools, fountains, cascades, Plants, rocks, artifacts, paving & lighting, Design guidelines-plant texture & colour, plant height, plant spacing.</p> <p>MODULE IV ROOF AND DECK LANDSCAPE-Protection of the integrity of the roof and structure, provisions for drainage, light weight planting medium, irrigation, selection of materials, water proofing, provision for utilities and maintenance.</p> <p>MODULE V EXERCISE ON INTERIOR LANDSCAPE</p> <ul style="list-style-type: none"> • Courtyard design • An outdoor room design • Terrace garden <p>REFERENCE BOOKS</p> <ol style="list-style-type: none"> 1. Time saver standards for landscape architecture. 2. Planting design by Theodore D.Walker, VNR Publications New York.
<p>Syllabus of DPID105-INTERIOR SERVICES-PLUMBING</p> <p>MODULE I WATER SUPPLY IN BUILDINGS-Standards of potable water and methods of removal of impurities, Consumption or demand of water for domestic purposes, Service connection from mains, House-service design, tube well, pumping of water, types of pumps, cisterns for storage</p> <p>MODULE II BUILDING DRAINAGE-Layout, Principles of drainage, Trap type, materials and functions, Inspection chambers, Design of Septic tanks and soak pits, Ventilation of house drains. Anti-syphonage or vent pipes, One and two pipe systems. Sinks, bath tub, water closets, flushing cisterns, urinals, wash basins, bidet, shower panel etc.</p> <p>MODULE III PLUMBING-Common hand tools used for plumbing and their description and uses, Joints for various types of pipes, Sanitary fitting standards for public conveniences. Different types of pipes and accessories for water supply, controlling fixtures like valves, taps, etc. Fittings and Choice of materials for piping:</p>

cast iron, steel, wrought iron, galvanized lead, copper, cement concrete and asbestos pipes, PVC pipes. Sizes of pipes and taps for house drainage, Testing drainage pipes for leakage - smoke test, water test etc, CI pipes for soil disposal and rain water drainage, Wrought iron, steel and brass pipes. Rain water disposal drainage pipes spouts, sizes of rainwater pipes

MODULE IV

SOLID WASTE DISPOSAL-Solid wastes collection and removal from buildings. On-site processing and disposal methods. Aerobic and Anaerobic decomposition

MODULE V

SERVICES STUDIO-Preparation of plumbing layout of a single storey building & working drawings of various fittings and fixtures of water supply and sanitary installations.

TEXTBOOKS

1. S.C. Rangwala, Water supply and sanitary engineering, Charotar publishing house
2. A Kamala & DL Kanth Rao, Environmental Engineering, Tata McGraw – Hill publishing Company Limited

Syllabus of DPID106-COMPUTER APPLICATION IN DESIGN I

MODULE I

Introduction to 3ds max-An overview of GUI, types of modeling, transforming objects, Compound objects, modifiers & modifier stack.

MODULE II

Modelling techniques -Lathing, displacement, lofting, Boolean operations using standard and compound primitives, modeling with lofts, low polygon modeling and nurbs modeling.

MODULE III

Textures and texture mapping-Using material editor, material browser, mapping textures

MODULE IV

Rendering-Lighting, cameras and render effects, environment mapping, fogs and atmospheres.

MODULE V

PHOTOSHOP -Photoshop interface, creating and saving images, basic image editing, Photoshop tool box and tools, using layers, special effects.

TEXT BOOKS

1. 3DS MAX- Advanced 3D modeling and animation – C & M, CADD Centre

Syllabus of DPID107-INTERIOR DESIGN STUDIO I

MODULE I

KITCHEN-Work triangle, planning for activity – anthropometrics – types of kitchen- Modular kitchens. Materials used in counters, shelves, worktops, washing areas & their comparative study. Lighting & colour scheme – natural & artificial light.

MODULE II

TOILETS -Anthropometry – various types of sanitary ware and their use – types of layouts – concepts in modern day toilet interiors – materials & finishes – colour, texture & pattern.

MODULE III

BEDROOMS & LIVING ROOMS-Concepts in bedroom & living room interiors – various layout of these spaces – the use of furniture and accessories to create a certain type of ambience – materials & finishes – lighting, colour & texture.

MODULE IV

RESIDENCE-Holistic concepts in residential interiors – ability to integrate various individual spaces into one theme –treatment of patios, courtyards, verandahs & other semi sheltered spaces – integration of built form and open space

REFERENCE BOOKS

1. Designs for 20th century Interiors – Fiona Leolie, VH Publications, London, 2000.
2. Interior Design; The New Freedom, Barbaralec Diamonstein, Rizzoli International Publications, New York, 1982.

Syllabus of DPID108-WORKSHOP

MODULE I

WOOD WORKSHOP

The safe and efficient use of the tools of the trade, Hand tools, portable power tools, Stationary power tools, Materials, Hardware. Safe working practices in a workshop. Joineries in wood – lap, butt, dowel, tenon & mortise, dovetail, etc. Exercises in plywood joinery.

MODULE II

METAL WORKSHOP

Cutting, planning, drilling and lathing of steel sections used in furniture. Aluminium sections and their use in doors, windows, ventilators and partitions, Welding practice.

MODULE III

FABRIC WORKSHOP

Familiarity with different types of fabrics and their properties – methods of cutting and sewing of upholstery fabrics - various types of foam and cushions and their applicability in furniture making.

MODULE IV

PAINT WORKSHOP

Techniques of spray painting of enamel paint on metal and wood surfaces – varnishing and lacquering etc.

REFERENCE BOOKS

1. Joints used in wood furniture – ISI – IS 3845 – 1966.
2. Pete Silver et al – Fabrication, the designers guide – Architectural press, London 2006.
3. Albert C Smith - Architectural model as machine – Architectural press, oxford 2004.

Syllabus of DPID201-BUILDING MATERIALS AND CONSTRUCTION II

MODULE I

WALLS- TYPES OF MASONRY-Different types - Rubble walls – random rubble, coursed rubble, square rubble, polygonal rubble & Ashlar etc. Brick masonry -Types of bonds - single & double Flemish bond, header bond, stretcher bond, rat trap bond, Zig zag bond, garden wall bond, ornamental bond

MODULE II

FLOORS-Floor coverings- - softwood, hardwood- resilient flooring - linoleum, asphalt tile, vinyl, rubber, cork tiles - terrazzo , marble & granite – properties, uses & laying. Floor tiles- ceramic glazed, mosaic and cement tiles- properties, uses and laying, details for physically and differently abled..

MODULE III

FALSE CEILING-Construction of various kinds of false ceiling such as thermocol, plaster of paris, gypboard, metal sheets, glass and wood. Construction of domes, vaults, & other special ceilings

MODULE IV

WALL PANELING-Paneling – Using wooden planks, laminated plywood, cork sheets, fibre glass wool & fabric for sound insulation and wall paneling for thermal insulation.

MODULE V

FINISHES-Paints- enamels, distempers, plastic emulsions, cement-based paints- properties, uses and applications- painting on different surfaces – defects in painting, clear coatings & stains- varnishes, lacquer, shellac, wax polish & stains- properties, uses and applications. Special purpose paints- bituminous, luminous, fire retardant and resisting paints- properties, uses and applications.

TEXT BOOKS

1. S.C Rangwala – engineering materials – Charotar publishing, Anand 1982
2. Dr. B.C Punmia , building construction , Laxmi publications Pvt. Ltd., New Delhi, 1993

Syllabus of DPID202-INTERIOR SERVICES II

MODULE I

BASIC CONCEPTS AND SYSTEM COMPONENTS IN AIR CONDITIONING-Vapour compression cycle – Compressors – Evaporators – Refrigerant control devices – Electric motors– Air handling units – Cooling towers.

MODULE II

AIR-CONDITIONING SYSTEM AND APPLICATIONS-Window type and packaged air conditioners – Chilled water plants – Fan coiled systems – Water piping – Cooling load. - Air-conditioning systems for different types of buildings – Duct lay out etc.

MODULE III

FIRE SAFETY-Mechanism of fire spread in building and prevention – Fire safety standards – Concepts in fire protection- Firefighting installation and requirements - Heat sensitive detectors – Smoke detectors – Automatic water sprinkler system- Foam systems.

MODULE IV

ACOUSTICS AND SOUND INSULATION-Room acoustics- resonance, reverberation, echo, reverberation time, simple exercise using Sabine's formula.- Acoustical requirements of different types of building. -Sound absorption, absorption co-efficient and their measurements, Absorbing materials used and their choices, exercises involving reverberation time and absorption co-efficient. Sound insulation materials

MODULE V

ELECTRICAL SYSTEMS-Single/Three phase supply – Protective devices in electrical installation — ISI Specifications - Types of wires, Wiring systems and their choice – Planning electrical wiring for building interiors – Main and distribution boards- Typical Electrical layout for interiors.

REFERENCE BOOKS

1. M.H.Lulla, Air conditioning
2. V.K.Jain, Fire Safety in Buildings.
3. Peter templeton & Saunders – Detailing for architectural acoustics – Architectural press, 1994
4. R.G.Hopkinson and J.D.Kay, the Lighting of Buildings, Faber and Faber, London,1960

Syllabus of DPID203-INTERIOR DESIGN CODES

MODULE I

Fire safety codes-Fire – combustibility – NBC – fire resistant rating of materials – fire fighting requirements – wet riser, dry riser, fire zones, fire escape stair case, fire alarms, smoke detectors and fire lifts.

MODULE II

Codes for lighting -Measurement of illumination and luminous intensity – day light factor – sky luminance – ERC, IRC – light output ratio – recommended illumination levels for various spaces such as library, class room, garment factory, etc. Energy conservation in lighting.

MODULE III

Codes for ventilation -Ventilation rates – air changes per hour – relative humidity – cross ventilation, stack effect, recommended ventilation rates for kitchen, toilet, etc.

MODULE IV

Codes for electrical layout-Typical electrical layout for a building – location requirement for switch rooms and distribution panels – codes for fan points, power points and light points – PVC sheathed wiring system – protective earthing – earth electrode.

MODULE V

Codes for barrier free environment-Requirement of toilets, corridors, etc. for handicapped persons – wheel chair clearances – ramps for differently abled ,etc. according to ISO 9001 Standards

TEXT BOOKS

1. National Building code of India 2005 – Bureau of Indian Standards

Syllabus of DPID204-ESTIMATION AND COSTING

DPID204-ESTIMATION AND COSTING

MODULE I

Estimation – definition, purpose, types of estimate, and procedure for Estimating the cost of work in order to implement an interior design project or to make products related to interior design like furniture, artifacts etc.

MODULE II

Rate Analysis – definition, method of preparation, quantity & labour estimate for woodwork, steelwork, Aluminum work, glass & its rate for different, thickness & sections, finishing (enamel paint, duco

paints, melamine, DU coats, Hand polishing, veneering and laminating) for walls & ceilings. Electrical & plumbing products, wiring, ducting etc., and laying of tiles & wall paneling in the estimate format of the project.

MODULE III

Detailed Estimate – data required, factors to be considered, methodology of preparation, abstract of Estimate, contingencies, labour charges, bill of quantities, different methods of estimate for interior design works, methods of measurement of works.

MODULE IV

Cost of the following items: electrical fitting like, luminaries, fan, cables, switches etc., tiles in skirting & dadoing, cement plaster, joinery in wood, steel & aluminum, painting to walls – cement paint, oil paints, distemper acrylic emulsion, enamel paint painting to joinery, varnishing, French polishing plumbing, equipment like piping, shower panels, cubicles, tubs, Jacuzzis, geysers, taps, motors, fountains, false ceiling of aluminum panels, steel & wooden frame work, thermocol etc. wall paneling of ceramic tiles vitrified tiles, granite, marble & other tiles of materials suitable for the same, partitions made of materials like aluminum wood, steel etc

MODULE V

INTRODUCTION TO SPECIFICATION -Specification – Definition, purpose, procedure for writing specification for the purpose of inviting tenders, types of specification. Specification for different items related to interior design project – woodwork for furniture, window frames & pelmets, partitions etc also of materials like steel aluminum glass of various kind. Wall paneling & false ceiling of materials like aluminum, steel, wood, electrical, plumbing, air conditioning & fire fighting equipment.

TEXTBOOKS

1. M. Chakraborti, Estimation, Costing, Specification and Valuation in Civil engineering.
2. Dutta, Estimating and Costing, S. Dutta and Co., Lucknow 1983

REFERENCE BOOKS

1. 3DS MAX 8 Bible – Kelly C. Murdock
2. Photoshop CS Bible – Deke McClelland
3. Adobe Photoshop 7.0 classroom in a book – Adobe creative team

Syllabus of DPID205-COMPUTER APPLICATIONS IN DESIGN II

MODULE I

INTRODUCTION TO COMPUTER AIDED 2D DRAFTING-Understanding the use of drawing tools, object editing, drawing objects, filing and setting drawing units, scales, limits that size and dimensioning, lettering. Setting up of drawing of various simple objects with complete text and dimensioning.

MODULE II

ADVANCE COMPUTER AIDED 2D DRAFTING-Advance command programming – Transparent overlays, hatching utilities, assigned colour and line type, use of multi-line, style, block, symbol library, manipulation for accurate drawings, incorporating the above mentioned utilities.

MODULE III

PRODUCTIVITY TOOLS-Introduction to tools of productivity – Blocks, slide facilities, script files and attributes. Understanding concepts of View port, concept of object linking and editing session.

MODULE IV

INTRODUCTION TO 3D DRAFTING-Introduction to 3D modeling techniques and construction planes, drawing objects, 3D surfaces, setting up elevation and thickness, and use of dynamic projections. Solid modeling with driving, primitive command and Boolean operations. Use of region modeling & solid modifiers.

REFERENCE BOOKS

1. V. Rajaraman, principles of Computer Programming – Prentice Hall of India
2. Auto CAD Reference Manual – Autodesk UNC, 1998

Syllabus of DPID206-INTERIOR DESIGN STUDIO II

<p>MODULE I SHOPS-Planning for retail activity – anthropometrics – types of Shop layouts Modular units. Materials used in counters, shelves, worktops, their comparative study. Lighting&color scheme – natural & artificial light.</p> <p>MODULE II Commercial spaces-The art of selling-displays/products/marketing, design of display units, design of boutiques, showrooms. Concepts in modern day Retail interiors – materials & finishes – colour, texture & pattern.</p> <p>MODULE III SHOPPING MALLS-Product display – windows/internal displays/hierarchy of product display/power of visual communication/graphics Exhibition spaces – display for exhibition Lighting design for commercial spaces – task/display/atmospheric/focal lighting Coloring commercial spaces – coding/decoding/visual communication Design of commercial Environments such as Malls, Shopping Arcades Etc</p> <p>MODULE IV AUDITORIUM AND CINEMA HALLS-Spatial and environmental standards for various auditorium – performing arts, cinema, convention Centre. Detail schematics of wall paneling, false ceiling and carpeting to satisfy acoustic requirements. Lighting study to develop ideas for foyer, auditorium and stage requirements.</p> <p>MODULE V FIVE STAR HOTELS-Spatial and service standards for five star hotels – integration of interior design schemes for rooms, restaurants, bars, health clubs, shopping arcade and other guest areas with the general theme of the hotel. Special ideas for suites and banquet halls – contemporary interior schemes to integrate new concepts in lighting and materials.</p> <p>REFERENCE BOOKS</p> <ol style="list-style-type: none">1. Designs for 20th century Interiors – Fiona Leolie, VH Publications, London, 20002. Interior Design; The New Freedom, Barbaralec Diamonstein, Rizzoli International Publications, NewYork, 1982.
<p>Syllabus of DPID207-PROJECT</p>
<p>Selection of Project:</p> <ol style="list-style-type: none">1. Select programme related project which has relevance to present industry, preferably with a social relevance.2. Suggested type of Projects : a. Providing technical service to industry b. Entrepreneurship development3. Project should be feasible at Diploma level and economically viable4. Only projects which can be developed by the Diploma students need to be selected. Support of external agencies should not be permitted.
<p>Method of Evaluation</p>
<p>Academic Evaluation of Courses University follows a continuous academic evaluation procedure. Academic evaluation should consist of internal evaluation and end semester examination. Academic evaluation procedure and corresponding weightages are to be done as follows: -</p> <ol style="list-style-type: none">a) For theory courses: - The maximum marks for internal evaluation : 50b) The maximum marks for end semester examination : 100 <p>Internal evaluation marks are to be awarded as follows.</p> <ol style="list-style-type: none">i) Two internal tests of 1 hour duration conducted by the institute: 40 (20 marks for each test)ii) Tutorials/Assignments/Mini Projects carrying 10 marks. (Internally by the Institute) :10 <p>All the above evaluations are mandatory requirements to earn credits.</p>
<p>Software, Hardware and other infrastructural requirements for running this course: Softwares- AutoCAD Google Sketchup & 3D home architect,3DS MAX</p>

**LBS Centre for Science and Technology
(Offline Course)**

Course Title	Basic Computer Familiarization			
Abbreviation of Course Title	BCF			
Duration of the course in Hours	20			
Duration of the course in Months	1			
Course Fees	600			
Eligibility	5th & above			
About the Course				
A person to familiarise the functions and basic operations of a Computer				
Objectives of the course				
On completing this course, the candidate becomes efficient to manage a computer and be able to do the essential Computer operations.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
SC1	Computer Basics and OS	2		2
SC2	Windows and Linux Operating system	3	6	9
SC3	Internet and email	3	6	9
Syllabus of the course				
Computer Basics – Basic awareness of I/O devices, Software, Memory.				
Windows and Linux – Accessories, folder creation, copy-move, File management, Program menu, differences in Windows and Linux				
Internet - Browsing and searching in Internet , Creating e-mail, sending, attach files. Google drive.				
Method of Evaluation				
End examination – Theory objective type (One hour).				
Software, Hardware and other infrastructural requirements for running this course				
The present facilities at LBS centres is enough for running the course.				

LBS Centre for Science and Technology (Offline Course)

Course Title	Basic SQL Server Management			
Abbreviation of Course Title	Transact-SQL syntax SQL server management studio, query analyzer			
Duration of the course in Hours	60			
Duration of the course in Months	2			
Course Fees	5000			
Eligibility	SSLC			
About the Course				
Microsoft SQL Server is one the most popular Relational Database Management System (RDBMS) used in Microsoft universe. It can be used for data storage as well as for data retrieval for applications which can be either on desktop or Web/Browse				
Objectives of the course				
Learn about SQL –Structured Query Language. Build database using Data Definition Language Statements Perform basic CRUD operations using Data Manipulation Language statements like Insert, Update and Delete Write and call Stored Procedures and Functions stored in database. Write and manage database triggers, cursors and Index				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
BSSM	Basic SQL Server Management	40	20	60
Syllabus of the course				
<p>Module 1(8 hrs):Introduction to Basic concepts and advantages of DBMS and limitations of file management system ,data base models, Data, Field, Record and database, Limitations of File Management System, Basic Concepts of Advantages of DBMS. Relational DBMS, Client and Server</p> <p>Module 2(8 hrs):E-R Modeling and Diagram, entity, attributes and relationship , identify the entities and attributes ,translating the E-R diagram in relation schema. Identify Entities and their Relationships ,Conversion of E.R. Diagrams into Tables</p> <p>Module 3(8 hrs): Normalization,types of normalization, benefits of normalization.First Normal Form ,Second Normal Form, Third Normal Form, BCNF, Fourth normal form Practically Normalizing Tables</p> <p>Module 4(8 hrs): Introduction to SQL,history of sql server ,communication between frontend and backend and SQL server editions,Starting and Stopping SQL Server Instances / Services ,Introduction to Management Studio Types of System Databases in SQL</p> <p>Module 5(8 hrs):SQL statements,databases in sql server, how to create a database, data types in SQL server,DDL, DML, DQL, DCL and TCL,Create Database using Management Studio</p>				

Method of Evaluation: Theory and Lab exam

Software, Hardware and other infrastructural requirements for running this course

Hardware:

x64 Processor: AMD Opteron, AMD Athlon 64, Intel Xeon with Intel EM64T support, Intel Pentium IV with EM64T support, 2.0 GHz or faster, 1 GB RAM, Minimum of 6GB Hard Disk

Software:

Windows 10 TH1 1507 or greater, Minimum operating systems includes minimum .NET framework, Supported operating systems for SQL Server have built-in network software. Named and default instances of a stand-alone installation support the following network protocols: Shared memory, Named Pipes, and TCP/IP.

LBS Centre for Science and Technology
(Offline Course)

Course Title	Certificate Course on Data Mining			
Abbreviation of Course Title	CCDM			
Duration of the course in Hours	100			
Duration of the course in Months	3			
Course Fees	8000			
Eligibility	Plus Two/3 year Diploma			
About the Course				
This course is aimed at providing the students the basic concepts of Data Mining concepts and and implementation using data mining tools Weka and R				
Objectives of the course				
<ol style="list-style-type: none"> 1. To introduce the basics of data mining 2. To understand the working of data mining algorithms 3. To introduce Weka and R tools for implementing data mining algorithms 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
SC1	Data Mining	70	30	100
Syllabus of the course				
Syllabus of the Subject 1				
<p>Introduction Data Mining Concepts, Data Mining Applications, Data Mining Stages, Data Mining Models</p> <p>Data Preprocessing Data Preprocessing Concepts, Data Cleaning, Handling Missing Data, Data Transformation and Discretization, Data Visualization. UCI Data Sets and their Significance</p> <p>Classification Models Introduction to Classification Models, Decision Tree, Neural Networks, k-Nearest Neighbor classifier, Naive Bayes Classifier, Support Vector Machines.</p> <p>Prediction Models Linear regression, Non-linear regression</p> <p>Association Rules Mining Concepts, Apriori Algorithm, FP-growth algorithm</p> <p>Cluster Analysis Introduction, Concepts, Partitional clustering, K-Means Clustering, Hierarchical clustering, Density Based Clustering,</p> <p>Practical Data Mining Tools Weka, R Package for Data Mining</p>				
Text Books				
<ol style="list-style-type: none"> 1. Jaiwei Han, MichelineKamber, “Data Mining Concepts and Techniques”, Elsevier, 2006 2. M. SudeepElayidom, “Data Mining and Warehousing”, 1st Edition, 2015 Cengage 				

Learning India Pvt. Ltd.E Rich, K Knight, Artificial Intelligence, 3/e, Tata McGraw Hill, 2009

3. Witten, Ian H., and Eibe Frank. "Data mining: practical machine learning tools and techniques, second edition
4. Luis Torgo, "Data Mining with R: Learning with Case Studies", Second Edition

Method of Evaluation

Theory and Lab Exam

Software, Hardware and other infrastructural requirements for running this course

1. Linux/Windos based system
2. Weka 3.8
3. R software
4. R Studio

LBS Centre for Science and Technology (Online Course)

Course Title	Certificate Course in Ethical Hacking
Abbreviation of Course Title	CCEH
Overall duration of the course in Hours	100 Hours
Duration of the course in Months (if applicable)	3 months
Course Fees	8000
Eligibility	Plus 2/ 3 Year Diploma
Number of live hours	100
Platform for running live classes	Zoom/webex/MS Teams/google meet
Platform for streaming recorded classes	Any video streaming platform
Software used	Nmap, Metasploit
Proprietary S/w or Open source S/w	Free software(open)
Minimum infrastructure required by the students to participate in this course	A laptop with 4GB ram or above Operating system usually use is Windows (windows 7 or above recommended) or Mac OS (MAC OS 10.6 or above recommended) Internet speed is preferred to be higher than 512kbps So online training you prefer headphone or earphone with the microphone built in it so that you can hear instructions and training session.
About the Course	
The Ethical Hacking Course provides the skill and knowledge which is required in this day and age for making a career. Ethical hackers are employed by organizations to penetrate networks and computer systems with the purpose of finding and fixing security vulnerabilities.	
Objectives of the course	
To understand the core fundamental concepts that are required for setting up a strong foundation as an Ethical Hacker	
Syllabus of the course	
Introduction: Introduction to Hacking, All about Cyber World, Introduction to Cyber Laws Study of various IT acts, Hackers Psychology, Learning Linux from hacking point of view	
Network Security: Introduction to Networking, Wi-Fi Hacking, Intercepting packets: Man in the Middle attack, DoS and DDoS attacks , Vulnerability Assessment by mastering nmap vulnerabilities scanning, Hacking with metasploit, Hacking Networks by evading firewalls, Packet crafting with hping3 and scapy Taking down Networks Study of popular vulnerabilities and their exploitation ,Countermeasures.	
Playing with Passwords: Windows Password cracking, Various techniques of password cracking, Encrypted documents password cracking, Hacking psychology of users Various password storing techniques	
Windows hacking and Security: Windows hacking by changing, Cracking passwords Playing with User accounts, Remote hijacking with RATs, Getting into system by escalating privileges,	

<p>Encrypting File System, Windows Firewall with Advanced Security At last staying safe: Setting up a secure system</p> <p>Web Application Hacking: Introduction to web technologies, Information Gathering , Intercepting requests, responses and playing with them Hacking live Website, Mastering Web attacks, Database dump with SQL Injection, Exploiting users with Cross-Site Scripting(XSS) Session Hijacking, Shell Upload, take everything down, User accounts hacking Clickjacking Attack, Security Misconfiguration, Remote Code execution vulnerability File Inclusion Vulnerability, Social Engineering Techniques.</p> <p>Steganography: Hiding and Detection, Ciphers and Cryptography, Hacking by Scripting, Playing with malwares, Deleted data recovery, Working on Digital Forensics, Image Forensics, Case investigation, Evidence recovery</p> <p>Tools covered: Network security tools, Password Cracking Tools, Penetration testing Tools: Sniffing Tools, SQL Injection Tools, Web application security Tools:</p>
<p>Method of Evaluation</p>
<p>Written exam. (MCQ and descriptive)</p>

LBS Centre for Science and Technology (Offline Course)

Course Title	Certificate Course in Internet of Things			
Abbreviation of Course Title	CCIT			
Duration of the course in Hours	100			
Duration of the course in Months	3			
Course Fees	8000			
Eligibility	SSLC/ITI/3 year Diploma /+2			
About the Course				
The Internet of Things is an emerging topic of technical, social, and economic significance. The course is crafted with finesse, to make understand the core of IoT and to develop IoT Solutions using sensors and components integration.				
Objectives of the course				
<ul style="list-style-type: none"> • To understand the fundamentals of Internet of Things • To learn about the basics of IOT protocols • To apply the concept of Internet of Things in the real world scenario 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
CCIT	Certificate Course in Internet of Things	60	40	100
Syllabus of the course				
Syllabus of the Subject				
Introduction to IoT				
Defining IoT, Characteristics of IoT, Physical design of IoT, Logical design of IoT, Functional blocks of IoT, Communication models & APIs				
Challenges in IoT				
Design challenges, Development challenges, Security challenges, Standard challenges, Scalability, Interoperability, constraint devices				
Domain specific applications of IoT				
Introduction, Home automation- Smart lighting, smart appliances, intrusion detection, smoke for gas detectors, Smart Parking, Smart lighting, Smart Roads, Structural Health Monitoring, surveillance, Emergency Response; Environment- Weather monitoring, air pollution monitoring, noise pollution monitoring, forest fire detection, river flood's detection;				
IoT & M2M				
IOT devices, Machine to Machine, Difference between IoT and M2M, Introduction to Arduino and Raspberry Pi				
Network & Communication aspects				
IoT Access Technologies: Physical and MAC layers, – Network Layer: IP versions, Constrained Nodes and Constrained Networks -Application Transport Methods: Supervisory Control and Data Acquisition – Application Layer Protocols				
Developing IoTs				

Introduction to different IoT tools, Developing applications through IoT tools, Developing sensor based application through embedded system platform, Implementing IoT concepts with python Implementation of IoT with Arduino and Raspberry-Case study- Smart and Connected Cities: Layered architecture, Smart Lighting, Smart Parking Architecture and Smart Traffic Control

Method of Evaluation: Written exam, Project

Software, Hardware and other infrastructural requirements for running this course

IoT – Sensors, Standard network devices like **routers** and **switches**, The desktop/ tablet/cellphone remain integral parts of IoT , Smart communication protocol eg ZigBee

LBS Centre for Science and Technology (Offline Course)

Course Title	Certificate Course in Linux Administration			
Abbreviation of Course Title	CCLA			
Duration of the course in Hours	100			
Duration of the course in Months	3			
Course Fees	10000			
Eligibility	ITI/3 year Diploma /+2			
About the Course				
Introduction to the concepts of Linux Operating System Administration				
Objectives of the course				
To familiarize with the linux operating system administration.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
CCLA	Linux Administration	40	60	100
Syllabus of the course				
Syllabus of CCLA				
Introduction to Linux and UNIX				
<ul style="list-style-type: none"> • History of UNIX & LINUX • Basic Concepts of Operating Systems, Kernel, shell and file system structure 				
Installation of Linux				
<ul style="list-style-type: none"> • Different types of Installation Methods • GUI • Text 				
Linux System Structure				
<ul style="list-style-type: none"> • Basic concepts of Linux • Differences between Red Hat Enterprise Linux &CentOS • Basic bash commands of Linux • Editors [GUI & CLI] 				
Boot Process of Linux				
<ul style="list-style-type: none"> • What is booting and boot process of Linux? • Init Process or Runlevels 				
Software Package Administration				
<ul style="list-style-type: none"> • Description of a Repository • Difference between RPM and YUM • Configuration of YUM server • Installing and deleting software packages 				

- Querying and updating software packages

User and Group Administration

- Types of Users in Linux
- Creating and deleting Users and Groups
- Modifying Users profile
- Adding Users into the Groups
- Important system files related to User & Group administration

Advanced File Permissions

- Importance of Permissions
- Types of Permissions
- User level Permissions
- Group level Permissions
- Setting Access Level Permissions on Users & Groups

Disk Partitioning and Mounting File System

- Definition of Partition
- Types of Partitions
- Difference between ext2, ext3 and ext4 file systems
- Creating partitions using fdisk utility
- Formatting partitions using mkfs to create filesystems
- Mounting various filesystems temporarily and permanently

Logical Volume Management

- What is LVM?
- Conversion of Partition into Physical Volume
- Creating volume groups and logical volumes
- Mounting the logical volume filesystems
- Extend and Reduce the logical volumes.
- Data storage using LVM
- Renaming volume groups and logical volumes
- Removing physical volume, volume group and logical volume

Backup and Recovery

- Introduction to various types of backup media
- Backup and restoring using tar commands
- Automation of Jobs

NFS

- Configuring NFS server
- Mounting NFS exports on clients

NIS

- Basics of NIS

- Configuring NIS Servers and client
- Creating NIS users

DNS

- Basics of Internet
- Basics of DNS and BIND 9
- Configuring DNS primary server

DHCP

- Configuring Linux as DHCP Server
- Configuring various clients for DHCP Server

Web Server (Apache)

- Basics of Web Service
- Introduction to Apache
- Configuring Apache for main site
- Configuring Apache for multiple sites using IP-based, port based and name-based

FTP Server

- Basics of File Transfer Protocol.
- Configuring vsftpd for anonymous ftp service.

Proxy Server (SQUID)

- Basics of proxy services
- Configuring proxy services
- Creating ACL's for controlling access to internet

Samba Server

- Basics of file sharing in Windows
- Configuring Samba service for file sharing with windows systems

Mail Server Configuration

- Basics of Mail Servers
- Configuring SMTP service using sendmail

Log Server

- Importance of logs
- Configuring Syslog Messages

Network Connections

- Configuring Physical IP Address
- Configuring Virtual IP Address
- Enabling & Disabling the Network Connections

- Iptables

Basics of Shell scripting

Troubleshooting Linux

- Recovering the super user password.
- Troubleshooting network related problems.

Method of Evaluation

Objective Type Test along with practical

Software, Hardware and other infrastructural requirements for running this course
Linux Operating System

LBS Centre for Science and Technology (Offline Course)

Course Title	Certificate Course in ORACLE Application			
Abbreviation of Course Title	CCOA			
Duration of the course in Hours	60			
Duration of the course in Months	2			
Course Fees	6000			
Eligibility	Plus Two/3 year Diploma			
About the Course				
This course covers Oracle Database Foundations, SQL and PL/SQL concepts				
Objectives of the course				
<ul style="list-style-type: none"> • To give basic understanding of the theory and applications of ORACLE database. • To create physical relational database tables to implement a database design. • To develop SQL queries for relational database in the context of practical applications. • To create, maintain, and manipulate database objects using SQL and PL/SQL concepts. 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
CCOA1	Oracle Database Foundations	10	0	10
CCOA2	Oracle Database SQL	15	15	30
CCOA3	PL/SQL Fundamentals	10	10	20
Syllabus of the course				
Syllabus of the Subject 1				
<p>Database Concepts</p> <ul style="list-style-type: none"> • Describe the components of a database system • Explain the purpose of a database <p>Relational Database Concepts</p> <ul style="list-style-type: none"> • Describe the characteristics of a relational database • Explain the importance of relational databases in business <p>Using Attributes</p> <ul style="list-style-type: none"> • Various types of attributes <p>Identifying Relationships</p> <ul style="list-style-type: none"> • Explain one-to-one, one-to-many, and many-to-many relationships • Name a relationship <p>Mapping Primary, Composite Primary and Foreign Keys</p> <ul style="list-style-type: none"> • Identify primary keys from an ERD • Identify which ERD attributes would make candidate primary keys • Describe the purpose of a foreign key in an Oracle Database • Identify foreign keys from an ERD • Describe the relationship between primary keys, composite primary keys, and foreign keys in an Oracle Database 				

Defining Instance and Schema in Relational Databases

- Examine examples of an entity and a corresponding table
- Examine examples of an attribute and a corresponding column
- Explain instances and schemas in a relational database
-

Using Unique Identifiers (UIDs)

- Define the types of unique identifiers

Mapping ER diagram to relational schema

Mapping Entities, Columns and Data Types

- Map entities to identify database tables to be created from an ERD
- Identify column data types from an ERD
- Identify common data types used to store values in a relational database

Functional Dependencies and Validating Data Using Normalization

- Different anomalies in designing a database
- Functional dependency
- Define the purpose of normalization
- Define the rules of First, Second, Third Normal Forms, and BCNF
- lossless and dependency preserving decompositions

Syllabus of the Subject 2

Introduction to SQL

Using Data Definition Language (DDL)

- Describe the purpose of DDL
- Use DDL to manage tables and their relationships
- CREATE Table statements

Defining and using Basic Select statements

- Identify the connection between an ERD and a Relational Database using SQL SELECT statements
- Build a SELECT statement to retrieve data from an Oracle Database table
- Use the WHERE clause to the SELECT statement to filter query results

Defining Table Joins

- Describe the different types of joins and their features
- Use joins to retrieve data from multiple tables

Using Data Manipulation Language (DML) and Transaction Control Language (TCL)

- Describe the purpose of DML
- Use DML to manage data in tables
- Use TCL to manage transactions

Displaying Sorted Data

- Use the ORDER BY clause to sort SQL query results
- Limiting Rows Returned in a SQL Statement
- Using Substitution Variables
- Using the DEFINE and VERIFY commands
- Sorting Data

Using Conversion Functions and Conditional Expressions

- Applying the NVL, NULLIF, and COALESCE functions to data
- Understanding implicit and explicit data type conversion
- Using the TO_CHAR, TO_NUMBER, and TO_DATE conversion functions

- Nesting multiple functions

Using SET Operators

- Matching the SELECT statements
- Using the ORDER BY clause in set operations
- Using The INTERSECT operator
- Using The MINUS operator
- Using The UNION and UNION ALL operators

Managing Indexes

- Managing Indexes

Managing Views

- Managing Views

Managing Objects with Data Dictionary Views

- Using data dictionary views

Retrieving Data using the SQL SELECT Statement

- Using Column aliases
- Using The SQL SELECT statement
- Using concatenation operator, literal character strings, alternative quote operator, and the DISTINCT keyword
- Using Arithmetic expressions and NULL values in the SELECT statement

Using Single-Row Functions to Customize Output

- Manipulating strings with character functions in SQL SELECT and WHERE clauses
- Performing arithmetic with date data
- Manipulating numbers with the ROUND, TRUNC and MOD functions
- Manipulating dates with the date function

Usage of Aggregate Functions

- Various Types

Using Subqueries to Solve Queries

- Using Single Row Subqueries
- Using Multiple Row Subqueries
- Update and delete rows using correlated subqueries

Managing Tables using DML statements

- Managing Database Transactions
- Controlling transactions
- Perform Insert, Update and Delete operations
- Performing multi table Inserts
- Performing Merge statements

Use DDL to manage tables and their relationships

- Describing and Working with Tables
- Describing and Working with Columns and Data Types
- Creating tables
- Dropping columns and setting column UNUSED
- Truncating tables
- Creating and using Temporary Tables
- Creating and using external tables
- Managing Constraints

Controlling User Access

- Differentiating system privileges from object privileges
- Granting privileges on tables

- Distinguishing between granting privileges and roles

Managing Data in Different Time Zones

- Working with CURRENT_DATE, CURRENT_TIMESTAMP, and LOCALTIMESTAMP
- Working with INTERVAL data types

Syllabus of the Subject 3

PL/SQL Fundamentals

- Introduction to PL/SQL
- Explain the need and benefits of PL/SQL
- Output messages in PL/SQL
- Declaring PL/SQL Variables
- Make use of the INTO clause to hold the values returned by a SQL statement
- Writing Control Structures
- Identify the uses and types of control structures (IF, CASE statements and expressions)
- Handling Exceptions
- Create a simple function that accepts a parameter
- Creating Procedures
- Work with functions (create, invoke and remove functions)
- Creating Packages
- Working with Packages
- Creating Triggers
- Describe different types of triggers and their uses

Method of Evaluation

Offline Exam and Lab Exam

Software, Hardware and other infrastructural requirements for running this course

Oracle 11g (or higher version)

RAM: 1 GB minimum

Disk space: 6 GB

OS: Windows XP (or higher version)

For More details : https://docs.oracle.com/cd/B28359_01/install.111/b32006/reqs.htm#NTDBI002

LBS Centre for Science and Technology (Offline Course)

Course Title	Certificate Course in PHP & MySQL			
Abbreviation of Course Title	CCPM			
Duration of the course in Hours	75			
Duration of the course in Months	2			
Course Fees	5000			
Eligibility	Plus Two/3 year Diploma			
About the Course				
In this course, you will learn how to use the PHP server-side scripting language for web development. You will also find out how to use PHP with MySQL in order to generate dynamic web content.				
Objectives of the course				
Given a web application development task, the student will be able to design and implement the application using web technologies such as HTML, CSS, JavaScript, PHP and MySQL.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
CCPM01	HTML, CSS, JavaScript	13	12	25
CCPM02	PHP	13	12	25
CCPM03	MySQL	13	12	25
Syllabus of the course				
HTML, CSS, JavaScript				
Introduction to HTML, HTML Tags, Creating Forms, Introduction to CSS, CSS Properties, working with Templates, Introduction to JavaScript, Working with events, Client-side Validation, Introduction to AJAX				
PHP				
Introduction to PHP, data types, operators, conditionals, loop, arrays, functions, HTML form handling, session management, accessing files and directories				
MySQL				
Introduction to MySQL, performing basic database operations, PHP-MySQL connectivity, developing web-based database applications				
Method of Evaluation				
Theory Exam 50 Marks (CCPM01 – 30%, CCPM02-35%, CCPM-35%) Practical Exam 50 Marks (CCPM01 – 30%, CCPM02-35%, CCPM-35%) Project Work – 50 Marks				
Software, Hardware and other infrastructural requirements for running this course				
Software – Ubuntu, Apache, PHP, MySQL Hardware – A desktop PC with minimum hardware configuration				

LBS Centre for Science and Technology (Offline Course)

Course Title	Certificate Course in Python			
Abbreviation of Course Title	CCP			
Duration of the course in Hours	100 Hrs			
Duration of the course in Months	3			
Course Fees	5000			
Eligibility	SSLC			
About the Course The Certificate Course in Python is an open source scripting language covering topics typically found in introductory computer programming				
Objectives of the course				
Python Programming is designed for school students in 10 th to 12 th classes for developing a sound background in computer programming				
Scheme of Study				
Subject Code(CCP)	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
UNIT 1	Introduction to Computer Programming and Python	6	--	6
UNIT 2	Data Types, Variables, Basic Input-Output Operations and Basic Operators	6	4	10
UNIT 3	Control Structures and advanced Data Types	8	10	18
UNIT 4	Arrays, Functions , String Methods and Data Processing	10	6	16
UNIT 5	Modules, Packages and Exceptions	10	10	20
UNIT 6	Object-Oriented Approach , Working with Files and Database Handling	16	14	30
Syllabus of the course				
Syllabus of Unit 1				
<ul style="list-style-type: none"> ➤ Programming Languages- Basics of Higher Level, Low Level, and Assembly languages. ➤ Algorithm and Flow Charts. ➤ Concepts of Object Oriented Programming ➤ Python – Introduction ➤ Application of Python 				
Syllabus of Unit 2				
<ul style="list-style-type: none"> ➤ Variables, Data types, Casting ➤ Numbers, string, boolean values ➤ Basic Input- output operations – input() , print(), import ➤ General Structure of Python Programs ➤ Your first program ➤ Operators 				
Syllabus of Unit 3				
<ul style="list-style-type: none"> ➤ Decision Making in Python – if, if..else nested if ➤ Loops in Python– while loop, for loop, nested loop 				

- Lists, Tuple, Dictionary
- Lists in advanced applications

Syllabus of Unit 4

- Arrays
- Functions in Python
- Returning a result from a function
- Character/ String Manipulation-String Functions and Methods.

Syllabus of Unit 5

- Using modules
- Some useful modules
- package
- Exception handling -- Raise, Try, Except, Finally
- Some of the most useful exceptions

Syllabus of Unit 6

- Basic concepts of object programming
- Class , Object , Properties and Methods
- Inheritance , Data Encapsulation with programs
- Processing files
- Basic operations of Files –Open, Close, Read, Write
- Working with real files
- Database Handling with MySQL
- Introduction to SQL-DDL, DML etc.
- An application with SQL

Method of Evaluation

Theory & Practical Examination

Software, Hardware and other infrastructural requirements for running this course

Computer with Python installed

LBS Centre for Science and Technology (Offline Course)

Course Title	Certified Computer Operator			
Abbreviation of Course Title	CCO			
Duration of the course in Hours	25			
Duration of the course in Months	1			
Course Fees	700			
Eligibility	5th & above			
About the Course				
A Computer Operator is required to administrate, organise and sort different types of computer data using various software-related commands and functions.				
Objectives of the course				
On completing this course, the candidate becomes efficient to use a computer and do data entry work and manage efficiently an automated office.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
SC1	Computer Basics	2		2
SC2	Windows Operating system	2	2	4
SC3	MS Word	4	8	12
SC4	MS Excel	2	3	5
SC5	Internet		2	2
Syllabus of the course				
Computer Basics – Basic awareness of I/O devices, Software, Memory.				
Windows – Accessories-folder creation -copy-move.				
MS Word – Editing, formatting text, paragraph, inserting shapes, tables, page layout column ,print.				
MS Excel – Parts of a worksheet. Entering data in cells, formula, basic Excel functions, sort.				
Internet - Creating e-mail , sending ,attach files . Google drive.				
Method of Evaluation				
End examination –Theory objective type (One hour).				
Software, Hardware and other infrastructural requirements for running this course				
The present facilities at LBS centres is enough for running the course.				

LBS Centre for Science and Technology (Offline Course)

Course Title	Certified Professional in Dot Net			
Abbreviation of Course Title	CPDN			
Duration of the course in Hours	300			
Duration of the course in Months	6			
Course Fees	10000			
Eligibility	Plus Two/3 year Diploma			
About the Course				
This course is about to introduce the core aspects of the .NET platform, C # language, build C# applications, data access with ADO.NET and web application using ASP.NET				
Objectives of the course				
To enable participants to develop windows applications with database access and web application using ASP.NET				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
SC1	Introduction and over view of .NET Frame work	30	20	50
SC2	Introduction to C#	25	25	50
SC3	Object-Oriented Programming with C#	25	25	50
SC4	Data Access with ADO.NET	25	25	50
SC5	Windows Application	20	30	50
SC6	ASP.NET,ASP.NET MVC	20	30	50
Syllabus of the course				
Syllabus of the Subject 1: Introduction and over view of .NET Frame work				
The Common Language Runtime, Common Type System ,The Framework Class Library, Common Language Specification, The Platform-Independent Nature of .NET				
Syllabus of the Subject 2: Introduction to C#				
The structure of a Simple C# Program,Data types and keywords, System.Console Class, C# Iteration Constructs, Decision Constructs and the Relational/Equality Operators,Arrays, Methods and Parameter Modifiers				
Syllabus of the Subject 3: Object-Oriented Programming with C#				
C# Class Type, Constructors, this Keyword, static Keyword, C# Access Modifiers, C#'s Encapsulation Services, Inheritance and Polymorphism, Exception Handling				
Syllabus of the Subject 4: Data Access with ADO.NET				
The Three Faces of ADO.NET, ADO.NET Data Providers, ADO.NET Namespaces, System.Data Namespace, ADO.NET Data Provider Factory Model, Connected Layer of ADO.NET, Working with Data Readers, Working with Create, Update, and Delete Queries, Creating a Console-Based Client Application				
Syllabus of the Subject 5: Windows Application				
Windows Forms and Controls ,Control Class- Buttons, Text Boxes Labels, Literals, Image Controls Picture Box Control, Panel Control,Combo Box Control, List Boxes, Dropdown Lists, Date Time Picker Control, Link Labels Check Boxes,Check Box Lists Radio Buttons, Radio Button Lists, Rich Text Box Control, Tab Control, Tool Strip Control, Menu Strip Control, Creating Custom Controls -Create New Controls for Forms, Create a Control from an Existing, Control and Add Functionality, Creating MDI Applications MDI Applications, MDI Parent and MDI Child Forms, Manage Menus, Creating a windows application with access to database				
Syllabus of the Subject 6: ASP.NET,ASP.NET MVC				

ASP.NET- Web Application using ASP.NET, ASP.NET Architecture, Control-based Programming, User Interface Elements, Deployment, Web Sites, Applications, and Virtual Directories in IIS, ASP.NET Diagnostics and Health Monitoring,Introducing ASP.NET MVC, MVC Pattern, The Model, The View, The Controller, ASP.NET MVC Application Template, Routing, Controllers and Actions, The Razor View Engine , MVC Views
Method of Evaluation
1.Descriptive Exam 2.Lab Examination 3.Project
Software, Hardware and other infrastructural requirements for running this course .NET Framework 4.8 Microsoft Visual Studio 2019 <ul style="list-style-type: none">• 1.8 GHz or faster processor. Quad-core• 2 GB of RAM• Hard disk space: Minimum of 800MB up to 210 GB of available space,• Video card that supports a minimum display resolution of 720p (1280 by 720);

LBS Centre for Science and Technology (Offline Course)

Course Title	Course on Digital Video Audio Processing			
Abbreviation of Course Title	DVAP			
Duration of the course in Hours	150			
Duration of the course in Months	4			
Course Fees	18000			
Eligibility	SSLC			
About the Course				
One of the most fundamental parts of storytelling and filmmaking is editing. Without good editing, stories don't fully come alive on screen. Course on Digital Video Audio Processing prepare the student to edit and craft professional video with flexible and efficient using Adobe Premiere Pro® - Video Editing Software				
Objectives of the course				
Adobe Premiere Pro is a video editing program that is part of the Adobe Creative Cloud software collection, as well as Adobe CS6 – or Adobe Creative Suite. Premiere Pro is used to edit videos, including movies, and is quickly becoming the go-to program for filmmakers all over the world. Premiere Pro is the industry-leading video editing software for film, TV and the web. Creative tools, integration with other apps and services and the power of Adobe Sensei help you craft footage into polished films and videos.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DVAP1	Digital Video Audio Processing using Adobe Premiere Pro® - Video Editing Software	50	100	150
Syllabus of the course				
Syllabus of the Subject 1				
<ul style="list-style-type: none"> ✓ Introduction Adobe Premiere Pro® - Video Editing Software ✓ Create and open projects, ✓ Work with files ✓ Import media into Premiere Pro ✓ Organize your media once it's imported ✓ Use the Timeline for video and audio tracks ✓ Edit tracks in the Timeline ✓ Create sequences and nested sequences ✓ Add motion to your clips ✓ Create and work with key frames ✓ Add animation and other effects ✓ Add transitions ✓ Use the colour-correction tools ✓ Sync clips from multiple cameras ✓ Add text, shapes, and logos to your project ✓ Work with audio in the Audio Workspace ✓ Export media from Premiere Pro ✓ Create and edit closed captions 				
Method of Evaluation				
There will be theory and practical examinations For Theory examination : Total Mark : 50				

Part A (Multiple choice questions. 15Nos. 15*1=15 marks)

Part B (Fill in the Blanks 15 Nos. 15 *1 = 15 marks)

Part C (Short answer type Questions (Out of 8 questions answers any four 5 * 4 =20 marks)

For **Practical examination** : Total Mark : 50

The student should do any two activities based on the syllabus

Software, Hardware and other infrastructural requirements for running this course

Software :- Adobe Premiere Pro® - Video Editing Software

Hardware :- 64-bit multi-core processor (Intel 6th Gen or AMD FX).

64-bit Windows 10.

2 GB VRAM.

8 GB RAM.

8 GB HDD space (additional free space required during installation).

Compatible sound card.

Internet connection (for product activation, download, updates, etc.).

LBS Centre for Science and Technology (Offline Course)

Course Title	Course on Expert Web Designing			
Abbreviation of Course Title	CEWD			
Duration of the course in Hours	100			
Duration of the course in Months	3			
Course Fees	6000			
Eligibility	SSLC			
About the Course				
Learn to design websites using HTML5, CSS3 and JavaScript.				
Objectives of the course				
This course will help you to develop professional quality websites that work seamlessly across all platforms.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
CEWD01	HTML and CSS	15	15	30
CEWD02	JavaScript	15	15	30
CEWD03	JQuery and Web UI Frameworks	20	20	40
Syllabus of the course				
Syllabus of HTML and CSS				
<p>Module 1: Introduction to web development(3 hours Theory, 3 hours Practical) How web applications work - An introduction to HTML and CSS - The components of a JavaScript application - Tools for web development - How to view deployed web pages - Five critical web development issues - The HTML syntax - The CSS syntax - How to use Brackets to work with HTML and CSS files - How to test, debug, and validate HTML and CSS files</p> <p>Module 2: HTML to structure a web page(3 hours Theory, 3 hours Practical) How to code the head section - How to code text elements - How to structure the content of a page - How to code links, lists, and images - A structured web page</p> <p>Module 3: CSS to format the elements of a web page(3 hours Theory, 3 hours Practical) An introduction to CSS - How to specify measurements and colors - How to code selectors How to work with Cascading Style Sheets - How to work with text - A web page that uses external style sheets</p> <p>Module 4: CSS box model for spacing, borders, and backgrounds (3 hours Theory, 3 hours Practical) An introduction to the box model, How to size and space elements - A web page that illustrates sizing and spacing - How to set borders and backgrounds - A web page that uses borders and backgrounds</p> <p>Module 5: CSS for page layout, work with lists, links, and navigation menus (3 hours Theory, 3 hours Practical) How to float elements in 2- and 3-column layouts - Two web pages that use a 2-column, fixed-width layout How to use CSS3 to create text columns - How to position elements - How to code lists - How to format lists - How to code links - How to create navigation menus - Introduction to Responsive Web Design</p>				

References:

Zak Ruvalcaba, Anne Boehm, “Murach's HTML5 and CSS3”, Mike Murach & Associates, 2018
Michael Mendez, “The Missing Link: An Introduction to Web Development and Programming”, Open SUNY, 2014

Syllabus of JavaScript

Module 1: Introduction JavaScript(3 hours Theory, 3 hours Practical)

How to test a JavaScript application - How to include JavaScript in an HTML document - The JavaScript syntax - How to work with JavaScript data - Two illustrative applications - How to work with numbers, strings, and dates - The Count Down application

Module 2: Control statements and arrays(3 hours Theory, 3 hours Practical)

How to code conditional expressions - How to code the selection structures - The Invoice application - How to code the iteration structures - How to create and use an array - How to use the methods of an Array object - How to use web storage - The Task Manager application

Module 3: Functions and objects(3 hours Theory, 3 hours Practical)

Basic skills for working with functions - The Task Manager application - Object-oriented skills for working with functions - Basic skills for working with objects - JavaScript prototypes - The Task Manager application - Advanced skills for working with objects - The enhanced Task Manager application

Module 4: Regular expressions, handle exceptions, validate data, events, images and timers(3 hours Theory, 3 hours Practical)

How to use regular expressions - How to handle exceptions - The Register application - How to work with events - The FAQs application - How to work with images - The Rollover application - How to use timers - The Slide Show application

Module 5: Closures, callbacks, recursion, namespaces, modules, custom properties(3 hours Theory, 3 hours Practical)

How to use closures -How to use callbacks - How to use recursion - How to work with namespaces - How to work with the module pattern - How to customize properties - The enhanced Slide Show application

References:

Mary Delamater, "Murach's JavaScript", Mike Murach & Associates,2015
Mary Delamater, Zak Ruvalcaba, "Murach's JavaScript and jQuery", Mike Murach & Associates,2017

Syllabus of JQuery and Web UI Frameworks

Module 1: Introduction to jQuery(4 hours Theory, 4 hours Practical)

The basics of jQuery programming - The Email List application in jQuery - A working subset of selectors, methods, and event methods - Three illustrative applications, How to use effects, A Slide Show application with effects, How to use animation, A Carousel application with animation

Module 2: Forms and data validation, jQuery plugins and jQuery UI widgets(4 hours Theory, 4 hours Practical)

Introduction to forms and controls - How to use jQuery to work with forms - A Validation application that

uses JavaScript - Introduction to jQuery plugins - How to use three of the most popular plugins -
Introduction to jQuery UI - How to use five of the most popular jQuery UI widgets

Module 3: Ajax and APIs(4 hours Theory, 4 hours Practical)

Introduction to Ajax, jQuery shorthand methods for Ajax, How to use Ajax with Flickr, How to use the API for Google Maps, How to use the HTML5 APIs, How to format content with jQuery Mobile

Module 4: Introduction to Web UI Frameworks(4 hours Theory, 4 hours Practical)

Revving Up Bootstrap - Setting up our project - Making a Style Statement - Building the layout -
Navigation, Footers, Alerts - Advanced Third-Party Plugins - Utilities, List groups and accordions

Module 5: Optimizing Your Website(4 hours Theory, 4 hours Practical)

CSS optimization, Minifying CSS and JavaScript, Introducing Grunt, Running tasks automatically,
Stripping our website of unused CSS, JavaScript file concatenation, Introducing AngularJS and React

References:

Zak Ruvalcaba, Anne Boehm, "Murach's jQuery", Mike Murach & Associates,2015

Mary Delamater, Zak Ruvalcaba, "Murach's JavaScript and jQuery", Mike Murach & Associates,2017

Benjamin Jakobus, Jason Marah, "Mastering Bootstrap 4", Packt Publishing, 2018

Method of Evaluation

Theory and Practical examination. Duration 3 hours each.

Software, Hardware and other infrastructural requirements for running this course

Software Requirements

- Adobe Dreamweaver
- Microsoft Windows 7 with Service Pack 1(64-bit), or Windows 10 v1607, 1803 or later (64-bit).
- Firefox 70.0 or above

Hardware Requirements

- Intel® Core 2 or AMD Athlon® 64 processor; 2 GHz or faster processor.
- 2 GB of RAM (4 GB recommended)
- 2 GB hard disk space (5 GB recommended)
- 1280x1024 display with 16-bit video card.

Other infrastructural requirements

- Internet connection and registration are necessary for required software activation, validation of subscriptions, and access to online services.

The open source software that can be used instead of Adobe Dreamweaver

- Bluefish is a free software that supports development in HTML, CSS, and JavaScript.

LBS Centre for Science and Technology
(Offline/Online Course)

Course Title	Course on Video Editing using Editing Software.(windows based)
Abbreviation of Course Title	VEFCw
Duration of the course in Hours	45
Duration of the course in Months	1 month
Course Fees	150000
Eligibility	SSLC

About the Course

This course unravels the post-production world for editors. Students will dive into the key features of Video Editing software for Video and Audio Editing and learn elements for creating professional videos with the use of transitions and effects, titles and motion graphics, color correction, Video and Media Management.

Objectives of the course

- Learn how to combine basic design principles in video editing.
- Generate a video by applying his/her knowledge.
- Import/Present/publish/export the edited video.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
VEFC	Course on Video Editing using Editing Software.(windows Based)	10	35	45

Syllabus For the Course on Video Editing software (on open Source and Windows platform)

1. Introduction, Import and Organize:

Introduction: Basics of navigating the Editing software interface, importing media, organizing frames for edit. Media Import, Creating Optimized Media, Changing Clip Appearance and Clip Order, Creating Keyword Collections, Searching for Clips and Creating Collections

2. Video Editing: Basics of cuts how to perform cuts, different types of cuts & transitions, Edit a rough cut quickly and efficiently. Refining rough cut. Creating a Project, Adding Clips to Timeline , navigating , Add Music, Trim , Replace , Audition Pre-Edit

3. Audio Editing: creating a simple audio mix, adding effects to improve challenging audio issues, and adding voice-overs.
Channel Configuration, Balancing Primary Audio, Mixing in Additional Audio, Key-framing Audio, Tagging Clips with Roles, Exploring Audio Lanes, Common Audio Fixes , Sync Sound

4. Transitions, Effects and Transforming: Add and manipulate transitions, add creative effects to clips, adjusting transform properties.
Adding Cross Dissolves, Adding and Modifying Additional Transitions, Adding Effects, Understanding Rendering, Basic Speed Changes, Stabilizing Footage, Transform Property, Basic Key-framing, Creating Compound Clips

5. Titles and Motion Graphics: Add dynamic titles to projects, adding Motion effects.
Add Basic Title , Animating Title, Working with 3D Text, Working with Generators, The Motion Connection, Animating a Title in Motion, Animating a Logo in Motion, Adding Caption Screens Importing Captions

6. Color Correction: color correction, read video alter clips for creative purposes.
Automatic White Balance, Accessing Video Scopes, Fixing Exposure and Color with Color Wheels, Adjusting Shots with Color Curves, Isolating Color with Hue/Saturation Curves, Working with Color Masks and Shapes

7. Media Management, Exporting and Interoperability: End of the workflow sharing to social media, Export master Files
Duplicating Projects Snapshot, Social Media, Archiving a Library, Sharing XML Exporting Captions and Roles.
Working with Patch Effects, Titles and Generators

Method of Evaluation

Practical Evaluation

Editing Softwares compatible with Windows OS

Like : Adobe Premier, Avid Media Composer.or Lightworks

Since Opensource editing softwares doesn't cover a professional perspective, it is not recommended for Professional Editing.

LBS Centre for Science and Technology
(Offline/Online Course)

Course Title	Course on Video Editing using Editing Software using Final Cut Pro
Abbreviation of Course Title	VEFCm
Duration of the course in Hours	45
Duration of the course in Months	1 month
Course Fees	150000
Eligibility	SSLC

About the Course

This course unravels the post-production world for editors. Students will dive into the key features of Apple's Final Cut Pro software for Video and Audio Editing and learn elements for creating professional videos with the use of transitions and effects, titles and motion graphics, color correction, 360 Video and Media Management.

Objectives of the course

- Learn how to combine basic design principles in video editing.
- Generate a video by applying his/her knowledge.
- Import/Present/publish/export the edited video.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
VEFC	Course on Video Editing using Editing Software Final Cut Pro	10	35	45

Syllabus For the Course on Video Editing Using Final Cut Pro (only for MacOs)

1. Introduction, Import and Organize: Basics of navigating the Final Cut Pro (FCP) interface, importing media, organizing frames for edit.

Introduction: Quick Tour of the Interface, Setting up a Library and Event, Media Import, Creating Optimized and Proxy Media, Changing Clip Appearance and Clip Order, Library Smart Collections and Keywords, Creating Keyword Collections, Searching for Clips and Creating Smart Collections, Rating Clips

2. Video Editing: Basics of cuts how to perform cuts, different types of cuts & transitions, Edit a rough cut quickly and efficiently in FCPX. Refining rough cut.

Creating a Project, Adding Clips to Timeline , navigating , Add Music, Trim , Replace , Audition Pre-Edit

3. Audio Editing: creating a simple audio mix, adding effects to improve challenging audio issues, and adding voice-overs.

Channel Configuration, Balancing Primary Audio, Mixing in Additional Audio, Performing J and L Cuts, Keyframing Audio, Tagging Clips with Roles, Exploring Audio Lanes, Common Audio Fixes , Sync Sound

4. Transitions, Effects and Transforming: Add and manipulate transitions, add creative effects to clips, adjusting transform properties.

Adding Cross Dissolves, Adding and Modifying Additional Transitions, Adding Effects, Understanding Rendering, Basic Speed Changes, Stabilizing Footage, Transform Property, Basic Keyframing, Creating Compound Clips

5. Titles and Motion Graphics: Add dynamic titles to projects, adding Motion effects.

Add Basic Title , Animating Title, Working with 3D Text, Working with Generators, The Motion Connection, Animating a Title in Motion, Animating a Logo in Motion, Adding Caption Screens Importing Captions

6. Color Correction: color correction, read video alter clips for creative purposes.
Automatic White Balance, Accessing Video Scopes, Using: Luma Waveform, RGB Parade, Vectorscope, Fixing Exposure and Color with Color Wheels, Adjusting Shots with Color Curves, Isolating Color with Hue/Saturation Curves, Working with Color Masks and Shapes

7. Media Management, Exporting and Interoperability: End of the workflow sharing to social media, Export master Files
Duplicating Projects Snapshot, Social Media, Archiving a Library, Sharing XML Exporting Captions and Roles. 360 Video: FCPX's 360-degree video capabilities
Creating a 360 Project , 360 Viewer, 360 Glows and Blurs, Working with Patch Effects, Titles and Generators

Method of Evaluation

Practical Evaluation

Since Final Cut Pro Editing Software is only compatible with Mac OS Machines with Mac Os is required.

LBS Centre for Science and Technology (Offline Course)

Course Title	Digital Literacy Certification
Abbreviation of Course Title	DLC
Duration of the course in Hours	75
Duration of the course in Months	1
Course Fees	Rs. 2000/-
Eligibility	7th & Above

About the Course

Digital Literacy is for anyone with basic reading skills who wants to learn the fundamentals of using digital technologies.

Objectives of the course

The main objective of this course is to explain to a beginner how a computer works. This course covers basics of computer, Office productivity tools and internet and email.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DLC01	Computer Fundamentals	10	5	15
DLC02	Office Package	10	30	40
DLC03	Internet	5	15	20

Syllabus of the course

Syllabus of the Subject 1

DLC01 COMPUTER FUNDAMENTALS

1. Introduction:

- 1.1. What is Computer
- 1.2. Basic Applications of Computer

2. Components of a Computer System:

- 2.1. Central Processing Unit, Common Input & Output devices, USB ports and Pen Drive
- 2.2. Connecting Power cord, Keyboard, Mouse, Monitor and Printer to CPU

3. Concept of Hardware and Software

- 3.1 Hardware
- 3.2 Software

4. Operating a Computer System:

- 4.1. Operating System and its usage,
- 4.2. Basics of popular operating system (LINUX, WINDOWS)
- 4.3. Basic Operations: Mouse (click, click and drag, double click, right click), Keyboard (some of

the more common letters, enter, Delete, backspace, shift, tab and arrows)

4.4.The User Interface: Task Bar, Icons, Menu, Running an Application

4.5.Operating System Simple Setting: Changing System Date and Time, Changing Display Properties, To Add Or Remove A Windows Component, Changing Mouse Properties, Adding and removing Printers,

4.6.Creating and renaming of files and directories

Syllabus of the Subject 2

DLC02 OFFICE PACKAGE

1. Word Processing

1.1.Word Processing Basics: Opening Word Processing Package, Creating a New Document, Save and Save As

1.2.Opening and Closing Documents: Opening documents, Page Setup, Print Preview

1.3.Printing of Documents, PDF file and Saving a Document as PDF file

1.4.Text Creation and manipulation, Document Creation, Editing Text, Text Selection, Cut, Copy and Paste,

1.5.Spell check, Thesaurus

1.6.Formatting the Text: Font and Size selection, Alignment of Text, Paragraph Indenting, Bullets and Numbering, Changing case, Undo & Redo

1.7.Table Manipulation: Draw Table, Changing cell width and height, Alignment of Text in cell, Delete / Insertion of row and column, Border and shading

2. Spread sheet

2.1.Elements of Electronic Spread Sheet: Opening of Spread Sheet, Addressing of Cells, Printing of Spread Sheet, Saving Workbooks

2.2.Manipulation of Cells: Entering Text, Numbers and Dates, Creating Text, Number and Date Series, Editing Worksheet Data, Inserting and Deleting Rows, Column, Changing Cell Height and Width

3. Presentation

3.1.Using PowerPoint: Opening A PowerPoint Presentation, Saving A Presentation

3.2.Creation of Presentation: Creating a Presentation Using a Template, Creating a Blank Presentation, Entering and Editing Text, Inserting And Deleting Slides in a Presentation

3.3.Preparation of Slides: Inserting Word Table or An Excel Worksheet, Adding Clip Art Pictures, Inserting Other Objects, Resizing and Scaling an Object

3.4.Presentation of Slides: Viewing A Presentation, Printing Slides And Handouts

3.5.Slide Show: Transition and Slide Timings, Animation, Running a Slide Show

Syllabus of the Subject 3

DLC03 INTERNET

1. Web browser

- 1.1. Internet: Concept of Internet &www, Website Address and URL
- 1.2. Applications of Internet
- 1.3. Modes of Connecting Internet (Hotspot, Wi-Fi, LAN Cable, Broadband, USB Tethering)
- 1.4. Popular Web Browsers (Internet Explorer/Edge, Chrome, Mozilla Firefox,)
- 1.5. Exploring the Internet: Surfing the web, Popular Search Engines, Searching on Internet

2. Communication

- 2.1. Structure of E-mail
- 2.2. Using E-mails: Opening Email account, Mailbox: Inbox and Outbox, Creating and Sending a new E-mail, Replying to an E-mail message, Forwarding an E-mail message, Access email with attachments, Delete an e-mail

Method of Evaluation

15 min. duration multiple choice written test and 30 min. duration practical examination.

Software, Hardware and other infrastructural requirements for running this course

PC with latest OS (Windows, Linux), MS Office software, Web browser and a good internet connection

LBS Centre for Science and Technology (Offline Course)

Course Title	Graphic Design using Adobe CorelDRAW
Abbreviation of Course Title	GDCD
Duration of the course in Hours	36
Duration of the course in Months	1 month
Course Fees	Rs. 3500
Eligibility	7th & Above

About the Course

CorelDraw is a leading vector based software used widely by DTP professionals and Graphic Designers. This course, short-term certificate Course in **Graphic Design using Adobe CorelDRAW** makes students master for creating the most illustrations, stationery designs, covers, packaging, books and offers a wide range of features and tools that can help them to work with different design approaches. Corel Draw is built and designed to meet the demands of today's working designer to create advertisements or collateral for print or for the web.

Objectives of the course

This Adobe CorelDRAW course is designed to provide students with essential graphics and visual communication skills that they can use to enhance almost every aspect of their schoolwork and later apply to their careers.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
SC1	CorelDraw	16	20	36

Module 1. Corel draw –An overview, Menus and Tools (2 hrs Theory , 2 hr practical)

Exploring the User Interface - Creating A New File -Features of CorelDraw- Title Bar-Menu Bar-Work Area-Printable Page-Property Bar-Page Counter Bar-Colour Palette-Toolbox-Status Bar--Working with Basic Geometric Figures

Module 2. Drawing and Coloring (5 hrs theory , 5hrs practical)

Drawing curves using lines - Working with Outlines - Working with Brush Strokes - Modifying Basic shapes - Exploring Grid & Guidelines - Performing advanced operations with line objects - Handling Objects in CorelDraw - Creating an outline around an object - Positioning Objects - Aligning & Distributing Objects - Sizing & Scaling Objects - Creating Graphical Special Effects
Creating a Custom Color Palette - Editing a Custom Color Palette

Module 3. Working with Text (3 hrs theory , 3 hrs practical)

Creating Different types of text -Artistic and paragraphtext- Converting Text - FormattingText - Finding & Replacing text -Applying Effects to Text - Embedding Objects intotext -Wrapping Text aroundObject - Linking Text toObjects.

Module 4. Working with Bitmaps (3 hrs theory 3 hrs practical)

Understanding the image types - Working with Bitmap & Vector - Modifying a Bitmap - Resizing-Rotating-Skewing-Moving-Cropping-Tracing Bitmaps - --Importing Images-Adding Special Effects-Converting to Bitmap-Exporting Images.

Module 5. PageLayout (1 hr theory 1 hr practical)

Changing the Page Size-Changing the Layout-Applying Styles-Applying Bitmaps to the Background - Changing the Background-Adding a Page Frame-Moving Between Pages.

Module 6. Short cut keys & Case study (2 hrs theory 6 hrs practical)

Understanding Shortcut keys in Coreldraw

Case study - Creating- business cards, pamphlets, banners, news papers, books.

Method of Evaluation

Theory and Practical examination, each 1 hour duration

Software, Hardware and other infrastructural requirements for running this course

Software Requirements

- CorelDRAW Graphics Suite
- Windows 10*, 8.1 or Windows 7, in 32-bit or 64-bit, all with latest Updates and Service Packs .
- Microsoft Internet Explorer 11 or higher

- Microsoft .Net Framework 4.7

Hardware Requirements

- Intel Core i3/5/7 or AMD Athlon 64
- 2 GB RAM
- 2.5 GB hard disk space
- Multi-touch screen, mouse or tablet
- 1280 x 720 screen resolution at 100%
- CD drive optional (for box installation)

Other infrastructural requirements

- Internet connection required to sign in to authenticate CorelDRAW Graphics Suite, receive performance and stability updates, access online content, and use some features, such as QR Codes or the Content Exchange. We can use CorelDRAW Graphics Suite offline, provided, we connect to the Internet at least once a month so that they can validate the software license.

The open source software that can be used instead of CorelDraw

Inkscape

This software is an open-source vector editor. It is very commonly used by beginners and possesses a lot of capabilities of a graphics editor. The program is an advanced software and can also perform advanced functions at the same time. It can read clones, markers, and other blending options. The User Interface is also very user- friendly. The program can create 2D Logos, Maps, posters, Graphics, and others. Since it is an [Open source Program](#), anybody can just download it and use it free of cost. This program can be very helpful to a lot of Beginners and freshers.

LBS Centre for Science and Technology (Offline Course)

Course Title	Graphic Design using Adobe Photoshop CS6			
Abbreviation of Course Title	GDAP(Graphic Design using Adobe Photoshop CS6) (Adobe Photoshop CS6 for PC Windows developed by Adobe Team is a high-class and lightweight tool with digital support specially designed for Windows PC. Wet brushes, healing brushes, an elegant collection of tools, and background filling are available as some surprising material like that of CS4)			
Duration of the course in Hours	40 Hrs			
Duration of the course in Months	1 Month			
Course Fees	4000/- (Rupees Four Thousand Only)			
Eligibility	7th & Above			
About the Course				
<ul style="list-style-type: none"> -Learn how to use Photoshop CS4. -Learn the basics so that you can complete fundamental tasks - & Learn how to make use of more advanced features that will make your Photographs pieces of art. 				
Objectives of the course				
Train the student in Adobe Photoshop CC to create new visuals, edit images, add effects and overlays, and eventually create professional designs.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
GDAP1	Subject 1: INTRODUCTION TO ADOBE PHOTOSHOP CS6	1	2	3
GDAP2	Subject 2: Getting Started with Photoshop	1	2	3
GDAP3	Subject 3: Zooming & Panning an Image	1	2	3
GDAP4	Subject 4: RESIZING & CROPPING IMAGES	1	2	3
GDAP5	Subject 5: WORKING WITH BASIC SELECTIONS	1	2	3
GDAP6	Subject 6: GETTING STARTED WITH LAYERS	1	2	3
GDAP7	Subject 7: PAINTING IN PHOTOSHOP	1	2	3
GDAP8	Subject 8: PHOTO RETOUCHING	1	2	3
GDAP9	Subject 9: INTRODUCTION TO COLOR CORRECTION	1	2	3
GDAP10	Subject 10: USING QUICK MASK MODE	1	2	3
GDAP11	Subject 11: WORKING WITH THE PEN TOOL	1	2	3
GDAP12	Subject 12: CREATING SPECIAL EFFECTS	1	2	3
GDAP13	Subject 13: EXPORTING YOUR WORK	1	3	4
Total Hours		13	27	40
Syllabus of the course				
1INTRODUCTION TO ADOBE PHOTOSHOP CS4				
<ol style="list-style-type: none"> 1. About Photoshop 2. Navigating Photoshop 3. Menus and panels 4. Opening new files 5. Opening existing files 				
2Getting Started with Photoshop				
<ol style="list-style-type: none"> 1. Exploring the Toolbox 2. The New CS4 Applications Bar & the Options Bar 3. Exploring Panels & Menus 4. Creating & Viewing a New Document 5. Customizing the Interface 6. Setting Preferences 				

3: Zooming & Panning an Image

1. Working with Multiple Images, Rulers, Guides & Grids
2. Undoing Steps with History
3. Adjusting Color with the New Adjustments Panel
4. The New Masks Panel & Vibrance Color Correction Command
5. The New Note Tool & the Save for Web & Devices Interface
6. The New Auto-Blend & Auto-Align Layers Commands
7. The New 3D Commands

4: RESIZING & CROPPING IMAGES

1. Understanding Pixels & Resolution
2. The Image Size Command
3. Interpolation Options
4. Resizing for Print & Web
5. Cropping & Straightening an Image
6. Adjusting Canvas Size & Canvas Rotation

5: WORKING WITH BASIC SELECTIONS

1. Selecting with the Elliptical Marquee Tool
2. Using the Magic Wand & Free Transform Tool
3. Selecting with the Regular & Polygonal Lasso Tools
4. Combining Selections
5. Using the Magnetic Lasso Tool
6. Using the Quick Selection Tool & Refine Edge
7. Modifying Selections

6: GETTING STARTED WITH LAYERS

1. Understanding the Background Layer
2. Creating, Selecting, Linking & Deleting Layers
3. Locking & Merging Layers
4. Copying Layers, Using Perspective & Layer Styles
5. Filling & Grouping Layers
6. Introduction to Blending Modes
7. Blending Modes, Opacity & Fill
8. Creating & Modifying Text

7: PAINTING IN PHOTOSHOP

1. Using the Brush Tool
2. Working with Colors & Swatches
3. Creating & Using Gradients
4. Creating & Working with Brushes
5. Using the Pencil & Eraser Tools
6. Painting with Selections

8: PHOTO RETOUCHING

1. The Red Eye Tool
2. The Clone Stamp Tool
3. The Patch Tool & the Healing Brush Tool
4. The Spot Healing Brush Tool
5. The Color Replacement Tool
6. The Toning & Focus Tools
7. Painting with History

9: INTRODUCTION TO COLOR CORRECTION

1. Color Spaces & Color Modes
2. The Variations Command
3. The Auto Commands
4. Adjusting Levels
5. Adjust Curves, Non-Destructively, with Adjustment Layers

10: USING QUICK MASK MODE

1. Quick Mask Options
2. Painting a Selection
3. Saving & Removing a Selection from the Background

11: WORKING WITH THE PEN TOOL

1. Understanding Paths & the Pen Tool
2. Creating Straight & Curved Paths
3. Creating Combo Paths
4. Creating a Clipping Path

12: CREATING SPECIAL EFFECTS

1. Getting Started with Photoshop Filters
2. Smart Filters
3. Creating Text Effects
4. Applying Gradients to Text

13: EXPORTING YOUR WORK

1. Saving with Different File Formats
2. Saving for Web & Devices
3. Printing Options
4. Credits

By successfully completing this course, students will be able to:

Identify and describe the major functions of Photoshop CS4.

Work and manipulate images,

Resize and Crop images.

Work with basic selections.

Create, edit, delete and manage Layers.

Paint & Retouch photos

Correct Colors.

Use Masks and the Quick Mask Mode.

Use the Pen Tool

Create Special Effects

Method of Evaluation

At the end of the course, there will be a course review exam along with an assignment. 75 % Attendance is mandatory for attending the evaluation. Students will successfully complete this course by mastering all learning outcomes with 40% or higher overall grade. Export Your Work, and Demonstrate mastery of lesson content at levels of 40% or higher for Pass, 50% for Second Class, 60% for First Class, 75 % for First Class with Distinction.

Software, Hardware and other infrastructural requirements for running this course

Software :- Adobe Photoshop CS6

Hardware :- Assemble Desktop PC CPU with 320 GB HDD | 4 GB DDR3 RAM | Core 2 Duo 3.0 GHz | G-41

Motherboard | WiFi (Optional)(Core 2 Duo, with Keyboard and Mouse)

Infrastructure:- 24 Port 10/100/1000 Mbps Gigabit Ethernet Unmanaged Switch with 10 Mbps Internet Connection

**LBS Centre for Science and Technology
(Offline Course)**

Course Title		Junior Animator Course		
Abbreviation of Course Title		JAC		
Duration of the course in Hours		25 hrs		
Duration of the course in Months		1		
Course Fees		700		
Eligibility		7th & Above		
About the Course				
Covers the fundamentals of 2D Animation using Adobe Flash software, Adobe Photoshop software, Microsoft PowerPoint Software				
Objectives of the course				
At the end of the course the student will learn basic concepts of 2D Animation, Making of storyboard, Image Editing, Audio & video editing, creating animated digital multimedia content.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
JAC1	Creating 2D Animation using Adobe Flash , Microsoft PowerPoint , Adobe Photoshop	10	15	25
Syllabus of the course				
Syllabus of the Subject 1JAC1				
<p>Introduction to 2D Animation</p> <ul style="list-style-type: none"> • Animation Definition • Animation Concepts: Frame Based Animation, Tweening. • Concept of 2D Animation ,Concept of 3D Animation <p>Creating 2D Animation using Adobe Flash</p> <ul style="list-style-type: none"> • Adobe Flash Layout & Interface • Shapes and objects • Transformation Tools • Frame, key frames, layering • Shape Tween,Symbols • Motion Tween , masking • Character design and character animation • Frame-By-Frame Animation • Storyboarding in Flash <p>Creating a 2D Animation Using Microsoft PowerPoint</p> <ul style="list-style-type: none"> • Power Point Basics , Animation effects used in presentation:Flash Once ,Motion Path , Spin <p>Creating an Animated GIF in Photoshop</p> <ul style="list-style-type: none"> • Photoshop basics, Steps for preparing animated GIF files 				

Method of Evaluation
The scheme of evaluation shall consist of examination in Theory & Practical [50 marks each]. The practical examination is based on Demonstration of developed story line concept through storyboarding
Software, Hardware and other infrastructural requirements for running this course Software :Adobe Flash , Adobe Photoshop, Microsoft PowerPoint Hardware :Processor Intel Pentium 4 or Intel Core Duo (or compatible) processor. 4GB of RAM Microsoft Windows 7 (64 bit), Windows 8 (64 bit)

LBS Centre for Science and Technology (Offline Course)

Course Title	Junior Programmer Course			
Abbreviation of Course Title	JPC			
Duration of the course in Hours	50			
Duration of the course in Months	2			
Course Fees	1500			
Eligibility	7th & Above			
About the Course				
The course is designed for students 8th & Above, who have an aptitude in programming.				
Objectives of the course				
<ul style="list-style-type: none"> • To understand the basics of computer programming. • Learn core Python scripting elements such as variables and flow control structures. • Make the programs more robust by using advanced concepts like Exception handling 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
JPC	Subject 1	25	25	50
Syllabus of the course				
Basics of computer, Algorithms, Flowchart, Introduction to python, Conditional Statements, Looping, Control Statements, String Manipulation, Lists, Tuples, Dictionaries, Functions, Modules, Input-Output, Exception Handling.				
Method of Evaluation Theory + Practical				
Software, Hardware and other infrastructural requirements for running this course				
Minimum System Requirements				
<ul style="list-style-type: none"> • Processors: Intel Atom® processor or Intel® Core™ i3 processor • Disk space: 1 GB • Operating systems: Windows* 7 or later, macOS, and Linux • Python* versions: 2.7.X, 3.6.X 				

**LBS Centre for Science and Technology
(Offline Course)**

Course Title	Certificate Course in Artificial Intelligence			
Abbreviation of Course Title	CCAI			
Duration of the course in Hours	100			
Duration of the course in Months	3			
Course Fees	8000			
Eligibility	Plus Two/3 year Diploma (Prerequisites courses may be suggested Such as Datastructures , Algorithm.Or else the duration may be increased to 150hrs)			
About the Course				
This course is aimed at providing the students the basic concepts of AI Techniques and Learning				
Objectives of the course				
<ol style="list-style-type: none"> 1. To introduce the basic knowledge representation, problem solving, and learning methods of Artificial Intelligence. 2. To introduce basic concepts of Natural Language Processing 3. To introduce PROLOG and LISP programming 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
SC1	Artificial Intelligence	90	10	100
Syllabus of the course				
Syllabus of the Subject 1				
Introduction				
What Is AI? The Foundations of Artificial Intelligence, The History of Artificial Intelligence, (Russel), Overview of AI Application Areas, Artificial Intelligence - A Summary (Text book 3)				
Problem solving basics				
Problems, Problem Spaces, and Search. Defining the Problem as a State Space Search. Problem Characteristics, Production Systems, Production System Characteristics. Issues in the Design of Search Programs (Text book 1)				
Solving Problems by Searching				
Uninformed Search: Formulating the State Space, Components of Implicit State-Space Graphs, Breadth-First Search, Depth-First or Backtracking Search, Iterative Deepening (Text book 5)				
Heuristic Search Techniques: Generate-and-Test, Hill Climbing, Best-first Search (Text book 1)				
Algorithm A*, Admissibility of A*, Iterative Deepening A*, Recursive Best First Search (Text book 4)				
AO* algorithm, Constraint Satisfaction. Crypt Arithmetic Problems (Text book 1)				
Advanced Searchtechniques				
Heuristics in Games, Design of good heuristic-an example. Min-Max Search Procedure, Alpha Beta pruning, (Text book 3)				
Knowledge representation				
Using Predicate logic - representing facts in logic, functions and predicates, Conversion to clause form, Resolution in propositional logic, Resolution in predicate logic, Unification. Representing Knowledge				

Using Rules: Procedural Versus Declarative knowledge, Logic Programming, Forward versus Backward Reasoning. (Text book 1)

Structured Knowledge representation

The Schema, Frames, The Semantic Net Scripts, Goals, Plans and MOPs , Conceptual Graphs. (Text book 4)

Advanced Problem Solving

Introduction to agent based problem solving. Strong Method Problem Solving - an introduction. Overview of Expert System Technology. Rule-Based Expert Systems (Text book 3)

Expert System Shells –Support for explanation- examples –Knowledge acquisition-examples. (Text book 1)

Reasoning in Uncertain situations

Introduction to Logic-Based Abductive Inference. Abduction: Alternatives to Logic. The Stochastic Approach to Uncertainty. (Text book 3)

Learning

What is learning, Rote learning. Learning by taking Advice. Learning in Problem-solving, Learning from example: induction, Explanation-based learning.

(Text book 1)

Introduction to Reinforcement Learning, Passive Reinforcement Learning, Active Reinforcement Learning. Applications of Reinforcement Learning (Text book 2)

Machine Learning

Naive Bayes Classifiers, Decision Trees, The k-means Clustering Algorithm Artificial Neural Networks (Text book 4)

Planning

Forward State Space Planning, Backwards State Space Planning, Goal Stack Planning, Plan Space Planning, A Unified Framework for Planning (Text book 4)

Natural Language Processing

Classic Problems in NLP and Schools of Thought, Basic NLP Techniques, Applications (Text book 4)

Programming Techniques for Artificial Intelligence

An Introduction to Prolog, Syntax for Predicate Calculus Programming. Abstract Data Types (ADTs) in PROLOG. A Production System Example in PROLOG

(Text book 3)

An Introduction to LISP and a brief overview. Search in LISP: A Functional Approach to the Farmer, Wolf, Goat, and Cabbage Problem (Text book 3)

Conclusions

AI: Current Challenges and Future Directions (Text book 3)

Are we going in the right direction? What If AI does succeed? The Ethics and Risks of Developing Artificial Intelligence (Text book 2)

Text Books

1. E Rich, K Knight, Artificial Intelligence, 3/e, Tata McGraw Hill, 2009.
2. Stuart Jonathan Russell, Peter Norvig, Artificial intelligence, A modern approach, 3rd edition, Pearson, 2010
3. George F. Luger, Artificial Intelligence- Structures and Strategies for Complex Problem Solving, 5/e, Pearson Education. 2005.
4. Deepak Khemeni, A First course in Artificial Intelligence, Tata McGraw Hill, 2013
5. Nils J. Nilsson, A New Synthesis :Artificial Intelligence ,Nils Johan Nilsson Morgan Kaufmann Publishers, 1998

Method of Evaluation Final Theory/ Practical Exam

Software, Hardware and other infrastructural requirements for running this course

1. Linux based system
2. SWI-Prolog for running PROLOG programs
3. CLISP for running LISP programs

**LBS Centre for Science and Technology
(Online Course)**

Course Title	Certificate Course in Laptop Servicing
Abbreviation of Course Title	CCLS
Overall duration of the course in Hours	100
Duration of the course in Months (if applicable)	3
Course Fees	10000
Eligibility	SSLC
Number of live hours	50, 50 practical hours

About the Course

The course is designed for the students to get familiarized with the Laptop Servicing methodologies.

Objectives of the course

Students are able to identify various sections in laptop and understand the working.
 Troubleshoot and repair various sections in laptop.
 Familiarize with various IC used in laptops

Syllabus of the course

FAULT FINDING AND TROUBLESHOOTING.

ADAPTER = block diagram, how it function, basic problems circuit diagram, repairing steps
 BATTERY = block diagram, how it function, basic problems ,circuit diagram, repairing steps
 LCD = block diagram, how it function, basic problems ,circuit diagram, repairing steps
 INVERTER = block diagram, how it function, basic problems ,circuit diagram, repairing steps
 HDD = block diagram, how it function, basic problems ,circuit diagram, repairing steps
 RAM = block diagram, how it function, basic problems ,circuit diagram, repairing steps
 KEYBOARD = block diagram, how it function, basic problems ,circuit diagram, repairing steps
 TOUCH PAD = block diagram, how it function, basic problems ,circuit diagram, repairing steps
 CD DVD = block diagram, how it function, basic problems ,circuit diagram, repairing steps
 LAPTOP MOTHERBOARD = block diagram, how it function, basic problems ,circuit diagram, repairing steps,BGAreballing,Bios Copier , IC testing , SMD service , VRM,Reset,clock ,frame ,data ,IC voltage Tracing ,
 Circuit Tracing ,model numbers & troubles all branded LAPTOP
 Different section VRM tracing
 ICS detail used testing& tracing
 Different connectors socket
 Post error code testing
 Common problem of different motherboards
 Power problems ,super io, bridge ic problem ,bios problem,clock ic problems,
 Trouble shooting different branded motherboards

Error checking using simple idea

Data recovery techniques basic

basic cleaning and washing method of motherboard

SMD component practice, removing and inserting different components, tracing

Different connectors and socket with related component and chip

Testing and using of different components

DC to DC power regulate sections,

Power supply to different chips VCC core,5vsus, 1.5v, 1.8vsus, 5v, 10v, 2.5v

CPU Core Voltage, VID Signals , VRM Section , MOSFET Of VRM

Clock generator circuits

BIOS chips section , RTC chip

Power good, Reset, Frame, Clock,Address, BIOS Signals

SERVICE TOOLS: BGA REBALLER,BIOS COPIER,LAPTOP MOTHERBOARD SCANNER ,DEBUG CARD ,LAPTOP MOTHERBOARD TESTER ,SMART TWIZZER,ENDOSCOPIC MICROSCOPIC IC TESTERETC

DATA SHEETS OF DIFFERENT ICS

POWER SUPPLY CHIP :- (MAX1632, MAX1904, MAX1634,SB3052, SC1402, LTC1628

TMP48U ADP3160/ADP3167 ADP3168 APW7060 , ETC)

IO CHIP :- (PC97338, PC87392,FDC7N869, FDC37N958, LPC47N227, LPC47N267 PC87591S/ PC 87591L / PC 97317IBW/PC 87393 VGJ PC87591E ETC)

CPU power supply chips :- (ADP3166 ADP3170 ADP3421 AIC1567 CS5322 FAN5056 ITC1709 MAX1710/MAX1711/MAX1712 HIP6004)

Charge discharge control –chip :- (MAX745, TC490/591 AAI3680 ADP3806 DS2770 LT1505G MAX1645B MAX745 MB3878 AAT3680 ETC)

CPU temperature control chip :- (MAX1617, MAX1020A, AD1030A, CM8500 MAX1989 DS1620

Graphics Brand :- (ATI, NVIDIA, S3, NEOMAGIC, TRIDENT, SMI, INTEL, FW82807, and CH7001A

Ethernet chips :- (RTL8100, RTL8139, Intel DA82562, RC82540, 3COM, BCM440 LF8423, LF-H80P, H-0023, H0024, H0019, ATPL-119

Sound audio Chip :- (ESS1921, STAC9704, AU8810 ,4299-JQ, TPA0202 , 8552TS, 8542TS, BA7786, AN12942 AD1885 ALC655 APA2020/TPA0202

PC Card Chip :- (R5C551, R5C552, R5C476, R54472

PC Card power supply chips :- (TPS2205, TPS2206, TPS2216, TPS2211, PU2211, M2562A,

Method of Evaluation

Written test and Practical examination.

**LBS Centre for Science and Technology
(Online Course)**

Course Title	Certificate Course in Robotics
Abbreviation of Course Title	CCR
Overall duration of the course in Hours	180 hours
Duration of the course in Months (if applicable)	3 months
Course Fees	9000
Eligibility	Plus Two/3 year Diploma
Number of live hours	100
Platform for running live classes	Googlemmeet
Platform for streaming recorded classes	Google Classroom
Software used	C, Python & Matlab
Proprietary S/w or Open source S/w	both
Minimum infrastructure required by the students to participate in this course	Laptop with internet connection
About the Course	
Robotics technology attributes to every aspect of life. It has the potential to provide enhanced levels of service. Keeping these facts in mind, this Certificate Course is designed to introduce Plus Two/3-year Diploma students to start career in this exciting and rapidly expanding field.	
Objectives of the course	
To evolve the next-generation professionals in the area of robotics for contributing in the design, development, and implementation of robotic systems in the industry.	
Syllabus of the course	
<ul style="list-style-type: none"> * Robot Mechanics * Electrical Systems * Robot Electronics * Sensors Technology 	

* **Wireless Data Transmission**

* **Micro controllers and their programming**

Method of Evaluation

Online Evaluation

LBS Centre for Science and Technology (Offline Course)

Course Title	Course on Digital Video Editing
Abbreviation of Course Title	CDVE
Duration of the course in Hours	25 Hours
Duration of the course in Months	1 Month
Course Fees	Rs 3000/-
Eligibility	7th & Above
About the Course	
This course aims to develop a basic understanding of the tools and techniques available in the Adobe Premiere Pro Video Editing Software. Adobe Premiere Pro is the most powerful and precise video editing tool for professionals.	
Objectives of the course	
<ul style="list-style-type: none"> • Learn how to edit raw video clips in any video format and transform to professional studio quality videos by using Adobe Premiere Pro. • Able to deliver creative high quality works by effectively understanding the video editing workflow. 	
Syllabus of the course	
<ul style="list-style-type: none"> • Familiarization of Adobe Premiere Pro: Standard Digital video workflow, Touring the Premier Pro interface(1 hr). • Setting up a Project:Creating a Project,Setting up a sequence(1 hr). • Importing Media:Working with Media Browser panel, Ingest options and proxy media,Importing still image files(2 hrs). • Organizing Media:Using the Project Panel,Working with bins,monitoring footage,modifying clips(2hrs). • Mastering the essentials of video editing:Using the source monitor,navigating the Timeline,Using essential editing commands (2 hrs). • Working with Clips and Markers:Using Program Monitor Controls,setting the playback resolution,usingmarkers, Using Sync Lock and Track Lock, selecting and moving clips,extracting and deleting segments(5hrs). • Adding Transitions:Adding video transitions and audio transitions (2hrs). • Advanced editing Techniques: Changing playback speed, replacing clips and footage, nestingsequences, Trimming (4 hrs). • Putting clips in motion, Editing and mixing audio(2 hrs). • Adding video effects, Improving Clips with color correction and grading,Creating titles:Introducing captions(3 hrs). • Output: Managing Projects and Exporting frames, clips and sequences(1 hr). 	
Method of Evaluation	
Short video editing project	
Software, Hardware and other infrastructural requirements for running this course	
Software	
<ul style="list-style-type: none"> • Adobe Premier Pro • Cost of the software: ₹19,158.48/yr incl. of GST 	
Hardware	
<ul style="list-style-type: none"> • Processor-Intel® 7thGen or newer CPU or AMD equivalent • Operating System-Microsoft Windows 10 (64-bit) version or later • 1TB 7200 RPM SATA 1st Hard Drive 	

- 500 GB 7200 RPM SATA 2nd Hard Drive
- RAM-16 GB of RAM for HD media;32 GB for 4K media or higher
- GPU-4 GB of GPU VRAM
- HDD-8 GB of available hard-disk space for installation; additional free space required during installation

LBS Centre for Science and Technology (Offline Course)

Course Title	Certificate Course in Electrical Autocad			
Abbreviation of Course Title	CCEA			
Duration of the course in Hours	100			
Duration of the course in Months	3			
Course Fees	8000			
Eligibility	ITI/3 year Diploma /+2, SSLC (SSLC can be the qualification only for the applicant with practical experience in related area)			
About the Course				
This course aims to provide hands on practice in freehand sketches, drawings using relevant tools and computer based software. The course also provides practice to read and interpret electrical engineering drawings.				
Objectives of the course				
The objective of this course is to help the student to attain the following industry identified competency through various teaching learning experiences: --Use of CAD software for drawing electrical circuits and components.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
SC1	Subject 1: Basics of Electrical Systems	15	0	15
SC2	Subject 2: Introduction to CAD Tools	15	25	40
SC3	Subject 3: Electrical Drawings in CAD	15	30	45
Syllabus of the course				
Syllabus of the Subject 1: Basics of Electrical Systems				
Sketch the symbols of the given types of electric lamps, electrical wiring accessories, electrical machines and electronic lamps. Interpret freehand sketches of the given electrical machine parts and electrical components. Interpret the orthographic and isometric projections of electrical machine parts and components. Electrical load calculations, selection of MCB, ELCB, sub circuits (light and power). Simple wiring diagrams.				
Syllabus of the Subject 2: Introduction to CAD Tools				
Identify the function of given components of CAD classic screen, Menu bar, Status bar and CAD Tool bar. Interpret given single line diagram using absolute coordinate method, relative coordinate method and polar coordinate method. Interpret given 2D figures (Commands: LINE, CIRCLE, OFFSET, TRIM, FILLET, ARC, POLYGON, ELLIPSE, COPY, MIRROR, ROTATE and CHAMFER) and isometric drawings of electrical machines in CAD (Commands: LIMITS, UNITS, ZOOM, GID, SNAP, LINE, COPY, ISOPLANE, ELLIPSE, TRIM, ERASE, PROPERTIES and SAVE).				
Syllabus of the Subject 3: Electrical Drawings in CAD				
Interpret given CAD electrical circuit diagram, CAD electrical layout of 11kV/400V distribution substation and CAD layouts of two types of earthing systems. CAD electrical layout of a house wiring. Basic MEP & BMS: Familiarization with various drawings-Contract-Shop-As Built-Schematic-Isometric-Detailed Section. Familiarization with various projects.				
Method of Evaluation				
Practical End Examination: Any electrical project has to be done and evaluation can be based on the following Performance Indicators:				
Sl No.	Performance Indicators	Weightage in %		
1.	Plan the drawing	20		
2.	Selection of relevant drawing/software tools	20		
3.	Drawing skills judged by neatness and correctness	20		
4.	Timely submission	20		

5.	Answer to Viva questions	20
Total		100

Software, Hardware and other infrastructural requirements for running this course

1. Half Imperial drawing boards.
2. Manual drawing tools: Mini drafter, set squares protractors, compasses and black lead pencil of hardness 'H'.
3. AutoCAD2019 (Rs 88,500.00 for 1 year renewal, Rs 2, 39,540.00 for 3 year renewal.).
4. System requirements:
 - **Operating System:** Microsoft Windows 10 (64-bit only), 8.1 (32-bit & 64-bit), or 7 SP1 (32-bit & 64-bit)
 - **Processor:** 2.5 GHz (3+ GHz recommended)
 - **Memory:** 8 GB (16GB recommended)
 - **Disk space:** 6.0 GB.
 - **Display:** 1920 x 1080 resolutions with True Color.

LBS Centre for Science and Technology (Offline Course)

Course Title	Basic Course on Video and Audio Editing.			
Abbreviation of Course Title	BVAE			
Duration of the course in Hours	40			
Duration of the course in Months	1			
Course Fees	Rs 5000/-			
Eligibility	7th & Above			
About the Course				
<p>BVAE is a one month introductory course in the concepts and practices of digital video and audio editing. Topics covered will include AD/DA conversion, audio and MIDI recording and editing, and virtual instrument technology. There will be hands on work with industry standard DAW software.</p> <p>The course will present basic recording and editing techniques; working with tracks, busses, and effects; mixing and mastering a finished piece of musical material from raw recorded audio tracks.</p>				
Objectives of the course				
<ul style="list-style-type: none"> ❖ To provide a well-rounded and comprehensive training on video editing through lectures, exercises and applications. ❖ To set a contextual backdrop for aiding ease of understanding, the theoretical background pertaining to video editing would be covered as well. ❖ To emphasize skill proficiency so that trainees can practically contribute and provide support to the relevant industry. ❖ To maximize the production of high quality videos, films, documentaries and other related formats. ❖ Record and edit audio material using DAW (Digital Audio Workstation) software. ❖ Edit with audio and MIDI recording techniques. ❖ Import sampled sounds using virtual instrument technology. ❖ Mix and master raw audio tracks ❖ Create good sound and balance, using tracks, busses, and effects such as compression and EQ 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
SC1	Understanding Filming	1		1

SC2	Basics of computer	2	2	4
SC3	Basics of Adobe Premiere , Basics of Final Cut Pro	2	5	7
SC4	Video Editing – Practical		8	8
SC5	Introduction to Digital Audio Workstation (DAW).	1		1
SC6	Editing Audio Narrative	1	1	2
SC7	Recording and Editing Audio	1	2	3
SC8	Creating Session and Music Production Basics	1	2	3
SC9	Printing MIDI Instrument Tracks, Track Balance and Session Mixing	1	3	4
SC10	Mixing and Processing with Plug-Ins		4	4
SC11	Additional Processing Techniques		3	3

Syllabus of the course

Syllabus of the Subject 1

- ❖ Understand the history, key concepts and characteristics of filming in an effort to set a contextual background for video editing.

- ❖ To explain the production, post production and delivery guidelines pertaining to filmmaking.
 - A History of Motion Picture Industry
 - Production Guidelines
 - Post Production Guidelines
 - Delivery Guidelines

- ❖ Understand the basic functions, components and aspects of computers to establish a certain level of computer literacy so that students are able to perform video editing functions using various types of software in the subsequent modules.
 - Computer Basics
 - Internet Basics
 - Productivity Program –MS Word
 - Productivity Program MS Excel

- Productivity Program – MS PowerPoint
- ❖ Teach learners about the basics of Adobe Premiere to allow them to be able to log and transfer videos onto a hard drive (internal or external), where it can be edited, processed, and output to a wide variety of formats using Adobe Premiere
- ❖ Learn about Adobe Premiere software using a step-by-step approach starting from the generic basics to specific intricacies.
 - Overview of Adobe Premiere
 - Workflow and workspace
 - Importing Footage
 - Monitoring Assets
 - Editing Sequences and clips.
 - Editing Audio
 - Titling and the Title Effects and Transition
 - Animation and Key frames
 - Compositing, Exporting

Syllabus of the Subject 2

- ❖ Understand the basics of Final Cut Pro (FCP) and to learn all relevant concepts, functions and constructs applicable to video editing in FCP.
- ❖ To explain video editing using Final Cut Pro starting from the very basics to the specifics using a step by step approach.
 - Introduction to Final Cut Pro
 - Keyboard shortcuts
 - Import media resources
 - Organize Your Media Review and skim med,
 - Create and Manage Projects
 - Edit your project
 - Edit Audio Resources
 - Add transitions, titles, effects, and generators

- Exporting media

- ❖ Provide an opportunity to the students/learners to practically apply the learned constructs during all preceding modules.

Practical Session

Syllabus of the Subject 3

- ❖ DAW System Components Overview
- ❖ Opening Pro Tools session
- ❖ Overview of DAW GUI
- ❖ Saving Session
- ❖ **Lab 1 – Basic Usage and Simple Two-Track Song Editing**
- ❖ Basic Timeline Editing of Clips
 - **Separate**
 - **Capture**
 - **Trim**
 - **Rename Clips**
 - **Batch Fades**
 - **Consolidate**
- ❖ **Lab 2 – Pre-Recorded Narrative Dialog Editing Lab**
- ❖ Signal Flow Thru DAW System
 - **Latency**
 - **Hardware Buffer**
- ❖ Using Line and Microphone Signals
- ❖ Creating Audio Tracks
- ❖ Setting Basic Input Levels
- ❖ Normal Record Options
 - **Click Setup**
 - **Session Tempo**
 - **Pre/Post Roll**
 - **Punch In/Out Techniques**
- ❖ Importing Media into Session
 - **Audio Asset**
 - **Movie Asset**

• **Lab 3** – Student Recording of Narrative Dialog

Syllabus of the Subject 4

- ❖ Session Parameters
- ❖ Importing Media into Session
 - **Audio Loops**
- ❖ Using Loops in Music Production
 - **Import Loops**
 - **Duplicate**
 - **Repeat**
 - **TCE Trim**
 - **Loop Trim**
- ❖ Continued Basic Editing Techniques
 - **Tab to Transient**
 - **Direct Timeline Entry**
 - **Navigation Techniques**
 - **Viewing Techniques**
- ❖ **Lab 4** – Importing Loops, Editing and Arrangement Lab

Syllabus of the Subject 5

- ❖ Manual/Automatic Routing of MIDI Instrument Tracks to Recording Audio Tracks.
- ❖ Panning Mono and Stereo Elements
- ❖ Insert Instantiation of Channel Plug-Ins – Filters, Equalization, Dynamics/Compressor
- ❖ Demonstrate the Signal Processor Usage and Plug-In Presets
- ❖ Basic Send and Bus Routing for Signal Processing
- ❖ **Lab 5** – Mix Lab 1 - Mixing Basics (Balance)

Syllabus of the Subject 6

- ❖ In-Depth Spectral EQ Track Processing Techniques
- ❖ In-Depth Dynamic Track Processing Techniques
- ❖ Continued Send and Bus Routing Processing
- ❖ Master Bus Processing Techniques o Basic Limiter and Dither Usage
- ❖ Bouncing Session
- ❖ File Asset Management

❖ Lab 6 - Mix Lab 2 – Mixing Multi-Track Song Session
❖ Syllabus of the Subject 7
❖ Mix Lab 2 – Continued Student Project Development ❖ Final Project Development, Instructor Review
Method of Evaluation
Tests, practical lab assignments and an assigned student project.
Software, Hardware and other infrastructural requirements for running this course Software: Adobe premier, Final cut pro, Avid pro tool Students must bring their own headphones to all classes

LBS Centre for Science and Technology (Offline Course)

Course Title	Pre Primary Teachers Training Course
Abbreviation of Course Title	1 PTTC
Duration of the course in Hours	600
Duration of the course in Months	12
Course Fees	12,000/-
Eligibility	Plus Two

About the Course

“Creativity is the key to success in the future, and primary education is where teachers can bring creativity in children at that level” is the famous quote of our former President A.P.J. Abdul Kalam. Our classrooms are the shaping ground of our future society. Classrooms should be dynamic, humane, nature friendly and constructive. The development of a person from childhood to a responsible adulthood comes primarily through the learning ecosystem which includes the support and appreciation received from the school. The challenge of teaching is to find the means and ways to provide the right learning environment and opportunity to each and every student. The curriculum of teacher education should have a foundation of awareness of a child’s psychology. Here, we have given importance to learning this in the context of Indian homes so that the faculty can be more sensitive to the needs of his/her wards. It also gives attention to value education, ICT skills, language, etc as well as subject areas. Equal importance is given for theory and practice. This course is framed on this perspective and is aimed at equipping the student faculties to teach in primary classes, which are child-friendly in nature. It is developed with the changing educational scenario in mind due to COVID-19 conditions.

Objectives of the course

1. To equip the faculty with the skills and knowledge needed for an holistic development of the student
2. To improve the teaching-learning process especially in post-Covid conditions.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DCPS101	CHILD PSYCHOLOGY & EDUCATION	50	50	100
DCPS102	COMPUTER TECHNOLOGY	40	60	100
DCPS103	COMMUNICATION SKILLS	40	60	100
DCPS201	SKILL DEVELOPMENT	50	50	100
DCPS202	SUBJECT PEDAGOGY	60	40	100
DCPS203	VALUE EDUCATION	40	10	50
DCPS204	CLASS ROOM TEACHING	10	40	50

Syllabus of the course

Syllabus of DCPS101 CHILD PSYCHOLOGY & EDUCATION

DCPS101 CHILD PSYCHOLOGY & EDUCATION

Physical Development, Stages of Growth- Physical, Mental, Emotional, Cognition and Social, Education Psychology, Understanding the student and handling differently-abled, Development and Educational scenario in Indian Context

Practicals : Tools for accessing and evaluation – training, practice and case study

Syllabus of DCPS02 COMPUTER TECHNOLOGY
<p>DCPS102 COMPUTER TECHNOLOGY</p> <p>Basics of Computer Hardware and Software- Identifying the basic components, Various models of input and output devices and their operations, operating a computer and their peripherals, Basic Maintenance and repairing of such devices, identifying the fault of such devices etc.</p> <p>Softwares for Primary Schools – Working on Drawing, Documents, Spreadsheets and Presentation tools, Antivirus tools, Proprietary and Open Source tools – advantages and disadvantages.</p> <p>Tools for Online classes – tools for Class Meetings, Class Management, Teaching and Evaluation</p> <p>Practicals : Familiarisation of hardware, basic repair, working on drawing, documents, spreadsheets and presentations tools, tools for online classes</p>
Syllabus of DCPS103 COMMUNICATIONS SKILLS
<p>DCPS103 COMMUNICATION SKILLS</p> <p>Basic Communication skills, Theories of Communication, Types of Communication. Verbal Communication – mother tongue, other languages, Non –verbal Communication, Communication in a class</p> <p>Practicals: Verbal communication and non-verbal communication games, practice and mock presentations, evolution and criticism</p>
Syllabus of DCPS201 SKILL DEVELOPMENT
<p>DCPS201 SKILL DEVELOPMENT</p> <p>Assessing the skill of the student and evaluation – tools, methods, etc</p> <p>Improving the mental skills, mathematical skills, reading skills and learning skills</p> <p>Practicals : Tools for assessing& evaluation- training, practice and case study</p>
Syllabus of DCPS202 SUBJECT PEDAGOGY
<p>DCPS202 SUBJECT PEDAGOGY</p> <p>Handling Language, Mathematics, Basic Science, Social Science , Computer, Physical Education and Artsclasses</p> <p>Practicals : Preparation for a topic of interest, Mock presentations</p>
Syllabus of DCPS203 VALUE EDUCATION
<p>DCPS203 VALUE EDUCATION</p> <p>General habits for healthy life, habits in post-COVID acenarios, attitudes, atiquettes,etc in home, society and school, food requirements and habits, caring for nature, First Aid, importance of physical activity and exercises, physical activity and exercises for Primary school students, developing creativity in students, practicing creativity in classroom, power of positive words and positive thinking, Teacher – responding to the needs of various stakeholders.</p> <p>Practicals : Practice, discussions, video sessions and evaluation, first aid practice, communicating the topics in class –mock sessions</p>
Syllabus of DCPS204 CLASSROOM TEACHING
<p>DCPS204 CLASSROOM TEACHING</p> <p>This is more of a practice session for the teachers. The evaluation metrics should be based on all the 6 topics of their study.This should include collecting sufficient background literature, reading, writing and presenting as well as mock classroom sessions.</p>

Method of Evaluation
Equal weightage for Internal and semester examinations. Periodic internal examinations (minimum two), assessing both theory and practicals. Semester-wise examination for each subject with 50% for theory and 50% for practicals.
Software, Hardware and other infrastructural requirements for running this course: Hardware : Desktop/laptop PCs with proper internet connectivity, Projectors Software: Open Software tools for Documentation, Spreadsheet, Presentations Infrastructure requirement : Classroom environment with blackboard/whiteboard with accessories, Experts like psychologists, educationalists etc for handling classes and evaluations, Assessment tools for various analysis and evaluations.

LBS Centre for Science and Technology (Offline Course)

Course Title	Advanced Certificate Course in Mechanical AutoCAD
Abbreviation of Course Title	ME - CAD
Duration of the course in Hours	100
Duration of the course in Months	3
Course Fees	15000
Eligibility	ITI/3 year Diploma /+2, SSLC (SSLC can be the qualification only for the applicant with practical experience in related area)

About the Course

This course is intended to teach students from the basics of the AutoCAD software to the advanced level.

Objectives of the course

To produce high quality designs in less time, via the significant improvements in precision and flexibility while working in both 2D sketches and 3D modeling.

Scheme of Study

Course Code	Name of the Course	Theory (hrs)	Practical (hrs)	Total (hrs)
ME-CAD	Advanced Certificate Course in Mechanical AutoCAD	25	75	100

Syllabus of the course

Advanced Certificate Course in Mechanical AutoCAD

Module 1:

Introduction to Engineering Drawing: Construction of Figures (plane and complex), Construction of curves, helix, Principle of projection, Projection of lines and solids, Section of solids.

Introduction to computers: Hardware and software concepts, Input output devices, File management,

Introduction to CAD: About Autodesk & AutoCAD, CAD History, Graphical User Interface, Application Menu, Workspaces, Ribbon, File Tabs, Accessing Help, Drawing Templates, Standards Based Design, Create New Drawings and Templates. Rectangles, Arc, Circle and Ellipse, Polygon, Spline, Co-ordinate input methods (directive, absolute, relative and polar), Exercises

Module 2

Object Property & Layer Management: Managing Layers, Configure Object Property Settings, Automatic Management of Layers, Layer Functions and Display

Drawing Geometry: Drawing Creation Workflows and Organization, Structuring Data in Drawings, Reusing and Editing Structured Data, Core Design Tools: Creating Rectangles, Placing Hatch, Fillets, Chamfers, Contours. Power Snaps, Centerlines, Construction Lines, Designing with Lines, Adding Standard Feature Data for Holes and Slots.

Tools for Manipulating Geometry: Editing Tools, Power Commands, Associative Hide.

Altering Objects: Trimming and Extending Objects to Defined Boundaries, Creating Parallel and Offset Geometry, Joining Objects, Changing Part of an Object's Shape, Using Grips, Hatching Objects, Editing Hatch Objects, Exercises

Module 3:

Mechanical Part Generators: Standard Parts, Chains and Belts, Shaft Generator, Standard Shaft Parts, Springs

Creating Drawing Sheets: Model Space Views in Layouts, Creating Drawing Sheets in Model Space, Annotation, Title Blocks and Drawing Borders, Exercises

Dimensioning and Annotating Drawings: Annotation and Annotation Symbols, Creating Dimensions, Editing Dimensions, Hole Charts and Fits List. Exercises

Working with Reusable Content: Using Blocks, Working with Design Center™, Using Tool Palettes,

<p>Exercises Bill of Materials, Parts Lists and Balloons File Management: DWG Files, IGES Files, Model Documentation, Exercises</p> <p>Module 4 3D Modelling: Introduction to the 3D Modeling Workspace, Basic 3D Viewing Tools, 3D Navigation Tools, Introduction to the User Coordinate System, Creating solid primitives, Mesh primitives, Working in 3D, Introduction to free form design. Exercises Creating Solids & Surfaces from 2D Objects: Complex 3D Geometry, Extruded Solids and, Surfaces, Swept Solids and Surfaces, Revolved Solids and Surfaces, Lofted Solids and Surfaces, Creating composite models, Extracting geometry from solid models, Getting information from 3D objects, Exercises</p> <p>Module 5 Editing Models: Adding detail to your solid models, Editing solid models, Manipulating the model, Duplicating the model, Converting 2D objects, Basic mesh modeling, Exercises Sectioning a Model and Creating Drawings: Section a solid model and generate 2D geometry, Creating drawings from 3D models, Exercises Visualization: Using visual styles, Using lights, Using materials, Using the sun, Rendering, Navigating the model, Leveraging cameras and views, Exercises</p>
<p>Method of Evaluation</p>
<p>Attendance – 10% Weightage Module wise Exercises (At least 5 exercises) – 30% Weightage Individual Project – 10% Weightage Team Project – 20% Weightage Final Written / Lab Exam – 30% Weightage</p>
<p>Software, Hardware and other infrastructural requirements for running this course Software required: AutoCAD System requirement: Operating System: Microsoft® Windows® 7 SP1 with Update KB4019990 (64-bit only), Microsoft Windows 8.1 with Update KB2919355 (64-bit only), Microsoft Windows 10 (64-bit only) (version 1803 or higher) Processor: Basic: 2.5–2.9 GHz processor, Recommended: 3+ GHz processor, Multiple processors: Supported by the application Memory: 8 GB RAM or more Disk space: 6 GB free hard disk available, not including installation requirements Display Card: 1920 x 1080 or greater True Color video display adapter; 128 MB VRAM or greater; Pixel Shader 3.0 or greater; Direct3D®-capable workstation class graphics card. Browser: Google Chrome™ (for AutoCAD web app) Network: Deployment via Deployment Wizard. The license server and all workstations that will run applications dependent on network licensing must run TCP/IP protocol. Either Microsoft® or Novell TCP/IP protocol stacks are acceptable. Primary login on workstations may be Netware or Windows. In addition to operating systems supported for the application, the license server will run on the Windows Server® 2016, Windows Server 2012, and Windows Server 2012 R2 editions. Pointing Device: MS-Mouse compliant .NET Framework: .NET Framework Version 4.7 or later, *DirectX11 recommended by supported OS https://knowledge.autodesk.com/support/autocad/troubleshooting/caas/sfdcarticles/sfdcarticles/System-requirements-for-AutoCAD-2020-including-Specialized-Toolsets.html</p>

LBS Centre for Science and Technology (Offline Course)

Course Title	Certificate Course in Expert 3D Printing			
Abbreviation of Course Title	CCTP			
Duration of the course in Hours	180			
Duration of the course in Months	3			
Course Fees	15000			
Eligibility	SSLC			
About the Course				
3D printing is an additive manufacturing technique in which a physical object is manufactured by depositing material layer by layer				
Objectives of the course				
<ul style="list-style-type: none"> • Understand the fundamentals of engineering drawing • Perform CAD application in 2D and 3D • Understand various 3D printing technologies for application to various industrial needs. 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
SC1	Subject 1: Introduction Engineering Drawing	15	15	30
SC2	Subject 2: Introduction to CAD	10	60	70
SC3	Subject 3: 3D Printing	30	50	80
Syllabus of the course				
Syllabus of the Subject 1				
Introduction to course, Job roles and engineering drawing, BIS code of practice for engineering drawing, Geometrical constructions, Dimensioning and scaling, Systems of projection, Orthographic projection, Concept of sectional views, Isometric and oblique projections.				
Syllabus of the Subject 2				
Introduction to computers, Introduction to CAD, Familiarization of the CAD interface- Setting the drawing limits, units and commands/tools- Perform CAD application in 2D interface- Construction of regular polygons, Construction of conic sections, Construction of orthographic views and sectional views, Construction of isometric views, Creation of objects using 3D interface- Construction of simple objects, Machine parts, Assembly drawings, Exploded views using various commands and methods- Conversion of 3D object file into STL format.				
Syllabus of the Subject 3				
3D printing technology and emerging trends, Definition of terms used in 3D printing, Different types of machines- FDM, SLA, SLS etc.- Various materials used in 3D printing, Different methods of manufacturing techniques - liquid based, powder based and solid based- Understanding and designing a simple part for 3D printing, Design and make a simple assembly by considering tolerances, Understanding process algorithm of slicing software and slicing techniques- Various orientation, Part design considering requirements for 3D printing, designing supports & slicing techniques- Understanding of machine details and maintenance concept, Safety measures. Mini Project- Make a simple object for functional requirement.				
Method of Evaluation				
Job carried out in lab 20%				
Work book 20%				
Viva-voce 15%				
Attendance and punctuality 10%				
Assignment 10%				
Mini Project 25%				

Software, Hardware and other infrastructural requirements for running this course:

Software: 3D CAD software

Hardware: PC: Intel core i5 10th generation processor with 2.3ghz and turbo frequency 3.8 ghz, 8GB DDR3 RAM, 1TB HDD, Ethernet, standard I/O ports

**LBS Centre for Science and Technology
(Offline Course)**

Course Title	Diploma Course on Printing Technology
Abbreviation of Course Title	DCPT
Duration of the course in Hours	300 Hrs
Duration of the course in Months	6 Months
Course Fees	Rs.10,000/-
Eligibility	SSLC

About the Course

The course is design to train the students to identify and manage the materials and methods required to execute a printing project. To enable students to familiarize various software's and machinery for printing applications.

Objectives of the course

To ensure that the students have adequate knowledge and skills in printing

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DCPT1	PRINTING PROCESSES	40		40
DCPT2	VISUAL DESIGN & DESK TOP PUBLISHING	40		40
DCPT3	IMAGE PROCESSING	40		40
DCPT4	DIGITAL PREPRESS	30		30
DCPTL1	COMPUTER OPERATIONS AND DESKTOP PUBLISHING		75	75
DCPTL2	DIGITAL PREPRESS & PRINTING		75	75

Syllabus of the course

Syllabus of the Subject 1

DCPT1:- PRINTING PROCESSES (40 Hrs.)

1. Introduction to Printing Processes

- 1.1 Evolution of Printing – Invention of Movable wooden and metal type printing – Lithography – Offset Printing – Intaglio – Gravure – Flexography – Screen Printing – Digital Printing.
- 1.2 Structure of Printing Industry – Pre-media, Prepress – Film reproduction, Image assembly, Plate making and Digital prepress, Press, and Post Press Sections – Flow chart.
- 1.3 Applications of Printing Processes – Offset, Intaglio, Gravure Flexography, Screen printing and Digital printing.

2. Principles of Printing Processes

- 2.1 Basic Principles of Letterpress, Offset, Flexography, Gravure Screen Printing and Digital Printing.
- 2.2. Advantages and Limitations of Printing Processes – Letterpress, Offset, Flexography, Gravure and Screen Printing.

3. Classifications of Printing Machines

- 3.1. Classification of Offset Machines – Sheet fed and Web fed offset machines, Basic configuration of Sheet fed offset machine.
- 3.2 Single color sheet-fed offset press, Multi color sheet-fed press, Offset perfecting press and Small offset press.
- 3.3 Classification of Web offset Machines – In-line web offset press, Blanket – to – blanket web offset press and Satellite type web offset press
- 3.4 Basic configuration of flexography machine.
- 3.5. Types of flexography machine - In-line type flexography press, Stack type flexography press and Satellite type flexography press.
- 3.6 Special application of flexography in Food Packaging.
- 3.7 Classification and types of Gravure machine – Gravure printing unit, printing cylinder, Doctor blade and Impression cylinder.
- 3.8 Screen printing machine – Parts of screen printing press.
- 3.9 Types of screen printing machines – Flat-bed hinged frame machines, Flat-bed vertical lift machines, Cylinder-bed machines, Container printing machines and Rotary screen machines.

4. Digital Printing Technologies

- 4.1 Digital printing – Definition, Scope and job suitability of Digital printing process.
- 4.2 Basic principle of Computer-to-Film, Computer-to -Plate, Computer-to-Press and Computer-to-Print.
- 4.3 Computer-to-Press – Working principle of Direct Imaging with once imageable master and Working principle of Direct Imaging with re-imageable master.
- 4.4 Computer-to-Print – Working principle.

5. Non-Impact Printing Technologies

- 5.1 Basic principle of Non-impact printing technology, Flow chart of NIP technology and applications of NIP technology.
- 5.2 Basic principle of Electrophotography – Imaging, Inking, Toner transfer, Toner fixing and Cleaning.
- 5.3 Basic principle of Ionography – Imaging, Developing, Toner transfer, Toner fixing, Cleaning and Erasing.
- 5.4 Basic principle of Thermography – Direct thermography, Transfer thermography, Working principle of thermal transfer and thermal sublimation printing systems and Properties of ink tonner for Thermography.
- 5.5 Basic principle of Ink jet printing - Continuous ink jet and Drop on demand ink jet, Working principles of continuous ink jet and drop on demand ink jet and Properties of ink tonner for ink jet printing.

6. Special Printing Technologies

- 6.1 Basic principles of hybrid printing system and Application of Hybrid printing systems.
- 6.2 Basic principles of holograms making process, Components of hologram making system - laser, lenses, beam splitter, mirrors, holographic film and Process steps of hologram making system.
- 6.3 Basic principles of lenticular printing process.
- 6.4 Basic principles of waterless offset printing, Plate structure of waterless offset

printing, Merits and Demerits of waterless offset printing.

7. Emerging Printing Process

- 7.1 Basic principles of E-book, List of various manufactures of E-book, Application of E-book, Basic principles of E-ink and Concept of E-ink with microcapsules filled with a coloring agent.
- 7.2 Basic principles of “Gyricon” E-paper, Types of display of E-paper, Application of E-paper, Concepts of rewritable paper, Imaging and erasing processes for rewritable paper.
- 7.3 Introduction about 3D printing, Types of 3D printing - direct and binder 3D printing, Steps involved in 3D printing process and Application of 3D printing.

8. Raw materials for printing

a. Paper, Board

- 8.1 Classifications of paper for printing - printing paper, writingpaper, wrapping paper and specialty papers. Different types of Board Pulp board, Straw board, Carton board, Art board, Chromo board and Corrugated board.
- 8.2 Choice of appropriate quality of paper for different printing processes - Letter press, offset, gravure, Screen, Flexography printing and Digital printing. 8.3 Paper and Board sizes: - ISO paper size (A, B, C Series), British paper sizes - Crown, Double Crown, Demy, Double Demy, Royal and Imperial.
- 8.4 Runnability Properties - Tear Resistance, Tensile Strength, Bursting Strength, Folding Endurance, Stiffness, Basis weight and grammage, Caliper and Bulk, Wire and Felt side, Moisture Content and Relative Humidity, Dimensional Stability and Grain Direction. 8.5 Printability properties - Brightness and Whiteness, Colour, Gloss, Opacity, Ink Absorbency and Pick Resistance.
- 8.6 Paper problems - Powdering and Pilling Problem, Linting, Dusting, and Picking problem

b. Printing Inks

- 8.7 Raw materials used for manufacturing of printing inks - Pigments, Dyes, Vehicles, Driers Solvents, Ink and Additives. Manufacturing of printing inks by three roll dispersion mill.
- 8.8 General characteristics and requirements of printing inks.
- 8.9 Inks for different printing processes - Letter press inks, Flexo inks, Gravure inks, Offset inks and Screen inks.
- 8.10 Ink properties - Color properties – opaque and transparent ink, Flow properties and working properties of inks.
- 8.11 Ink types – based on substrate, based on drying and based on

chemistry

Syllabus of the Subject 2

DCPT2 :- VISUAL DESIGN & DESK TOP PUBLISHING(40 Hrs.)

1. GRAPHICAL OPERATING SYSTEM

Introduction to GUI OS; Features and various versions of GUI OS & its use; Working with GUI OS; My Computer & Recycle bin ; Desktop, Icons and Explorer; Screen description & working styles of GUI OS; Dialog Boxes & Toolbars; Working with Files & Folders; simple operations like copy, delete, moving of files and folders from one drive to another, Shortcuts & Auto start; Accessories and Windows Settings using Control Panel- setting common devices using control panel, modem, printers, audio, network, fonts, creating users, internet settings, Start button & Program lists; Installing and Uninstalling new Hard ware & Software program on your computer - Copying in CD/DVD settings – Recording Audio files.

2. WORD PROCESSING

Introduction to Word Processing – Examples- Creation of new documents, opening document, insert a document into another document. Page setup, margins, gutters, font properties, Alignment, page breaks, header footer deleting, moving, replace, editing text in document. Saving a document, spell checker. Printing a document. Creating a table, entering and editing, Text in tables. Changing format of table, height width of row or column. Editing, deleting Rows, columns in table. Borders, shading, Templates, wizards, drawing objects, mail merge

3. SPREADSHEET

Introduction to Analysis Package – Examples - Concepts of Workbook & Worksheets; Using Wizards; Various Data Types; Using different features with Data, Cell and Texts; Inserting, Removing & Resizing of Columns & Rows; Working with Data & Ranges; Different Views of Worksheets; Column Freezing, Labels, Hiding, Splitting etc.; Using different features with Data and Text; Use of Formulas, Calculations & Functions; Cell Formatting including Borders & Shading; Working with Different Chart Types; Printing of Workbook & Worksheets with various options.

4. PRESENTATION

Introduction - Opening new presentation, Parts of PowerPoint window – Opening - Saving and closing presentations - Features of PowerPoint, Background design, Word art, Clip art, Drawings, 3D settings - Animations, Sound, Views, types of views - Inserting and deleting slides, arranging slides, slides show, rehearsal, setup show, custom show - Creating custom presentations, action setting, auto content wizard, working with auto content wizard

5. INTERNET

Introduction – Getting acquainted with Internet Connection - Browsers – Website URL - Open a website – Net Browsing - Email: Creating E-mail id – Sending , receiving and deleting E-mail - Email with Attachments – CC and BCC - Chatting – Creating Group mail - Google docs – Search Engines – Searching topics .

6. Most Popular Social Networking Sites :

History – Features – Services – Usage of Face book , Twitter and LinkedIn. Transferring data through wi-fi / blue tooth among different devices.

7. Introduction to Design and Layout (DTP SOFTWARE)

7.1 Design, Introduction to graphic design – goal, audience, venue and budget.

7.2 Design elements - line, shape, value, format, texture-visual and tactile, type, color, and space-negative and positive.

7.3 Design Principles, Balance - Symmetrical and asymmetrical - Optical Centre, Unity, Emphasis, Contrast, rhythm, proportion and harmony.

7.4 Layout, definition, stages of layout - Visualization, Thumbnails, Rough layout and Comprehensive/ final layout.

8. Typography

8.1 Measurements followed in typography – Point and Pica. Anatomy of types -- X height, Ascender and descender, base line and body width. Parts of type face - arm, stroke, bracket, bowl, terminal, serif, hairline, count, stem and spine.

8.2 Type groups – sanserif, serif, novelty/decorative, black letter and roman old style, type face, type font, type family, type style ,modern typefaces, display types, true type and open type. Initials – raised and dropped.

8.3 Importance of Legibility and Readability, Vector fonts and bitmapped fonts,

Logos and trademarks

9. Colour Dynamics

- 9.1 Fundamentals of Colour, visible spectrum, primary, secondary and tertiary colours, subtractive colour and additive colour theory, process colour, spot colour/pantone, tint, shade and tones.
- 9.2 Colour wheel - purpose and diagram, monochromatic, analogue, complimentary, split Complementary and triad colors.
- 9.3 Psychological effects of colours – warm and cool colours.
- 9.4 Setting the environment for Colour works - Color Temperature

10. Page Layout

- 10.1 Style of house, style of work, grids, guides and columns, templates, master page, style sheet, caption, quotes, headers and footers, folio, headlines, sub headlines and margins.
- 10.2 Handling originals/photo - cropping, scaling and skewing.
- 10.3 Imposition scheme – half sheet work, sheet work /work and turn, work and tumble and work and twist.
- 10.4 Layout format for Magazine, Newspaper, and Bookwork.

11. Print Publishing

- 11.1 Dummy preparation, proof reading, proof reading marks, printers mark - crop, trim, bleed slug and registration, considerations for print production.
- 11.2 Designing of other printed products – brochure, leaf let, visiting card, invitation, booklet and folders.
- 11.3 Feasibility of various graphic designing and pagination software (Photoshop, Illustrator, CorelDraw, Adobe In-design, Quark Xpress or FOSS)

11.4 Understanding file formats - TIFF, JPEG, PDF, GIF, EPS and PNG.

Syllabus of the Subject 3

DCPT3:- IMAGE PROCESSING (40 Hrs)

1. Originals and Colour

- 1.1 Originals: Definition, Types of original – reflection originals and transmission originals.
- 1.2 Classification of originals: Line originals, Continuous tone originals, Colour originals, Halftone originals and Merchandise (product) samples – Handling of Originals.
- 1.3 Light and Color: Seeing and measuring colors – Principles of color – Color as a wave length – The human perception of color.
- 1.4 The properties of colour: hue, saturation and brightness.
- 1.5 The electromagnetic spectrum and the visible spectrum, Color reproduction principles: Additive color theory and Subtractive color theory.

2. Digital Reproduction Techniques

- 2.1 Digital camera – Basics elements/ parts of digital camera: The camera body, optics, image recording sensors, view finder, image storage, batteries, buttons and controls, flash, accessory connections and computer transfer interface.
- 2.2 Image capturing techniques using Digital camera, Scanner and Photo CD.
- 2.3 Image editing and manipulations: Image correction and enhancement, sharpening and tonal adjustments.

3. Line and Halftone Photography

- 3.1 Line Reproduction: Steps involved in Line Negative Reproduction.
- 3.2 Halftone Reproduction - Highlight, Middle tone and Shadow areas. Halftone Screens, Screen Ruling, Screen angle and Screen Resolution.
- 3.3 Working Principles of Scanners and their types – Working principles of Flat bed

scanners and Drum Scanners.

3.4 Steps in Halftone Reproduction using Scanner.

4. Film Processing

4.1 Photographic Films: Types of films – orthochromatic film, panchromatic films, blue sensitive films. Film contrast and film speed.

4.2 Structure of photographic films.

4.3 Film processing chemicals: The photographic emulsion, developer solutions, stop bath solutions, fixer solutions, reducers, intensifiers and washing solutions.

4.4 Film processing: Manual film processing and Automatic film processing. Automatic film processor. Processing accessories – processing trays and processing tanks.

4.5 Computer to film technology: Workflow, advantages of CTF technology. Film imagesetter: Types, working principles of different types of film imagesetters.

5. Offset Plate Processing

5.1 Type of Plates – Wipe-on Plates and Pre-sensitized Plates.

5.2 Facilities and Equipment's used in Plate Making department - Printing Down Frame, automatic Plate Processor and Plate Processing steps.

5.3 Control of plate making variables – Quality control aids: Plate sensitivity guide, GATF star target, UGRA plate control wedge and GATF dot gain scale.

5.4 Processing steps involved in preparation of PS Plates and Wipeon Plates.

5.5 Plate making troubles: Wipe-on plates troubles and PS plates troubles.

6. Screen Printing

6.1 Mesh, Squeegee Selection, Mesh / Woven Screen Printing Fabric: Materials used for Screen Printing Fabrics, Squeegee selection: The squeegee, Squeegee selection – Shapes of squeegee blades, Squeegee hardness and Squeegee materials.

6.2 Screen Pretreatment, Screen Tensioning / Stretching: Basic steps in Screen Tensioning, Stretching the Screen Printing Fabric – Manual Stretching and Machine Stretching.

6.3 Types of Screen Printing Machines - Container Screen Printing machine, Flat bed Hinged frame (Automatic) Screen Press, Rotary Screen Printing Press and Carousel Screen Printing Machines.

6.4 Screen Printing Inks – Types, Properties, Types of Screen Printing Inks for specific application

6.5 Screen Printing Applications: Screen Printing on Flat surfaces and Screen Printing on Curved Surfaces

Syllabus of the Subject 4

DCPT4:- DIGITAL PREPRESS (30 Hrs.)

1. Digital Prepress – Introduction

1.1 Digital Description of the Printed page - Elements of Digital Page –Integration of Text, Images, Graphics, Layout and Prepress checklist.

1.2 Dot Shape – Round, square, elliptical and composite shapes, Amplitude Modulation /Frequency Modulation Screening -Difference between AM and FM screening and Benefits of FM screening.

1.3 Input and Output Resolution - Scanning Frequency, Picture element and Scanning frequency formula. Image – dependent Effects and Corrections – Spreads and Chokes, rapping, Moire and interference of dot pattern.

1.4 Under Colour Removal, Gray Component Replacement, and Unsharp Masking

Techniques - Advantages of UCR, GCR & USM. Difference between UCR and GCR. Chromatic composition and Achromatic composition.

2. Digital Photography & Digital Proofing

- 2.1 Image capturing with Digital camera – Special features of Digital Camera – Tone Value Quantization, Focal length of lens and Aspect Ratio and Link up to a Computer.
- 2.2 Charge Coupled Device and Complementary Metal Oxide Semiconductor - Definition and difference between CCD and CMOS.
- 2.3 Scanner designs and models, Flat bed Scanners - Diagram, functions of scanners and advantages of flatbed scanner.
- 2.4 Digitizing and Redigitizing - Various Redigitizing Techniques - Copy dot, Descreening and mixed mode. Digital Proofs and Press Proofs.

3. Digital Image Assembly and Data Formats

- 3.1 Page Assembly and Imposition - Digital assembly techniques of CTF and CTP. Imposition - Image register and alignment, Imposition plans - Sheet wise, Work and turn and Work and tumble.
- 3.2 Full Sheet Output, Full sheet production in the workflow, Imposition through Software and Full sheet production workflow.
- 3.3 Imposition Workflows - Types of Imposition programs, Imposition sheet, demands on Imposition programs and Imposition workflows and considerations for impositions.
- 3.4 Raster Image Processor (RIP) - Workflow diagram – Interpreter, Renderer, Rasterizer and Bitmap. File Formats - Postscript, TIFF, JPEG, GIF, LZW, EPS, PDF, PPF, 1 bit TIFF and JDF.
- 3.5 Data Formats - Bitmap & Vector, Applications of storage media -Data distribution, Archiving and Backup or transport.

4. Colour Management

- 4.1 Definition of Colour, Colour Management and Needs - Targets of Print Colour arrangement, CIE Chromaticity Diagram - CIE Lab Values – Spectrophotometry, Spectral Reflectance curves of colours. Colour perception and colorimetric description of colour.
- 4.2 Colour measuring instruments, Colorimetry and Densitometry –Densitometer, Spectrophotometer diagrams and functions.
- 4.3 Profiles for Monitor, Scanner and Printer – International Colour Consortium - ICC Profiles, generating ICC profiles for monitor, Scanner and Printer, Device-independent CIE LAB colour space, rendering intents – Perceptual, Relative, Absolute and saturation.
- 4.4 Image Reproduction Process using Colour Management - Implementing Colour Management, Diagram for Colour perception and the colorimetric description of colour and 3cs' of colour management.

5. Computer to Plate systems

- 5.1 Types of Computer to Plate Systems – Image register and Alignment, Types of CTPs, Advantage of CTP, Components of Computer to Plate system, Different Configuration of CTPs - Flatbed, Internal Drum and External Drum.
- 5.2 Workflows - PDF and JDF - Portable Document Format, Job Definition Format and their advantages. Preflighting – Preflighting techniques, the process and preflighting checks.

5.3 Computer to Plate workflow, Types of Lasers – UV, Violet, Thermal and Computer to plate technology for flexography, gravure and screen printing processes.

5.4 Printing plates for Digital Imaging - Types of Plates used in CTP - Silver halide plates, Photopolymer plates, Thermal plates, Inkjet plates - Automatic plate processor diagram and its functions

Syllabus of the Subject 5

DCPTL1:- COMPUTER OPERATIONS AND DESKTOP PUBLISHING (75 Hrs.)

1. GRAPHICAL OPEARTING SYSTEM EXERCISES

- a. Installing screen saver and change the monitor resolution by 1280X960
- b. Setting wall papers
- c. Creating, moving, deleting and renaming a folder
- d. Copy, paste and cut a folder/file
- e. Displaying the properties for a file or folder
- f. Restoring files and folders from Recycle bin
- g. Creating short cuts for folder/file
- h. Finding a file or folder by name
- i. Selecting and moving two or more files/folders using mouse
- j. Sorting folders/files

2 WORD PROCESSING EXERCISES

3 PRESENTATION EXERCISES

4 WORKSHEET EXERCISES

5 DESKTOP PUBLISHING EXERCISES

1. Creating master page for the given layout (setting grid, margin and columns)
2. Print, proof and correct the saved page.
3. Creating Cover and Title page
4. Creating style sheets and Table of Content
5. Designing Letter head
6. Designing Pamphlet
7. Designing Envelop & greeting card
8. Designing Bills / Vouchers
9. Designing an Advertisement
10. Designing Labels in multiple steps

Syllabus of the Subject 6

DCPTL 2 : DIGITAL PREPRESS & PRINTING (75 Hrs.)

1. FOSS Software Exercises

1. Create a logo using FOSS software.
2. Redraw a logo using vector drawing software.
3. Draw a tray/tube style carton using vector drawing software.
4. Redesign a given tray/tube carton using vector drawing software
5. Apply UCR, GCR and color separate the scanned Image using image editing software.
6. Create a multicolour invitation/certificate using image editing software

7. Performing the pagination and imposition for printing the job using imposing software

8. Perform pre-flighting operations for a given file.
9. Perform an image clipping path in FOSS software
10. Create a brochure using FOSS software.

2. Screen printing Exercises

1. Study of various type of screen materials
2. Screen stretching techniques
3. Screen preparation - Direct
4. Stencil preparation - Indirect, Direct/ Indirect
5. Screen printing of various routine documents
6. Printing on various substances
7. Screen Reclamation
8. 2 Colour Screen Printing
9. 4 Colour Screen Printing
10. Study of automatic Screen Printing

3. Offset printing exercises

1. Installation of Plate and Blanket
2. Setting of Feeder, Impression & Delivery according to the thickness and size of the stock.
3. Applying ink, damping solution – make ready, printing with registration

Method of Evaluation : Examination at the end of the course. 100 Marks/paper

Software, Hardware and other infrastructural requirements for running this course

Systems Requirements

Hardware: Minimum 2 GB RAM, 320 GB HDD

Operating System: Windows XP / 7 and Above

Softwares:-MS Office

Softwares:- FOSS or Proprietary

FOSS: Inkscape- Vector Drawing

FOSS: Imposition Studio- Imposition Software

FOSS: Gimpshop, Photo Plus6 - Image Editing

Proprietary: CorelDraw, Photoshop, Illustrator, Quark Xpress and Indesign.

List of Equipment

Flat bed Scanner - 1 No.

Colour Ink jet Printer - 1 No.

Black Colour Laser Printer - 1 No.

Screen printing Machine

Offset printing Machine

Materials Required

Paper

Color toner cartridges

Black toner cartridge for laser printer

CDs/DVDs/USB flash drive/memory cards.

Ink for screen printing and Offset printing

Plate and gaskets for offset printing

LBS Centre for Science and Technology (Offline Course)

Course Title	Certificate course on Web Design using HTML and CSS			
Abbreviation of Course Title	CWHC			
Duration of the course in Hours	60 Hrs			
Duration of the course in Months	2 months			
Course Fees	2000			
Eligibility	high school students			
About the Course				
The student will be able to define the principle of Web page design, Define the basics in web design, Visualize the basic concept of HTML, Recognize the elements of HTML, Introduce basics concept of CSS, Develop the concept of web publishing. HTML and CSS go hand in hand for developing flexible, attractively and user friendly websites. HTML (Hyper Text Markup Language) is used to show content on the page where as CSS is used for presenting the page. HTML describes the structure of a Website semantically along with presentation cues, making it a mark-up language, rather than a programming language. HTML allows images and objects to be embedded and can be used to create interactive forms.				
Objectives of the course				
Students will understand the knowhow and can function either as an entrepreneur or can take up jobs in the Web site development at information technology sectors.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
CWHC	Certificate course on Web Design using HTML and CSS	28	32	60
Syllabus of the course				
Syllabus of the Subject 1				
Module I: introduction of Internet				
What is Internet and its features, uses of Internet, World Wide Web, browsers, search engines, e-mail, FTP. [1 T+ 1 L]				
Module 2 HTML Introduction				
What is HTML?, A Simple HTML Document, HTML Elements, HTML Attributes, Headings tags, Paragraph tag, Text Formatting tags, Line Breaks, Comments, Head tag, Colors-Background Color ,Text Color, Links – Hyperlinks. [4 T+ 5L]				
Module 3 Advance tags in HTML				
HTML Styles, Images tag, Background Images, The HTML <picture> Element, Tables, Lists, marquee tag, HTML Block and Inline Elements-Inline Elements, The <div> Element, The Element, Iframes, working with Forms in HTML. [4 T+ 5L]				
Module 4 CSS Introduction				
What is CSS,CSS Syntax, Selectors, How To Add CSS, Comments, Colors- Background Color, Text Color, Border Color, Color Values, Fonts- Font Families, Font Style, Font Size, Font Weight, Icons, Links, Lists, Tables, Navigation Bar, Dropdowns, Image Gallery, CSS Website Layout,. [4 T+ 5L]				
Module 5 Advanced CSS and introduction of java script				
CSS Rounded Corners, Border Images, Multiple Backgrounds, Gradients, Shadow Effects, Text Effects- Text Overflow, Word Wrapping, Word Breaking, Writing Mode, Animations, JavaScript Introduction, The <script> Tag, Output and input statement, Variables, pt operators, Data Types, simple javascript programs [8 T+ 8L]				
Module 6 introduction Bootstrap				

Introduction to Bootstrap, Bootstrap Containers Bootstrap Grid, Bootstrap Components, Bootstrap Text/Typography, Bootstrap Colors, Bootstrap Tables, Bootstrap Images, Bootstrap Alerts, Bootstrap Buttons, Bootstrap Button Groups, Bootstrap List Groups, Bootstrap Dropdowns, Bootstrap Forms, Bootstrap Form Inputs, Bootstrap Input Groups. [7 T 8 L]

Method of Evaluation

Theory and practical examination

Software, Hardware and other infrastructural requirements for running this course

Our current Software and Hardware requirement is enough for running this course

LBS Centre for Science and Technology (Online Course)

Course Title	Online Course – C Programming
Abbreviation of Course Title	OCCP
Overall duration of the course in Hours	50
Course Fees	2000
Eligibility	+2
Number of live hours	5
Platform for running live classes	45
Platform for streaming recorded classes	You Tube, Google Drive
Software used	Online Compiler
Proprietary S/w or Open source S/w	Any
Minimum infrastructure required by the students to participate in this course	Students joining this course should have Desktop/Laptop with internet connection.
About the Course	
Solid Introduction to computer programming	
Objectives of the course	
Students who wish to undergo Engineering/BSc Degree/Diploma Courses	
Syllabus of the course	
<p>Basics of Computer Architecture: processor, Memory, Input& Output devices Application Software & System software: Compilers, interpreters, High level and low level Language</p> <p>Introduction to structured approach to programming, Flow chart Algorithms, Pseudo code Basic structure of C program: Character set, Tokens, Identifiers in C, Variables and Data Types , Constants, Console IO Operations, printf and scanf</p> <p>Operators and Expressions: Expressions and Arithmetic Operators, Relational and Logical Operators, Conditional operator, size of operator, Assignment operators and Bitwise Operators. Operators Precedence</p> <p>Control Flow Statements: If Statement, Switch Statement, Unconditional Branching using goto statement, While Loop, Do While Loop, For Loop, Break and Continue statements.(Simple programs covering control flow)</p> <p>Arrays Declaration and Initialization, 1-Dimensional Array, 2-Dimensional Array String processing: In built String handling functions (strlen, strcpy, strcat and strcmp, puts, gets)</p> <p>Linear search program, bubble sort program, simple programs covering arrays and strings</p> <p>Introduction to modular programming, writing functions, formal parameters, actual parameters Pass by Value, Recursion, Arrays as Function Parameters structure, union, Storage Classes, Scope and life time of variables, simple programs using functions</p> <p>Basics of Pointer: declaring pointers, accessing data through pointers, NULL pointer, array access using pointers, pass by reference effect</p> <p>File Operations: open, close, read, write, append.</p>	

Sequential access and random access to files: In built file handling functions (rewind() ,fseek(), ftell(),feof(), fread(), fwrite()), command line arguments , simple programs covering pointers and files.

Method of Evaluation

Theory and Lab Examination conducted at our Centers.

LBS Centre for Science and Technology (Online Course)

Course Title	Online Course – Java Programming
Abbreviation of Course Title	OCJP
Overall duration of the course in Hours	50
Course Fees	2000
Eligibility	+2
Number of live hours	5
Platform for running live classes	45
Platform for streaming recorded classes	You Tube, Google Drive
Software used	Online Compiler
Proprietary S/w or Open source S/w	Any
Minimum infrastructure required by the students to participate in this course	Students joining this course should have Desktop/Laptop with internet connection.
About the Course	
Solid Introduction to computer programming	
Objectives of the course	
Students who wish to undergo B Tech / BSc Degree / Diploma Courses	
Syllabus of the course	
<p>Java History; Java Features , Program Structure, Tokens, Statements; Implementing a Java Program (Creating the program, Compiling the program, Running the program, Command Line Arguments;</p> <p>Variables; Data Types , Declaration of Variables; Scope of Variable, Type Casting (Automatic Conversion</p> <p>Arithmetic Operators Relational Operators; Logical Operators, Assignment Operators; Increment and Decrement Operators; Conditional Operators;</p> <p>Arithmetic Expressions; Evaluation of Expressions; Precedence of Arithmetic Operator; Type Conversions in Expressions (Automatic type conversion, Casting a value); Operator Precedence and Associativity</p> <p>Decision Making with if Statement, the switch statement; The ?: Operator. Loops:- The while Statement; The do Statement; The for Statement, Nesting of for loops, Jumps in Loops (Jumping out of a loop, Skipping a part of a loop</p> <p>Arrays; One-Dimensional Arrays, Two-Dimensional Arrays, Creating an Array (Declaration of arrays, Creation of arrays, Initialization of arrays, Strings (String arrays, String methods, StringBuffer class)</p> <p>Basic Concepts of Object-Oriented Programming (Objects and Classes, Data abstraction and encapsulation, Inheritance, Polymorphism, Dynamic binding, Message communication), Benefits of OOP; Applications of OOP.</p> <p>Defining a Class; Adding Variables; Adding Methods; Creating Objects; Accessing Class Members; Constructors; Methods Overloading; Static Members</p> <p>Extending a Class (Defining a subclass, Subclass constructor, Multilevel inheritance, Hierarchical inheritance, Overriding Methods; Abstract Methods and Classes Visibility Control (public access, friendly access, protected access, private access, private protected access)</p>	

Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interface Variables.

System Packages; Using System Packages; Naming Conventions

Creating Packages; Accessing a Package; Using a Package; Adding a Class to a Package; Hiding Classes.

Method of Evaluation

Theory and Lab Examination conducted at our Centers.

LBS Centre for Science and Technology (Offline Course)

Course Title	Back End Software Development using Python and starter kit to Machine learning			
Abbreviation of Course Title	WBPM			
Duration of the course in Hours	30			
Duration of the course in Months	5 Days only			
Course Fees	2000			
Eligibility	BTech / Diploma / BSc Comuter/Electronics ongoing Students			
About the Course				
Internship Programme				
Objectives of the course				
To offer internship opportunities for students.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
	Python Programming Basics Python Control Structures OOPs using Python Database in Python Machine Learning	15	15	30
Syllabus of the course				
<p>Day 1 Python Programming Overview and install Syntax, Variable, data types, operators, numbers, string, lists Conditional Statement – if... Else Simple Python Programs to familiarize the concepts</p> <p>Day 2 Language Study Continues... Loops- while loop and for loop. Functions and Lambda Array Sample programs.</p> <p>Day 3 OOPs using Python Class & Objects Inheritance & Modules. Programs to test the concept of OOPs.</p> <p>Day 4 Database in Python</p> <p>Database: MySQL Create database, create table SQL statements: Insert & select data. Update and Delete data. Order by, where, and, or, not, min, max, count, top, sum, like, in , between Joins – inner, left , right, full, self</p>				

Day 5 Sample Program to connect MySql with python –

Read and Write data, Prepare programs using controls statements.

Machine Learning- An Introduction

ML vs. Traditional programming

Supervised and unsupervised Learning

Regression

classification

clustering

Sample programs to Understanding data with statistics

Data set, data types.

Mean, median, Mode

Standard Deviation and percentile.

Data distribution

Method of Evaluation

MCQ, Practical Examination

Software, Hardware and other infrastructural requirements for running this course

Existing Facility

LBS Centre for Science and Technology (Offline Course)

Course Title	Hurdles in Web Application Development : Made it Simple by ASP.NET			
Abbreviation of Course Title	WWAP			
Duration of the course in Hours	30			
Duration of the course in Months	5 Days only			
Course Fees	2000			
Eligibility	BTech / Diploma / BSc Computer/Electronics ongoing Students			
About the Course				
Internship Programme				
Objectives of the course				
To offer internship Opportunities for Students.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
	Introduction to .NET Framework and C# Arrays and Function in C# More ASP.net server controls and validation Controls ASP.NET Database Connection using ADO and SQL Server Simple web applications case study/ project	15	15	30
Syllabus of the course				
<p>Day 1 Introduction to .NET Framework and C#</p> <p>Languages in .net, WinForms, web forms, Asp.net and ADO.net. Study the basics of C# using simple programs – variable, data types, Operators, Control statements using WinForms.</p> <p>Day 2 Arrays and Function in C#</p> <p>More sample programs to familiarize the concepts ASP.NET and Server Controls Asp.net application and page life Cycle. ASP.net web forms server Controls: Textbox, Label, Button, CheckBox, RadioButton</p> <p>Day 3 More ASP.net server controls and validation Controls</p> <p>ASP.net web forms server Controls continue: Dropdownlist, ListBox, hyperlink, calendar, linkbutton, fileupload ASP.net Validation Controls- compare, range, required, regular expression and validation, asp.net session and its use</p> <p>Day 4 ASP.NET Database Connection using ADO and SQL Server Insert, Update, Delete and select using SQL SERVER - Data Providers, connection, command, data reader, data set, data adapters and data table</p>				

Day 5 Simple web applications case study/ project

System Study , Design (interface and database) , develop program and test in online .
Model info : Student Info, Course Viewer, Online Exam System etc.

Method of Evaluation

MCQ, Practical Examination

Software, Hardware and other infrastructural requirements for running this course
Existing Facility

LBS Centre for Science and Technology (Offline Course)

Course Title	How to do Online Transactions – A training programme for Housewives			
Abbreviation of Course Title	TPHW			
Duration of the course in Hours	18 Hours			
Duration of the course in Months	2 Weeks			
Course Fees	Rs 1000/-			
Eligibility	Housewives with basic computer awareness, having computers at home with internet connection or having smart mobile phones (preferably having Android operating system)			
About the Course				
This course is basically a training program for housewives aimed to train them to do online transactions using computers and mobile. After completing this course a student is expected to do online transactions such as Netbanking, Electricity bill payment, payment of water charges, Landline and Mobile bill payment, LIC premium payment, Online shopping , learn to use Google pay, Paytm, SBI yono , QR code etc.				
Objectives of the course				
To teach house wives how to do online transactions using computer and smart phones				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
SC1	Subject 1	6	12	18
Syllabus of the course				
Syllabus of the Subject 1				
<i>Date</i>	<i>Topic</i>			
Day1	Introduction to Browser, How to call a website, Creating E-mail Account, sending messages - Practice Session			
Day2	Netbanking, Card Payment, Online Electricity, Water Bill payment, Mobile Recharge etc. using computers – Practice Session			
Day 3	Insurance Premium Payment, Online shopping using computer– Practice Session			
Day 4	Introduction to App, Downloading App from Playstore, Appstore using mobile - Practice Session			
Day 5	Online Travel enquiry (Flight, Railway, Bus), Ticket Booking(Cinema, Travel etc.)Online Food Ordering, Googlepay and PayTM using mobile Apps – Practice Session			
Day 6	Online shopping, Banking App, Google Map, QRcode using Mobile App – Practice Session			
Method of Evaluation				
Multiple Choice Questions				
Software, Hardware and other infrastructural requirements for running this course				
Computers with Internet connection				

LBS Centre for Science and Technology (Offline Course)

Course Title	A Makeover for a web developers using Node.Js and MongoDB			
Abbreviation of Course Title	WNJM			
Duration of the course in Hours	30			
Duration of the course in Months	5 Days only			
Course Fees	2000			
Eligibility	BTech / Diploma / BSc Comuter/Electronics ongoing Students			
About the Course				
Internship Programme				
Objectives of the course				
To offer internship opportunities for students.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
	Internet Concept & HTML- describes the content. Arrays and CSS - style HTML Web pages Java Script – for Programming Node.js Simple web applications case study/ project	15	15	30
Syllabus of the course				
<p>Day 1 Internet Concept & HTML- describes the content.</p> <p>Internet, browser, web page , web site, http, www, http request and response Need of HTML, CSS and java script for Front-End web development. HTML documents, headings, paragraphs, links, images, attributes, style, formatting, comments, list, table etc. Create simple web sites using Notepad Editor. Create a static web site with multiple web pages by Using Atom / VS Code / Sublime editor.</p> <p>Day 2 CSS - style HTML Web pages.</p> <p>Syntax, element Selector, Ways to Insert CSS, back ground, colors, borders, margins, text, font, list , table. Bootstrap framework - responsive and mobile first Containers, grid basic, text, colors, tables, images, jumbotron etc</p> <p>Day 3 Java Script – for Programming</p> <p>Statements, variable, operators, data types, control statements, forms, , number, string, array, date, math Function and call</p> <p>Day 4 Node.js</p> <p>What is Node.js? who and when use?</p>				

Download and install node.js

Node.js NPM.

Create a server and get data.

MongoDB

Overview and advantages

Database- create, drop , collection , data types , document – insert, update, delete, query. Projection, limiting, sorting, indexing etc.

Day 5 Simple web applications case study/ project

System Study, Design, develop program and test in online.

Model info : Tourism - Trends, Cinema: Old &New, Sports History etc.

Method of Evaluation

MCQ, Practical Examination

Software, Hardware and other infrastructural requirements for running this course

Existing Facility

LBS Centre for Science and Technology (Offline Course)

Course Title	Workshop on the Building Blocks of a PC and Make it live			
Abbreviation of Course Title	WBPC			
Duration of the course in Hours	30			
Duration of the course in Months	5 Days only			
Course Fees	2000			
Eligibility	BTech / Diploma / BSc Comuter/Electronics ongoing Students			
About the Course				
Internship Programme				
Objectives of the course				
To offer internship opportunities for students.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
	Introduction PC Hardware PC Assembling and Hardware installation and configuration Operating system and Software installation Networking Basic and Configuration Introduction to Free and Open source platforms.	10	20	30
Syllabus of the course				
<p>Day 1 Introduction PC Hardware Monitors I/O devices ,Memory, Hard Disk, Mother Board, Buses, I/O Ports, graphic cards etc Identifying the parts by disassembling a PC (Motherboard, CPU Sockets, RAM Slots and Chip Sets, Expansion Slots, Batteries and Connectors)</p> <p>Day 2 PC Assembling and Hardware installation and configuration (Sound Cards, Video Cards, Network Interface Cards , USB Controller Cards , Modem Cards etc)</p> <p>Day 3 Operating system and Software installation (Installing Windows 7/8/10, Installing Drivers, Installing Anti-Virus Software, Installing Application Software , Programming languages and databases, setting up local language usage environment)</p> <p>Day 4 Networking Basic and Configuration (Local area networks and connection to Internet, using Online Software, download and installing Software and using cloud area)</p> <p>Day 5 Introduction to Free and Open source platforms. (Installation of Linux OS & Software, basic Linux command, GUI environment and regional language configuration, use of open source Software etc.)</p>				
Method of Evaluation				

MCQ, Practical Examination

**Software, Hardware and other infrastructural requirements for running this course
Hardware course Lab facility.**

LBS SKILL CENTRE

Course Title	Diploma in Hotel Management
Abbreviation of Course Title	DHM
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	Rs 35000
Eligibility	+2 Pass

About the Course

Diploma in Hotel Management is a professional course that deals with Hotel Management.

Objectives of the course

- Modes of hospitality's operation, kitchen layout and design, and food safety
- Revenue and sales indicators, security procedures, and different market segments and customer types
- Classifications of hotel departments, explaining their functions

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DHM	Diploma in Hotel Management	300	200	500

Syllabus of the course

Chapter 1: Food Production: Topics Covered

- Professional Standards and Ethics in Production
- Food Commodities
- Kitchen Fuels & Equipment
- Methods of Cooking
- Different Styles of Cooking
- Soups & Sauces
- Food Preservation
- Bakery & Confectionary
- Desserts
- Food Standards
- Indian Cuisine
- French Cuisine
- Italian Cuisine
- Spanish & Mexican Cuisine
- Oriental Cuisine
- Garde Manger
- Garnishes & Accompaniments
- Diet Planning
- Kitchen Planning
- Purchase
- Storage of Food
- Food Presentation
- Financial Management in Production
- Glossary Terms Revision

Practical Classes Syllabus

- Indian Cookery
- Italian Cookery
- Continental Cookery
- Sponge Cake
- Steamed Pudding
- Chinese Dessert – Nian Gao
- Baked Trifle Alaska
- Kheer

Chapter 2: F & B Service: Topics Covered

- Introduction to F & B Service
- Job description & Specifications
- F & B Service Equipment
- Types of Service
- Menu Planning
- Table setting and order of service.
- Service of Non Alcoholic Beverages
- Forms & Formats
- Banquets
- Room Service
- Facility Planning in F & B area.
- Revenue Management in F & B Service

Practical Classes Syllabus

- Introduction of Service Equipment, Glasses & Plates Arrays, Grip Editing
- Table setting – Formal & Informal
- Serving for water, non-alcoholic and alcoholic beverages

Chapter 3: Front Office: Topics Covered

- Hotel Origin, History & Growth
- Classification of Hotel Industry
- Introduction to the Front Office
- Front Office Product
- Guest Cycle
- Uniformed Staff
- Function of the Bell Desk
- Function of the Reception/ Information Desk / Night Reports
- Function of the Reservations Department
- Duties of the Lobby Manager, GRE and Groups Coordinator
- Forms & Formats
- Front Office Layout planning

Chapter 4: House Keeping: Topics Covered

- The house Keeping Department
- Organizational Framework of the Department.
- Interdepartmental Coordination with FO, F&B, Engineering, Security, store & purchase
- Types of Rooms, Layout of rooms
- House Keeping Control Desk
- Linen Room
- Laundry Operations
- Interior Decoration, Colour & Lighting, Wall coverings, Furniture
- Room Cleaning Procedures
- Role of Supervisors
- First Aid

Practical Classes Syllabus

- Setting up of trolley
- Cleaning equipment, agents, chemicals and linen identification
- Room cleaning process

Chapter 5: Personality Development

- Personal hygiene & Grooming
- Self-awareness
- Persuasion skills
- SWOT Analysis

Chapter 6: English

- Business Communication
- Etiquette and Manners
- Speeches and Presentations
- Report Writing

Chapter 7: Basic Computer Skills

- MS Office
- Understanding the PMS module

Chapter 8: Accountancy

- Meaning and Scope of Accounting
- Accounting Concepts, Principles and Conventions
- Capital and Revenue Expenditures and Receipts
- Cash Book
- Basic Accounting Procedures - Journal Entries

Chapter 9: On Job Training (3 Months) * Mandatory

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Front Office Operation
Abbreviation of Course Title	DFO
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	12500
Eligibility	+2 Pass

About the Course

Front office operations refer to the functions and activities of the customer-facing division of a firm or a hotel.

Objectives of the course

- The objective of a diploma in front office operations is to prepare students for a career in the hospitality industry
- The program aims to teach students how to manage front desk operations, use hotel software and reservation systems, communicate with guests, and keep correct records.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DFO	Diploma in Front Office Operation	200	50	250

Syllabus of the course**Chapter 1:** Intro to tourism and hospitality sector

- Food and Beverage
- Accommodation
- Travel and Tourism
- Entertainment and Receptions

Chapter 2: Reservation

- Tentative
- Confirmed
- Waitlisted

Chapter 3: Info about the hotel and city postal regulations**Chapter 4:** Cash billing

- Cash payment
- Charge Purchases
- Account Correction
- Account Allowance
- Account Transfer
- Cash Control

Chapter 5: Business communication

- Verbal Communication
- Non- Verbal Communication
- Written Communication
- Listening
- Visual Communication

Chapter 6: Hotel accounting

- Account Methods

Chapter 7: Communication skills

Chapter 8: Customer care services and guest care

- Guest Handling
- Customer Service
- Troubleshooting problems
- Decision Making

Chapter 9: Computer application

- MS office

Chapter 10: On Job Training (1 Month) * Mandatory

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Food and Beverage Service
Abbreviation of Course Title	DFB
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	12500
Eligibility	SSLC Pass

About the Course

The foodservice or catering industry includes the businesses, institutions, and companies which prepare meals outside the home.

Objectives of the course

- To satisfy the following needs
- To provide friendly and welcoming atmosphere.
- To provide high quality food and beverages.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DFB	Diploma in Food and Beverage Service	200	50	250

Syllabus of the course**Chapter 1:** Introduction of F&B Service

- Define F& B Service

Chapter 2: Attributes of Food and Beverage Service Personnel

- Personal hygiene
- Punctuality.
- Honesty.
- Attitude towards guests
- Conduct.
- Sense of urgency

Chapter 3: Handling Cutlery, Crockery, and Glassware**Chapter 4:** Arrangement and Preparation of Side Board

- Furniture
- Linen
- Crockery
- Glassware
- Miscellaneous
- Disposables
- Trolley
- Chafing Dishes

Chapter 5: Service at Breakfast, Lunch, and Dinner

- Serving Methods

Chapter 6: Non- alcoholic beverages

- Stimulating beverages
- Refreshing beverages
- Nourishing beverages

Chapter 7: Control Process including cost-benefit ratio, control cycle

- Cost control in F&B Control Cycle

Chapter 8: Communication with guest

- Guest Handling
- Customer Service
- Troubleshooting problems
- Decision Making

Chapter 9: Practical training

Chapter 10: On Job Training (1 Month) * **Mandatory**

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Multi Cuisine Cook
Abbreviation of Course Title	DMCC
Duration of the course in Hours	300
Duration of the course in Months	6 Month
Course Fees	15000
Eligibility	SSLC Pass

About the Course

Multi Cuisine cook is responsible for cooking variety of foods for consumers and arranging and managing food resources in Kitchen.

Objectives of the course

- Discuss the purpose and benefits of training programme.
- Discuss the National occupation standards and Qualification pack

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DMCC	Diploma in Multi Cuisine Cook	200	100	300

Syllabus of the course

Chapter 1: Introduction to Hotel Industry and Food Production

- Introduce the hotel industry
- Classify hotels based on the six criteria
- Know about the various personnel in kitchen and their duties and responsibilities
- Know about the various personnel in kitchen and their duties and responsibilities

Chapter 2: Etiquettes, Grooming, Personal Hygiene And Food Safety

- Introduce the hotel industry
- Kitchen Hygiene and food safety
- Grooming

Chapter 3: Etiquettes, Grooming, Personal Hygiene And Food Safety

- Understand various fuels used in kitchen
- Select appropriate storage method for equipment and fuel

Chapter 4: Preparation Before Cooking

- Conduct the activities required to prepare before cooking
- Understand Mis-en-place
- Know different cooking methods
- To be able to weigh and measure ingredients
- Understand different cuts of vegetables

Chapter 5: Basic Commodities Used In Cooking

- Recognize the basics principles of cooking
- Identify the different types of vegetables and their uses
- Identify different types of fruits and their uses
- Recognise rice, cereals and pulses and their uses

Chapter 6: Methods Of Cooking

- To be able to use various methods of cooking
- Recognise the importance of cooking methods
- Know the utensils and equipment used in various method of cooking
- Know the usage of cooking methods to create various delicacies

Chapter 7: Basic Stocks, Sauces And Soups

- Identify various types of stocks and sauces used in kitchen
- Identify various types of stocks and sauces used in kitchen
- Identify various types of soups
- Identify different types of thickening agents used in sauce making

Chapter 8: Introduction To Eggs, Fish and Meet

- The usage of eggs in cooking to create various delicacies
- Various cuts of fish and methods of cooking used for the same
- Various Meets and method of cooking used for the same

Chapter 9: Youth Development Module

- Self Discovery
- Values

- Digital Literacy
- Communication Skills
- Work Place Preparedness
- Life Skills

Chapter 10: On job Training (1 Month) * Mandatory

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Tourism Guide
Abbreviation of Course Title	DTG
Duration of the course in Hours	250
Duration of the course in Months	6 Months
Course Fees	12500
Eligibility	SSLC Pass

About the Course

Tourist guide are member of the hospitality and travel industry who show visitors around place of Interest.

Objectives of the course

- To Promote economic development, preserve cultural heritage, and support sustainable development

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DTG	Diploma in Tourism Guide	200	50	250

Syllabus of the course**Chapter 1: Introduction of Tourism**

- Tourism Recreation and Leisure
- Tourism Product
- Types and forms of Tourism
- Tourism Organization
- Map Work

Chapter 2: Tourism Product of India

- Culture Heritage of India
- Glimpses of the Prominent architectural styles flourished over the ages of india
- Handicraft of India
- Tourism promotion and nature conservation
- Potential tourism recourse

Chapter 3: Tour Guide with Travel Industry

- Travel agency and Tour Operation
- Office procedure in a travel agency
- Knowledge of travel documents
- Verbal and non-Verbal communication
-

Chapter 4: Tourism product and destination

- Geography
- Products Tours

- Overview of tourism
- Tourism destinations
- Social Culture

Chapter 5: Adventure Tourism

- History of Adventure Tourism
- Adventure Tourism
- Trekking Routes

Chapter 6: Itinerary Preparation

- Office Procedures
- Travel Geography
- Air Transport
- Air Fares
- Mileages system

Chapter 7: Communication

- Communicative English
- Reading and Writing

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Certificate in Food Production
Abbreviation of Course Title	CFP
Duration of the course in Hours	250
Duration of the course in Months	3 Month
Course Fees	8500
Eligibility	SSLC Pass

About the Course

Food production, as the name suggests, is all about preparing food, in which raw materials are converted into ready-made food products for human use either in the home or in the food processing industries

Objectives of the course

- It boosts the shelf life of food products.
- Turns raw food materials into attractive, marketable products.
- Provide employment to a large population

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
CFP	Certificate in Food Production	100	150	250

Syllabus of the course

Chapter 1: Food Production

Chapter 2: Larder

Chapter 3: Bakers and Patisserie

Chapter 4: Costing

Chapter 5: Hygienic

Chapter 6: Equipment Maintenance

Chapter 7: Continental, North Indian and South Indian dishes

Chapter 8: On job Training (1 Month) *Mandatory

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Certificate in Housekeeping
Abbreviation of Course Title	CHK
Duration of the course in Hours	250
Duration of the course in Months	3 Month
Course Fees	6000
Eligibility	SSLC Pass

About the Course

Housekeeping means performing all the duties towards cleaning, maintaining orderliness, and running a house or a business property

Objectives of the course

- To Maintain overall cleanliness of the entire hotel at all time.
- To Perform cleanliness duties most effectively and effectively

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
CHK	Certificate of Housekeeping	200	50	250

Syllabus of the course Theory and Practical**Chapter 1:** Introduction to Service Sector

- Introduction to the Sector and subsectors
- Introduction to the housekeeping department

Chapter 2: Attributes of Housekeeping Service Personnel

- Importance and role of a Housekeeping Attendant
- Importance of Hygiene and Grooming

Chapter 3: Evolution of Lodging Industry

- History and development of various forms of accommodations

Chapter 4: Hierarchy in Housekeeping Department

- Understanding the structure of the department
- Knowing where to report an issue
- Handling disputes

Chapter 5: Cleaning Equipment and Cleaning Agents

- Choosing the appropriate equipment and materials

Chapter 6: Bed and Bedding

- Understanding the various items and their functions in a bedding: pillow, pillow cases, pillow covers, Duvet, Duvet Covers, Mattress, Mattress Protector
- Learning the Maitre Fold
- Making the bed

Chapter 7: Cleaning Sanitary Fittings

- Follow the procedures for entering the toilets and washrooms
- Follow the procedures for entering the toilets and washrooms

Chapter 8: Interdepartmental Coordination

- Identify any hazards or potential hazards and deal with these correctly
- Report any accidents or near accidents quickly and accurately to the concerned authority
- Follow safety procedures at the workplace
- Use protective equipment when required

Chapter 9: Pest Control

- Ensuring that the workplace well protected from pest and rodent infestation

Chapter 10: On Job training (1Month) *Mandatory

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Hospitality Management
Abbreviation of Course Title	DHoM
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	18000
Eligibility	Plus Two

About the Course

Hospitality Management is a board field that involves overseeing the day to day administrative operation and commercial activities of Business

Objectives of the course

- To provide customer is the best service and a flawless experience from start to finish.
- Excellent service is one of the hospitality industry's primary objectives

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DHoM	Diploma in Hospitality Management	200	50	250

Syllabus of the course**Chapter 1: Food and Beverage Service**

- Customer Service
- Financial Performance
- Menu Development
- Kitchen operations

Chapter 2: Front office operation

- Guest Relation
- Guest service

Chapter 3: Property management**Chapter 4: Hospitality management**

- Principles of Management
- Foundation of F&B
- Foundation of Food Production
- Hotel law and Ethics
- HR & Managing Personnel

Chapter 5: Facility Planning

- Designing of Accommodation
- Services facilities of the Hotel

Chapter 6: Sales and Marketing

- Market reviews
- Market operation

Chapter 7: Accommodation Operation

- Production Operation
- Normal Operation
- Exploration Operation

Chapter 8: Housekeeping service and Maintenance

- Executive Housekeeper
- Housekeeping Control Desk
- Laundry area

Chapter 9: English

- Communicative English
- Reading and Writing

Chapter 10: Food Production and Patisserie

Chapter 11: On Job Training (1 Month)* Mandatory

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Food Technology
Abbreviation of Course Title	DFT
Duration of the course in Hours	300
Duration of the course in Months	6 Month
Course Fees	18000
Eligibility	+2

About the Course

Diploma in Food Technology is a course emphasizing learning food quality management, food safety, food processing, and food science

Objectives of the course

- Improve food safety
- Extend Shel life
- Improve Nutritional Value
- Enhance Palatability

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DFT	Diploma in Food Technology	200	100	300

Chapter 1: Food Technology**Chapter 2:** Food Microbiology

- Food Poisoning
- Food Spoilage
- Food Preservation
- Food Legislation

Chapter 3: Handling Cutlery, Crockery, and Glassware**Chapter 4:** Arrangement and Preparation of Side Board

- Furniture
- Linen
- Crockery
- Glassware
- Miscellaneous
- Disposables
- Trolley
- Chafing Dishes

Chapter 5: Service at Breakfast, Lunch, and Dinner

- Serving Methods

Chapter 6: Non- alcoholic beverages

- Stimulating beverages
- Refreshing beverages
- Nourishing beverages

Chapter 7: Control Process including cost-benefit ratio, control cycle

- Cost control in F&B Control Cycle

Chapter 8: Communication with guest

- Guest Handling
- Customer Service
- Troubleshooting problems
- Decision Making

Chapter 9: Practical training

Chapter 10: On the Job training (1 Month) * **Mandatory**

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Interior Designing
Abbreviation of Course Title	DID
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	15000
Eligibility	Plus Two

About the Course

This course is designed to serve the growing opportunities in the field of Interior Designing.

Objectives of the course

- Beauty is not the only objective in planning and furnishing a home.
- Expressiveness: One way to approach the subject of selecting, decorating, and furnishing a home is to seek or express some definite idea or theme.
- Functionalism: Home should give the maximum of service.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DID	Diploma in Interior Designing	200	50	250

Syllabus of the course

Chapter 1: Fundamentals of Design.

- Balance
- Harmony
- Rhythm
- Proportion and scale
- Emphasis

Chapter 2: History of Interiors.

- Basic Photography
- Design Process
- Material Exposure
- Art and Craft
- Fundamentals of design
- Fundamentals of design
- Introduction to Computers

Chapter 3: Interior Designing

- Cost Estimation
- Interior Materials
- Theory of Design

- Research Strategies
- Art appreciation and appraisal
- Environmental Studies
- Environmental Studies

Chapter 4: Analytical Drawing

- Fundamentals of Structure
- History of Art
- Interior Construction
- Ergonomic
- Freehand Drawing
- Anthropometry

Chapter 5: Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Exterior Designing
Abbreviation of Course Title	DED
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	15000
Eligibility	Plus Two

About the Course

Exterior design includes your home's size and shape

Objectives of the course

- Accessible.
- Productive
- Secure / Safe

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DED	Diploma in Exterior Designing	200	50	250

Syllabus of the course

Chapter 1: ENGLISH FOR COMMUNICATION.

- Learning English
- Essentials of English Grammar
- Listening and Reading

Chapter 2: BASICS OF DESIGN THEORY BASIC PHOTOGRAPHY

- Art and Design in Daily Living
- Design Types and Sources-
- Design History
- Practical / Related Experience
- Special Effects and applications using design elements
- Elements of design

Chapter 3: FINE ARTS AND CRAFTS

- Free Hand Drawing
- Drawing & Painting:
- Graphics and Applied Art
- Design Theory interpretations through student projects

Chapter 4: BASICS OF TECHNICAL DRAWING

- Exterior designing & drawing Tools and Instruments
- Free hand and Scaled Drawings

Chapter 5: EXTERIOR SPACE DESIGNING

- Landscaping essentials Landscape Gardening
- Garden components – Living and Man made
- Landscape design
- Designing Works

Chapter 6: Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Interior and Exterior Designing
Abbreviation of Course Title	DED
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	25000
Eligibility	Plus Two

About the Course

While exterior design focuses on the outside appearance of buildings or structures, interior design deals with the inside look and feel of those same buildings or structures

Objectives of the course

- Beauty: Beauty is not the only objective in planning and furnishing a home. .
- Expressiveness: One way to approach the subject of selecting, decorating, and furnishing a home is to seek or express some definite idea or theme.
- Functionalism: Home should give the maximum of service.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DIE	Diploma in Interior and Exterior Designing	400	100	500

Syllabus of the course

Chapter 1: COMMUNICATION.

- Learning English
- Essentials of English Grammar
- Listening and Reading
- Practical

Chapter 2: OFFICE MANAGEMENT-IT SKILLS

- Introduction to office management
- Financial Accounting
- IT skill enhancement
- Networking and Internet
- Scheduling of office work
- MS Office

Chapter 3: BASICS OF DESIGN

- Art and Design
- Principles and Elements of Design
- Special Effects and applications using design
- Colour
- Lighting
- Design History

Chapter 4: FINE ARTS AND CRAFTS

- Drawing & Painting
- Free Hand Drawing
- Colouring exercises
- Modelling techniques
- Graphics and Applied Art
- Design Theory
- Portfolio Assess

Chapter 5: TECHNICAL DRAWING

- False Ceiling & Partition
- Flooring & Paneling
- Paints & Polishing
- Interior services
- Residential Project
- Workshop Calculation and Science

Chapter 6: ENTREPRENEURSHIP DEVELOPMENT

- Basics of entrepreneurship
- Entrepreneurship strategies for women empowerment
- Manpower Management

Chapter 7: INTERIOR DESIGN

- Introduction to Interior Design
- Furniture for Interior Spaces
- Space Design and Organisation
- Interior Space Organisation

Chapter 8: EXTERIOR SPACE DESIGNING

- Landscaping essentials Landscape Gardening
- Garden components – Living and Man made
- Landscape design
- Green Practices in Gardening
- Garden Care

Chapter 9: ADVANCED DRAWING SKILLS

- Draw residential plan with necessary working drawing
- Basic knowledge of structural components of building
- Draw different types of Structural components of a building

- Draw doors and windows & details
- Analyze and uses of paints, polish and varnish

Chapter 10 PRESENTATION SKILLS USING SOFTWARE: ADVANCED DRAWING SKILLS

- Draw different types of partition wall using CAD
- Draw plumbing and drainage details and sanitary fittings using CAD
- Draw lighting and electrical layout plan using CAD
- Draw air conditioning layout using CAD
- Draw commercial interiors using different Design software

Chapter 11: Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Airport Operation and Hospitality
Abbreviation of Course Title	DAPH
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	35000
Eligibility	Plus Two

About the Course

The Airport Operations Diploma Program will provide participants with: A broad understanding of airside operations at an airport including the various components of Airside Operations and how these components interact with each other to form an operational system.

Objectives of the course

- Ensures that the potential of the available land and the capacity of the airport's runway system and terminal area will be maximized.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DAPH	Diploma in Airport Operation and Hospitality	450	50	500

Syllabus of the course

Chapter 1 PROFESSIONAL COMMUNICATION SKILLS

- ENGLISH LANGUAGE (LISTENING & SPEAKING)
- ENGLISH LANGUAGE (READING & WRITING)
- TECHNICAL REPORT WRITING & BUSINESS COMMUNICATIONS

Chapter 2: OFFICE MANAGEMENT-IT SKILL INTRODUCTION TO AVIATION INDUSTRY & AIRPORTS and GENERAL MANGEMENT S

- INTRODUCTION TO AVIATION INDUSTRY
- AIRPORT
- GENERAL MANAGEMENT

Chapter 3: AERODROME LAYOUTS& GROUND AIDS

- AERODROME GROUND AIDS
- Physical Characteristics
- Aerodrome Markings

Chapter 4: AIERODROME LIGHTINGS AND TRAFFIC MANAGEMNET

- Aerodrome Lights
- Electrical system
- Aerodrome Traffic Management

Chapter 5 : TERMINAL MANGEMENT

- TERMINAL: INFRASTRUCTURE AND AGENCIES
- TERMINAL MANGEMENT
- NON-AERONAUTICAL REVENUE

Chapter 6: AVIATION SECURITY, CITY SIDE MANEGEMENT AND AERONAUTICAL REVENUE

- AVIATION SECURITY
- CITY SIDE MANAGEMENT

Chapter 7: AIRPORT REGULATIONS, AERODROME LICENSING and AVIATION SAFETY

- AIRPORT REGULATIONS
- AERORODROME LICENSING
- AVIATION SAFETY

Chapter 11: Hospitality Management.

- Communication Skills and Personality Development
- Customer Service and Relationship Management.
- Computer Applications in Travel and Hospitality.
- Etiquettes
- Customer service Skill
- Presentation Skills
- Organization Skills
- Teamwork Skills
- Sale and Marketing Skills

Chapter 12: Project**Method of Evaluation**

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Air cargo Practice and Documentation
Abbreviation of Course Title	DACD
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	25000
Eligibility	Plus Two

About the Course

Air cargo is another term for air freight. It is the carriage or the transportation of goods through an air carrier

Objectives of the course

- The primary objective for air cargo acceptance and handling is to ensure that consignments are ready for carriage in compliance with operator and IATA regulations, as well as with export and import rules of the countries through which the cargo will transit.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DACD	Diploma in Air cargo Practice and Documentation	200	50	250

Syllabus of the course

Chapter 1 Introduction to Air Transportation Industry

- Roles and functions of IATA/FIATA/ACCAI/ICAO
- International Regulations and Conventions
- Roles and functions of IATA

Chapter 2: Aviation Geography INTRODUCTION TO AVIATION INDUSTRY

- Aircraft and Airports

Chapter 3: Air Cargo Concept

Chapter 4: Cargo Rates

Chapter 5: : Documentation

Chapter 6: ULD Management

Chapter 7: Special Cargo Handling

Chapter 8: Handling Cargo in Airport

Chapter 9: Courier as Cargo

Chapter 10 Concept of an IATA Cargo Agent

Chapter 11: Air Cargo-Sales & Marketing

Chapter 12: Communications Skills

Chapter 13 : Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Airport Ground Staff Training			
Abbreviation of Course Title	DGS			
Duration of the course in Hours	250			
Duration of the course in Months	6 Month			
Course Fees	25000			
Eligibility	Plus Two			
About the Course				
The course teaches students how to handle different functions in the aviation industry, such as cargo & transportation, passenger handling, and airport security				
Objectives of the course				
<ul style="list-style-type: none"> Ground staff ensures the safety and comfort of passengers, including checking in baggage, providing information, assisting disabled passengers, confirming reservations, and selling tickets. 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DGS	Diploma in Airport Ground Staff Training	200	50	250
Syllabus of the course				
<p>Chapter 1 Introduction to Airport Division</p> <p>Chapter 2: Aviation Fundamentals</p> <p>Chapter 3: Reservations: Baggage Screening and Queue Management</p> <p>Chapter 4: Check-in Procedures</p> <p>Chapter 5: Baggage Make-up Areas</p> <p>Chapter 6: Security Hold Areas and Boarding Gate</p> <p>Chapter 7: Security Hold Areas and Boarding Gate Boarding Gate Formalities and Announcements</p> <p>Chapter 8: Arrival Procedures</p> <p>Chapter 9: Ramp Management</p> <p>Chapter 10 Frequent Flyer Program</p> <p>Chapter 11: SABRE – Basic Reservations and Check-In</p> <p>Chapter 12: Airport Familiarization Visit</p> <p>Chapter 12: Communication Skills</p>				
Method of Evaluation				
<p>Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.</p> <p>End examination – Theory objective type</p> <p>Minimum Attendance required for the candidate to appear for final examination: 75%</p>				

LBS SKILL CENTRE

Course Title	Certificate in Aviation Safety
Abbreviation of Course Title	DAS
Duration of the course in Hours	150
Duration of the course in Months	3 Month
Course Fees	15000
Eligibility	Plus Two

About the Course

Aviation safety focuses on hazard identification and risk assessment with mitigation strategies to reduce risk to as low as reasonably practical

Objectives of the course

- The primary objective of workplace safety programs should be to help prevent workplace injuries, illnesses and fatalities, according to the Office of Disease Prevention and Health Promotion

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DAS	Diploma in Aviation Safety	100	50	150

Syllabus of the course

Chapter 1 INTRODUCTION TO AVIATION INDUSTRY & HOSPITALITY

- INTRODUCTION TO AVIATION INDUSTRY
- AVIATION HOSPITALITY
- Personal Development & Grooming

Chapter 2: PROFESSIONAL COMMUNICATION SKILLS

- ENGLISH LANGUAGE (LISTENING & SPEAKING)
- ENGLISH LANGUAGE (READING & WRITING)
- CROSS' CULTURAL COMMUNICATION

Chapter 3: GOVERNMENT REGULATORY AGENCIES AND AIRCRAFT FAMILIARISATION

- AVIATION TERMS & TIME ZONES
- AIRCRAFT FAMILIARISATION

Chapter 4: CABIN MANAGEMENT

- ROLES & RESPONSIBILITIES OF CABIN CREW

Chapter 5: EMERGENCY PROCEDURES IN EVACUATION AND DITCHING

- SAFETY AND EMERGENCY PROCEDURES
- EVACUATION
- DITCHING

Chapter 6: FIRE SAFETY & SECURITY PROCEDURES

- AVIATION SECURITY
- FIRE SAFETY AND FIRE FIGHTING

Chapter 7: FIRST AID & CARRIAGE OF DANGEROUS GOODS RULES

- DANGEROUS GOODS
- MEDICAL EMERGENCIES & FIRST AID
- USE OF INFLIGHT RESOURCES

Chapter 8: Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Professional in 3D Animation
Abbreviation of Course Title	PGDA
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	35000
Eligibility	+2

About the Course

3D animation is the process of creating three-dimensional models frame by frame

Objectives of the course

- The goal of 3D animation is to make it appear on screen as if the images are actually moving when in fact, they are simply a series of consecutive images which are shown on a very fast sequence.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
PGDA	Professional in 3D Animation	250	250	500

Syllabus of the course

Semester I

Chapter 1 Animation Fundamentals

Chapter 2: Animation Project Management

Chapter 3: Character Designing in Animation

Chapter 4: Layout and Background Designing

Chapter 5: Role in the Animation Industry

Chapter 6: Story Writing for Animation

Chapter 7: Storyboarding in Animation

Chapter 8: Script & Writing of Animation

Chapter 9: Understanding Animation Pipeline

Semester-2

Chapter 10: Arnold Render

Chapter 11: Advanced Maya

Chapter 12: Animation Principles

Chapter 13: Advanced 3DS Maya

Chapter 14: Character Animation

Chapter 15: Character Set-Up and Animation in Maya

Chapter 15: Introduction to 3DS Maya

Chapter 16: Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Art Direction
Abbreviation of Course Title	DAD
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	35000
Eligibility	+2

About the Course

Art direction is an essential tool in any visual communication project. It's the way in which we build a particular aesthetic for a purpose. Art direction is about presenting content to a group of people by creating a communication-based experience

Objectives of the course

- An Art Director is in charge of making sure the images used in projects such as magazines, newspapers, and product packaging are stylish and appropriate.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DRD	Diploma in Art Direction	300	200	500

Syllabus of the course

Semester I

Chapter 1 Introduction Film Art Design

- Scene design
- Actor design
- Prop modeling
- Material conversion

Chapter 2: The Historical Evolution of Film Arts

Chapter 3: Introduction film studio

Chapter 4: Holiday

Chapter 5: Scene Design

Chapter 6: Modeling and Color Practice

Chapter 7: Film Study-Making of 1

Chapter 8: Mid-Term

Chapter 9: Distressed –imitation

- Bronze-Marble and Wood grain texture

Chapter 10: Finger Modeling

Chapter 11: Film Study-Making of 2

Chapter 12: Movie actor character design

Chapter 13: Workshop 4: Special effects

Chapter 14: Film Study-Making of 3

Chapter 15: Final Presentation 1

Chapter 16: Final Presentation 2

Chapter 17: Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Cinematography
Abbreviation of Course Title	DCG
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	40000
Eligibility	+2

About the Course

Cinematography, the art and technology of motion-picture photography. It involves such techniques as the general composition of a scene; the lighting of the set or location; the choice of cameras, lenses, filters, and film stock; the camera angle and movements; and the integration of any special effects.

Objectives of the course

- Cinematography sets and supports the overall look and mood of a film's visual narrative.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DCG	Diploma in Cinematography	300	200	500

Syllabus of the course**Semester I****Chapter 1** History of Cinema**Chapter 2:** Film Making and its Components

- Film Production Management
- Decor/Setting
- Framing
- Scale/Movement/Sound/ Editing

Chapter 3: Introduction to Acting

- Concept of Acting
- Basics
- Acting consistently

Chapter 4: SCRIPT WRITING

- Basics
- Methods of Script writing

Chapter 5: LIGHTING

- Introduction of Lighting
- Light Planning
- Lighting Style
- Soft and hard light

Chapter 6: PROFESSIONAL PHOTOGRAPHY

- Amateur and professional photography
- Basics of composition
- Digital imaging system

Chapter 7: Cinematography

- Power of a Picture
- Camera Movements

Chapter 8: Introduction to Direction for Films

- ARTISTIC IDENTITY AND DRAMA
- Analyzing a Screenplay
- PRODUCTION
- Preparation for Directing an Action Scene,

Chapter 9: Multimedia and Content Development

- Introduction
- Creating Interactive content:
- Multimedia

Chapter 10: MOTION PICTURE PHOTOGRAPHY

- Video
- Theory of dynamic composition
- Production Methods

Chapter 11: Video & Broadcast Technology

- Video and Broadcast

Chapter 12: FILM EDITING

- History of Film Editing
- Reviewing
- Linear and Non-linear Editing,

Chapter 13: Film Makeup

- Face Makeup
- Hair Care
- Nail Art
- Beauty Therapy

Chapter 14: Project Work

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Digital Photography
Abbreviation of Course Title	DDP
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	25000
Eligibility	+2

About the Course

Photography is the art, application, and practice of creating images by recording light, either electronically by means of an image sensor, or chemically by means of a light-sensitive material such as photographic film

Objectives of the course

- The function of a photographic objective is to image light from some objects to an image plane, where either a photographic film or an electronic image sensor is placed.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DDP	Diploma in Digital Photography	150	100	250

Syllabus of the course

Semester I

Chapter 1 Introduction to Digital Photography

Chapter 2: Camera settings

Chapter 3: Digital Capture

Chapter 4: Macro photography

Chapter 5: Exposure Techniques

Chapter 6: Landscape photography

Chapter 7: Basics of Photoshop

Chapter 8: Flash photography

Chapter 9: Scanning and Image Editing

Semester II

Chapter 10: Image Enhancement Techniques Video

Chapter 11: Advanced Photoshop

Chapter 12: Fashion and Modelling Photography

Chapter 13: Wildlife Photography

Chapter 14: Commercial Photography

Chapter 15: Exploring medium format camera

Chapter 16: Final Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Sound Designing
Abbreviation of Course Title	DSD
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	25000
Eligibility	+2

About the Course

Sound design is a term which describes everything that has to do with how film and video professionals create and use sound in a film or video project

Objectives of the course

- Sound designers create sound effects, source pre-recorded songs, create original music, and build layers of ambiance

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DSD	Diploma in Sound Designing	150	100	250

Syllabus of the course

- Chapter 1** Audio fundamentals, The nature of sound
Chapter 2: Acoustics and the home studio, the behavior of sound
Chapter 3: Digital Audio, introduction to DAW's, Logic Pro X and Pro Tools
Chapter 4: Audio editing and workflow in DAW's
Chapter 5: Gain Staging, Signal Processing, Dynamic and Modulation based effects
Chapter 6: Introduction to MIDI and Sampling
Chapter 7: Sound for film
Chapter 8: Hindustani classical music appreciation
Chapter 9: Live Sound
Chapter 10: Sound Design for film
Chapter 11: Music Business and Legal
Chapter 12: Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Editing
Abbreviation of Course Title	DE
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	25000
Eligibility	+2

About the Course

A Diploma in Editing is a specialized program that equips students with the skills and knowledge required to become proficient film editors

Objectives of the course

- The goal of our Editing Diploma program is to empower students with all editing skills necessary to artfully and cinematically structure a story for a big and small screen.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DE	Diploma in Editing	100	150	250

Syllabus of the course

- Chapter 1** Principles of Editing
- Chapter 2:** Editing for the genre
- Chapter 3:** Film Appreciation
- Chapter 4:** Screenplay and Direction
- Chapter 5:** Digital Film Editing
- Chapter 6:** Film Editing Styles
- Chapter 7:** Audio Editing and Production
- Chapter 8:** Directing for actors and Technical Support
- Chapter 9:** Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in VFX			
Abbreviation of Course Title	DVFX			
Duration of the course in Hours	250			
Duration of the course in Months	6 Month			
Course Fees	25000			
Eligibility	+2			
About the Course				
Visual effects VFX is the process by which imagery is created or manipulated outside the context of a live-action shot in filmmaking and video production				
Objectives of the course				
<ul style="list-style-type: none"> The goal of VFX often is to create scenes that are larger than life and exaggeratedly imagined. 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DVFX	Diploma in VFX	100	150	250
Syllabus of the course				
<p>Chapter 1 Character Modelling and Rigging Chapter 2: Color Sensing Chapter 3: Movie Merchandising Chapter 4: Cloth FX, Pyrotechnics Chapter 5: Portfolio Developments Chapter 6: Rotoscoping Chapter 7: Media Encoder Chapter 8: Concepts of Set Extension & CG Integration Chapter 9 : Project</p>				
Method of Evaluation				
<p>Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report. End examination – Theory objective type Minimum Attendance required for the candidate to appear for final examination: 75%</p>				

LBS SKILL CENTRE

Course Title	Diploma in Beauty Therapist Assistant
Abbreviation of Course Title	DBTA
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	10000
Eligibility	8 th

About the Course

In this course, the students will learn Cosmetology, Manicure, Pedicure, Bleach, Waxing, Skin Treatments, Make Up, Different Types of Sarees & Hairs, Hair Cutting, Hine Dye & Colouring..

Objectives of the course

- The aim of the beautician course is developing the student's practical skill and theoretical knowledge professional attitudes to get success in the beauty industry.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DBTA	Diploma in Beauty Therapist Assistant	100	150	250

Syllabus of the course

Chapter 1: Introduction

Chapter 2: Prepare and maintain work area

- Prepare client record cards
- Improve personal presentation and ideal behaviour

Chapter 3: Provide basic skin care services

- Identify the functions of the skin
- Describe the anatomical structure of the skin
- Identify the characteristics of the skin
- Recognize the skin types and skin conditions
- Use different products available for facial and bleach services

Chapter 4: Perform simple make-up services

- Perform the make-up procedures

Chapter 5: Provide simple hair dressing services to produce common hair dos

Chapter 6: Maintain health and safety at the workplace

Chapter 7: Provide manicure and pedicure services

Chapter 8: Carry out application of simple mehndi/henna designs

Chapter 9: Create a positive impression at the workplace

Chapter 10: Practical

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Aromatherapy
Abbreviation of Course Title	DA
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	10000
Eligibility	8 th

About the Course

In this course, the students will learn Cosmetology, Manicure, Pedicure, Bleach, Waxing, Skin Treatments, Make Up, Different Types of Sarees & Hairs, Hair Cutting, Hine Dye & Colouring..

Objectives of the course

- Aromatherapy aims to enhance well-being, relieve stress and help in the rejuvenation and regeneration of the human body.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DA	Diploma in Aromatherapy	100	150	250

Syllabus of the course

Chapter 1: Introduction to Aromatherapy

Chapter 2: History of Aromatherapy

Chapter 3: Basic Anatomy & Physiology

Chapter 4: Essential Oil Quality

Chapter 5: Physical and Emotional Well-Being

Chapter 6: Chemistry of Essential Oils

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Hair Stylist
Abbreviation of Course Title	DHS
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	12500
Eligibility	8 th

About the Course

Professional courses in hairstyling and grooming are designed for individuals who want to pursue a career in the beauty industry

Objectives of the course

- This course aims at encouraging and teaching the stylist about long hair styling, up-do's and the latest techniques and trends to be abreast with the fashion world.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DHS	Diploma in Hair Stylist	100	150	250

Syllabus of the course

Chapter 1: Personality Development

- Personal Grooming
- Hygiene Rules
- Professional Ethics
- Communication Skills

Chapter 2: Basic Hair Styling

- Selection of tools , equipment& cosmetics
- Client consultation
- Knowledge of Hair Styling techniques

Chapter 3: Thermal Hair Styling

- Selection of tools , equipment's& cosmetics
- Client consultation.
- Types of thermal styling equipment's

Chapter 4: Basic Make-up & Bindi Designing

- Selection of Tools
- Color theory
- Recognition of types of skin
- Selection of correct colors, correct cosmetic.
- Types of Make-Ups

Chapter 5: Facials

- Meaning of Massage
- Techniques of Massage
- Reorganization of types of skin

Chapter 6: Hair Cuts

- Hair texture.
- Sectioning
- Facial shapes
- Hair cutting techniques
- Product knowledge

Chapter 7: Natural Hair Pack

- Purpose
- Classification
- Client consultation
- Procedure

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in SPA Therapist
Abbreviation of Course Title	DSAT
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	35000
Eligibility	10

About the Course

Spa therapists provide a range of therapeutic massages, beauty treatments, and wellness therapies to spa guests based on their needs and preferences

Objectives of the course

- A course in spa therapy will give students the tools and necessary knowledge to serve their customers well such as massage, physiology, skin care or stress reduction.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DSAT	Diploma in SPA Therapist	300	200	500

Syllabus of the course

Chapter 1: Develop personality and behavioral skills

- Purpose of first aid.
- Self-protection
- Cleaning Equipment Handling
- Cleaning Procedure
- Self-Protection
- Linen Handling.
- Laundry Procedures
- Inventory
- Communication
- Listening & understanding
- Treatment Room Cleaning.

Chapter 2: Therapy of different body parts, joints, muscles and bones of human body for spa

- Marking and identifying important muscles, Joint and bones

Chapter 3: Techniques of applying various forms of hydrotherapy related to all modalities.

- Equipment Handling.
- Pre-Treatment set up
- Customer Handling
- Customize the treatment according

- Self-Protection
- Product Handling

Chapter 4: Skin diagnosis using mapping techniques and techniques to suit Selection of Tools

- Product Handling
- Equipment Handling
- Pre-Treatment set up
- Customer Handling and Draping.
- Customize the treatment according

Chapter 5: Identify the body layers and their relation to function and properties, determine depth of pressure

- Product Handling
- Customer Handling and Draping
- Energetic Release and sensing.
- Procedure.

Chapter 6: Marking and identifying important muscles, Joint and bones Hair texture.

Chapter 7: Carry out holistic massages

- Pre Treatment set up
- Customer Handling and Draping
- Product handling
- Dispensing
- Customize the treatment according to consultation

Chapter 8: Perform techniques of applying various forms of hydrotherapy related to all modalities

- History of hydrotherapy
- Different types of hydrotherapy treatments
- Essential Hydrotherapy Treatment steps
- Treatment Preparation
- Contra indications

Chapter 9: Carry out skin diagnosis using mapping techniques

- History of Facial Treatment
- Different Types of Facials Treatments
- Essential Basic Facial Treatments steps
- Treatment Preparation
- Contra indications

Chapter 10: Holistic Massage

- History of Holistic Massage
- Essential massage steps
- Treatment Preparation
- Benefits
- Contra indications

Chapter 11: Reflexology

- History of Reflexology

- Treatment Preparation
- Contra indications

Chapter 12: Body scrub and wraps

- Scrub steps
- Treatment preparation
- Contra Indications
- Customize the treatment according to consultation Procedure

Chapter 13: Develop skill dealing with different SPA therapies.

- Marketing survey on following
- Acupressure.
- Acupuncture
- Colon Therapy
- Chinese Medicine
- Ear Candling
- Electropathy
- Gem Therapy
- Herbalism
- Homoeopathy
- Naturopathy
- Physiotherapy
- Reiki
- Tibetan Medicine

Chapter 14: Front office handling

- Telephone Etiquette & handling
- Customer Appointments & Booking Procedures
- Cancellation Policy

Chapter 15: Aayurveda Massage

- History of Aayurveda Massag
- Knowledge of Various ayurvedic Oils used
- Essential massage steps and strokes
- Treatment preparation
- Benefits

Chapter 16: Aromatherapy Massage

- Study of some important base oils
- History of Aromatherapy Massage
- Essential massage steps .
- Treatment Preparation

Chapter 17: Thai Massage

- History of Thai Massage
- Essential massage steps

Chapter 18: Hot Stone Therapy Massage

- History of Hot Stone Therapy Massage
- Essential massage steps
- Treatment Preparation
- Benefits

Chapter 19: Potli Massage

- Various Herbs used for Pottal
- Treatment Preparation
- Benefits

Chapter 20: Udwartanam Massage

- Theory of Udwartanam Massage
- Treatment Preparation
- Benefits

Chapter 21: Project work/ Industrial visit

Chapter 22: on Job Training (3 Month)

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Yoga Instructor
Abbreviation of Course Title	DYS
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	12500
Eligibility	10

About the Course

In this course, students will learn about the learning of asanas, the anatomy of the human body, yoga benefits, and history of yoga,.

Objectives of the course

- To enable the student to have good health.
- To practice mental hygiene.
- To possess emotional stability

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DYS	Diploma in Yoga Instructor	200	50	250

Syllabus of the course

Chapter 1: Yoga Theory

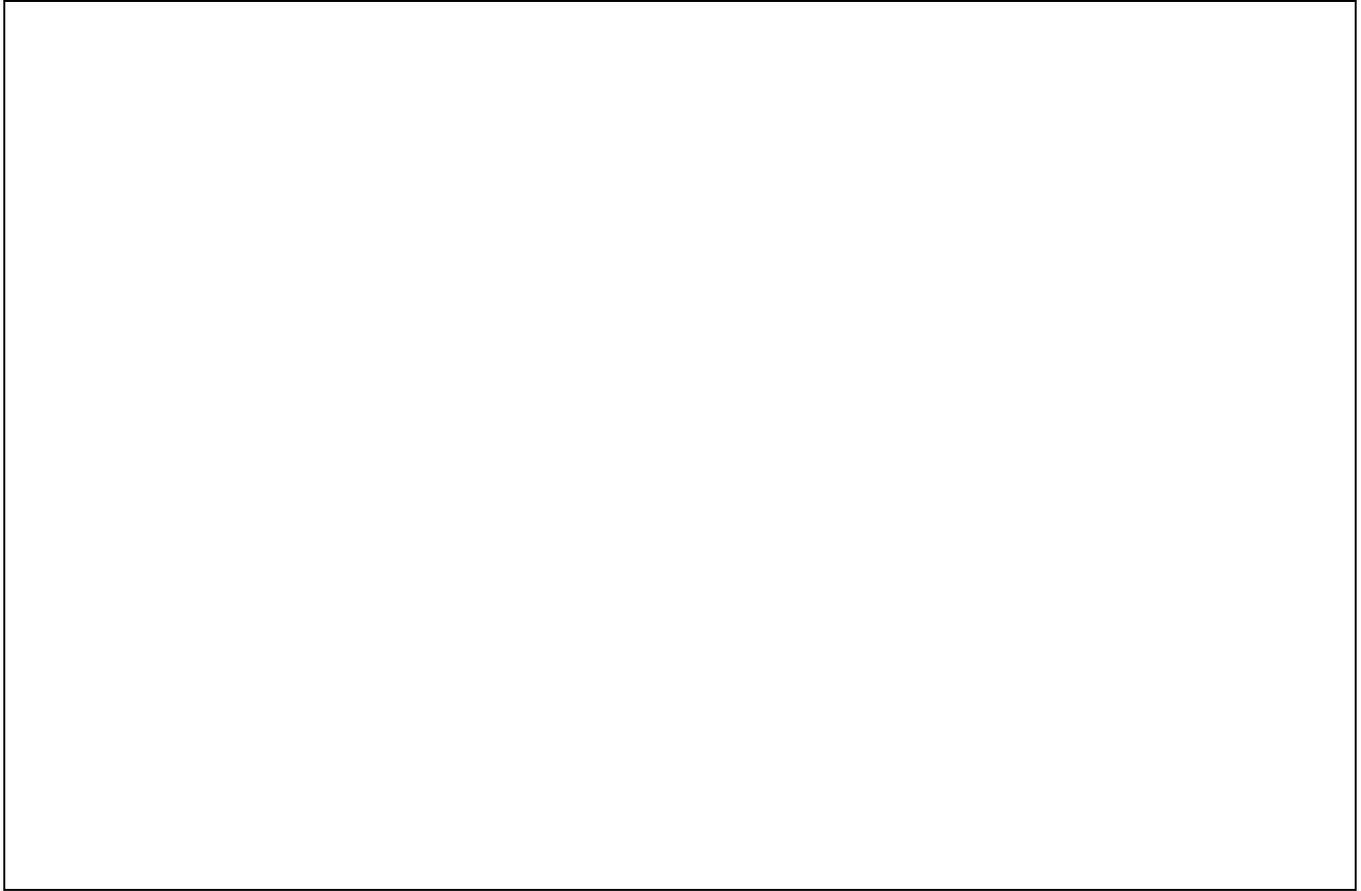
- Introduction
- Schools of Yoga
- Patanjali Yoga Darshanam:
- Hatha –Yoga
- Methods of Meditation

Chapter 2: Anatomy and Physiology Marking and identifying important muscles, Joint and bones

- Introduction to human body
- The Respiratory System
- The Nervous System
- Introduction to Endocrine glands

Chapter 3: Techniques of applying various forms of hydrotherapy related to all modalities.

- Equipment Handling.
- Pre-Treatment set up
- Customer Handling
- Customize the treatment according
- Self-Protection
- Product Handling



Refer to Page 189

Refer to Page 189

Refer to Page 189

- Essential massage steps

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Dip in Beauty Technician
Abbreviation of Course Title	DBT
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	20000
Eligibility	8 th

About the Course

Beautician courses are a complete set of multiple courses dealing with Personal Grooming, Makeup, Skin Treatment, Hair Styling, Nail Arts.

Objectives of the course

- The main Objectives of the Vocational Diploma in Beautician Programme is to train the learners for the job of beauty parlor stylist, facial specialist, hair stylist, spa and massage personal, make-up artist and also building the key competencies amongst the learner.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DBT	Dip in Beauty Technician	300	200	500

Syllabus of the course

Chapter 1: BASIC BEAUTY CARE

- Introduction and importance of Beauty care
- Manicure and Pedicure
- Waxing
- Saree draping
- Cosmetic creams

Chapter 2: SKIN CARE AND FACE MAKE-UP

- Skin Care
- Skin Problems
- Cleansing –
- Art of make-up
- Make-up application

Chapter 3: SPA THERAPY AND MASSAGE.

- History and introduction to SPA,
- SPA products and knowledge
- Massage
- Definition of Yogasana

Chapter 4: HAIR CARE

- Structure of Hair
- Hair conditioning
- Dye application
- Hair Cut/ Styling

Chapter 5: BEAUTY DESIGNING PRATICAL

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Certificate in Sketching and Oil Painting
Abbreviation of Course Title	DSLSP
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	12000
Eligibility	10

About the Course

Oil painting is the process of painting with pigments with a medium of drying oil as the binder. It has been the most common technique for artistic painting on wood panel or canvas for several centuries, spreading from Europe to the rest of the world..

Objectives of the course

- To conscious student about the pictorial quality, composition, perspective, proportion and proper execution. To encourage students for creative thought as well as their study base skill.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DSLSP	Diploma in Sketching and Oil Painting	100	150	250

Syllabus of the course

Chapter 1: Basic Sketching

- Free Hand Drawing
- Object and nature Study
- Indoor and out door Sketching

Chapter 2: Figure Study

- Stick drawing and Block Drawing
- Basic anatomy, Head study from different angle
- Full figure study

Chapter 3: Still life

- Introduction of various techniques
- Drawing for different angle
- Detail about light and shade
- Medium- Pencil, Charcoal, Pen, Ink, Colour, Oil clolur

Chapter 4: Portrait

- Technical details, Measurement
- Detail study of Skull, Character and expression

Chapter 5: Detail Oil Painting

- Theory
- Techniques
- Type of Brushes
- Use of Spatula, roller

- Preservation
- Detail Practice

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diplom in Fine Arts
Abbreviation of Course Title	DFA
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	35000
Eligibility	10

About the Course

This course is designed for those who aim to impart knowledge and skill in fine arts disciplines like drawing and painting along with digital art and graphic design capability

Objectives of the course

- The diploma course in fine arts is aimed at teaching the basic nuisances of fine arts to the students that are related to both visual and performing arts.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DFA	Diploma in Fine Arts	200	300	600

Syllabus of the course

Semester I

- Chapter 1:** Theory (History of Indian art)
- Chapter 2:** Still Life piratical
- Chapter 3:** Landscape Practical
- Chapter 4:** Clay modeling
- Chapter 5:** Portrait painting

Semester II

- Chapter 6:** Landscape painting
- Chapter 7:** History of Indian Art
- Chapter 8:** Head Study
- Chapter 9:** Practical work
- Chapter 10:** Internal/Sessional works

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Certificate in Dance (Western / Classical)			
Abbreviation of Course Title	CDA			
Duration of the course in Hours	250			
Duration of the course in Months	6 Month			
Course Fees	12000			
Eligibility	10			
About the Course				
Diploma In Dance is an intensive dance course that focuses on five key areas, namely dance technique, contextual research, dance practice, teaching skills, and choreography				
Objectives of the course				
<ul style="list-style-type: none"> Learn to process, analyze and respond to sensory information through the language and skills unique to dance. Demonstrate increased movement skills, concentration and physical control in performing movement for artistic expression. 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DDA	Diploma in Dance	100	150	250
Syllabus of the course				
<p>Chapter 1: Dance Technique</p> <p>Chapter 2: Choreography,</p> <ul style="list-style-type: none"> Constructing the Body <p>Chapter 3: Movement Technique and Improvisation</p> <p>Chapter 4: New Media and Performance Practice</p> <p>Chapter 5: Choreography 2</p> <ul style="list-style-type: none"> Body as a Conscious site <p>Chapter 6: Collaborative Practice</p> <p>Chapter 7: Movement Technique & Improvisation</p> <ul style="list-style-type: none"> Somatic Research <p>Chapter 8: Dance on Camera</p> <p>Chapter 9: Professional Portfolio</p>				
Method of Evaluation				
<p>Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.</p> <p>End examination – Theory objective type</p> <p>Minimum Attendance required for the candidate to appear for final examination: 75%</p>				

LBS SKILL CENTRE

Course Title	Diploma in Theatre Skills
Abbreviation of Course Title	DTH
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	25000
Eligibility	10

About the Course

The course covers various aspects of theatre production, including acting, directing, stage design, and production management

Objectives of the course

- Analyse in writing and or through presentation, the development of drama and theatre in human societies and cultures

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DTH	Diploma in Theatre Skills	200	300	500

Syllabus of the course

- Chapter 1:** Introduction to the Theatre
- Chapter 2:** Stage Technology
- Chapter 3:** Basics of Performance
- Chapter 4:** Scene Design I
- Chapter 5:** Lighting Design
- Chapter 6:** Theatrical Makeup
- Chapter 7:** Theatre Workshop
- Chapter 8:** Theatre History I
- Chapter 9:** Electives in design/production
- Chapter 10:** Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Public Relations and Media Management
Abbreviation of Course Title	DPRM
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	35000
Eligibility	12

About the Course

Public relations (PR) is the set of techniques and strategies related to managing how information about an individual or company is disseminated to the public, and especially the media..

Objectives of the course

- To create awareness, build credibility, maintain relationships, and influence the public's attitude towards their brand or organization.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DPRM	Diploma in Public Relations and Media Management	400	100	500

Syllabus of the course

Chapter 1: Introduction

- Concepts
- objectives of public relation

Chapter 2: Public Relation & Marketing Practices

- Integrated Marketing Communication
- Different Between Public relation and Marketing

Chapter 3: Public Relations Planning

- Developing a Public relation plan

Chapter 4: Public Relation Campaigns

- Introduction
- Media relations in the PR campaign

Chapter 5: Advertising Agency and Media

- Introduction
- Role of media and Promotion

Chapter 6: Media Planning

- Concept of media planning
- Media planning process
- Market analysis and target market

Chapter 7: Advertising Budgeting Process

- Methods of advertising
- Percentage of sales

Chapter 8: Public Relation Practices

- Newspapers
- Agency Association

Chapter 9: Development and Fundraising

Chapter 10: Financial Relations

Chapter 11: Public Affairs

Chapter 12: Theory of Practicing & Advertising

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Visual Communication
Abbreviation of Course Title	DVC
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	35000
Eligibility	12

About the Course

BSc Visual Communication is the program that aims at providing an insightful view into a wide variety of subjects such as Animation, Drawing, Multimedia, Graphic Designing, Web Designing, Writing, Advertising, Film and Video Production, Video Editing, Photography, etc.

Objectives of the course

- To create original works of fine and applied arts.
- To implement the creative process to solve diverse visual communication problems.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DVC	Diploma in Visual Communication	300	200	500

Syllabus of the course

Chapter 1: Visual Language

- Study of Visual Language
- Principles of Visual dynamics
- Analysis of Aesthetics

Chapter 2: Visual Design

- Factors of Visual Design

Chapter 3: Art, Design and Society

- Analysis of history of Art
- Analysis of history of Design
- Introduction to Theatre.
- Introduction to Documentary Films

Chapter 4: Studies in Typography

- Study of Typography

Chapter 5: Image making and Representation

Chapter 6: Photo Communication

- Study of photography
- Digital Photography and Digital Printing
- Techniques of photography

Chapter 7: Art, Design

Chapter 8: WRITING FOR MEDIA

Chapter 9: DRAWING

Chapter 10: GRAPHIC DESIGN

Chapter 11: ADVERTISING

Chapter 12: Computer Graphics

Chapter 13: MULTIMEDIA

Chapter 14: AUDIO VIDEO EDITING(Basic)

Chapter 15: AUDIO-VISUAL TECHNIQUES)

Chapter 16: Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Digital Marketing
Abbreviation of Course Title	DDM
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	15000
Eligibility	12

About the Course

Digital marketing, also called online marketing, is the promotion of brands to connect with potential customers using the internet and other forms of digital communication.

Objectives of the course

- Increasing revenue and generating profits is the most important objective for all Digital Marketers..

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DDM	Diploma in Digital Marketing	400	100	500

Syllabus of the course

Chapter 1: Introduction to Digital Marketing

- Fundamentals of Digital marketing & Its Significance
- Digital marketing Strategy
- Terminology used in Digital Marketing
- Type of advertising.

Chapter 2: Social Media Marketing

- Fundamentals of Social Media Marketing
- Facebook Marketing
- LinkedIn Marketing
- Twitter Marketing

Chapter 3: Search Engine Optimization

- Introduction to SEO
- On page Optimization & Off page Optimization
- Social media Reach

Chapter 4: Advertising Tools & Its Optimization Study of Typography

- Advertising & its importance
- Buying Models
- Display advertising
- YouTube Advertising

Chapter 5: Website Hosting using Word Press

- Website Planning & Development
- Domain & Web Hosting
- Building Website using Word press
- Word press Plug-ins

Chapter 6: Web Analytics

- Google Analytics
- Content Performance Analysis
- Social Media Analytics

Chapter 7 : Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

**LBS Centre for Science and Technology
(Offline Course)**

Course Title	Diploma in ERP (D-ERP)
Abbreviation of Course Title	DERP
Duration of the course in Months	3 Month Theory and 3 Month Internship
Course Fees	Rs 30,000/-
Eligibility	Candidates must have a bachelor's degree (B.E./B. Tech) or a master's degree (M.E./M. Tech) in engineering, computer science, business administration, or commerce (B. Com, M. Com, ICWA, or CA) with a minimum cumulative GPA of 50% or equivalent and 1 to 5 years of experience, or they must have relevant experience in ERP, BPM, or IT consulting.
About the Course	
<p>The diploma in ERP programme is designed for recent graduates and working professionals who want to become effective ERP experts with more opportunities on the international market. This postgraduate enterprise resource planning course aims to broaden and deepen the abilities, expertise, and experience of applicants who wish to work as techno-functional consultants in the ERP industry.</p>	
Objectives of the course	
<p>ERP equips businesses with the tools they need to operate efficiently and maximise savings as the work gets increasingly diverse in every way. This specialised and industry-aligned diploma course would strategically enable applicants to handle a wider range of market functions as well as to be effective and innovative, paving the way for the creation of a pool of highly skilled consultants.</p> <p>The objective of the diploma in ERP course is to cover the fundamentals of ERP systems as well as the importance of an organization's cutting-edge information systems in order to boost productivity. Enterprise application software pioneer SAP helps businesses function at their peak. An SAP system is used by 77% of all transaction income worldwide.</p> <p>Customers can operate profitably, adapt continually, and make a difference with the help of SAP's end-to-end range of applications and services. SAP makes the world function more smoothly and enhances people's lives through a global network of partners, customers, workers, and thought leaders.</p>	
Course deliverables	
<ul style="list-style-type: none"> • In this course you will learn how to understand ERP and IT Architectural Components • Understand Analysis and Implementation of ERP • Understand ERP implementation on Open-Source Software • Understand The relationship between ERP and Shared Services • e-Learning modules • Dummy Projects • Assessments/ Tests • Examination • Certification 	

- Working Professionals
- Recently passed graduates.
- Students who have completed their master's.
- Entrepreneurs

Scheme of Study

ERP Concepts

- Introduction to ERP
- Advantages and Effects of ERP
- Operations of ERP Systems
- Groups Involved in the ERP Market
- ERP and IT Architectural Components
- Analysis and Implementation of ERP
- Strategize in ERP
- Looking into the Functional Fit Analysis

Business Process Management

- Introduction to business process management
- Process mapping and documentation
- Process analysis and improvement techniques
- Workflow automation and optimization
- Business process reengineering
- Case studies and real-world examples

SAP Certification (Choose one module)

Overview of SAP systems

- Introduction to the chosen SAP module
- Configuration and customization of the SAP module
- Master data management
- Transaction processing and reporting
- Hands-on exercises and practical simulations

- Preparation for SAP certification exam in the chosen module

Advanced Excel

- Review of essential Excel functions and formulas
- Advanced data manipulation techniques
- Working with large datasets and data analysis
- Pivot tables and data visualization
- Macros and automation in Excel
- Real-world business scenarios and case studies

Spoken and Communicative English

- Enhancing verbal communication skills
- Building vocabulary and improving pronunciation
- Developing fluency and clarity in speech
- Effective listening and comprehension strategies
- Professional communication in business settings
- Presentation skills and public speaking
- Role-plays and interactive activities

Salient Features of DERP:

- Combining blended learning with a course that includes practical application delivery by renowned industry subject experts and esteemed academics.
- Created with aspirational Graduates and Working Professionals in mind.
- Course designed by subject-matter experts.
- Live online instruction that is more practical
- 200+ hours of capstone projects and 400+ hours of learning
- Mentoring & Career Advice from Experts.
- Can be done concurrently without leaving current jobs.

LBS SKILL CENTRE

Course Title	PG Diploma Tourism administration			
Abbreviation of Course Title	PGDTA			
Duration of the course in Hours	500			
Duration of the course in Months	1 year			
Course Fees	35000			
Eligibility	Degree			
About the Course				
This course that focuses on areas such as travel, administration, hospitality and aviation management.				
Objectives of the course				
To provide students with theoretical and practical training in tourism and to follow the national and international innovations.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
PGDTA	PG Diploma Tourism administration	400	100	500
Syllabus of the course				
<p>Chapter 1: Communication English and Computer Fundamentals</p> <p>Chapter 2: Introduction of Tourism Administration</p> <p>Chapter 3: Tourism Product Selling</p> <p>Chapter 4: Management of Travel Agency, Tour operation Business and Hotel Industry</p> <p>Chapter 5: Tourism Marketing and Tourism Management</p> <p>Chapter 6: Foundation course in Tourism</p> <p>Chapter 7: Environment Studies</p> <p>Chapter 8: Tourism Development : Product, Operation and Case Studies</p>				
Method of Evaluation				
<p>Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.</p> <p>End examination – Theory objective type</p> <p>Minimum Attendance required for the candidate to appear for final examination: 75%</p>				

LBS SKILL CENTRE

Course Title	Diploma in Interior Architectural Designing
Abbreviation of Course Title	DIAD
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	30000
Eligibility	Plus Two

About the Course

An interior architect will come up with concept designs based on the functionality and structure of an existing building. Interior architects design with adaptive reuse in mind, often focusing on the sustainable re-modelling of existing buildings

Objectives of the course

To improve the effectiveness, accessibility, functionality and aesthetic appeal of an environment in a way that ensures the safe and optimal occupation and use of the interior space.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DIAD	Diploma in Interior Architectural Designing	350	150	500

Syllabus of the course

Chapter 1: Theory and History of Interior Architecture

Chapter 2: Advanced Production

Chapter 3: Model Making

Chapter 4: Design Studio

Chapter 5: Professional Studies

Chapter 6: Environmental Studies

Chapter 7: Building Technology & Materials

Chapter 8: Design Fundamentals of Architecture

Chapter 9: History of Architecture, Art, Culture & Interiors

Chapter 10: Working Drawing, Theory Structure

Chapter 11: CAD and Digital Imaging

Chapter 12: Architectural Drawing & Graphics

Chapter 13: Building Services

Chapter 14: Estimation & Costing

Chapter 15: Quantity Surveying and Estimates

Chapter 16: Workshop and Model Making

Chapter 17: Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Live Action Director			
Abbreviation of Course Title	DLAD			
Duration of the course in Hours	500			
Duration of the course in Months	1 Year			
Course Fees	35000			
Eligibility	Plus Two			
About the Course				
These courses equip students with various practical, creative, and technical knowledge regarding the process of making a film as well as the functioning				
Objectives of the course				
Managing the actors and film crew, interpreting scripts, and ensuring the visual storytelling aligns with the desired narrative style.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DLAD	Diploma in Live Action Director	200	300	500
Syllabus of the course				
<p>Chapter 1: Overview</p> <p>Chapter 2: Introduction and History</p> <p>Chapter 3: Story / Screenplay / Dialogue Writing</p> <p>Chapter 4: Planning Film or TV Project</p> <p>Chapter 5: Pre-Production</p> <p>Chapter 6: Shooting</p> <p>Chapter 7: Post Production</p> <p>Chapter 8: Final Copy</p>				
Method of Evaluation				
<p>Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.</p> <p>End examination – Theory objective type</p> <p>Minimum Attendance required for the candidate to appear for final examination: 75%</p>				

LBS SKILL CENTRE

Course Title	Diploma in Automobile Service Technician
Abbreviation of Course Title	DAST
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	35000
Eligibility	SSLC

About the Course

Automotive Services means the repair, rebuilding or reconditioning of motor vehicles or parts thereof, including collision service, painting and steam cleaning of vehicles and commercial carwashes.

Objectives of the course

To develop an understanding and appreciation for automobile production

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DAST	Diploma in Automobile Service Technician	200	300	500

Syllabus of the course

Chapter 1: HUMAN RESOURCE DEVELOPMENT

Chapter 2: HUMAN RESOURCE DEVELOPMENT

- Lubrication System
- Cooling System
- Fuel System of Diesel & Petrol Engines

Chapter 3: AUTOMOBILE MAINTENANCE SERVICE & REPAIRS

- Workshop Equipment
- Lubrication and Maintenance Schedule
- Fuel System.
- Engine Tuning
- Fault Diagnosis
- Overhaul and Reconditioning

Chapter 4: VEHICLE PERFORMANCE & TESTING

Chapter 5: DESIGN OF AUTOMOTIVE SYSTEMS

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Post Graduate Diploma in Advertising			
Abbreviation of Course Title	PGDMA			
Duration of the course in Hours	500			
Duration of the course in Months	1 Year			
Course Fees	35000			
Eligibility	Degree			
About the Course				
PGD Advertising deals with the latest practices and concepts regarding the functional areas of advertising for instance newspapers, TV, websites and magazines, etc to sell a service or product				
Objectives of the course				
<ul style="list-style-type: none"> • To provide hands-on training on planning and production of brand campaigns 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
PGDMA	PGDM in Advertising	350	150	500
Syllabus of the course				
<p>Chapter 1: Introduction to communication</p> <ul style="list-style-type: none"> • Communication and Audiences • Mass Communication Theories • The Print Media • Introduction to the Audio Visual Media • Media Organizations of the Government <p>Chapter 2: Introduction to advertising</p> <ul style="list-style-type: none"> • Advertising in Economy • Advertising and Marketing • The Advertising Business, Advertising Theories, Social, Ethical and Legal aspects of Advertising <p>Chapter 3: Principles of public relations</p> <ul style="list-style-type: none"> • Four elements of Public Relations • Evolution of Public Relations • Development of Public Relations in India • Organisation for Public Relations • Public Relations and Publics, Future of Public Relations <p>Chapter 4: Creating advertisements</p> <ul style="list-style-type: none"> • Introduction to Typograpya • Principles of Design • Setting Advertising • Developing Advertising Strategy • Introduction to copy writing • Message 				

- Making Radio Commercials
- Television Advertising

Chapter 5: Advertising & PR

- Public Relations as Communication
- Public Opinion
- Techniques of propaganda
- The nature of public issues
- Employee Relations
- Shareholder Relations

Chapter 6: Media planning

- Media planning process
- Segmenting and targeting
- Media selection
- Planning
- Tactics and implementation
- Media effectiveness

Chapter 7: Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Logistics Management
Abbreviation of Course Title	DLM
Duration of the course in Hours	500
Duration of the course in Months	1 Year
Course Fees	35000
Eligibility	Plus Two

About the Course

A focussed professional development programme that explores the planning, implementing and controlling the flow of goods and services throughout the supply chain.

Objectives of the course

- This programme are to produce quality graduates who are knowledgeable and competent in maritime industry specialized in delivery and supply of goods.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DLM	Diploma in Logistics Management	500	150	500

Syllabus of the course

- Chapter 1: Basics of Logistics Management
- Introduction to physical distribution
 - Logistics management
 - Logistics Management and its elements
 - Modern Concepts in Logistics
 - Role of logistics in strategy
 - Inbound and outbound supply chain management
 - Container – types
 - Different types of cargo
 - Packaging and Material Handling
- Chapter 2: Basics of multimodal Transport
- Introduction to Multimodal Transport
 - Carriage By Air
 - Carriage By Sea
 - Carriage By Road
 - Carriage By Rail
 - Types of Vessels
 - Operators (Vessel and other)
 - Freight Forwarders and NVOCC
 - Outsourcing of Logistics Services
 - Overview of MMTG Act (1993)
 - Shipping Intermediaries and Formalities
- Chapter 3: Ware house and Supply chain management
- Introduction to supply Chain Management (SCM)
 - Sourcing

- Transportation
- Indian supply chain architecture
- Introduction to warehousing
- Warehouse functions
- Warehouse types
- Warehouse providing value added services
- Warehouse internal operations

Chapter 4: Documentation and Clearness

- Foreign Trade Policy
- Export and Import Procedures
- Documents Related to Export and Import
- Instruments and Terms of Payment in Export – Import
- Methods of Export - Import Financing
- Letter of Credit and Bill of Exchange
- Foreign Exchange Regulations and Formalities
- Cargo Insurance
- International Commercial Terms
- Procedure and Documentation for Availing Export Incentives
- Bill of lading other documents

Chapter 5: Techniques of operation efficiency

- Systematic Problem Solving
- Quality Circles
- Total Productive Maintenance

Chapter 6: Industrial relation and labour law

- Media planning process
- Segmenting and targeting
- Media selection
- Planning
- Tactics and implementation
- Media effectiveness

Chapter 7: Marketing in Shipping and Logistics

- Principles and practice in Marketing
- Segmentation, Targeting and Positioning
- Consumer Behaviour
- Marketing in service sector
- Marketing in Ports and shipping
- Marketing in Freight Forwarding Company
- Concession agreements
- Terminal service agreements
- Operations of shipping agency (CFS process and documentation)
- Ship Agency management System
- Import and Export Container cycle costings
- Agency contract

Chapter 8:Trends in Logistics

- Introduction – recent developments in logistics
- Transport and mobility technologies
- Green logistics
- Cold chain logistics

Chapter 9: Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma.in Shipping and Port Management			
Abbreviation of Course Title	DSNPM			
Duration of the course in Hours	250			
Duration of the course in Months	6 Month			
Course Fees	15000			
Eligibility	Plus Two			
About the Course				
A shipping management course is the study of shipment management, cargoes, carriage of goods, and services. .				
Objectives of the course				
<ul style="list-style-type: none"> To train students with a through knowledge of aspects of the maritime business to enable them to fulfil the requirements to enter within the maritime world and its associated industries.. 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DSNPM	Diploma.in Shipping and Port Management	250		250
Syllabus of the course				
<p>Chapter 1: Introduction of shipping industry and role</p> <p>Chapter 2: Customs and Shipping Law</p> <p>Chapter 3: Accounts and Finance Management</p> <p>Chapter 4: Maritime Business and Business Communication</p> <p>Chapter 5: Marketing and Maritime Economics</p> <p>Chapter 6: Research Methodology and Organizational Behaviour</p> <p>Chapter 7: IT System and Port Planning</p>				
Method of Evaluation				
<p>Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.</p> <p>End examination – Theory objective type</p> <p>Minimum Attendance required for the candidate to appear for final examination: 75%</p>				

LBS SKILL CENTRE

Course Title	Diploma in Export /Import Operations
Abbreviation of Course Title	DIEO
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	15000
Eligibility	Plus Two

About the Course

We have the opportunity to learn management techniques that are used by a variety of departments within the shipping and logistics industry. They learn the skills needed to manage the port and shipping activities. They learn about the various laws of trade and communication channels.

Objectives of the course

The aim of this course is to impart knowledge to learners of marine shipping, transportation, management, planning, and professional communication as enhance various skills as well..

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DIEO	Diploma in Export /Import Operations	250		250

Syllabus of the course

- Chapter 1: Elements of Management
- Chapter 2: Export & Import Policies, Procedure and Product Planning for Export
- Chapter 3: Export & Import Documentation
- Chapter 4: International Economics & Foreign Trade
- Chapter 5: Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Dip in Freight Management
Abbreviation of Course Title	DFM
Duration of the course in Hours	250
Duration of the course in Months	6 Month
Course Fees	15000
Eligibility	Plus Two

About the Course

Freight management is a part of the logistics process, which covers the whole supply chain operation from warehousing to supplier relationships and inventory control.

Objectives of the course

Improve understanding and management of supply chain risks in international trade.

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DFM	Dip in Freight Management	250		250

Syllabus of the course

Chapter 1: International Trade Management

- Major Trade Product in International Trad
- Overview on Types of Payment Methods
- Various Types of L/C, Their Uses & Risks
- Preparation of Documents According to L/C Requirements

Chapter 2: Air Freight Forwarding Operations

- Industry Regulators & Associations
- Document of Affreightment—Air Waybill
- The Air Cargo Agency, Airlines & Ground Handling
- Dangerous Goods & Security
- Air Cargo Import, Export, Transhipment

Chapter 3: Sea Freight Forwarding Operations

- Transport Geography
- Shipping Documentation
- Role of Carriers & Ports
- Cargo Packing & Damage

Chapter 4: Customer Service & Relationship Management in Logistics

- What is Customer Servicing in the Logistics Industry
- Customer Service Performance Metrics
- Development of Customer Service Programme

- Concept of Customer Relationship Management

Chapter 5: Legal Issues in Freight Management

- Legal Framework of MTO
- Carriage of Goods by Sea
- Cargo Claims
- Carriage of Goods by Air

Chapter 6: Basic Management

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Dip in Warehouse management			
Abbreviation of Course Title	DWM			
Duration of the course in Hours	250			
Duration of the course in Months	6 Month			
Course Fees	15000			
Eligibility	Plus Two			
About the Course				
warehouse management deal with various aspects of warehouse management systems, such as inventory management, warehouse operations, the design, layout, and security of the warehouse, order fulfillment, quality control, and many more				
Objectives of the course				
To embrace automation through logistics and reduce human errors				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DWM	Dip in Warehouse management	250		250
Syllabus of the course				
<p>Chapter 1: Introduction to Warehouses</p> <p>Chapter 2: Types of Warehouses</p> <p>Chapter 3: Functions of Warehouses</p> <p>Chapter 4: Warehouse Operations & Systems</p> <p>Chapter 5: Warehouse Inventory Management</p> <p>Chapter 6: The Warehouse Inventory Cycle</p> <p>Chapter 7: Warehouse Inventory Tracking</p> <p>Chapter 8: Warehouse Material handling</p>				
Method of Evaluation				
<p>Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.</p> <p>End examination – Theory objective type</p> <p>Minimum Attendance required for the candidate to appear for final examination: 75%</p>				

LBS SKILL CENTRE

Course Title	Diploma in Graphics, Animation and Visual FX			
Abbreviation of Course Title	DGAV			
Duration of the course in Hours	500			
Duration of the course in Months	1 Year			
Course Fees	40000			
Eligibility	10			
About the Course				
This diploma will help you learn about the principles of animation and VFX.				
Objectives of the course				
<ul style="list-style-type: none"> • Animation helps deepen visual understanding better than traditional images. It helps others see and develop their ideas through an experience of art and how to use various techniques of it. 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DGAV	Diploma in Animation and Visual FX	400	100	500
Syllabus of the course				
<p>Chapter 1 Digital design</p> <p>Chapter 2: Layer-based, node-based & advanced compositing</p> <p>Chapter 3: 3D design</p> <p>Chapter 4: Cloth FX, pyrotechnics</p> <p>Chapter 5: Match moving & camera tracking</p> <p>Chapter 6: Advance Paint Techniques</p> <p>Chapter 7: Time Warping</p> <p>Chapter 8: Multi-Plate Compositing</p> <p>Chapter 9: Basics of photography</p> <p>Chapter 10: Projection for visual effects</p> <p>Chapter 11: Advanced particle effects</p>				

Chapter 12: Creating Visual Effects Element

Chapter 13: Multi-Pass Compositing

Chapter 14: Digital Makeup

Chapter 15: Training

Chapter 16: Project

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%

LBS SKILL CENTRE

Course Title	Diploma in Acupuncture Science			
Abbreviation of Course Title	DASc			
Duration of the course in Hours	250			
Duration of the course in Months	Six Months			
Course Fees	9000			
Eligibility	+2 Science / NIOS equivalent			
About the Course				
Diploma in Acupuncture Science is a professional course that deals with Drugless Therapy.				
Objectives of the course				
<ul style="list-style-type: none"> • To make familiar / through about human anatomy, physiology and medicinal systems in practice. • To give complete knowledge about acupuncture Science, fundamental theories on which acupuncture science derived. • To give adequate knowledge about acupuncture Channels, Points and their locations, relationship with organs. • To give a practical knowledge and training on diagnosis methods to conclude the deficiency and to select an appropriate acupuncture point for treatment. 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
_DASc	Diploma in Acupuncture Science	175	75	250
Syllabus of the course				

Paper 1: Introduction to Human Anatomy and Physiology

- Unit I
 - Anatomy, Physiology and vital energy
- Unit II
 - Cell & Digestive systems
- Unit III
 - Location of Yin and Yang organs
- Unit IV
 - Principles of Five elements and Five Element Organs
- Unit V
 - Terminologies

Paper 2: History and Philosophy of Acupuncture

- Unit I
 - History of Acupuncture
- Unit II
 - Acupuncture
- Unit III
 - Morbid Stagnation theory
- Unit IV
 - Morbid stagnation and Eliminations
- Unit V
 - Five Element Theory

Paper 3: Applied Acupuncture

- Unit I
 - Channels / Meridians and Body measurements
- Unit II
 - Fire and Earth Elements
- Unit III
 - EARTH, WATER and WOOD Elements
- Unit IV
 - Wood and Fire element
- Unit V
 - Conception Vessel meridian

Paper 4: Practical / Hands on Training Programme

- Exercise No 1: Locating the Acupuncture Points.
- Exercise No 2: Diagnosis Investigation & Observations
- Exercise No 3: Pulse diagnosis
- Exercise No 4: Treatment Method
- Exercise No 5: Process of curing

Practical Classes Syllabus

- Indian Cookery
- Italian Cookery
- Continental Cookery
- Sponge Cake
- Steamed Pudding
- Chinese Dessert–NianGao
- Baked Trifle Alaska
- Kheer

Chapter 2: F & B Service: Topics Covered

- Introduction to F&B Service
- Job description & Specifications
- F&B Service Equipment
- Types of Service
- Menu Planning
- Table setting and order of service.
- Service of Non Alcoholic Beverages
- Forms & Formats
- Banquets
- Room Service
- Facility Planning in F&B area.
- Revenue Management in F&B Service

Practical Classes Syllabus

- Introduction of Service Equipment, Glasses & Plates Arrays, Grip Editing
- Table setting–Formal & Informal
- Serving for water, non-alcoholic and alcoholic beverages

Chapter 3: Front Office: Topics Covered

- Hotel Origin, History & Growth
- Classification of Hotel Industry
- Introduction to the Front Office
- Front Office Product
- Guest Cycle
- Uniformed Staff
- Function of the Bell Desk
- Function of the Reception/Information Desk/ Night Reports
- Function of the Reservations Department
- Duties of the Lobby Manager, GRE and Groups Coordinator
- Forms & Formats
- Front Office Layout planning

Chapter 4: House Keeping: Topics Covered

- The house Keeping Department
- Organizational Framework of the Department.
- Interdepartmental Coordination with FO, F&B, Engineering, Security, store & purchase
- Types of Rooms, Layout of rooms
- House Keeping Control Desk
- Linen Room
- Laundry Operations
- Interior Decoration, Colour & Lighting, Wall coverings, Furniture
- Room Cleaning Procedures
- Role of Supervisors
- First Aid

Practical Classes Syllabus

- Setting up of trolley
- Cleaning equipment, agents, chemicals and linen identification
- Room cleaning process

Chapter 5: Personality Development

- Personal hygiene & Grooming
- Self-awareness
- Persuasion skills
- SWOT Analysis

Chapter 6: English

- Business Communication
- Etiquette and Manners
- Speeches and Presentations
- Report Writing

Chapter 7: Basic Computer Skills

- MSOffice
- Understanding the PMS module

Chapter 8: Accountancy

- Meaning and scope of Accounting
- Accounting Concepts, Principles and Conventions
- Capital and Revenue Expenditures and Receipts
- Cash Book
- Basic Accounting Procedures-Journal Entries

Chapter 9: On Job Training (3 Months) * Mandatory

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination–Theory objective type

Minimum Attendance required of the candidate to appear for final examination:75%

LBS Centre for Science and Technology

Course Title	Certification in SELENIUM			
Abbreviation of Course Title	CSEL			
Duration of the course in Hours	100 –(2.5Hrs/Day)			
Duration of the course in Months	2 Eligibility: SSLC			
Course Fees	15000			
About the Course				
<p>Selenium is an open source umbrella project for a range of tools and libraries aimed at supporting browser automation. It provides a playback tool for authoring functional tests across most modern web browsers, without the need to learn a test scripting language (Selenium IDE). It also provides a test domain-specific language (Selenese) to write tests in a number of popular programming languages, including JavaScript (Node.js), C#, Groovy, Java, Perl, PHP, Python, Ruby and Scala. Selenium runs on Windows, Linux, and macOS. It is open-source software released under the Apache License 2.0.</p>				
Objectives of the course				
<ol style="list-style-type: none"> 1. Develop test cases to detect bugs and errors. 2. Automation framework design and implementation according to project structure. 3. Improve and automate test practices. 4. Participate in communicating best practices. 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
SC1	Selenium WebDriver	5	7	12
SC2	Selenium IDE	4	40	44
SC3	Selenium Grid	4	40	44
Syllabus of the course				
Syllabus of the Subject 1				
Driver Sessions, Supported Browsers, Waits, Web elements, Browser interactions, Actions API, BiDirectional functionality, Support features, Troubleshooting Assistance				
Syllabus of the Subject 2				
Ready to use IDE - Resilient Tests, Test Case Reuse, Control Flow, Plugins				
Syllabus of the Subject 3				
Getting started with Selenium Grid, When to Use Grid, Selenium Grid Components, Configuration of Components, Grid architecture Advanced features of Selenium				
Method of Evaluation				
Theory exam - 50 Marks, Practical Exam 50, Total 100 Marks				

LBS Centre for Science and Technology

Course Title	CSEO
Abbreviation of Course Title	Certification On Search Engine Optimization
Overall duration of the course in Hours	60 Hrs
Duration of the course in Months (if applicable)	4 Weeks (3 Hrs/Day)
Course Fees	10000 Eligibility : SSLC
About the Course	
Search engine optimization (SEO) is the process of improving the quality and quantity of website traffic to a website or a web page from search engines.	
Objectives of the course	
The SEO process aims to increase a business's organic search results, driving organic search traffic to the site. This enables data marketers to distinguish between traffic that comes to a website from other channels such as paid search, social media, referrals and direct and the organic search traffic.	
Syllabus of the course	
Basics for SEO, SEO Research & Analysis, Website Design SEO Guidelines, On-page Optimization, Off-page Optimization, Analytics, SEO Tools.	
Syllabus in Detail.	
Method of Evaluation	
Theory exam - 50 Marks, Practical Exam 50, Total 100 Marks	

Syllabus in Detail

Week 1: Introduction to SEO and SEO Research & Analysis (15 hours)

What is SEO and why is it important?
 How search engines work
 On-page vs off-page optimization
 Keyword research and analysis
 Competitive analysis and identifying SEO opportunities
 Understanding user intent and creating a content strategy

Week 2: Website Design SEO Guidelines and On-Page Optimization (15 hours)

Website structure and navigation
 URL structure and site architecture
 Title tags, meta descriptions, and header tags

Content optimization and keyword density
Image optimization and alt tags
Mobile optimization and site speed
Internal linking strategies

Week 3: Off-Page Optimization and Analytics (15 hours)

Backlinking and link building strategies
Social media marketing and its impact on SEO
Local SEO and optimizing for Google My Business
Understanding Google's algorithm updates
Google Analytics and tracking SEO success
Measuring and reporting on SEO performance

Week 4: Advanced SEO Strategies and SEO Tools (15 hours)

Technical SEO and site audits
Schema markup and rich snippets
E-commerce SEO and product optimization
Voice search and optimizing for voice assistants
SEO tools and software for research, analysis, and tracking
Troubleshooting common SEO issues and penalties

Certification in Cloud Computing with Azure

The course is a four-week program designed to provide a comprehensive understanding of Azure cloud computing services. The course covers the fundamental concepts of cloud computing and the advantages of using Azure for deploying and managing virtual machines, networking, and storage resources.

Duration: 1 Month (5 days a week)

Duration of each class: 2 hours per day

Eligibility: BTech / 3-year Diploma / Degrees completed with basic computer knowledge / +2 computer

Course Fee: INR 5000

The "Cloud Computing Basics with Azure" course is beneficial for a wide range of individuals and organizations, including:

IT professionals / Business professionals / Students and researchers who want to gain knowledge about cloud computing and Azure

TOPICS COVERED

Week 1: Overview of Azure and Advantage of Cloud

Introduction to Azure: history, benefits, and services offered

Advantages of Cloud computing: scalability, availability, cost-effectiveness, and security

Comparison between on-premises infrastructure and cloud computing

Azure management portal and Azure CLI

Azure Resource Manager (ARM) and Resource Groups

Week 2: Basic Concepts and Deploying and Managing Azure Compute Resources

Azure Compute resources: Virtual Machines, Azure Container Instances, Azure Kubernetes Service, Azure Functions, and Azure Batch

Introduction to Virtual Machines

Building a Virtual Machine in Azure

Availability Sets and Availability Zones

Virtual Machine Scale Sets

Adding Data Disks to Virtual Machines

Deploying and Managing Azure Compute Resources

Week 3: Configuring and Managing Virtual Networking

Introduction to Virtual Networks

Concepts behind Subnets
Network Security Groups
Azure Load Balancer Service
Azure Load Balancer Implementation
Concept of Azure Application Gateway
Virtual Network Peering Concept and Its Implementation
Virtual Private Network and Different Types of VPN
Domain Name System (DNS)

Week 4: Implementation and Management of Storage

Introduction to Storage Accounts
Azure Blob Service
Different Access Methods for Blob Service
Azure Files Service
Azure Queue Storage
Azure Table Storage
Azure Disk Storage
Implementing and Managing Storage in Azure
Azure Subscription
Azure Active Directory
User management in Azure Active Directory
Role Based access Control
Azure Monitor Service
Log Analytics workspace

Digital Office Essentials with Tally and Malayalam Typing Skills (Windows, MS Office & Tally with Malayalam)

This course is designed to provide a comprehensive understanding of Windows OS and MS Office, specifically Microsoft Word, Excel, and PowerPoint. Students will learn to create and manage documents, spreadsheets, and presentations, along with formatting and editing techniques, data analysis, and visualization. The course also covers internet browsing and communication, including email and cloud computing. Additionally, students will learn Malayalam typing using popular tools and applications, and gain an understanding of accounting principles and Tally.ERP9 software. The course covers the basics of accounting, inventory and voucher entry in Tally, advanced accounting features such as bill-wise details, cost centers and categories, and multicurrency management. The course also covers Goods and Services Tax (GST), payroll, and compliances.

Duration and Schedule:

120-hour course over 3 months

Classes held 5 days a week

Course Coverage:

Introduction to Windows OS and File Management

Introduction to Microsoft Word, Excel, and PowerPoint

Advanced Word and Excel features

Internet and Online Communication

Basics of Accounting and Tally.ERP9

Inventory and Voucher Entry in Tally.ERP9

Advanced Accounting in Tally.ERP9

Goods and Services Tax (GST), Payroll, and Compliances

Malayalam Typing skills

Eligibility:

SSLC or above

Minimum age of 18

Fees:

Rs. 6000

Benefits:

- Students who are interested in learning computer skills and accounting principles
- Professionals who want to improve their knowledge of Microsoft Office tools and Tally accounting software
- Business owners who want to manage their accounts and transactions efficiently
- Anyone who wants to improve their employability and career prospects by gaining practical skills in computer applications and accounting software.

Windows and MS Office

Module 1: Introduction to Windows OS and File Management

Introduction to Windows operating system and its features
Desktop and file management in Windows
Customizing the Windows environment

Module 2: Introduction to Microsoft Word

Introduction to Microsoft Word
Creating, formatting, and editing documents
Working with tables, images, and graphics
Page layout and printing options

Module 3: Introduction to Microsoft Excel

Introduction to Microsoft Excel
Creating, formatting, and editing spreadsheets
Working with formulas and functions
Data analysis and visualization
Pivot tables and charts

Module 4: Introduction to Microsoft PowerPoint

Introduction to Microsoft PowerPoint
Creating, formatting, and editing presentations
Working with multimedia, animations, and transitions
Customization and delivery of presentations

Module 5: Advanced Microsoft Word and Excel

Advanced formatting and editing techniques in Word
Collaboration and review features in Word
Advanced data analysis and visualization techniques in Excel
Macros and automation in Excel

Module 6: Internet and Online Communication

Introduction to the internet and web browsers
Searching and browsing the web
Online communication through email and messaging
Cloud computing and online file sharing

Accounting Using Tally (GST UPDATE)

Module 1: Basics of Accounting

Types of accounts
Golden rules of accounting
Accounting principles, concepts, and conventions
Double entry system of bookkeeping
Modes of accounting
Financial statements

Transactions
Recording transactions

Module 2: Introduction to Tally.ERP9

Getting started with Tally.ERP9
Creating and setting up a company in Tally.ERP9
Accounting masters in Tally.ERP9
F11 features and F12 configurations in Tally.ERP9
Setting up account heads in Tally.ERP9

Module 3: Inventory and Voucher Entry in Tally.ERP9

Stock group, stock categories, godowns/locations, units of measure, and stock items
Accounting vouchers
Inventory vouchers
Invoicing

Module 4: Advanced Accounting in Tally.ERP9

Bill-wise details
Cost centers and cost categories
Multicurrency and bank reconciliation
Interest calculations
Budgets and controls
Scenario management

Module 5: Goods and Services Tax (GST), Payroll, and Compliances

Basics of GST
Configuring GST features
Creating GST masters
Entering GST transactions
Generating GST reports
GST filing in Tally.ERP9
Configuring payroll
Creating payroll masters
Processing payroll
Inventory management for payroll
Accounting for employer PF and ESI contributions
Payment of professional tax

Malayalam Typing Skills

Overview of Malayalam script and its features
Introduction to keyboard layout for Malayalam typing
Basic keystrokes for vowels, consonants, and combinational letters
Malayalam Typing Practice
Typing commonly used words and phrases in Malayalam
Typing simple sentences and paragraphs in Malayalam
Overview of popular Malayalam typing software and applications
Installation and configuration of Malayalam typing tools
Practice exercises using Malayalam typing tools

LBS Centre for Science and Technology(Offline Course)

Course Title	International English Language Testing System	
Abbreviation of Course Title	IELTS	
Duration of the course in Hours	100	
Duration of the course in Months	3	
Course Fees	15000	
Eligibility	Anyone who is older than 16 years of age can appear for the test	
<p>About the Course IELTS is recognized by universities and employers in many countries, including Australia, Canada, Ireland, New Zealand, the UK and the USA. It is also recognized by professional bodies, immigration authorities and other government agencies.</p>		
Objectives of the course		
<p>IELTS, the International English Language Testing System, is designed to assess the language ability of candidates who need to study or work where English is used as the language of communication. IELTS is required for entry to university in the UK and other countries.</p>		
Scheme of Study		
Subject Code	Topics	
IELTS	<p>The test has four sections:</p> <ul style="list-style-type: none"> a) Listening - 4 sections, 40 questions, 30 minutes b) Speaking - interview, 11-14 minutes c) Reading - different for Academic or General Training - 3 sections, 40 questions, 60 minutes d) Writing - different for Academic or General Training - 2 pieces of writing, 60 minutes 	
Level and scores	<p>Multi-level. You get a score between 1 and 9. Half scores such as 6.5 are possible. Universities often demand a minimum IELTS score of 6.0 or 7.0. They may also demand a minimum score of 6.0 in each of the 4 sections.</p>	

LBS Centre for Science and Technology(Offline Course)

Course Title	Occupational English Test
Abbreviation of Course Title	OET
Duration of the course in Hours	100
Duration of the course in Months	3
Course Fees	15000
Eligibility	General Nursing / BSc Nursing
About the Course	
OET has been developed to cover 12 different healthcare professions. The test assesses all four language skills, using test materials that reflect typical communication scenarios from the healthcare industry.	
Objectives of the course	
OET (Occupational English Test) is designed to meet the specific English language needs of the healthcare sector. It assesses the language proficiency of healthcare professionals who wish to practise in an English-speaking environment. All four language skills are assessed, with Writing and Speaking tests available in 12 different areas of healthcare. All candidates sit the same Reading and Listening tests.	
OET is accepted as proof of English proficiency in the UK, Ireland, Australia, New Zealand, Dubai, Namibia and Singapore for registration in 12 healthcare professions.	
Scheme of Study	
Subject Code	Topics
OET	a) About Listening Listening approx. 45 minutes Same content for all healthcare professions. Follow and understand a range of health-related spoken materials such as patient consultations and lectures.
	b) About Reading Reading 60 minutes Same content for all healthcare professions. Read and understand different types of text on health-related subjects
	c) About Writing Writing 45 minutes Specific to profession, based on typical workplace situations. The task is to write a letter, usually a referral letter. Sometimes, especially for some professions, a different type of letter is required: e.g. a letter of transfer or discharge, or a letter to advise or inform a patient, carer, or group.
	d) About Speaking Speaking approx. 20 minutes Specific to profession, based on typical workplace situations. In a private room you will take part in two role-plays. You take your professional role (as a healthcare professional) while the interlocutor plays a patient or client, or sometimes a relative or carer In a carer room you will take part in two role-plays. You take your professional role (as a healthcare professional) while the interlocutor plays a patient or client, or sometimes a relative or carer.

Course Title	German language Course
Abbreviation of Course Title	GLC (A1 Level)
Duration of the course in months	6 months
Course Fees	20000
Eligibility	Candidates above 15 years can enroll.

About the Course

German Language Level A-1 course. The course aids learners in recognizing and using simple phrases, apart from answering basic questions about home, family, surroundings, etc. Learners will also be able to communicate in a basic manner when the other person speaks slowly and is ready to repeat or reformulate to help communicate.

Scheme of Study

Subject Code	Topics
	<p>MODULE 1</p> <p>Introduce yourself and interact with others – asking their names, location, age, languages, country etc.</p> <p>MODULE 2</p> <p>Describe cities, places, famous buildings, modes of transport and directions.</p> <p>MODULE 3</p> <p>Describe hobbies, friends, family, profession, weekdays, months, dates, times, etc.</p> <p>MODULE 4</p> <p>Describe food: Taste, names of dishes, placing an order in a restaurant, paying bills, purchasing groceries and discussing prices</p> <p>MODULE 5</p> <p>Describe hobbies, plan activities together, talk about places or programmes to visit</p> <p>MODULE 6</p> <p>Describe routine activities, discuss weekly or monthly schedules, use verbs and frame questions</p>

Course Title	German language Course
Abbreviation of Course Title	GLC (A2 Level)
Duration of the course in months	6 months
Course Fees	20000
Eligibility	Candidates who have cleared the A-1 Level.

About the Course

This course will help learners to express themselves adequately in familiar, everyday situations and to read and comprehend simple texts.

Scheme of Study

Subject Code	Topics
	<p>Module 1</p> <ul style="list-style-type: none"> ● Introducing oneself and others ● Introducing a restaurant; kitchen and cooking; eating habits, verbs which explain feelings, possessive article with dative, reflexive verbs <p>Module 2</p> <ul style="list-style-type: none"> ● Understanding an account about experiences and activity at school ● Speaking about school systems and school subjects ● Explaining where something is, talking about habits, giving tips about finding one's way in the city, modal verb in past tense <p>Module 3</p> <ul style="list-style-type: none"> ● Speaking about advantages and disadvantages ● Speaking about one's own opinion and about one's preferences ● Speaking about films ● Understanding a comment about a film ● Activities with media, film, comparative [als/wie], superlative degree <p>Module 4</p> <ul style="list-style-type: none"> ● Thanking others and wishing them for special occasions, festivals, celebrations and events; expressing pleasure and regret ● Writing about a city ● Blog writing <p>Module 5</p> <ul style="list-style-type: none"> ● Converse at railway station ticket office; railway journey ● Speaking about leisure time facilities ● Speaking about career aspirations and dream jobs ● Telephonic conversations, working environment ● Adjective ending with indefinite article <p>Module 6</p> <ul style="list-style-type: none"> ● Saying one's opinion ● Public transportation ● Driving a car ● Subordinate clause: indirect questions ● Local prepositions ● Public transportation ● Driving a car

	<ul style="list-style-type: none"> ● Subordinate clause: indirect questions <p>Module 7</p> <ul style="list-style-type: none"> ● Problems while learning; giving advice and suggestions, ● Speaking about your profession ● Making a short presentation ● Learning ● Examinations ● Presentations ● Conjunctive II <p>Module 8</p> <ul style="list-style-type: none"> ● Speaking about excitement, hope and disappointment ● Understanding and writing ● Understanding a report about an excursion ● Introducing a place of tourist interest <p>Module 9</p> <ul style="list-style-type: none"> ● Speaking about different music styles ● Booking concert tickets ● Introducing a band or singer ● Describing a picture and music <p>Module 10</p> <ul style="list-style-type: none"> ● Speaking about wishes ● Exchange informations, speaking about proverbs ● Time, ● Conjunctive II ● Verbs with preposition <p>Module 11</p> <ul style="list-style-type: none"> ● Events ● Stereotypes subordinate ● Relative clauses with accusative
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Diploma in Mobile Phone Technology and Troubleshooting (DMPTT)

About the Course

Mobile phones have become an integral part of our lives, and their importance is growing with the passage of time. With the advancement in mobile technology, it has become necessary to have the skills and knowledge to repair and maintain them. To cater to the growing need for mobile phone repair experts, a Diploma Course in Mobile Phone Technology and Repair has been introduced.

Duration and Fees:

The Diploma Course in Mobile Phone Technology and Troubleshooting is a 120-hour course that can be completed in 3 months (5 days a week). Followed by 3 Month internship.

The course fee is INR 6,000.

Eligibility:

The eligibility criteria for this course are SSLC or above.

FINAL Examination

Examination Registration Fee Rs 300

Theory	100 Mark
Lab	100 Mark
Internal (Theory – 50, Lab -50)	100 Mark
TOTAL	300 Mark

Detailed Syllabus

Module 1: Basic Electricity and Electronics

Current, Voltage, AC Current & DC Current

Resistor, Transistor, Capacitor, Diode, Inductor/Coil, Transformer, Integrated Circuit, Digital Electronics, Speaker, Ringer, Microphone, Vibrate Motor, Display, Drivers, Power Switch, Fuse, Real-Time Clock and Quartz Crystal, Multimeter, Power Supply, Battery Booster

Understanding Circuit Diagrams

Study of Various Tools and Equipment Used in Mobile Phone Repair

Module 2: Introduction to Mobile Phone Technology

Working Principal of a Mobile Phone

Base Station Subsystem

SIM (Subscriber Identification Module)

GSM (Global System for Mobile Communications)

Advantages of GSM Technology

CDMA (Code Division Multiple Access)

Advantages of CDMA Technology

Introduction of GPRS (General Packet Radio Service)

Bluetooth

Wi-Fi

Wi-Max

Module 3: Circuits and Sections

Power Circuit

Charging Circuit

Light Circuit

SIM Circuit

Display Circuit

Keypad Circuit

Touch Screen Circuit

Audio Circuit

Memory Card Circuit

Speaker Circuit

Microphone Circuit

Network Circuit

Bluetooth Circuit

Wi-Fi Circuit

Module 4: Hardware

Details of Various Components on the PCB

Assembling & Disassembling of Different Mobile Phones

Soldering & De-soldering of Components

Working on SMD/BGA ICs and the PCB

Installing and Removing Connector, Display Flex, Folding and Sliding Handset Flex Cable

Water Damage and Washing

Testing of Various Parts and Components

Circuit Tracing of Different Section of Mobile Phone
Fault Finding & Troubleshooting
Jumpers and Jumpering Techniques
Dead Set Repairing

Module 5: Software

Operating Systems
9 Different Types of Mobile Operating Systems
Mobile Phone Applications
Introduction of Various Software
Flashing of Various Brands of Handsets
Removing Virus from Infected Phones
Unlocking of Handsets through Codes and/or Software
Use of Various Secret Codes
FRP Lock Removal
How to Flash Mobile with Flash File Easily
How to Download Mobile Flashing File, Driver, Mobile Application from the Internet

Module 6: Practical Training

Hands-on Experience in Mobile Phone Repair
Practice on Different Brands and Models of Mobile Phones
Troubleshooting and Repairing of Common Problems
Advanced Repair Techniques
Customer Service Skills and Best Practices

In conclusion, the Diploma Course in Mobile Phone Technology and Troubleshooting is an excellent opportunity for individuals who want to acquire the skills and knowledge required to repair and troubleshoot mobile phones. The course covers various modules, including basic electricity and electronics, mobile phone technology, circuits and sections, hardware, software, and practical training.

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Diploma in Refrigeration and Air Conditioning Technology

About

Course Code:

DRACT

The Diploma in Refrigeration and Air Conditioning Technology is a comprehensive course that covers the fundamental concepts and practical skills necessary for professionals in the field. This course is designed to equip students with the knowledge and skills needed to install, maintain, and repair refrigeration and air conditioning systems. The course is divided into six modules that cover basic electricity, refrigeration tools and equipment, electronics, basic refrigeration principles, workshop skills, and refrigerator testing and troubleshooting.

Duration and Fees:

The Diploma Course in Refrigeration and Air Conditioning Technology is a 120-hour course that can be completed in 3 months (5 days a week). Followed by 3 Month Internship.

The course fee is INR 6,000.

Eligibility:

The eligibility criteria for this course are SSLC or above.

FINAL Examination

Examination Registration Fee Rs 300

Theory	100 Mark
Lab	100 Mark
Internal (Theory – 50, Lab -50)	100 Mark
TOTAL	300 Mark

Detailed Syllabus

Module 1: Basic Electricity

Electrical terms and definitions
Conductors and insulators
Series and parallel circuits
Measuring instruments
Earthing and its importance

Module 2: Refrigeration Tools and Equipment

Functions, uses, and specifications of refrigeration tools, instruments, and equipment
Types of hand and power tools and their applications
Machineries and equipment used in fittings

Module 3: Electronics

Introduction to electronics
Principles and applications of semiconductors
Diodes, transistors, resistors, capacitors, and other electronic components
Constructing and testing full wave rectifier and voltage regulator circuits

Module 4: Basic Refrigeration

Fundamentals of refrigeration
Units and measurements
Pressure and its measurements
Vapour compression system components
Vapour absorption refrigeration cycle

Module 5: Workshop

Copper tubing handling and bending techniques
Swaging and brazing joints on copper tubing
Flare joints and fittings
Lock ring tool and fittings for servicing appliances
Electrical and mechanical components of refrigerators
Leak testing, evacuation, and gas charging

Module 6: Refrigerator Testing and Troubleshooting

Compressor testing
Identification of motor terminals
Start of compressor with and without relay
Testing of direct start refrigerator
Tracing electrical circuit of Frost-Free refrigerator
Testing and troubleshooting electrical accessories like thermostat, timer, defrost heaters, bimetal, air louvers, etc.

Upon completion of the Diploma in Refrigeration and Air Conditioning Technology course, students will become well-equipped with the knowledge and practical skills required to excel in the refrigeration and air conditioning industry. As a completer of this course, individuals will have a comprehensive understanding of basic electricity, refrigeration tools and equipment, electronics, basic refrigeration principles, workshop skills, and refrigerator testing and

Diploma in Web Technology (DWT)

This course provides a comprehensive overview of web development, covering both front-end and back-end technologies. Students will learn the fundamentals of HTML, CSS, and JavaScript, as well as more advanced topics such as responsive web design and the Bootstrap framework. The course also covers server-side scripting with PHP and database management with MySQL and MongoDB.

The course begins with an overview of the Internet and World Wide Web, and covers client-server architecture and web technologies. Students will learn the basics of HTML and CSS, as well as more advanced topics such as JavaScript and JQuery. The course then moves on to cover responsive web design and the Bootstrap framework.

The back-end web development section covers server-side scripting with PHP, as well as database connectivity and management with MySQL. Students will learn how to create dynamic and interactive web pages using PHP and MySQL, and will cover CRUD operations, validations, and form handling.

The course also covers database management systems (DBMS), MySQL, NoSQL databases, and MongoDB. Students will learn basic and advanced SQL commands, as well as data manipulation language (DML) and data definition language (DDL). The course also covers NoSQL databases and their advantages and disadvantages, as well as integration with MySQL.

Overall, this course provides students with a strong foundation in web development, covering both front-end and back-end technologies, as well as database management. Students will gain practical skills and experience through the project component, which will allow them to apply the concepts learned throughout the course to build a complete web application.

Course Fee : 8000
Duration : 6 Months (5 days/week)

Qualification : +2/3 Year Diploma

FINAL Examination

Examination Registration Fee Rs 500

Theory-1 100 Mark
Theory-2 100 Mark
Lab 100 Mark (Based on Theory 1 & 2)
Internal 100 Mark (Thero1 – 50, Theory -50)
Project 100 Mark

TOTAL 500 Mark

Syllabus

Theory 1 - Web design using PHP

Introduction to the Internet and Web Development:

Overview of the Internet and World Wide Web

Client-server architecture and web technologies

HTML and HTML5

CSS and CSS3

JavaScript and JQuery

Introduction to JavaScript

Variables, data types, operators, control structures, functions, and events

JQuery basics and its applications in web development

Responsive Web Design and Bootstrap:

Overview of responsive web design

Media queries and viewport

Introduction to Bootstrap framework

Creating responsive pages using Bootstrap

Back-end Web Development:

Introduction to server-side scripting and PHP

PHP variables, data types, operators, control structures, functions, and arrays

Database connectivity and management with PHP and MySQL

Web Application Development:

Developing dynamic and interactive web pages using PHP and MySQL

CRUD (Create, Read, Update, Delete) operations

Validations and form handling

Session and authentication management

Web Hosting Basics, Types of Hosting , Registering domains, Define Name Server,

Using Control Panel, Using FTP Client, Maintaining a Website.

Theory 2 - Database management systems

Module 1: Introduction to DBMS and MySQL

Overview of DBMS and database design concepts
Introduction to MySQL and its architecture
Installation and setup of MySQL
Basic SQL commands: SELECT, INSERT, UPDATE, DELETE
Data types and constraints in MySQL

Module 2: Advanced MySQL

Joining tables using INNER, OUTER, and CROSS JOIN
Using sub queries and derived tables
Creating views and stored procedures
Backup and recovery strategies

Module 3: Data Manipulation Language (DML) and Data Definition Language (DDL)

Overview of DML and DDL
Creating and modifying database objects: tables, indexes, views, and stored procedures
Inserting, updating, and deleting data using DML commands
Using aggregate functions and grouping data
Managing database security: users, roles, and privileges

Module 4: NoSQL Databases and MongoDB

Overview of NoSQL databases and their advantages and disadvantages
Types of NoSQL databases: document, key-value, column-family, and graph databases
Introduction to MongoDB and its architecture
Installation and setup of MongoDB
Basic CRUD operations in MongoDB
Advanced MongoDB concepts: indexing, aggregation, and transactions

Module 5: Advanced NoSQL and Integration with MySQL

Advanced NoSQL operations: map-reduce, sharding, and replication
Comparison of NoSQL and SQL databases: strengths and weaknesses
Integration of MySQL and MongoDB

Project Work:

Implementing a complete web application using the technologies learned in the course
Integrating HTML, CSS, JavaScript, JQuery, PHP, and MySQL
Best practices for choosing the right database technology for a project
Case studies of successful applications using SQL databases

Here are some sample project topics

- Student information system with enrolment, attendance, and grade management
- E-library system with book search, reservation, and borrowing features
- Online test and examination platform with automated marking and results generation
- School/college website with news and events updates, alumni network, and student registration
- Career counselling website with job and college search tools
- Distance education website with online course catalog and certification

LBS Centre for Science and Technology

(Offline Course)

Course Title	COMPUTER HARDWARE & NETWORKING
Abbreviation of Course Title	CHWN
Duration of the course in Hours	60
Duration of the course in Months	2 MONTHS (2 HRS./DAY)
Course Fees	6000
Eligibility	+2/ITI/ Diploma/any degree with basic computer knowledge

About the Course

This course is designed to equip the candidates for becoming an Entry Level L1, Desktop Support, Service Engineer, Customer Support Engineer, FM Engineer, Hardware Engineer and IT Support Specialist in End User Computing environment.

Objectives of the course

- Candidates will learn about Desktop and Laptop Computer Hardware Technology like Motherboard, Hard Disk, Memory Processors, Assembling, Computer Peripherals Like Printers & Scanners.
- Windows 10 Operating system, Understanding the latest Technologies.
- Troubleshooting all kind of Hardware and OS related issues.
- In addition, This course develops the candidature/skills of the professionals to face the Job Interviews.
- Home / Individual users can identify the root cause of the issues occurring in their Desktop / Laptop . On their own they can fix, trouble shoot and solve the issue, without the help of any other person .

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
CWN01	COMPUTER HARDWARE	30	10	40
CHN02	COMPUTER NETWORK	10	10	20

Syllabus of the course

INTRODUCTION - COMPUTER	<ul style="list-style-type: none"> • Different types of computer • Different types of microcomputer – Desktop, Laptop, Tablet
PARTS OF COMPUTER: SOFTWARE PARTS	<ul style="list-style-type: none"> • Operating system, • Driver software, • Application software, • Utility software • Features of operating system • Difference between windows and Linux
LANGUAGES OF COMPUTER	<ul style="list-style-type: none"> • High level, low level, machine language • Assembler, compiler, linker, loader
PARTS OF COMPUTER: HARDWARE PARTS	<ul style="list-style-type: none"> • Introduction, CPU, input and output devices
MOTHERBOARD	<ul style="list-style-type: none"> • Internal connectors and external connectors • Additional connectors • Chipset • Platform controller hub (PCH) • Clock generator • BIOS and CMOS • Daughter boards (add on card)

MICRO PROCESSOR	<ul style="list-style-type: none"> • Execution unit in microprocessor • CONTROL UNIT in micro processor • CACHE MEMORY in microprocessor • 64 bit, 32 bit, 16 bit, 8 bit microprocessors • Working of DUAL CORE microprocessor • CPU and GPU in a microprocessor • Hyper threading technology of microprocessor • Intel and AMD microprocessors • Multi core microprocessors
MEMORY	<ul style="list-style-type: none"> • Memory introduction , • primary memory- Secondary memory
DYNAMIC RAM	<ul style="list-style-type: none"> • Data storage technology in DRAM • Role of DRAM in computer • Different types of DRAM –EDO RAM, SD RAM, DDR RAM, DDR2 RAM, DDR3 RAM, DDR4 RAM • Virtual memory
STATIC RAM	<ul style="list-style-type: none"> • Data storage technology in STATIC RAM • Role of STATIC RAM in computer • Difference between Dynamic RAM and STATIC RAM
ROM	<ul style="list-style-type: none"> • Role of ROM in a computer – POST, BOOTING • BIOS setup and UEFI setup in ROM • Different types of ROM • NOR FLASH technology in ROM
HARD DISK	<ul style="list-style-type: none"> • Parts of hard disk • Data storage technology in hard disk • Role of HARD DISK in computer • Partitioning in hard disk • Low level formatting and high-level formatting in hard disk • File system in hard disk • Multiple operating systems in a hard disk • MBR, VBR in hard disk • IDE hard disk and SATA hard disk
FLASH MEMORY –SOLID STATE DRIVE (SSD)	<ul style="list-style-type: none"> • Data storage technology in FLASH MEMORY • Different types of SSD – MSATA SSD, NVM Express SSD, M2 SSD • Advantages of SSD over HARD DISK • Difference between NAND and NOR flash memory
OPTICAL DRIVE AND DISK	<ul style="list-style-type: none"> • Optical drive parts • Optical disk – CD, DVD, HD DVD, Blue ray disk
SMPS	<ul style="list-style-type: none"> • Difference between Linear mode and switched mode power supply • Parts of SMPS • AT and ATX SMPS • Voltages of SMPS
MONITOR	<ul style="list-style-type: none"> • Parts of CRT monitor • Working of CRT monitor • Parts of LCD monitor • Working of LCD monitor • Different types of LCD monitor – TN TFT, IPS TFT, VA TFT, OLED, QLED

PROJECTOR	<ul style="list-style-type: none"> • Parts of LCD projector • Working of LCD projector • Parts of DLP projector • Working of DLP projector • Parts of LED projector • Working of LED projector
TOUCH SCREEN	<ul style="list-style-type: none"> • Working of touch screen • Different types of touch screen
MOUSE	<ul style="list-style-type: none"> • Different types of optical mouse – mechanical mouse, led mouse, laser mouse, track ball mouse • Working of optical mouse • Working of touch pad in Laptop • Working of track pointer
KEYBOARD	<ul style="list-style-type: none"> • Different types of keyboard – mechanical, membrane, laser keyboard

PRINTER	<ul style="list-style-type: none"> • Different types of printer – dot matrix, inkjet, laser • Different types of plotter
VIRUS	<ul style="list-style-type: none"> • Malware- virus, worms, Trojan horse, ransom ware, botnet, key logger, rootkit, backdoor, spyware, adware, spam • Medium of malware spreading • How to block malware infection
TROUBLE SHOOTING A COMPUTER PROBLEM	<ul style="list-style-type: none"> • How to trouble shoot a computer problem – step by step procedure
<u>COMPUTER NETWORKING</u>	<ul style="list-style-type: none"> • Advantages of computer networking • Different types of networking – PAN, LAN, WLAN, CAN, MAN, SAN, WAN • Server based networking and peer to peer networking
NETWORK PACKET	<ul style="list-style-type: none"> • Contents in network packet header • Segment – packet – frame • OSI model layers – application layer, presentation layer, session layer, transport layer, network layer data link layer, physical layer
NETWORK PROTOCOL	<ul style="list-style-type: none"> • Different types of network protocol – TCP/IP protocol suite- ETHERNET, TCP, UDP, IP, HTTP, HTTPS, SSL, FTP, TELENET, SMTP, POP, IMAP
NETWORK TOPOLOGY	<ul style="list-style-type: none"> • Topology – bus, star, ring, mesh • Hub, switch, router, bridge, repeater, gateway, modem
NETWORK ADDRESS	<ul style="list-style-type: none"> • Logical address, physical address, Port address, Specific address • IPv4 classful address Class A, class B, class C • IPv4 -Private Ip and Public IP • IPv4 - Static IP & Dynamic IP • IPv4 - Network ID & Broadcast ID • IPv4 private IP subnetting • Comparison between IPv4 and IPv6 • IPv6 – unicast, multicast, anycast

	<ul style="list-style-type: none"> • How to compress IPv6 address
NETWORK CABLES AND CONNECTORS	<ul style="list-style-type: none"> • Network cables – twisted pair, co-axial, fiber optic • Network connectors – RJ45, BNC, • Crimping of UTP cable with RJ45
NETWORK CONFIGURATION	<ul style="list-style-type: none"> • Peer to peer network configuration using IPv4 and IPv6 in windows • Client-server network configuration IPv4 • Internet café network configuration IPv4 • Domain network system configuration
<u>PRACTICAL LIST</u>	
HARDWARE LAB	<ul style="list-style-type: none"> • Computer hardware components identification • Computer assembling • SMPS testing, motherboard testing, • Trouble shooting Desktop: Condition 1: Power ok, no SMPS, no monitor Condition 2: Power ok, SMPS ok, no monitor Condition 3: Power ok, SMPS ok, monitor ok, no booting
SYSTEMS LAB	<ul style="list-style-type: none"> • Study about BIOS configuration • Windows 10 installing • Linux installing • Network configuration in systems- peer to peer (IPv4, IPv6), client-server • Network testing • Different Data transferring methods in networking • Internet café networking DHCP • Internet café networking IPv4

LBS Centre for Science and Technology (Offline Course)

Course Title	Certificate Course in Machine Learning using Python			
Abbreviation of Course Title	CCMLP			
Duration of the course in Hours	100			
Duration of the course in Months	3			
Course Fees	10000			
Eligibility	Plus-Two/3-year Diploma/B-Tech/BE (Prerequisites courses may be suggested Such as Python. Or else the duration may be increased to 150hrs)			
About the Course				
This course is aimed at providing the students the basic concepts of Machine Learning				
Objectives of the course				
<ol style="list-style-type: none"> 1. To understand the basic theory underlying machine learning and to formulate machine learning problems corresponding to different applications. 2. To introduce advanced concepts and frameworks of Python programming. 3. To apply the machine learning algorithms to a real-world problem, optimize the models learned and report on the expected accuracy that can be achieved by applying the models. 				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
SC1	Machine Learning using Python	50	50	100
Syllabus of the course				
Syllabus of the Subject 1				
<p>Python fundamentals: Introduction to Python programming, Jupiter Notebook, Spyder IDE, PyCharm IDE, Python Pandas, Introduction to Numpy & Matplotlib.</p> <p>Machine Learning basics: Introduction to Machine Learning, Supervised, unsupervised and reinforcement learning, Bias-variance trade-off, Overfitting, underfitting, Gradient descent, cost function, hyperparameters and validation sets, bias and variance, Bias-variance tradeoff, regularization</p> <p>Supervised Learning algorithms: Linear Regression using single variable, Linear Regression using multiple variables, Pickle & Joblib modules, Dummy Variables & One Hot Encoding, Training and testing data, Logistic Regression for Binary Classification, Logistic Regression for Multiclass Classification, Decision tree algorithm, Support Vector Machine (SVM), Random Forest algorithm, K-Fold Cross Validation, Naive Bayes Classifier, Hyper parameter Tuning, L1 and L2 Regularization- Lasso, Ridge Regression, K nearest neighbors classification</p> <p>Unsupervised Learning algorithms: Clustering and Association, K Means Clustering Algorithm, Hierarchical clustering, Principle Component Analysis, Independent Component Analysis</p> <p>Feature Engineering: Imputation, Discretization, Categorical Encoding, Feature Splitting, Handling Outliers, Variable Transformations, Scaling, Creating Features.</p>				
Text Books				

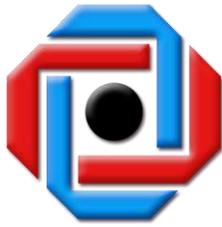
1. Ian Goodfellow, Yoshua Bengio, Aaron Courville, "Deep Learning", MIT Press, 2016
2. Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani, Introduction to Statistical Learning, Springer, 2013.
3. Marc Peter Deisenroth, A. Aldo Faisal, Cheng Soon Ong, Mathematics for Machine Learning, Cambridge University Press (23 April 2020)
4. Tom M. Mitchell- Machine Learning- McGraw Hill Education, International Edition
5. Christopher M. Bishop Pattern Recognition and Machine Learning- Springer, 2nd edition

Method of Evaluation: 50% Marks for Theory exam of duration 1 hr and 50% Marks for Practical exam of duration 1 hr.

Minimum Attendance required for the candidate to appear for final examination: 75%

Software, Hardware and other infrastructural requirements for running this course

1. Microsoft/Linux based PC/laptop.
2. Anaconda Navigator
3. Jupyter Notebook, Spyder IDE, PyCharm IDE



LBS CENTRE

FOR SCIENCE AND TECHNOLOGY
(A Government of Kerala Undertaking)



Certification course by
LBS Centre for Science and Technology
(A Government of Kerala Undertaking)
on
***BASICS OF ARDUINO BASED
EMBEDDED SYSTEM DEVELOPMENT***

Syllabus

I. Introduction and Relevance in the current scenario

The world of embedded systems is quite fascinating. An **embedded system** is a computer system—a combination of a computer processor, computer memory, and input/output peripheral devices—that has a dedicated function within a larger mechanical or electronic system. Embedded systems control many devices in common use today.

Modern embedded systems are often based on microcontrollers. Embedded systems range in size from portable personal devices such as digital watches and MP3 players to bigger machines like home appliances, industrial assembly lines, robots, transport vehicles, traffic light controllers, and medical imaging systems. Often they constitute subsystems of other machines like avionics in aircraft.

Embedded systems are commonly found in consumer, industrial, automotive, home appliances, medical, telecommunication, commercial, aerospace and military applications.

II. **Objective:** The course will help the student to get an orientation to electronics and embedded system development at a young age and help them in future career growth or pursue an advanced level course. The course assumes no pre-requisites.

III. **Learning Outcome:** After the completion of the course, the students will get a basic level theoretical knowledge and practical skills to design embedded systems using the popular Arduino Development Board.

IV. **Targeted Audience/Eligibility to enroll:** Students who have Completed studies of the 10th standard or pursuing /completed 10+2 Science with Mathematics/Computer Science as a subject. Some knowledge in computer programming is desirable, though not essential.

V. Syllabus and Programme Outline:

Sl.No	Topic	Hours
1	Introduction to Embedded Systems	4
2	Basic Electronics	4
3	Arduino Features	2
4	Programming Fundamentals	6
5	Interfacing and Sensors	6
7	Project	5
8	Evaluation	3
9	Laboratory Sessions	30
	Total Hours	60

VI. Detailed Syllabus

Introduction to embedded systems –Definition- Hardware-Software-Components – Advantages – Application Overview – Computers and embedded systems.

Microcontrollers - Architecture Overview – Instruction set - CISC and RISC – AVR Family and its features- Clock Speed of a microcontroller – Microprocessors and Microcontrollers – Comparison.

Types of Memory – Volatile-Non volatile-RAM ROM EPROM-Flash Memory-Memory Sizes

Basic Electronics - I – Voltage and Current – Units of Measurement AC and DC .Types of Signals – Analog-Digital –Amplitude, Period and Frequency – Wave forms. Electronic components and symbols– semiconductor devices (transistors, diodes and integrated circuits-LSI and VLSI)

Basic Electronics - II – Resistors-Series and Parallel-colour codes-variable resistors (potentiometers) capacitors-Series and Parallel – Units of Measurement-characteristics and uses in electronic circuits– Ohm’s law – Calculations based on ohms law. Circuit Schematics.

Demonstration Lab DC power sources for electronic circuits – Different types of batteries. Adaptors – Measuring instrument – The Multimeter. Checking continuity measuring voltage, current and resistance. with a multimeter. Testing diodes, transistors, LEDs and capacitors with a multimeter.

Electronics Lab – Demonstration

Electronics Lab - Experiments

Introduction to ARDUINO – History and family – ATMEGA328P microcontroller – ARDUINO UNO Features-Clock Speed-Types, Sizes and purpose of memories in the UNO. Working Voltage Range - Analog and Digital Pins of ARDUINO UNO–Current sourcing and sinking capabilities of the ARDUINO pins. PWM capable pins on the ARDUINO UNO- uses of PWM-. Duty cycle.

Demonstration Lab - Arduino IDE and programming – Downloading and Installing the IDE –Complete Program Structure. -Manipulating Digital I/O pins – Arduino Functions - pinMode, digitalWrite,digitalRead, analogRead, analogWrite, delay.

Programming Fundamentals –Algorithms. High level language and machine language – Hex codes-elements of C (Embedded C) programming and C programming concepts in the Arduino perspective – Data types ,operators and expressions–Data types, Operators, Expressions, Control Structures. Arrays, Functions. Arduino program structure-setup and loop functions. (Serial Monitor examples)

Programming Lab-1 (Data types, Operators and Examples) Serial Monitor Examples

Programming Lab-2 (Control Structures if, case and for arrays) Serial Monitor examples

Programming Lab-3 Use of arrays and functions- Serial Monitor Examples.

Interfacing (Arduino Context) LEDs, Seven Segment Display, Switches – Pull Up, Pull Down – Debouncing – Transistor to control external medium power load – Relays to drive high current loads like motors.

Interfacing Lab – LEDs and Seven Segment Display

Interfacing Lab – Switches and Transistors

Digital to Analog conversion and vice-versa-10 bit ADC of the ARDUINO Board – analogRead() and analogWrite()– Potentiometers - Ultrasound and infrared sensors

Interfacing Lab – Potentiometers, Relays and Motors, Ultrasound and infrared sensors

Project Work

Course Fees

An amount of **Rs.5,000/-** will be charged as the course fee, optionally an additional amount of

LBS Centre for Science and Technology

Course Title	Diploma in Logistics and Supply Chain Management
Abbreviation of Course Title	DLSC
Duration of the course in Hours	400
Duration of the course in Months	12(include one month Internship)
Course Fees	Rs 25,000 (Exclude fee for Internship if any)
Eligibility	Plus Two

About the Course

This is a skill based program having one year duration. This program gives insight into Logistics and Supply Chain Industry, suitable for professionals and fresher's who wish to build entry level managerial career in Logistics and Supply Chain sector. Effective logistics and supply chain management has become essential for companies across E-commerce, FMCG, manufacturing, retail and more such domains, therefore, large corporates have logistics and supply chain management as a key focus area. New age organizations like e-commerce, hospital, hospitality, aviation, shipping and more have added to the demand for trained & well qualified professionals.

Objectives of the course

1. To understand the strategic role of logistics management
2. To study the important modes of logistics operations
3. To Know supply chain techniques in an international perspective.
4. Provides know-how required to operate an efficient and cost effective warehouse as also the role of inventory in warehouse management.
5. It provides guidance on using the latest technology, reducing inventory, people Management, location and design and manage uncertainty risks of customer markets
6. Define the right structure of the supply network and inventory control and warehouse Management system

Scheme of Study

Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DS1	Basics of Logistics and Supply chain Management	2		2
DS2	Procurement, Storage and Warehouse Management	2		2
DS3	Distribution Management for Global Supply Chain	2		2
DS4	Foreign Trade procurement and Documentation	2		2
DS5	Soft Skill and Communicative English+Basic Computing Skills	2(Soft Skill & communicative	2(Basic Computing	4

		English)	Skills)	
Syllabus of the course				
DS1 : Basics Of Logistics And Supply Chain Management- 70 Hrs				
Units	Description			
1	Logistics management – introduction, Definition, Evolution, Importance, functions, objectives, future of logistics, types. Logistics and customer service, elements of customer service, phases.			
2	Inventory management- Characteristics of Inventory, The need of inventory and its control , Importance of inventory management , Types of inventory mgt ,Inventory control, Types of selective inventory control techniques, Inventory planning models.			
3	Packaging - Functions of packaging, Packaging cost , Types of packaging material, Palletisation for unitization, Containerization, Designing a package, Factors effecting the packaging materials.			
4	Material Management- Objectives of materials management ,Materials planning ,Purchasing ,Types of material handling equipments ,Material storage system.			
5	Reverse Logistics- Reverse logistics activities, Reverse logistics processes, Forward vs. reverse logistics, Key elements of reverse logistics models, Strategic use of reverse logistics, Reverse logistics challenges. Role of 3 PL & 4 PL-Logistics Service providers, Third party logistics – primary role – effectiveness – use 4 PL service providers – primary role – effectiveness – use Comparison of 3 PL and 4 PL.			
6	Global Logistics - Logistics intermediaries ,The global supply chain, Organizing for global logistics , Strategic issues in global logistics , Forces driving globalization, Strategies to enter global market , Modes of transportation in global logistics, Barriers to global logistics.			
7	Transportation- Basics of Transportation modes, principles, participants, routing decisions, Routing and scheduling techniques, Transportation administration IT Applications in transportation, New trends in transportation systems. Transportation operating system, Transportation performances cost & value measures, Transportation performances cost & value measure, Factors driving cost, Cost structures, Carrier pricing strategies, Transportation rates. Intermodal freight technology- definition, merits and demerits, combinations.			
DS2: Procurement, Storage And Warehouse Management-70 Hrs				
Units	Description			
1	Introduction to Warehousing Concepts -Role of warehouse-types of warehouse-warehouse location- Need for warehousing- Supply chain trends affecting warehouse – Warehouse functions- Role of warehouse manager-Warehouse process: e-commerce warehouse- Receiving and put away- Warehouse process – pick up preparation- Receiving - Pre-receipt - In- handling - Preparation - offloading - Checking - Cross-docking - Quality control - Put-away - Pick preparation - Pick area layout - Picking strategies and equipment -order picking methods - Warehouse processes- Replenishment to dispatch- Value adding services - Indirect activities -Stock management - Stock or Inventory counting - Perpetual inventory- Counts - Security - Returns processing – Dispatch.			

2	Storage Management system – Storage Inventory Management – Functions of storage & Inventory - Classification of Inventory- Methods of Controlling Stock Levels- Always Better Control (ABC) Inventory system- Warehouse Management Systems (WMS)
3	Storage and Warehousing Information system -Storage Equipment: storage option-warehouse handling equipment - vertical and horizontal movement -Automated Storage/ Retrieval System (AS/RS)- warehouse costs- Types of cost-storage methods.
4	Material Handling and Warehouse safety Material handling-Vehicles - Forklift trucks – Warehouse equipment legislation-Warehouse Environment. Product waste - waste disposal - Hazardous waste- Sustainable warehouse Management.
5	RFID and Barcode system.

DS3. Distribution Management And Supply Chain-50 Hrs

units	Description
1	Definition of physical distribution, needs, functions, marketing Forces affecting distribution, distribution concept. Channels of distribution, channel structure –designing distribution channel –choice of distribution channels – factors affecting. Intermediaries: functions of intermediaries – types of intermediaries.
2	Supply Chain Mgt -Introduction -What is SCM? Importance of SCM -Objectives of SCM -Guiding principles of SCM -Supply chain operative reference model. Supply chain networks. Difference between logistics and supply chain management.
3	SCM activities, constituents and organizations, supply chain integration
4	Supply chain excellence, purchasing and supply chain management, outsourcing of supply chain, opportunities of supply chain outsourcing.

DS4. Foreign Trade Procedures And Documentation-80 Hrs

units	Description
1	Foreign Trade policy 2004-09-Export licensing procedures and formalities-Export price Quotation_Deemed Exports-benefits-categories of Supply Role of Export Promotion in Exports credits Guarantee Corporation(ECGC)-Export promotion councils(EPCS) and commodity Boards(CB)-Export promotion schemes.
2	EOU Scheme(Export oriented units)-Eligibility-Setting up EOUs-Supplies by DATA(Domestic Tariff Area)Units to EOUs-Special Economic Zones(SEZ) scheme-Eligibility Approval-Conditions-Fiscal Incentives for developer of SEZ's-New Status Holder categorization-One to Five star Export Houses-Free Trade and Warehousing Zones
3	Procedure for Registration of Importers-Categories of Importers –Importer Registration with regional Licensing-Authorities(IEC Number, I-card and modification of particulars)Import of capital Goods under EPCG scheme(Export Promotion capital Goods)-Duty Exception/Remission Scheme
4	General provisions for Imports-Financing Import-Foreign Exchange facilities to Importers-Customer and Central Excise duty Drawbacks in Export Goods-Foreign Currency Accounts in India and Abroad permitted currencies and methods of payment-Customs formalities for clearance of Import Goods-Shipment of Goods
5	Import and export Documentation-Framework-Standardized Pre-shipment Export Documents- Commercial and Regulatory Documents

DS5: Soft skills and Communicative English + Basic Computing Skills

Total Hours-130 (Soft skills and Communicative English- 80 hrs(Theory)

Basic Computing Skills-50 hrs- 10 hrs theory +40 hrs practical)

Soft skills and Communicative English- 80 hrs

Module 1 -8 hrs

I. Greetings.

-based on different situations.

II. Polite requests.

III. Introducing myself to others.

IV. Enquiring about others.

V. Sample dialogues.

a) Between friends.

b) Based in different situations etc.

Module 2- 60 hrs

Grammar – basics

I. Sentence – different types.

II. Parts of speech.

III. Concord – agreement of subject with verbs.

IV. Tenses.

a) 12 Tenses.

b) Static verbs.

V. Auxiliary verbs.

a) Primary verbs

b) Modals

VI. Conditional Sentences

a) If clauses

b) “Unless” – etc.

VII. Negative Statements

VIII. Active voice and passive voice.

IX. Direct object & indirect object.

X. Formation of Questions

a) Using question words

b) Using auxiliary verbs, etc.

XI. Direct speech & indirect speech

XII. Degrees of comparison.

XIII. Propositions

XIV. Relative pronouns

XV. Question tag

XVI. Conjunctions

XVII. Words-synonyms.

XVIII. Phrasal verbs.

Module 3 -12 hrs

- I. Group Discussion
- II. Lesson on ‘How to Face Interview’, Body Language,
- III. Debating Competition
- IV. Conduction of role-plays
- V. Conducting Mock interviews
- VI. Interactive sessions

Basic Computing Skills

Units	Description
1	<p><u>Theory</u></p> <p><u>Characteristics of Computers</u> - Characteristics of Computers. Classifications- Micro, Mini, Mainframe and Super Computers Microcomputers - Desktop PCs, Laptops, Palmtops and PDAs. Computer Organization - CPU, Memory, I/O Devices - Block Diagram of a computer.</p> <p><u>Memory</u> - Primary Memory and Secondary Memory. Characteristics of Primary Memory and Secondary Memory. Classification of Primary Memory - ROM, RAM etc. Secondary Memory- Different types. Input Devices and Output Devices with examples.</p> <p><u>Computer Software</u> Computer Software. Software Classification - System Software and Application Software. Operating Systems - Functions of OS - Types of OS - Single User, Multi-User, Multitasking, Real Time OS. Computer Viruses, Software Piracy, Free Software Philosophy.</p> <p><u>INTERNET & EMAIL</u> Introduction to Internet Technology, Introduction to Browsers, Concept of Websites and WebPages, Log on to Internet, Browsing/Surfing. Learning to use E-mail.</p>

2	<p>Practical</p> <p><u>WINDOWS, MS OFFICE AND INTERNET</u></p> <p><u>Windows</u> Introduction to Windows Desktop, Taskbar, Start Menu, My Computer, Windows Explorer, Recycle Bin. Accessories - Calculator, Notepad, paint, WordPad.</p> <p><u>MS Office</u> Introduction to MS Office. Microsoft Word - Introduction to MS Office Package. MS Word Text Formatting Features, Paragraph, Change Case, Font, Tabs, Drop Cap, Bullets and Numbering, Header and Footer. Advanced Formatting Features - Borders and Shading, Auto shape, Caption, Columns, Text Box, Footnote and endnote, Tables and Drawing Features Insert Table, Draw Table, Formula, Sort, Forms. Graphics - Word Art and Clip Art, Tools - Mail Merge, Spelling and Grammar, Thesaurus, Autocorrect.</p> <p><u>MS Excel</u> Worksheets, Cell, Cell Range Operations, Fill Series. Protecting Worksheets Functions -sum, average, if. Financial and statistical functions, Mathematical functions. Database Operations Sort, Filter -Auto filter and Advanced filter, Subtotals, Table Validation. Charts - Column, Pie, XY, Line, Scatter.</p> <p><u>MS Power point</u> – Introduction. Slide Sorter, Slide Background, Slide Transition, Slide show, Setup Show. Custom Animations.</p> <p><u>INTERNET & EMAIL</u> Introduction to Internet Technology, Introduction to Internet Explorer, Concept of Websites and WebPages, Log on to Internet, Browsing/Surfing (File, Edit, View, Go Favorites, Toolbar), Learning to use E-mailing, Read/Send mails through send & receive options, Working with Boxes (Inbox, Outbox, Sent box), Composing/Attaching a file, Using the Address book, Import/Export-message/address, Internet options. Using search engine to find sites.</p>
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Method of Evaluation

Self-assessment Exercise within each unit of study

Continuous Internal evaluation mainly through assignments which are tutor marked practical assignments and seminars/projects.

Year end evaluation: Internal assessment + External assessment

1.Internal Mark : 50 Mark

Internal assessment components

- Two class test(5 + 5) : 10 marks
- Two Written assignment(10 + 10) : 20 marks
- Attendance/Seminar/Mini Project : 10 marks
- Viva voce evaluation : 10 Marks

2.External Assessment

Final Written Examination –Maximum 100 mark for all papers (DS1 to DS4)

Grading System

Above 90	-	A+
80% to 89%	-	A
70% to 79%	-	B+
60% to 69%	-	B
50% to 59%	-	C+
40% to 59%	-	C
Below 40%	-	D (Failed)

DESK TOP PUBLISHING (Arabic & English)

Eligibility: A PASS IN SSLC or equivalent

Duration: 3 months Full Package (5 days per week, 2hours per day) Fee: 5,000/

Duration: 2 months Arabic & English Type writing practicing (5day per week, 2hours per day)
Fee: 3,500/

Contents:

1. Introduction to windows
2. Word 2007
3. Arabic & English Typewriting Practicing
4. CorelDraw X5
5. Photoshop CS4

Detailed Syllabus:

Introduction to Windows

Start menu, icons on desktop, desktop settings, operations on files folders, controlpanel, accessories-paint, notepad, command prompt, windows explorer, address book, Email,& Whatsapp Message Receive & Sending.

Word 2007

Beginning with Microsoft Word 2007

- Opening a new Document
- Saving a Document
- Getting Help with MS Word 2007

Basic Editing

- The Cursor
- Inserting Text
- Deleting Text
- Moving Text
- Undo and Redo
- Wrap Text

Formatting

- Selecting Text
- Applying a Font
- Changing Font Size
- Font Attributes
- Font Color
- Clear Formatting
- Text Alignment
- Font Attributes
- Font Color

- Clear Formatting
- Text Alignment

Copying and Moving Text and objects

- The Clipboard
- Cut, Copy, Paste
- Formatting

Editing Features

- Spell Check
- Thesaurus
- Auto Correct
- Translation

Paragraph Formatting

- Changing Paragraph Alignment
- Indenting Paragraphs
- Add Borders or Shading to a Paragraph
- Apply Paragraph Styles
- Creating Links within a Document
- Change Spacing Between Paragraphs and Lines

Tables:

- Creating tables
- Creating a table by using the insert Table command
- Drawing a Table
- Converting text into a table
- Converting text into a table
- Quick tables
- Entering Text
- Table Tools
- Inserting rows and columns
- Deleting Cells and Splitting Cells
- Adjusting Column width
- Position Text Within a cell
- Borders and shading

Lists

- Bulleted and Numbered Lists
- Creating a Nested list

Page Formatting

- Page Margins
- How to Change the Orientation, Size of the Page, or size of the Columns
- Apply a Page Border and Color
- Inset Headers and Footers (including Page numbers)

- Create a Page Break
- Insert a Cover Page
- Insert a Blank Page

Inserting Graphics, Pictures, and Table of Contents

- Inserting Special Characters into your Document
- Inserting Equations
- How to insert Pictures and Smart Art, Resizing Graphics
- Watermarks
- Table of Contents
- Creating a Table of Contents
- Update of Table of Contents
- Delete a Table of Contents

Working with Styles

- Getting familiar with style set
- Applying quick styles
- Creating, modifying a quick style
- Templates
- Creating, modifying your own templates
- Attaching a template to a document

Corel DRAW X5

CorelDRAW X5

- Getting started with CorelDRAW
- Workspace of Coreldraw
- Drawing basic geometric figures
- Saving th drawing
- Opening an existing document
- Previewing the drawing
- Working with page layout
- Closing the drawing
- Quitting Coreldraw

Working with lines

- Carve
- Calligraphic lines
- Outline tool
- Outline setting
- Calligraphic outline
- Arrow head

Working with objects

- Selecting and deselecting, Deleting, sizing, rotating, combing,
- grouping object

- Applying convert to curve command on objects
- Selecting color for an object
- Filling object

Working with text

- Types of text-artistic text Paragraph text
- Converting text from one type to another
- Changing the appearance of text- font, font size, color alignment
- Applying effects to text-drop cap, bulleted list
- Wrapping paragraph text around objects
- Fitting text to an object's path
- Converting text to an object using curve command
- Breaking apart to text

Photoshop CS4

Getting familiar with Photoshop CS4

Guidelines for working with the toolbox

Working with images

- Understanding image resolution
- Changing the resolution of an image
- Changing the size of a document
- Editing images-rotating, cropping
- Making color adjustments-levels, curves, brightness/contrast palettes

Working with selections

- Marquee tool
- Lasso tool
- Magic wand tool
- Modifying a selection-adding and subtracting from a selection

Drawing, Painting and retouching tools

- Exploring color picker dialog box
- Eye dropper tool
- Color palette
- Color replacement tool
- Retouching tool-healing brush, patch, clone stamp, eraser, background eraser, magic eraser

Working with layers

- Creating a new layer
- Hiding, showing and deleting layers
- Applying blend modes



LBS CENTRE FOR SCIENCE & TECHNOLOGY

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Phone: 0471 - 2324396

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DIPLOMA IN COMPUTER APPLICATIONS (Software)

DCA(S) – 6 Months

Scheme & Syllabus

2023

(Effective from JUNE 2023 admission)

ABOUT THE COURSE

The LBS Centre for Science and Technology (LBSCS &T), Thiruvananthapuram the premier institute of computer training and consultancy, registered under the Travancore-Cochin Literary, Scientific and Charitable Societies Registration Act XII of 1955 was established by Government of Kerala in 1976. The L B S is conducting a six month Diploma course in Computer Applications, Candidates successfully completing the course, will be awarded the Diploma in Computer Applications(Software) by the LBS Centre.

Objectives

The course aims to

- Give the students basic computer skills and skills related to other software applications.
- Train future industry professionals.

ELIGIBILITY FOR ADMISSION

+2 OR Three year Diploma in any branch of engineering.

DURATION OF THE COURSE

The duration of the course is SIX months. The classes will be held on 5 days per week with 2 Hrs/day.

MEDIUM OF INSTRUCTION:

The medium of Instruction will be English

EXAMINATION

There will be Examination at the end of the course for theory and practical subjects as per the notification by the Director. The conduct of examination, valuation, declaration of results, issue of certificates, mark lists etc, of this course are done by LBS Centre., Govt. of Kerala.

COURSE FEE:

	FEE PARTICULARS	Fee Amount(Rs)
Course Fee	Admission Fee	100.00
	Course Fee	10000.00 (in lump sum) or in two installments of 5000/- each
Total		10100.00

EXAMINATION FEE

SLNO	PARTICULARS	AMOUNT
1	For Regular examination	500.00
2	For Supplementary examination	150.00/Paper
3	For cancellation of Examination	Rs. 200

RULES AND REGULATIONS FOR EXAMINATION AND PROMOTION

- 1) Duration of the course is SIX months.
- 2) The minimum qualification prescribed for admission is +2 OR equivalent, OR a three year diploma in any branch of engineering OR equivalent examination .
- 3) The examinations will be conducted by Lbs Centre.
- 4) Minimum attendance required for a candidate to register for the examination is 80%.
- 5) Shortage of attendance upto 15% can be condoned in deserving cases on payment of prescribed condonation fee of Rs. 100/- on the recommendation of the course co-ordinator of the institute.
- 6) No candidate will be allowed to register for examination in piecemeal. If in any case this happens, registration shall automatically be cancelled at any stage of the process of the examination.
- 7) Each candidate is entitled for three chances to pass the examination, including the regular with in a period of three years after the registration for the first examination.
- 8) A minimum of 40% marks in theory and practical is required to pass in each subject.
- 9) Supplementary examination fee of Rs 150/- per paper will be charged subject to a maximum amount of Rs 500/- .
- 10) There will be 3 classifications of passed candidates namely,

First Class with Distinction –A candidate passing all subjects (both theory and practical) in the first appearance and securing not less than 80% of the aggregate marks will be declared to have qualified for the Diploma in First Class with Distinction.

First class - A successful candidate securing not less than 60% of the aggregate marks will be declared to have qualified for the Diploma in First Class.

Second class - All other successful candidate between 40 and 59 will be declared to have qualified for the award of diploma in Second Class.

11) The total marks shall be considered to classify the successful candidates.

12) Revaluation for theory papers is done on application addressed to the director, LBS centre within 15 days of the application of the results, along with the revaluation fee of Rs 200/- per paper.

13) There will be no revaluation for practical.

14) Any other details not specifically mentioned herein will be decided by the Director, LBS Centre for Science and Technology and his/her decision will be final.

Syllabus

Subject Code	Subject Name	Theory Hrs/week	Practical Hrs/week	Internal Marks	End Exam		Subject Total
					T	P	
DC 01	Informatics and PC Techniques	2	-	50	100		150
DC 02	MS Office and Internet	1	1	50	50	50	150
DC 03	Linux and Open Office	1	1	50	50	50	150
DC 04	Data Base Applications	1	1	50	50	50	150
DC 05	Malayalam Computing and Web Design	1	1	50	50	50	150
Total		6	4	250	300	200	750

DC 01 Informatics and PC Techniques (40 Hours)

Module I - Introduction to Computers (8 Hours)

Definition of a Computer, Characteristics of Computer, Brief history of Computers, Parts of a Computer, Block diagram of computer, Brief introduction to hardware parts – Input Unit, Output Unit, Processor and Memory, Types of Software – System Software and Application Software. , Generations of Computers, Classifications of Computers, Application areas of IT – Communication – Business – Governance – Medical field – Office Automation – Education – Entertainment – Engineering and Manufacturing.

Module II - Input/Output Devices (6 Hours)

Input Devices - Keyboard, Mouse, Track ball, Joystick, Web Camera, Scanners, OMR, Barcode Reader, Light pen and Touch Screen.

Output Devices - Computer Monitor – LCD, LED, TFT, Projector, Speaker, Printer – Inkjet and Laser Printers

Module III Processor (10 Hours)

Features, Word length, Instruction set, Bus, Clock speed, Memory Addressing Capability, Examples of Microprocessors – Intel 8086, 80386, 80486, Pentium, Celeron, Core i3, i5, i7 and i9 – brief introduction only

Memory - Primary Memory : RAM and ROM – Types, Functions of RAM and ROM

Secondary Memory : Hard disc, CDROM, CD-R, DVD, Blue Ray Disc, Pen Drive, Solid State Drive. Cache Memory: L1, L2 and L3

Module IV Computer Software (6 Hours)

Software classification – System Software and Application Software, Functions of OS, Types of OS – Time sharing, Distributed, Networking, Real-Time. Types of Computer Languages – Machine Language, Assembly Language, High level Language (Procedure Oriented Languages), 4th Generation Languages (Object Oriented Languages)

Module V PC Techniques (10 Hours)

Basic Hardware parts of a computer, Identification of the parts, Front panel and Back panel of computer, Motherboard and its components, SMPS, Function of ROM BIOS, Control panel of Windows, Software Installation, Antivirus softwares.

Computer Networks, LAN, MAN and WAN, Introduction to Internet, IP address: classifications. Network Topology, TCP/IP Protocol, Introduction to Connectivity devices- MODEM, Hub, Switch, Bridge, Router.

Books :

- Computer Fundamentals, by Priti Sinha, Pradeep K., Sinha , BPB Publications
- Introduction to Computer Fundamentals, Bright Siaw Afriyie, Trafford Publishing
- Microprocessors and Microcontrollers, 3ed , R S Kaler, Dreamtech Press
- Computer Networks, Tanbaum, Pearson Education Publications

DC 02MS Office and Internet (40 Hours)

Module I: Office Automation Basics (4 Hrs)

Concept Of Office – Nature Of Work In Office- Meaning Of Office Automation – Needs & Future Trends Of OA –Office System Requirements – Documents Preparation – Documents Storage & Retrieval – Integrated Office Systems.

Module II: Windows and DOS (8 Hrs)

Introduction To Windows – Desktop, Start Menu, Task bar, My Computer, Windows Explorer, Recycle Bin, Accessories- Paint, Calculator, Notepad, Word Pad, Control Panel – Date/Time, System, Mouse, Display, Programs and Features, Region, Language. MS DOS- Internal and External commands – DIR, DIR Options with wild card characters, Copy Con, Type, Copy , Ren, Del/Erase, Date, Time, MD, CD, RD, Edit, Deltree, Chkdsk, Xcopy, Format.

Module III: Introduction to MS Office & MS Word (12 Hrs)

Introduction to MS Office , MS Word ,Word Processing,- MS Word – Office button, Cut, Copy, Paste, Change Case, Find, Replace, Text Formatting Features – Font formatting, Paragraph formatting, Drop Cap, Bullets And Numbering, Header and Footer, Foot notes and End notes, Borders and Shading, Column, Breaks, Views , Advanced Formatting Features – Table, Table Formatting, Formula, Sort, Graphics- Word Art And Clip Art, shapes - Mail Merge, Spelling And Grammar- Thesaurus, Autocorrect, Table Of Contents- Cover Page Design.

Module IV: MS Excel (10 Hrs)

Spread Sheet/ Worksheets, Cell, Range, Operators, Fill Series, Cut, Copy, Paste, Format Cells options, Inserting Row, Column, Sheet, Deleting Row, Column, Sheet, Changing Row Height, Column Width, Functions – Mathematical functions, Statistical Functions, IF function, Chart, Database - Sort, Filter- Auto Filter, Advanced Filter, Subtotals-Data Validation, Database functions.

Module V: MS Power Point & Internet (6 Hrs)

Introduction to Power point, Presentation, Slide, Slide Sorter , Slide Background , Slide Transition and Custom Animations, Slide Show, Action Buttons. Internet – Introduction, Applications, Web Browsers, Search Engine, Email.

Reference:

Internet Resources

DC 03Linux and Open Office (40 Hours)

Module I: Introduction to Linux (4 Hrs)

History and features of Linux, Free Software, Applications, Linux Structure, File System of Linux, hardware requirements of Linux, various flavours of Linux, Linux kernel, login and logout from Linux system.

Module II: Linux Commands (6 Hrs)

Shell, type of shells, Linux command – Is – option with ls, wild cards, cat, cp, mv, mkdir, rmdir, cd, chmod, wc, who, grep, write, more, date, vi editor.

Module III: Openoffice.org Writer (12 Hrs)

Writer interface, characters format, font formats, background color, fine, replace, change Case, paragraph formats, paragraph, alignment, text flow, bullets and numbering, applying bullets and numbering, Column, section, breaks, tabs, tables- Table manipulation commands, images, insert images, insert external images, shape, font work , index, index with default styles, index with user styles, Mail merge.

Module IV: Openoffice.org Calc (12 Hrs)

Calc features, calc interface, cell, range, formulas, mathematical functions, statistical functions, format cells, numbers, font, font effects, alignment, border, merge cells, split cells background, rows-insert, delete, height. Column – insert, delete, width, Sheet – insert, delete, rename. date and time functions, text function, IF function, chart, types of charts, , database , sort, auto filter, advanced filter, subtotals, consolidate, protect cells, validity.

Module V: Openoffice.org Impress (6 Hrs)

Impress characteristics, start impress, presentation wizard, views, drawing, format characters, shapes, fill color, gradient, hatching, bitmaps, images, insert images, graphics, animation – transition, custom, sounds, slide show.

Reference:

Internet Resources

DC 04 Data Base Applications (40 Hours)

Module I: Introduction to Database System Concepts (6 Hours)

Data –Information, Database -Characteristics of Data in Database -DBMS-Advantages and disadvantages of DBMS- Different type of Database Systems -Introduction to Relational DBMS -RDBMS Terminology - Database – Tables –Relations-Domains-Attributes-Tuples -Primary Key- Foreign Key.

Module II: MS-Access 2007 (10 Hours)

Introduction - Blank Database, Database Wizards -Database Window, Design View, Data Sheet View - Creating Tables in Design View -Field types in Access, Primary Key, Indexes - Record Manipulations – Adding, Editing, Deleting - Sorting and Filtering - Creating Query in Design View -Query Wizard, Deleting Queries -Creating form with Wizard- Creating Reports Using Wizard -Import and Export.

Module III: Introduction to MySQL (8 Hours)

History of Open Source initiative-LAMP-Linux - Apache- MySQL -PHP- Web Applications and Web Services- brief introduction only. Data types in MySQL- Creating Tables- Inserting data.Querying the Database. Study of different DDL and DML commands. CREATE, INSERT, SELECT, UPDATE DELETE, ALTER, DROP commands.

Module IV: Functions in My SQL (8 Hours)

Operators–arithmetic, logical and relational operators –in,between, like. Wildcards, Select queries with where clause, sorting **String functions:** ascii, char_length, concat, instr, lcase, left, length, locate, lower, lpad, ltrim, mid, position, repeat, replace, reverse, right, rpad, rtrim, space, strcmp, substr, trim, ucase, upper **Numeric functions:** abs, ceil, div, floor, mod, pow, power, rand, round, sqrt. **Date functions:** date, day, dayname, dayofmonth, dayofweek, dayofyear, hour, minute, month, monthname, now, second, time, week,year

Module V: Advance functions and Queries using MySQL (8 Hours)

MySQL Aggregate functions- avg, sum, max, min, count. Advanced Select queries with group by clause, having clause MySQL Joining Tables:-Inner Join, Left Join, Right Join, Cross Join, Self Join, UNION Operator MySQL advanced Functions: convert, current_user, database ,if, isnull, user, version

Textbooks:

Database Systems and Concepts – Abraham Silberschatz, Henry F Korth – McGraw Hill
Access in easy steps – Stephen Copestake – Dreamtech

References:

1. An Introduction to Database Systems – Vol I C.J.Date
2. Beginning PHP5, Apache, MySQL Web Development- Elizabeth Naramoreet. al Wiley dreamtech Publications
3. PHP6 and MySQL Bible- Steve Suehringet. al.- Wiley India Pvt Ltd

Internet Resources

https://www.tutorialspoint.com/ms_access/index.htm
<https://www.w3schools.com/MySQL/default.asp>
<https://www.javatpoint.com/mysql-tutorial>

DC 05 Malayalam Computing and Web Design (40 Hours)

Module I : Introduction to Malayalam Computing (10 Hours)

Introduction to Malayalam script and language, Overview of Malayalam computing and its applications, ASCII and ISCII, Character Encoding, ISM, Unicode and its significance in Malayalam computing, Enabling Malayalam in Windows and Linux. Downloading and installing Malayalam fonts, Malayalam keyboard layouts and input methods: Inscript, Typewriter, and Phonetic, Inscript keyboard layout and typing , Basic Malayalam typing exercises and practice Malayalam fonts and their features: Type 1, TrueType, and OpenType, Multilingual word processing

Module II: Malayalam in Softwares (6 Hours)

Text editing and formatting in Malayalam: word processors, editors, and desktop publishing tools, Transliteration, Spell-checking tools and their usage, Introduction to Malayalam speech recognition and text-to-speech systems, Google Translate, Google Transliteration, Emerging trends and future prospects in Malayalam computing.

Module III: Introduction to Web Design and HTML (8 Hours)

Web Basics:

Understanding the web, web browsers, and web servers

HTML Basics:

Introduction to HTML, creating a basic HTML page, HTML syntax, and Common

HTML tags:

Working with Text, Links, and Images: Formatting text, creating links, and working with images

Module IV: CSS and Bootstrap (8 Hours)

Introduction to CSS: Creating and applying CSS styles, working with text, links, and images
CSS Layouts: Introduction to CSS layout techniques, working with floats, positioning, and flexbox.

Module V: JavaScript (8 Hours)

Introduction to JavaScript and its role in web development, Basic programming concepts and syntax, Variables, data types, and operators, Control flow statements, including loops and conditional statements.

Reference:

Internet Resources

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DIPLOMA IN COMPUTERIZED
FINANCIAL ACCOUNTING

SCHEME AND SYLLABUS

2023

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SCOPE& OBJECTIVES

Accounting profession is a traditional one which has evolved with the growth of business. The Finance/Accounts Department is the backbone of any institution. Maintenance of books of account, recording and analysis of business transactions, preparation of financial statements, preparation of budgets or projections etc are some of the works of Accounts department. All business organizations, irrespective of its nature or size, need skilled and trained personnel for its Accounts departments. Accounting jobs are available in all sectors of business such as limited companies, partnership firms, societies, manufacturing sector, advertising, public service, media, banking, financial consultancies etc.

- After successful completion of this course, the students are able to handle the accounting work independently.
- They can prepare books of accounts for direct and indirect tax purposes.
- They can handle /do the accounting works of Trading, Non-trading, small/large scale organizations independently.
- They will be able to computerize the accounting activities using tally accounting software.
- The students will get a basic knowledge in computer, taxation etc and a working knowledge in Financial and Cost Accounting.
- They can independently prepare financial statements i.e. Trading, Profit and Loss accounts and Balance Sheet.
- They can secure knowledge in issue of material, its valuation, cost allocation, cost absorption, variance, budgets etc.

STUDENTS PRE-REQUISITES & EXPECTED QUALIFICATIONS:

The minimum qualification prescribed for admission is +2 (Commerce)/B.Com ORDCP (Diploma in Commercial Practice)/HDC/JDC/BBA. Qualification can be relaxed for those having proper background in Accounting field (+2 with minimum 1 year experience)

COURSE DURATION

The duration of the DCFA course will be 6 months (240Hrs.)

MEDIUM OF INSTRUCTION

The medium of instruction in the theory and practical subjects shall be in English.

COURSE FEE

The fee is Rs.10000/-in lumpsum or in two installments of Rs.5000/-each. SC/ST/OEC candidates will be eligible for fee concession as per G.O.3/2007/ SCSTDD dated 11/01/2007

EXAM FEE

The Examination fee of DCFA is Rs. 500/-

REFUND OF COURSE FEE

- a. If a student discontinues within 7 days from the date of commencement of the course, 10% of the total course fee will be deducted
- b. Refund will not be permissible for students after attending 7 working days from the date of commencement of the course.

HOW TO APPLY

Candidate may apply in the prescribed application forms. Application forms for the course can be obtained from any LBS centre all over Kerala. The filled application should contain self-attested copies of certificates, marklists and copy of SSLC book in proof of age, date of birth etc. Admission Fee will be Rs.100/-

RULES AND REGULATIONS FOR EXAMINATION AND PROMOTION

- 1) The examination will be conducted by LBS Centre.
- 2) Minimum attendance required for a candidate to register for the examination is 80%.
- 3) Shortage of attendance up to 15% can be condoned in deserving cases on payment of prescribed condonation fee of Rs.100/- on the recommendation of the Course Co-Ordinator of the institute.
- 4) Each candidate is entitled for three chances to pass the examination, including the regular with in a period of 3 years after the registration for the first examination.
- 5) A minimum of 40% marks in theory and practical is required to pass in each subject.
- 6) Supplementary examination fee of Rs.150/-per paper will be charged subject to a maximum amount of Rs.500/-
- 7) Awarding of Internal marks will be as follows

FA01 Computer Fundamentals & Accounting (Theory)

One Test Paper – 10 Marks

One Assignment – 10 Marks

Total – 20 Marks

FA02 Computerised Financial Accounting & GST Using Tally (Theory)

One Test Paper – 10 Marks

One Assignment – 10 Marks

Total – 20 Marks

FA03 Computerised Financial Accounting & GST Using Tally (Practical)

One Test Paper – 10 Marks

FA04 Project Work

Viva voce – 20 Marks

Work & Involvement – 30 Marks

Total – 50 Marks

- 8) There will be 3 classifications of passed candidate namely,
- a. **First class with distinction-** A candidate passing all subjects (both Theory and Practical) in the first appearance and securing not less than 80% of the aggregate marks will be declared to have qualified for the Diploma in first class with distinction.
 - b. **First class-**A successful candidate securing not less than 60% of the aggregate marks will be declared to have qualified for the diploma in First class.
 - c. **Second class-** All other candidates securing marks between 40% and 59% will be declared to have qualified for the award of Diploma in Second class.
- 9) The total marks for theory and practical shall be considered to classify a successful candidate.
- 10) Any other matters not specifically mentioned herein will be decided by the Director, LBS Centre for Science and Technology and the decision will be final.

COURSE CONTENT

Subject code	Subject Name	Theory Hours/ Week	Practical Hours/ Week	Marks		Total
				Internal	Written	
FA 01	Computer Fundamentals & Accounting	3	1	20	100	120
FA 02	Computerised Financial Accounting and GST using Tally - Theory	1	----	20	100	120
FA 03	Computerised Financial Accounting and GST using Tally-Practical	----	4	10	100	110
FA 04	Project work	----	1	50	100	150
TOTAL		4	6	100	400	500

DETAILED SYLLABUS**FA 01: Computer Fundamentals & Accounting**

Hours per week: Theory-3 and Practical-1 (Total Hours-120)

MODULE 1 (8Hrs)**Computer Basics:**

Origin of computer-Features – Types – System components-Input/output devices – Primary memory and secondary memory – Networks.

MODULE 2(12Hrs)**MS Word and MS Excel****A. MS Word**

Introduction– Starting with MS Word – Creating new document – Saving a document –Opening an existing document in MS Word – Cut, Copy, Paste – Using Format Painter – Apply basic formatting with Font– Borders and shading– Page border – Bullets and numbering in word document – Setting tabs and tab leader – Insert header and footer –Insert page number for document - Setting columns – Apply Drop caps - Insert Tables in MS Word- Mail Merge.

B. MS Excel

Introduction– Formulas and functions –Lookup functions- Charts- Data Sort – Data Fill and Subtotal - Filter Data using Auto Filter, Custom Filter and Advance Filter – Data Consolidation – Data Validation –Data Table - Scenarios-Goal seek- Pivot table.

MODULE 3 (60Hrs)**Financial Accounting**

Basic Concepts of Accounting – Evolution –Meaning–Objectives– Book Keeping and Accounting – Basic Terms–Types– Golden Rules of Accounting – Journal:-Meaning –Debit and Credit – Ledger Posting - Cash Book – Trail Balance– Rectification of Errors - Trading and Profit & Loss account – Balance Sheet - Practical work in Accounting –Compound journal entries – Trade discount and Cash discount – Banking Transactions – Opening entries –Adjustment entries in Final Accounts.

MODULE 4 (40Hrs)**Cost and Management Accounting**

Introduction to cost accounting-Elements of Cost-Material –Meaning, issue,Valuation etclabour and overhead -Cost Allocation and Cost Absorption – Variance- Ratio Analysis-types of ratios-Importance of ratio analysis-Budgets-Different types of budgets. Meaning of budgetary control-Steps involved in the budgetary control- objectives of budgetary control.

End Examination: 100 Marks

Question Pattern

Part A

Questions from 1st, 3rd and 4th modules.

Part B

Questions from 1st, 3rd and 4th modules.

Part C

Questions from 3rd modules.

Part D

Questions from 2nd module.

Module I

Part A

2 Questions: 2 marks

Part B

2 Questions: 5 marks

Module II

Part D

2 Questions: 10 marks

Module III

Part A

4 Questions: 2 marks

Part B

5 Questions: 5 marks

Part C

1 Question: 10 marks

Module IV

Part A

4 Questions: 2 marks

Part B

3 Questions: 5 marks

FA 02: Computerised Financial Accounting and GST using Tally - Theory

Hours per week: Theory-1 (Total Hours-30)

Introduction to Tally ERP 9 – Features – Tally Licenses – Opening screen of Tally – Buttons on the button panel – Configuring company – Group – Ledger - Creation , Alteration and Deletion - various types of Accounting Vouchers - Meaning of cost category and cost centre – Types of Budget - Introducing stock group, units of measure, locations / godowns, Stock item – Types of inventory vouchers - Purchase order and Sales order - Payroll Accounting – Theoretical aspects of VAT and Evolution of GST – GST in India – Types(CGST,IGST,SGST and UTGST) - Ledger accounts –Schedules - Rates of GST– Enabling GST in tally – GSTIN – Ledger creation under GST (Purchase, purchase return, sales, sales return) – Applying GST to stock items –

Voucher entry –Adjustments – Interest Calculation - – GST Portal- Registration- GST Forms - GST Reports – GST Efiling- GST Accounting for Un Registered Dealer and Composition Dealer. Tax Deducted at Source (TDS) and Tax Collected at Source (TCS)

End Examination: 100marks

Question Pattern

Part A

15 Questions: 2 marks

Part B

10 Questions: 5 marks

Part c

2 Questions: 10 marks

FA 03: Computerised Financial Accounting and GST using Tally - Practical

Hours per week: Practical-4 (Total Hours-60)

1.1 Fundamentals of Tally ERP 9

- Getting started with Tally ERP 9
- Creation of Company – Types of Companies, Create, Alter , Delete
- Introducing F11 Features and F12 configuration.
- Backup and Restore of Dataand copying data of Company

1.2 Accounting Masters in Tally ERP 9

- Ledger creation, alteration, deletion in Tally ERP 9.
- Setting up account heads.

1.3 Inventory In Tally ERP 9

- Stock group
- Stock categories
- Godowns/Locations
- Units of Measure
- Stock Items
- Creating Inventory Account Heads.

1.4 Voucher Entries in Tally ERP 9

- Introduction to Accounting and Inventory vouchers
- Voucher Entries
- Interest calculation

1.5 Payroll Accounting

- Enabling Payroll
- Creation of Employee group, Employee, Pay head
- Salary details
- Voucher Entry
- Payroll Reports

1.6 Goods and Service Tax(GST)

- Enabling GST in Tally ERP 9
- Ledger creation under GST
- CGST, IGST, SGST and UTGST ledger accounts
- Applying GST to stock items
- Voucher entry in GST

- GST Accounting for Un Registered Dealer and Composition Dealer
- GST Forms
- GST Reports

FA 04: Project Work (30Hrs)

The project group must contain students with minimum of 2 students and maximum of 4.

Prepare a Company's Account (Demo) Starts from the Financial Year April 1 – March 31st including the following records using maximum tally options – View and Print the Final report such as:

- ❖ Day Book/Journal
- ❖ Cash Book & Bank Book
- ❖ Purchase & Sales Register
- ❖ Debit Note & Credit Note Register
- ❖ Ledger Accounts
- ❖ Trial Balance
- ❖ Income Statement (Trading & Profit/Loss Account)
- ❖ Financial Statement (Balance Sheet)

REFERENCES

1. **Dr. H C Mehrotra & S.P Goyal - Income Tax Law & Accounts- 50th Edition, SahityaBhawan Publications.**
2. **A. Vinod-Cost & Management Accounting, Calicut University central co-operative stores ltd.**
3. **Vikas Gupta- Information Technology, Comdex Course kit.**
4. **T.S Grewal- Double Entry Book keeping, Sultan Chand & Sons Pvt ltd**
5. **Dr. P K Lazar- Financial Accounting-1, Excel Publications.**
6. **S N Maheswari and S K Maheswari , Problems and Solutions in Advanced Accounting Volume I, Sulthan Chand & Sons.**



2023

DIPLOMA IN COMPUTER APPLICATIONS (DCA)
1 YEAR



**LBS CENTRE FOR SCIENCE &
TECHNOLOGY NANDAVANAM,
PALAYAM,
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SCOPE & OBJECTIVES

Computing profession is still a fast emerging profession and provides employment for a large mass of youth in various scenarios of business. Each and every person employed in any type of business need to be Information and Communication Technology (ICT) compliant. This course serves the need of a person to increase the employability after getting passed High School finals. All business organizations, especially small and medium need knowledgeable and trained personals ready to serve their departments.

After successful completion of this course, the students will acquire the following abilities:

- They can manage efficiently an automated office.
- They have experience in design and development of small databases
- They have skills to design and develop web pages
- The students will get a basic knowledge in word processing, electronic spreadsheets etc.
- They will get the knowledge about desk top publishing
- They will be able to handle small office based projects
- They will have good awareness in professional, ethical and social issues in the IT
- They will have the necessary soft skills such as working in a group, communication skills, learning skills etc.

COURSE FEE:

SEMESTER	FEE PARTICULARS	FEE AMOUNT(Rs)
First Semester	Admission Fee	100.00
	Semester Fee	7500.00 (in lump sum) or in two installments of 4000/- and 3500/- respectively
Second Semester	Semester Fee	7500.00 (in lump sum) or in two installments of 4000/- and 3500/- respectively
Total		15100.00

EXAMINATION FEE:

SLNO	PARTICULARS	AMOUNT
1	For regular examination	500.00
2	For Supplementary examination	100.00/Paper
3	For cancellation of Examination	Rs. 200

RULES AND REGULATIONS FOR EXAMINATION AND PROMOTION

1. **Duration of the course:** The duration of the DCA course will be of two semesters, over a period of one year.
2. **Medium of Instruction:** The medium of instruction in all the theory and practical subjects shall be in English with explanations.
3. **Eligibility for Admission:** 10th standard pass or above.
4. **Instructional duration in an academic year:**
 - a. Each semester consisting of a minimum of 20 weeks of instruction, including intervening holidays, but excluding the period of examinations and study holidays.
 - b. The course will follow Semester pattern, with an end semester examination, conducted by LBS Centre for Science and Technology.
 - c. Classes will be held on all weekdays 2 hours per day and thereby 10 hours per week minimum.
5. **Minimum attendance required for obtaining eligibility to appear for the Examination**
 - a. A candidate must secure a minimum of 80% attendance in a Semester, in order for eligibility to appear for each Semester examination.
 - b. In the case of students with 65% or more attendance but could not attain 80% attendance due to Medical reasons, the Head of Institution, at his/her discretion may grant the eligibility to appear for the examination, subject to the remittance of "Condonation fee", fixed by the LBS Centre from time to time.
 - c. Students who have secured less than 60% attendance are not eligible to apply for "Condonation", and will not be allowed to appear for the examination under any circumstances.
 - d. Students who have shortage of attendance, but not condoned, in first semester are not eligible to be promoted to second semester. They may seek readmission.
6. **Scheme of Evaluation**
 - a. The scheme of evaluation shall consist of (i) Internal assessment (Sessional) (ii) End semester examination in Theory and Practical Subjects. The marks for end semester examinations, and Internal Assessment, both for the Theory and practical papers will be 100 and 50 marks respectively. Details of breakup of marks are given in the Scheme of study.

b. The Total marks (Internal and End Semester Examination) will be as follows.

For each semester: 750 marks aggregate

7. Award of Internal assessment marks

a. In respect of theory subjects the award of sessional mark will be on a continuous evaluation method, based on tests, assignments and attendance in a proportion of 40% for tests, 40% for test assignments and 20% for attendance. There will be a minimum of two tests and two assignments and all the 2 test papers and 2 assignments are taken into account for the calculation of final internal assessments marks.

8. Split up of Internal Assessment Marks.

a. Attendance.

Sl. No	Percentage of Attendance	Marks to be awarded (Computed for 10 Marks)
1	Below 65	Zero
2	65 to 79	4
3	80 to 84	6
4	85 to 89	7
5	90 to 94	8
6	95 and above	10

b. Practical

Sl.	Criteria component	Marks to be awarded
1	Observation/Rough	20%
2	Fair Record(Timely submission,	20%
3	Lab Attendance	20%
4	Computer lab tests	40%

Percentage of attendance for that particular subject only is counted here.

c. Project

S	Criteria component	Marks to be awarded
1	Collection of materials	20%
2	Presentation (Presentation using Audio visual	30%
3	Question – Answer/Discussion	20%
4	Report	30%

- a. The faculty concerned will maintain a record of all details regarding the attendance and internal assessment marks awarded to the students in the prescribed logbook. The students can represent their grievances, if any, in respect of marks awarded, to the concerned Head of Institution for clarification.
- b. The students are required to keep a record of all their laboratory experiments. This record has to be authenticated by the teacher in charge of the laboratory before the practical examinations. No students will be permitted to attend the practical examination without a bonafide record.

9. **Registration and cancellation fee**

Fee for registering regular examination –Rs. 500

Fee for supplementary examination -- Rs, 100 per paper

Fee for cancellation of examination -- Rs. 200

10. **End examination**

- a. In each theory subject, there will be an end examination in each Semester conducted by LBS Centre for Science and Technology as per the pre-announced notification of examinations. The timetable for the examination will also be informed to the students ahead of their conduct.
- b. The question paper for each Theory paper will consist of three parts.

Part A - for a maximum of 20 marks containing 10 very short answer types questions of 2 marks each (answer in one or two sentence) covering the whole subjects area. There will be no choice in part A.

Part B - for a maximum of 60 marks containing 12 short answer types questions of 5 marks each covering the whole subjects area. There will be 15 questions of this type and students need to write any 12 from above.

Part C - for a maximum of 20 marks containing 2 long answer types questions of 10 marks each covering the whole subjects area. There will be 5 questions of this type, one question from each module and students need to answer any two question.

The part A, Part B and Part C will be given together in one question paper.

- c. For practical end examinations, the LBS Centre will appoint examiners who will set a question paper consisting of Practical exercises.
Each candidate will have to answer **TWO** questions.

d. Duration of examination will be 2 hrs.

11. **Minimum marks for a Pass**

A Candidate must secure a minimum of 40% marks in the End semester examination in Theory, Practical and 40% for Total (Internal + Theory/Practical) for a pass in each subject.

12. **Rules for promotion to the Second Semesters**

Candidates shall be allowed to the Second Semester, if she/he has attended the previous Semester and has fulfilled the conditions of attendance in that semester. The candidate should also register for the first semester examination.

13. **Classification of successful candidates.**

Candidates shall be declared to have passed the DCA course only if she/he has secured a pass in all the theory and practical subjects in all the Semesters of study.

There will be 3 classifications of passed candidates namely,

First Class with Distinction

First Class

Second Class

The total marks of all the Semesters shall be considered to classify the successful candidates. The marks obtained in all the semesters will be added and the percentage of marks is worked out.

a. **First Class with Distinction**

A Candidate will be declared to have passed the DCA Course in First Class with Distinction if he/she secures not less than 75% of the aggregate marks in both Semesters put together and passes both the semesters in the first appearance itself, within the stipulated period of normal study.

b. **First Class**

A Candidate will be declared to have passed the DCA Course in First Class if he/she secures not less than 60% of the aggregate marks in both the Semesters put together

c. **Second Class**

All other successful candidates (Passed) will be declared to have passed with Second class.

14. **Maximum duration of the DCA course.**

Normal duration of the course is 2 (two) consecutive Semesters, over a period of one year as stated in clause 1 above. However in the case of those who have not

acquired DCA within the stipulated minimum duration of two semesters, she/he can acquire the Diploma taking a maximum duration of another 1 (one) year. However the maximum number of chances to appear for the End Semester examination is limited to 3 (three) including her/his regular chances.

15. Cancellation of Candidature in the Examination.

If a candidate desire to cancel his candidature for end semester Examination she/he should forwards the duly filled in application form, recommended by the Head of Institution along with the required fee, so as to reach the office within 10 days after the completion of the last theory examination of that particular semester examination. For those who have applied for the examination and absent without cancelling their candidature, it will be treated as an attempt/chance. Cancellation of candidature in the DCA Examination is allowed only once for a particular Semester examination. Candidates reported for malpractice will not be eligible for cancellation of examination.

3. COURSE CONTENT

First Semester

Subject Code	Subject Name	Theory Hours / Week	Practical Hours / Week	Marks		Total
				Internal	End Exam	
DCA101	Information Technology	2	----	50	100	150
DCA102	Windows and Office Automation Packages	2	----	50	100	150
DCA103	Linux and Malayalam Computing Lab	----	2	50 (25+25)	100 (50+50)	150
DCA104	Web Design Lab	----	2	50	100	150
DCA105	Office Automation Lab	----	2	50	100	150
Total		4	6	250	500	750

Second Semester

Subject Code	Subject Name	Theory Hours/ Week	Practical Hours / Week	Marks		Total
				Internal	End Exam	
DCA201	Web Applications using PHP	2	----	50	100	150
DCA202	Database Systems and Applications	2	----	50	100	150
DCA203	Desk Top Publishing Lab	----	2	50	100	150
DCA204	Web Application Lab	----	2	50	100	150
DCA205	DBA Lab & Project	----	2	50 (25+25)	100 (50+50)	150
Total		4	6	250	500	750

DETAILED SYLLABUS**FIRST SEMESTER****DCA101 Information Technology (40 Hours)****Module I (8 Hours)**

Introduction to Computers: Definition of a Computer, Characteristics of Computer, Brief history of Computers, Parts of a Computer, Block diagram of computer, Brief introduction to hardware parts – Input Unit, Output Unit, Processor and Memory, Types of Software – System Software and Application Software. , Generations of Computers, Classifications of Computers, Application areas of IT – Communication – Business – Governance – Medical field – Office Automation – Education – Entertainment – Engineering and Manufacturing.

Module II (6 Hours)

Input Devices: Keyboard, Mouse, Track ball, Joystick, Web Camera, Scanners, OMR, Barcode Reader, Light pen and Touch Screen

Output Devices: Computer Monitor – LCD, LED, TFT, Projector, Speaker, Printer – Inkjet and Laser Printers

Module III (10 Hours)

Processor: Features, Word length, Instruction set, Bus, Clock speed, Memory Addressing Capability, Examples of Microprocessors – Intel 8086, 80386, 80486, Pentium, Celeron, Core i3, i5, i7 and i9 – brief introduction only

Memory: Primary Memory : RAM and ROM – Types, Functions of RAM and ROM

Secondary Memory : Hard disc, CDROM, CD-R, DVD, Blue Ray Disc, Pen Drive, Solid State Drive

Cache Memory :L1,L2 and L3

Module IV (6 Hours)

Computer Software-Software classification – System Software and Application Software, Functions of OS, Types of OS – Time sharing, Distributed, Networking, Real-Time. Types of Computer Languages – Machine Language, Assembly Language, High level Language (Procedure Oriented Languages), 4th Generation Languages (Object Oriented Languages)

Module V (10 Hours)

Computer Networks: Basics of communication- elements of communication sender, medium and receiver. Modes of communication- Simplex, Half duplex and full duplex. Transmission media- Twisted pair, Coaxial cable, Microwave, Fiber optic cable and Satellite communication.

LAN, MAN and WAN, Introduction to Internet, IP address: classifications. Network Topology, Peer to Peer and Client Server model, TCP/IP Protocol, Introduction to Connectivity devices- MODEM, Hub, Switch, Bridge, Router, Gateways.

Books :

- Computer Fundamentals, by Priti Sinha, Pradeep K., Sinha , BPB Publications
- Introduction to Computer Fundamentals, Bright Siaw Afriyie, Trafford Publishing
- Microprocessors and Microcontrollers, 3ed , R S Kaler, Dreamtech Press

DCA102 Windows and Office Automation Packages (40 Hours)**Module I: Office Automation Basics (4 Hrs)**

Concept Of Office – Nature Of Work In Office- Meaning Of Office Automation – Needs & Future Trends Of OA –Office System Requirements – Documents Preparation – Documents Storage & Retrieval – Integrated Office Systems.

Module II: Windows and DOS (8 Hrs)

Introduction To Windows – Desktop, Start Menu, Task bar, My Computer, Windows Explorer, Recycle Bin, Accessories- Paint, Calculator, Notepad, Word Pad, Control Panel – Date/Time, System, Mouse, Display, Programs and Features, Region, Language. MS DOS- Internal and External commands – DIR, DIR Options with wild card characters, Copy Con, Type, Copy , Ren, Del/Erase, Date, Time, MD, CD, RD, Edit, Deltree, Chkdsk, Xcopy, Format.

Module III: Introduction to MS Office & MS Word (12 Hrs)

Introduction to MS Office , MS Word ,Word Processing,- MS Word – Office button, Cut, Copy, Paste, Change Case, Find, Replace, Text Formatting Features – Font formatting, Paragraph formatting, Drop Cap, Bullets And Numbering, Header and Footer, Foot notes and End notes, Borders and Shading, Column, Breaks, Views , Advanced Formatting Features – Table, Table Formatting, Formula, Sort, Graphics- Word Art And Clip Art, shapes - Mail Merge, Spelling And Grammar- Thesaurus, Autocorrect, Table Of Contents- Cover Page Design.

Module IV: MS Excel (12 Hrs)

Spread Sheet/ Worksheets, Cell, Range, Operators, Fill Series, Cut, Copy, Paste, Format Cells options, Inserting Row, Column, Sheet, Deleting Row, Column, Sheet, Changing Row Height, Column Width, Functions – Mathematical functions, Statistical Functions, IF function, Chart, Database - Sort, Filter- Auto Filter, Advanced Filter, Subtotals-Data Validation, Database functions.

Module V: MS Power Point (4 Hrs)

Introduction to Power point, Presentation, Slide, Slide Sorter , Slide Background , Slide Transition and Custom Animations, Slide Show, Action Buttons.

DCA103 Linux and Malayalam Computing Lab (40 Hours)**Module I (10 Hrs)**

Linux Operating System - Introduction to Linux, Brief History and its Features, Linux Distributions- Ubuntu, Linux Mint, Debian, Red Hat, Fedora. Uses of Linux OS, Advantages of Linux, Linux OS Structure, Hardware requirements of Linux, Login & Logout from Linux OS, Linux Bash, Linux man command, Linux Shell commands – Directory commands – pwd, ls with options, cd, mkdir, rmdir. Date command – date, cal, time. Linux User command – whoami, who, passwd. Type of files, Linux File commands – cat, rm, cp, mv, rename, chmod. Linux File Content Commands – head, tail, more. Linux filter commands – cut, grep, tee, wc, sort, find. Vi editor with commands. Introduction to Linux GUI – Desktop, Trash, Home.

Module II (8 Hrs)

OpenOffice.Org Writer

File menu options, Edit menu options, and View options-Basic Editing & Formatting-Copying and moving text and objects. Font & Paragraph formatting, Bullet and Numbering, Columns, Tabs, Drop caps, Borders and Shading. Tables- insert table and draw table. Page Formatting – Header, Footer, Footnote, page border, page number, inserting Graphics, Pictures, Field, Hyperlinks. Table of Contents- Advanced Tools - Spelling & grammar, Thesaurus, Auto Correct, Word Count, Mail Merge, document protection, printing document

Module III (8 Hrs)

OpenOffice.Org Calc

Know worksheets, Cell, Cell Range Operations, Fill Series, Protecting Worksheets- Functions - sum, average, if, Financial and statistical functions, Mathematical functions.- Database Operations – Sort, Filter (Auto Filter and Advanced filter, Subtotals, Table, Validation)- Charts – Standard and Custom type-Printing Worksheet

Module IV (6 Hrs)

OpenOffice.Org Impress

Creating basic presentation – Creating new Presentation, Opening, closing, and saving presentation. Inserting New slides, applying layouts and backgrounds.- Understanding Presentation views -Using Text - Inserting and Editing & Formatting Text, Paragraph formatting-inserting video and sounds.- Slide Masters &, Slide Transition, Custom Animation setting up–(slideshow, rehearsing timing, and recording narration) a presentation.-Working with Objects, Tables and Charts Printing.

Module V (8 Hrs)

Malayalam Computing

Introduction to Malayalam computing.-Know Malayalam scripts. ISM and Unicode, Structure of Malayalam keyboard, Enabling Unicode Malayalam in Linux. Malayalam typing using Writer.

DCA104 Web Design Lab (40 Hours)**Module I: (8 Hours)**

Web Basics: Understanding the web, web browsers, and web servers

HTML Basics: Introduction to HTML, creating a basic HTML page, HTML syntax, and Common HTML tags:

Working with Text, Links, and Images: Formatting text, creating links, and working with images

Lab exercise

- Write an HTML code for a basic web page with a header, navigation bar, main content section, and footer.
- Create a hyperlink to an external website and make it open in a new tab.
- Insert an image in your web page and resize it using HTML.
- Use the "ul" tag to create an unordered list of items.

Module II: (8 Hours)

Introduction to CSS: Creating and applying CSS styles, working with text, links, and images

CSS Layouts: Introduction to CSS layout techniques, working with floats, positioning, and flex box

Introduction to Bootstrap: Working with the Bootstrap grid system and pre-built components

Customizing Bootstrap: Customizing the look and feel of Bootstrap components using CSS

Lab exercise

- Create a CSS style sheet to change the font and color of the text on your web page. Use CSS to create a three-column layout with a header and footer.
- Use Bootstrap to create a responsive navigation bar and a grid layout.
- Customize the look and feel of a Bootstrap component using CSS.

Module III: (8 Hours)

Introduction to JavaScript and its role in web development, Basic programming concepts and syntax, Variables, data types, and operators, Functions and Control Flow, Defining and calling functions, Control flow statements, including loops and conditional statements

Lab exercise

- Create a function in JavaScript to display a message when a button is clicked.
- Write a program that takes two numbers as input and displays their sum.
- Use a loop to display numbers from 1 to 10 on the web page.
- Use conditional statements to display different messages based on the value of a variable.

Module IV: (8 Hours)

JavaScript Events: Understanding how to handle JavaScript events, working with event listeners

Form Validation: Validating user input in HTML forms using JavaScript

Advanced CSS: Flexbox, Grid, and Responsive Design

transitions

Working with Multimedia: Working with multimedia content such as images, video, and audio

Lab exercise

- Add an event listener to a button in JavaScript and change the background color of an element when the button is clicked.
- Write a program to validate a form using JavaScript and display an error message if a field is empty.
- Use CSS animations and transitions to create a hover effect on a button.
- Add a video to your web page and use JavaScript to control its playback.

Module V: (8 Hours)

Working on a web design project from start to finish, including planning, design, development, and deployment

Students will design and create an interactive web page using JavaScript

Showcase their knowledge of web design concepts and techniques using html, css and java script.

Lab exercise

- Plan and design a web page for a specific purpose, such as course info or an e-commerce site.
- Develop the web page using HTML, CSS, and JavaScript.
- Test and debug the web page to ensure that it works correctly.
- Deploy the web page to a web server and make it publicly accessible.

DCA105 Office Automation Lab (40 Hours)

Lab Exercise Set 1

Navigate through the desktop, start menu, taskbar, and other essential components of Windows.

Customize the display settings of your computer.

Use accessories such as Paint and Calculator to create and manipulate images and numbers.

Configure the system settings using the control panel.

Lab Exercise Set 2

Create a new document in MS Word and save it with a unique file name.

Use formatting features such as font, paragraph, and page layout to modify the document's appearance.

Insert and format a table, image, and bullet points in the document.

Practice mail merge

Lab Exercise Set 3

Insert and format a table, image, and bullet points in the document.

Practice mail merge

Lab Exercise Set 4

Create a new worksheet and input data in cells.

Perform mathematical and statistical functions on the data.

Create charts to visualize the data.

Use filters and subtotals to sort and group the data.

Lab Exercise Set 5

Create a new presentation with a customized theme.

Add new slides and apply slide transitions.

Insert images and text boxes in the slides.

Practice slide animations and add action buttons to enhance the presentation.

SECOND SEMESTER

DCA201 Web Applications using PHP (40 Hours)

Module I: (8 Hours)

Overview of web design and server programming, Understanding the client-server architecture, Introduction to HTML, CSS, and JavaScript, Overview of PHP and MySQL, Setting up a development environment, Installing a local web server (e.g., XAMPP, LAMP) and configuring it to work with PHP and MySQL

Module II (8 Hours)

Understanding the role of PHP and MySQL in web development, Evaluation of Php, Basic Syntax, Defining variable and constant, Php Data type, Operator and Expression. Decisions and loop Making Decisions, Doing Repetitive task with looping, Mixing Decisions and looping .

Module III (10 Hours)

Define a function, Call by value and Call by reference, String Creating and accessing, String Searching & Replacing String, Formatting String, String Related Library function. Anatomy of an Array, Creating index based and Associative array Accessing array, Element Looping with Index based array, Looping with associative array using each () and foreach(), Handling forms and user input, Capturing Form, Data Dealing with Multi-value filed, and redirecting a form after submission
Introduction to Object-oriented programming with PHP-

Module IV (6 Hours)

About MySql, Creating and modifying tables ,Connecting to MySQL using PHP, Using PHP to interact with MySQL databases, Performing database operation -Insert, Select

Module V (8 Hours)

CRUD programming (Create, Read, Update, Delete) using PHP and MySQL, Designing and planning a dynamic web application, Building a user-friendly and responsive web interface with HTML, CSS, and JavaScript, Implementing PHP and MySQL to handle user input, data storage, and retrieval, Implementing user authentication and data validation to improve security, Design and build a complete web application using PHP and MySQL, Implementing user authentication and data validation
Deploying the application ,

DCA202 Database Systems and Applications (40 Hours)**Module I: Introduction to Database System Concepts (6 Hours)**

Data , Information, Database -Characteristics of Data in Database -DBMS-Advantages and disadvantages of DBMS- Different type of Database Systems -Introduction to Relational DBMS - RDBMS Terminology - Database – Tables –Relations-Domains-Attributes-Tuples -Primary Key- Foreign Key.

Module II MS-Access 2007 (10 Hours)

Introduction - Blank Database, Database Wizards -Database Window, Design View, Data Sheet View - Creating Tables in Design View -Field types in Access, Primary Key, Indexes - Record Manipulations – Adding, Editing, Deleting - Sorting and Filtering - Creating Query in Design View -Query Wizard, Deleting Queries -Creating form with Wizard- Creating Reports Using Wizard - Import and Export.

Module III Introduction to MySQL (8 Hours)

History of Open Source initiative-LAMP-Linux - Apache- MySQL -PHP- Web Applications and Web Services- brief introduction only. Data types in MySQL- Creating Tables- Inserting data.Querying the Database. Study of different DDL and DML commands. CREATE, INSERT, SELECT, UPDATE DELETE, ALTER, DROP commands.

Module IV Functions in My SQL (8 Hours)

Operators–arithmetic, logical and relational operators –in,between, like. Wildcards, Select queries with where clause, sorting **String functions:** ascii, char_length, concat, instr, lcase, left, length, locate, lower, lpad, ltrim, mid, position, repeat, replace, reverse, right, rpad, rtrim, space, strcmp, substr, trim, ucase, upper **Numeric functions:** abs, ceil, div, floor, mod, pow, power, rand, round, sqrt. **Date functions:** date, day, dayname, dayofmonth, dayofweek, dayofyear, hour, minute, month, monthname, now, second, time, week,year

Module V Advance functions and Queries using MySQL (8 Hours)

MySQL Aggregate functions- avg, sum, max, min, count. Advanced Select queries with group by clause, having clause MySQL Joining Tables:-Inner Join, Left Join, Right Join, Cross Join, Self Join, UNION Operator MySQL advanced Functions: convert, current_user, database ,if,isnull, user, version

Textbooks:

Database Systems and Concepts – Abraham Silberschatz, Henry F Korth – McGraw Hill
MS Office Access 2007 – A beginners Guide – Virginia Anderson – DreamTech
PHP and MySQL Training Guide- Ramesh Bangia – BPB Publication

References:

1. An Introduction to Database Systems – Vol I C.J.Date
2. Beginning PHP5, Apache, MySQL Web Development- Elizabeth Naramoreet. al Wiley dreamtech Publications

Internet Resources

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DCA203 Desk Top Publishing Lab (40 Hours)**Module I : Adobe Illustrator (10 Hours)**

An overview, Features of Adobe Illustrator- Using workspace - Exploring the interface - Opening a file Using art boards - Changing zooming and scrolling - Using tools and panels - Exploring Control panel Working with panels and the dock.

Using the shape tools- Positioning and resizing shapes - Transform panel -Constraining a shape - Entering exact dimensions -Selecting artwork - Introducing layers - Cutting and pasting objects - Repeating transformations.

Adding color- Exploring Appearance panel- Changing colors Adding effects- Adding a symbol- Saving swatches- Selecting color

Using drawing tools - Using Pen tool Draw straight, curved lines

Working with Image - Pencil and Eraser tools - Editing existing paths- Adding and removing points- Cutting and joining paths - Shape Builder

Adding and formatting text- Formatting text- Paragraph formatting- Using paragraph and character styles- Editing styles -Putting text on a path -Warping text -Putting text in a shape- Creating outlines -Checking spelling - Using Find and Replace.

Using layers- Layers panel - Using layers to organize an illustration Selecting using the Layers panel -Creating new layers- Showing and hiding layers- Locking and unlocking layers- Rearranging layers Moving items between layers -Remembering layers when pasting -Creating a template layer.

Exercises

1. Understand user interface (Menu bar, Tools, Control, Workspace, Document area)
2. Create new workspace
3. Create new document and Understand Art board
4. Draw objects using Rectangle, Rounded rectangle, ellipse, polygon, Start and Flare tools
5. Convert to 3D shape
6. Change fill and outline color of objects, change outline style
7. Draw lines using line, Pencil tool and brush tool
8. Drawing using blob brush
9. Create decorated borders
10. Use direct selection tools
11. Create horizontal and vertical text using type tool
12. Type inside a shape using Area Type tool
13. Using pictures in Illustrator
14. Saving and exporting document
15. Designs using Adobe Illustrator

Module II Adobe Photoshop (15 Hours)

Familiarize Photoshop user interface- Create a new workspace- understand menu bar- options bar- show or hide options bar- Tool box and other pallets.

Understand New dialog box-Familiarize toolbox – open an image – creating duplicate- Working

Create pattern and brush preset and apply, Working with layers - Creating new layer - hiding, showing and deleting layers- Applying blend modes- change fill -Merging Layers – Flatten Image Transform and free transform commands, Working with images- changing image resolution – changing image size- changing canvas size - Desaturate
 Editing images –rotating, cropping- making color adjustments-levels, curves, brightness contrast
 Working with Drawing, Painting and retouching tools
 Exploring color picker dialog box- Eye dropper tool- color palette- color replacement Tool - Retouching tool – healing brush- patch tool- Clone stamp tool-Eraser tool -Background eraser, magic eraser. Working with type tool- changing font settings- Wrap text- warp text – text inside a shape. Save Document- Export to PDF – Save for Web

Exercises

1. Create new workspace
2. Open and duplicate a picture file Save file
3. Practice short cuts in Photoshop
4. Selection tools and options
5. Fill and stroke
6. Using slice tool and save slices for web
7. Transform commands (Rotate, Scale, Skew, Perspective, Warp)
8. Change image size and apply image
9. Change canvas size
10. Create Selection using pen and path tool
11. Retouching tools
12. Create brush preset and pattern
13. Using brush and pencil presets
14. History Brush and Art History Brush
15. Vertical and horizontal type tools, change font options, Type Mask tool
16. Text wrap and warped text
17. Shape tool
18. Change image mode
19. Desaturate command
20. Gradient and paint bucket tools
21. Layer management
 - i. Create, duplicate, Change blend, opacity, fill
 - ii. Show, hide, lock, delete layers
22. Rasterizing layer
23. Apply filters
24. Merge layers, flatten image
25. Design poster, Visiting Card, Invitation using Photoshop

Module III Adobe InDesign (15 Hours)

Getting started with InDesign – Exploring InDesign workspace –Application Bar-Menu Bar- Control Panel – Tools Panel – Document Window - Work Area – Panel groups – Creating Workspace – Saving and Closing a document – Quitting the application.
 Working with Document-Open an existing document – master page creation- application and

text from the path- removing text from the path. Basic Formatting – Changing the font size, color – Aligning the text – Character styles – Paragraph styles.

Working with Drawing tools and Objects.

Using shape tools - Rectangle tool , ellipse tool, polygon tool- Pencil tool- drawing a freeform path and closed path, editing path – Using pen tool- Drawing straight line, drawing curves- Transforming object – Flipping, Rotating, Cropping and Shearing an Object.

Publishing the Document.

Creating table of Contents – Applying Styles to TOC – Printing the document – Print previewing the document- Export document as a pdf file.Create book

Exercise

1. Create new workspace
2. Create a new document, set all properties
3. Add pages, create and apply master page setting including none
4. Prepare master page settings (Page border, page number)
5. Type tool and type on a path tool
6. Adding text using story editor, add text from external source
7. Creating columns
8. Use character and paragraph style
9. Create drop cap
10. Sample documents like Visiting cards.
11. Sample documents – Announcements, Advertisements etc 4 Samples
12. Publishing the document
13. Document preparation with Table of contents
14. Save document
15. Create book

Reference

Website : [\(PDF\) The complete beginners guide to Adobe Illustrator Get started | Gabriel Lourenço - Academia.edu](#)

DCA204 Web Application Lab (40 Hours)**Lab Exercise Set 1:**

Install a web server, PHP, and MySQL on your computer
Create a simple HTML page that displays "Hello, world!"
Create a PHP script that displays the current date and time
Test that the web server is running and can serve HTML and PHP pages

Lab Exercise Set 2:

Write a PHP script that takes user input from a form and displays it on the web page
Write a PHP script that calculates the sum of two numbers entered by the user and displays the result on the web page
Simple programs using control structures to understand the concepts.
Write a PHP script that generates a random number between 1 and 100 and displays it on the web page
Write a PHP script that uses a loop to display the numbers from 1 to 10 on the web page

Lab Exercise Set 3:

Programs using array
Simple Programs to understand concepts of OOPs
Forms in PHP

Lab Exercise Set 4:

Write a PHP script that connects to the database and displays the contents of the table on the web page
Create a MySQL database with a single table
Write a PHP script that adds a record to the table using user input
Write a PHP script that validates user input and displays error messages if the input is invalid

Lab Exercise Set 5:

Write a PHP script that updates a record in the table using user input
Write a PHP script that deletes a record from the table using user input
Design and implement a complete web application that includes data validation, and CRUD functionality using PHP and MySQL

DCA205 DBA Lab & Project (40 Hours)**Lab Exercise Set 1**

Create a blank database and add tables in Design View with different field types, primary keys, and indexes.

Add records to the tables, edit and delete them.

Sort and filter data in Data Sheet View.

Create a query in Design View and use Query Wizard to retrieve specific data.

Create a form and report using Wizard and customize them according to your needs.

Import and export data from/to other applications.

Lab Exercise Set 2

Install MySQL on your local machine or use an online server.

Create a database, add tables with different data types, and insert data using INSERT command.

Retrieve data from the database using SELECT command with different clauses.

Modify tables using DDL and DML commands like ALTER, UPDATE, DELETE, and DROP.

Lab Exercise Set 2

Practice LAMP stack installation and setup, if possible.

Use different operators in SELECT queries with WHERE clause.

Retrieve data with different string functions like CONCAT, SUBSTR, and TRIM.

Retrieve data with different numeric functions like ABS, POW, and RAND.

Retrieve data with different date functions like DAY, MONTH, and YEAR.

Lab Exercise Set 4

Retrieve data using aggregate functions like AVG, COUNT, and MAX

Retrieve data using using GROUP BY and HAVING clauses.

Join two or more tables using INNER JOIN, LEFT JOIN, and RIGHT JOIN.

Retrieve data using advanced functions like CONVERT, IF, and ISNULL.

Project work

Design and Hosting of a Web Site

The student will have to submit the printed report of the work

Format of the student project report on completion of the project

- Cover page
- Certificate of Institution
- Acknowledgement

- Main report
- Brief description about topic.
- Lay out of the web site.
- Database Design
- Printout of code & output.
- Suggestions for future work.
- References.

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LBS CENTRE FOR SCIENCE & TECHNOLOGY

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INTEGRATED DIPLOMA IN COMPUTER HARDWARE MAINTENANCE & NETWORKING

IDHMN
(Two semesters)

Scheme & Syllabus

2023

Objectives

The course aims to

- To impart Theoretical knowledge in the working of computer systems, peripherals and Networks.
- To impart skills related to maintenance, troubleshooting and administration of computer networks.

ELIGIBILITY FOR ADMISSION

SSLC or Equivalent

DURATION OF THE COURSE

The duration of the course is 1 year comprising of 2 semesters. The classes will be held on 5 days per week with 2 Hrs/day.

MEDIUM OF INSTRUCTION:

The medium of Instruction will be English

EXAMINATION

There will be Examination at the end of each semester. The conduct of examination, valuation, declaration of results, issue of certificates, mark lists etc, of this course are done by LBS Center., Govt. of Kerala.

- **COURSE FEE:**

SLNO	SEMESTER	FEE PARTICULARS	Fee Amount(Rs.)
1	First Semester	Admission Fee	100.00
		Semester Fee	9000.00
2	Second Semester	Semester Fee	9000.00
Total			18100

- **EXAMINATION FEE**

SLNO	PARTICULARS	AMOUNT
1	For Regular examination	500.00
2	For Supplementary examination	100.00 / paper
3	For cancellation of Examination	200.00

RULES & REGULATIONS OF CONDUCT OF CLASS/EXAM OF THE PGDCA

1. Instructional duration in an academic year

- Each Semester consists of a minimum of 20 weeks of instruction, including intervening holidays, but excluding the period of examinations and study holidays.
- The course will follow Semester pattern, with an end semester examination, conducted by the LBS Center, Kerala State.

2. Minimum attendance required for obtaining eligibility to appear for the Examination

- Candidates must secure a minimum of 80% attendance in each Semester, in order to secure the eligibility to appear for each Semester Examination.
- In the case of those students with 65% or more attendance but could not attain 80% attendance due to Medical reasons, the Head of Institution, at his/her discretion, may grant the eligibility to appear for the examination, subject to the remittance of “Condemnation Fee”, fixed by the LBS Center from time to time.
- Students who have secured less than 65% attendance are not eligible to apply for “Condonation”, and will not be allowed to appear for the examination under any circumstances.
- Students who have shortage of attendance, but not condoned, in any semester are not eligible to be promoted to the higher semesters. They may seek readmission in the same semester and repeat.

3. Scheme of Evaluation

- The scheme of evaluation shall consist of - (1) Internal assessment (Sessional) and (2) End Semester examinations in Theory and Practical Subjects. The marks for End Semester Examinations, and Internal Assessment, both for the Theory and practical papers will be 20 and 30 respectively.
- The Total marks (Internal and End Semester Examination) will be as follows.

Semester I – 500 Marks

Semester II- 500 Marks

4. Award of Internal Assessment Marks.

In respect of theory subjects the award of Sessional mark will be on a continuous evaluation method, based on tests, assignment and attendance in the proportion of 40% for test, 40% for test assignments and 20% for attendance. There will be a minimum of two tests and Two Assignments, and all the 2 Test papers and 2 Assignments are taken into account for the calculation of Final Internal Assessment Marks.

5. End Examination

In each theory subject, there will be an end examination in each Semester conducted by the LBS Center, Kerala State as per the pre-announced notification of examinations.

6. Minimum marks for a pass.

A candidate must secure a minimum of 40% marks in the End Semester examination in each Theory, and 50% for practical and 50% for total (Internal + Theory/Practical) for a pass in each subject.

7. Rules for promotion to the Higher Semesters

Candidates shall be allowed to go to the next higher Semester, if he/she attended the previous Semester and has fulfilled the conditions of attendance required and registered for the concerned semester examination.

8. Classification of successful candidates

- Candidates shall be declared to have passed the course only if he/she has secured a Pass in all the theory and practical subjects in all the Semester of study.
- There will be 3 classifications of passed candidates namely
 - First class with distinction
 - First class
 - Second class
- The total marks of all the Semesters shall be considered to classify the successful candidates. The marks obtained in all the semesters will be added and the percentage of marks is worked out.

FIRST CLASS WITH DISTINCTION: A candidate will be declared to have passed The Course in First Class with Distinction if he/she secures not less than 75% of the aggregate marks in all Semester put together and passes all the above semester in the first appearance itself, within the stipulated period of normal study, i.e., Three Consecutive Semesters, without any break.

FIRST CLASS: - A candidate will be declared to have passed the Course in First Class if he/she secures not less than 60% of the aggregate marks in all Semesters put together and passes all the above semesters, within three consecutive chances including his regular appearance offered by the Board of Technical Exams.

SECOND CLASS: - All other successful candidates will be declared to have passed in the Second Class.

9. Maximum duration of the IDCHMN

Normal duration of the course is 2 consecutive Semesters over a period of one year. However in the case of those who have not acquired IDCHMN within the stipulated minimum duration of 2 Semesters, he/she can acquire the Diploma taking a maximum duration of another 3 years.

10 End Examination

➤ The question paper for each Theory paper will consist of three parts.

Part A - for a maximum of 20 marks containing 10 very short answer types questions of 2 marks each (answer in one or two sentence) covering the whole subjects area. There will be no choice in part A.

Part B - for a maximum of 80 marks essay answer types questions of 10 marks each covering the whole subjects area. There will be 12 questions of this type and students need to write any 8 from above.

The part A and Part B will be given together in one question paper.

➤ For practical end examinations, the LBS Centre will appoint examiners who will set a question paper consisting of Practical exercises.

11. Cancellation of Candidature in the Examination.

If a candidate desire to cancel his candidature for end semester Examination she/he should forwards the duly filled in application form, recommended by the Head of Institution along with the required fee, so as to reach the office within 10 days after the completion of the last theory examination of that particular semester examination. For those who have applied for the examination and absent without cancelling their candidature, it will be treated as an attempt/chance. Cancellation of candidature in the IDCHNM Examination is allowed only once for a particular Semester examination. Candidates reported for malpractice will not be eligible for cancellation of examination.

IDCHMN Syllabus

Semester I

Subject Code	Subject Name	Hours / Week		Total marks	Internal Marks
		Theory	Lab		
IDCHMN 101	Basic Electronics And Microprocessors	2		100	20
IDCHMN 102	Computer Hardware And OS	2		100	20
IDCHMN 103	Computer Hardware Lab I (Electronics And Microprocessor)		2	100	30
IDCHMN 104	Computer Hardware Lab II (OS Commands And Peripherals)		4	100	30
Internal Marks Total					100
Total		4	6	500	

Semester II

Subject Code	Subject Name	Hours / Week		Total marks	Internal Marks
		Theory	Lab		
IDCHMN 201	Hardware Assembly And Trouble Shooting	2		100	20
IDCHMN 202	Network Administration And Maintenance	2		100	20
IDCHMN 203	Computer Hardware Lab III (Assembly, Trouble Shoot And Maintenance)		4	100	30
IDCHMN 204	Computer Hardware Lab IV (Network Implementation, Administration And Maintenance)		2	100	30
Internal Marks Total					100
Total		4	6	500	

IDCHMN 101 - Basic Electronics and Microprocessors (40 Hrs)

INTRODUCTION TO ELECTRONICS (6 Hours)

- Electricity-current, voltage, power, resistance, capacitance
- Ohm's law
- Resistances in series & in parallel
- Voltage divider circuits
- Alternating current
- Direct current
- Phase, Amplitude
- Frequency of different waves

ELECTRONIC COMPONENTS (14 Hours)

Resistor

- Different types of Resistors,
- Resistance colour code, standard resistance values
- Resistance in Parallel and series

Capacitors

- Capacitance, capacitor connected to a battery
- Factors controlling the capacitance
- Coulombs law
- Different types of capacitors
- Colour codes & number code of capacitor
- Voltage rating
- Capacitance in Parallel and series

Inductor

- Inductance, EMF
- Types of inductors
- Transformers, Step up & Step down transformers
- Characteristics – Turns ratio, RMF, Centre tapped transformers, IFT

Semiconductors

- Atom, structure of atom, Atomic & Mass number, shells, Electron distribution, Energy levels & bands in atom, valance electrons,
- Conductors, Insulators, Semiconductors, Intrinsic semi conductors
- Positive and Negative temperature coefficient of resistance
- Avalanche & zener break down
- PN junction diode, Diode rating or specification, Types of diodes and their characteristics
- Signal diode, power diode, Zener diode, Varactor diode, Led tunnel diode, Photo diode,

Rectifiers

- Half wave rectifiers, full wave rectifiers, Center tapped & bridge rectifiers, Input & Output wave forms, Frequency of the wave

Filters

- Shunt capacitor filter, Series inductor filter, Choke input LC filter

Transistors

- Introduction, BJT, Junction structure, PNP & NPN transistors

Amplifier

- Basic concepts of Amplifiers
- Transistor as a amplifier

Oscillators

- Basic oscillator circuit, tank circuit, Damped & undamped oscillation, Frequency of oscillation
- Multivibrators – Mono stable multivibrators, bistable multivibrators, astable multivibrators

FET

- Comparison between FET & BJT, JFET,
- N-channel & P-Channel, FET amps, Common Gate amp, MOSFET

IC

- Introduction, Advantages of IC, Scale of integration, Classification of ICs
- OP-amp IC , IC 555, Regulator ICs and Applications

DIGITAL ELECTRONICS (8 Hours)

- Number System
- Positional & non-positional number system,
- Decimal number system,
- Binary number system- binary
- Hex number system
- Decimal to binary conversion & Binary to decimal conversion
- Binary addition, substraction, 1's complement, 2's complement
- Logic Gates
- Introduction to Boolean algebra
- NOT (compliment) operation,
- AND operation
- OR operation
- Logic gates- Gate, OR gate, AND gate, XOR gate, NAND gate, NOR gate logic symbols & truth table.
- De-Morgan's theorems
- Flip-flop

MICRO PROCESSOR (12 Hours)

- Introduction to Microprocessor, Evolution of Microprocessors
- Study of 8085 and 8086 Microprocessors
- Execution unit in a microprocessor
- CONTROL UNIT in micro processor

- An INSTRUCTION running procedure in an execution unit
 - CACHE MEMORY in microprocessor
 - 8 bit, 16 bit, 32 bit, 64 bit microprocessors
 - CPU and GPU in a microprocessor
 - RISC and CISC processors
 - Multi core microprocessors
 - Hyper threading technology of microprocessor
 - Intel and AMD microprocessors
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IDCHMN 102 - COMPUTER HARDWARE AND OS (40 Hrs)

COMPUTER: HARDWARE AND SOFTWARE (10 Hours)

- Introduction of computer
- Different Types Of Computer
 - Micro computer, work station, Minicomputer, Main frame computer, Super computer
- Block diagram of digital computer
- DIFFERENT TYPES OF MICROCOMPUTER– Desktop, Laptop, Tablet
- Input devices and output devices
 - key Board, Mouse, Monitor, printer, scanner, web cam, speaker etc
- Classification of softwares- System software and application software
- OPERATING SYSTEM
 - Example for operating system – windows, Linux, Apple OS
 - Shell and kernel in operating system,
 - Major functions of operating system,
 - Comparison between windows and Linux
- DRIVER SOFTWARE
 - Role of Driver software in computer
 - Kernel device driver, User device driver
 - Generic driver, OEM driver
- APPLICATION SOFTWARE
 - Role of Application software in computer
 - Examples for Application software
 - Locate Application software (64 bit and 32 bit) installed in windows operating system
 - Locate starting point (.exe file) of an application software installed in windows
- UTILITY SOFTWARE –
 - Role of utility software in computer
 - Functions of Antivirus, Disk cleanup, Disk defragmenter, System Restore in Windows
- High level, low level, machine language, assembler, compiler, linker, loader, interpreter
- Example for high level and low level program
- Functions of Preprocessor, Assembler, compiler, linker, loader
- Interpreter
- What is an instruction in a program
- What is a program in a software

MOTHERBOARD (12 Hours)

- DIFFERENT TYPES OF DATA TRANSMISSION –
 - Analog and Digital data transmission
 - Serial and Parallel Digital data transmission
 - High speed (Packet Serial) digital data transmission
- EXTERNAL CONNECTORS –
 - Monitor ports – VGA, DVI, HDMI, DP(Display port),
 - USB
 - ETHERNET
 - AUDIO ports
 - Serial and Parallel ports
 - PS/2
- INTERNAL CONNECTORS –
 - Microprocessor sockets – PGA, LGA,
 - Dynamic RAM slots – SIMM, DIMM
 - Hard Disk Drive, SSD, Optical Disk Drive ports –IDE, SATA
 - Add on card ports – PCI, PCI Express,
 - SMPS ports –ATX 20+4, ATX 24+4, other new connectors
 - Additional connectors – Front panel connectors, front panel USB, Front panel Audio,
- Chipset – North Bridge IC, South Bridge IC
- Platform controller hub IC (PCH)
- Clock generator IC
- Clock synchronization Technology
- Input Output Controller IC (Super IO)
- ROM IC (BIOS)
- VRM (voltage regulator module)
- Mother board Block diagram
- Processor bus and PCI bus
- Daughter boards (add on card)
- Different types of graphic cards – Integrated, PCI, AGP, PCI Express

PRIMARY AND SECONDARY MEMORY (12 Hours)

- HARD DISK Memory introduction ,
- primary memory- RAM and ROM
- Secondary memory – hard disk, SSD, flash memory, optical disk
- DYNAMIC RAM
 - Data storage technology in DRAM
 - Role of DRAM in computer
 - Different types of DRAM –EDO RAM, SD RAM, DDR RAM,
 - DDR2 RAM, DDR3 RAM, DDR4 RAM
 - Virtual memory
- STATIC RAM
 - Data storage technology in STATIC RAM
 - Role of STATIC RAM in computer
 - Difference between Dynamic RAM and STATIC RAM

ROM

- Role of ROM in a computer - POST, BOOTING
 - BIOS setup and UEFI setup in ROM
 - Different types of ROM
 - NOR FLASH technology in ROM
- HARD DISK
 - Parts of hard disk
 - Data storage technology in hard disk
 - Role of HARD DISK in computer
 - Partitioning in hard disk
 - Low level formatting and high level formatting in hard disk
 - File system in hard disk
 - Multiple operating systems in a hard disk
 - MBR, VBR in hard disk
 - IDE hard disk and SATA hard disk
 - IDE mode and AHCI mode new in SATA hard disk
- FLASH MEMORY –SOLID STATE DRIVE (SSD)
 - Data storage technology in FLASH MEMORY
 - Different types of SSD – MSATA SSD, NVM Express SSD, M2 SSD
 - Advantages of SSD over HARD DISK
- Difference between NAND and NOR flash memory
 - OPTICAL DRIVE AND DISK
 - Optical drive parts
 - Optical disk – CD, DVD, blue ray disk
 - Data storage and reading technology in Optical disk

SMPS and UPS (6 Hours)

- SMPS
 - Parts of SMPS – Auxiliary and main power supply
 - Block diagram of SMPS
 - Difference between AT and ATX SMPS
 - Voltages of SMPS
 - Power good signal in SMPS
 - Stand by voltage in SMPS
 - UPS
 - 5 power problems
 - Parts of UPS
 - Working of OFF LINE UPS, ONLINE UPS, LINE INTERACTIVE UPS
 - Sine wave, square wave, modified sine wave UPS
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IDCHMN LAB 103 -COMPUTER HARDWARE LAB I (Electronics and Microprocessor)(40 Hrs)

Analog Electronics (20 Hours)

- Familiarization of Tools
 - Soldering iron, De soldering Pump, Tweezer, IC Plucker
- Familiarization of Electronics components
 - Resistor, Inductor, Capacitor, Diode, Transistor
- Soldering and De soldering electronic Components
- Familiarization of Electronics Equipments
 - DC Regulated Power Supply, IC Trainer Kit, CRO, Multi Meter, Ammeter, Volt Meter
- Measurements of Voltages
 - Measurements of AC and DC Voltages
- Study of Circuits
 - Resistances in Series and Parallel, Filter circuits
- Study of Character of Diode and Zener Diode
 - V I Characteristics of PN Junction Diode
 - V I Characteristics of Zener Diode
 - Zener diode as Voltage Regulator

Digital Electronics and Micro Processors (20 Hours)

- Familiarization of Logic gates
- Familiarization of logic gate ICs
- Universal property of NOR and NAND gates
- Flip Flops
- Study of MICRO Processor Programming
- Addition of 16 bit numbers
- Subtraction of 16 bit numbers
- Separation of nibbles in data byte
- Find the factorial of number
- Largest among numbers

IDCHMN LAB 104 -COMPUTER HARDWARE LAB II (OS Commands and Peripherals) (80 Hours)

Operating System(Windows and Linux) (20 Hours)

Introduction to Windows Operating System

Desktop, Taskbar, Start Menu, My Computer, Windows Explorer, Recycle Bin
Accessories – Calculator, Notepad, Paint, WordPad.

Command prompt and MS DOS command

Internal commands, External commands

cls, date, time, md,cd, rd, ver, vol, copy,ren,type,path,del,label,attrib,
fdisk,format, xcopy etc.-

Entertainment & System Tools

Backup, Character Map, Disk Cleanup, Disk defragmenter, System restore etc

Linux Operating System

Introduction to Linux Operating System

Linux Structure

Hardware requirements of Linux

Login & Logout from Linux System

Linux basic commands

date, clear, who, whoami, who am i, ls, cat, cp, head, tail, more, wc,

grep, mkdir, cd, rmdir, find, mv, chmod, write, linux editors

Introduction to Linux GUI - Desktop, Trash, Home

RAM (6 Hours)

Identification of memory modules

SD RAM, DDR SD RAM, DDR2 SD RAM, DDR3 SD RAM, DDR4 SD RAM

Microprocessor (4 Hours)

Familiarization of Processor

Intel Pentium III

Intel Pentium IV

Intel Multi core

Motherboard (20 Hours)

Identification of Internal ports in Motherboard

LGA, PGA, DIMM, IDE, SATA, PCI, PCI Express x 1, PCI Express x 16, ATX SMPS

Identification of External ports in Motherboard

VGA, DVI, HDMI, SERIAL, PARALLEL, PS/2, USB, ETHERNET, SOUND PORTS

Identification of IC's in Motherboard

North Bridge, South Bridge, Clock generator, BIOS (ROM), I/O (SUPER IO)

PLATFORM CONTROLLER HUB (PCH)

Identification of Additional ports in Motherboard

Front panel (power switch, reset switch, HDD LED, POWER LED)

Front panel USB, Front Panel Audio

Identification of BIOS battery

Identification of CMOS clear jumper, (CMOS RESET)

Identification of VRM circuit near Microprocessor and 4pin SMPS input

Voltage testing of BIOS battery using multimeter

Clear CMOS by changing jumper pins

BIOS setup (10 Hours)

BIOS (CMOS) SETUP PROCEDURES

Note the details of following devices from BIOS setup of 5 different systems-

Model name of microprocessor, clock speed, L3 cache memory storage capacity

RAM storage capacity, model name, clock speed

Hard disk model name

Drive model name

Practice boot from optical drive and USB drive

Change first boot device order (to optical drive) in 5 different systems

Optical Disk (10 Hours)

Open Optical drive and identify following parts

Head assembly unit,
Head assembly unit moving track,
spiral shaft motor for moving head assembly unit,
disk tray,
emergency open hole of tray

Partitioning Installation of OS (10 Hours)

Hard disk partitioning using windows 7 DVD, or windows 10 DVD (or USB drive)
Installation of Windows 7 and Windows 10

IDCHMN 201 – Hardware Assembly and Trouble Shooting (40 Hrs)

Output Devices (10 Hours)

MONITOR

- What is video, picture, pixel, Resolution
- Interlaced scanning and progressive scanning
- Horizontal and Vertical scanning signal, color signal (RGB)
- Parts of CRT monitor
- Working of CRT monitor
- Parts of LCD monitor
- Working of LCD monitor
- Different types of LCD monitor – TN TFT, IPS TFT, VA TFT, OLED, QLED

TOUCH SCREEN

- Working of touch screen
 - Different types of touch screen
 - Capacitive touch screen
 - Infrared touch screen
 - Resistive touch screen
- Surface acoustic wave touch screen

PROJECTOR

- Different types of projector
 - CRT projector
 - LCD projector
 - DLP projector
 - LED projector
 - Mini LED projector

SPEAKER

- Different types of speaker

- Dynamic speaker (Moving coil)
- Moving iron speaker
- Piezoelectric speaker (Piezotweeter)
- Electrostatic loudspeaker
- Magnetostatic speaker,
- Ribbon speaker

PRINTER

- Different types of printer –
 - Impact Printers
 - Dot matrix printer
 - Character printer
 - Non-impact printers
 - Inkjet printer
 - Laser printer
 - Thermal printers
 - Direct thermal printer
 - Thermal wax printer
 - Thermal-dye transfer printer

Input devices (10 Hours)

MOUSE

- Different types of optical mouse –
 - Mechanical mouse,
 - Led mouse,
 - Laser mouse,
 - Track ball mouse
- Working of touch pad(track pad) in Laptop
- Working of track pointer (pointing stick)
- Light pen (CRT)

MICROPHONE

- Different types of microphone
 - Condenser microphone
 - Dynamic (moving coil) microphone
 - Fiber-optic microphone
 - Ribbon microphone
 - Piezoelectric microphone
 - Carbon microphone

KEYBOARD

- Different types of keyboard
 - Mechanical keyboard
 - Rubber dom membrane keyboard
 - Virtual laser projection keyboard

SCANNER

- Different types of scanner
 - Flatbed scanner

- Sheet fed scanner
- Hand held scanner,
- OMR (Optical mark Recognition) scanner
- OCR (Optical character recognition)scanner
- 1d, 2d barcode scanner

CAMERA

- CMOS sensor camera and CCD sensor camera
- Different types of digital camera
 - Compact digital,
 - Bridge,
 - DSLR,
 - Web cam
- 3d video technology

CREDIT/DEBIT CARD

- EFT (Electronic fund transfer)cards
 - Debit card
 - Credit card
 - Prepaid card
- Parts of debit/credit card
- EMV (Europay master visa) card

Assembling a Personal Computer (10 Hours)

- Steps for assembling a PC
- Fixing a SMPS in a cabinet
- Fixing a processor in a mother board
- Assembling RAM in a motherboard
- Pinning a cooling fan in a mother board.
- Fixing hard disc drive in a cabinet
- Fixing CD/DVD ORM
- Fixing motherboard In a cabinet.
- Connecting the cables from the SMPS to motherboard hard disc, drives etc
- Establishing data connection for to motherboard, hard disc, drives.
- USB and Audio connections.
- How to trouble shoot a computer problem – step by step procedure

Operating system and Driver and Anti Virus software installtion (10 Hours)

- Steps for installing Windows OSSteps for installing Linux OS
- Steps for installing different Driver softwares
- Malware- virus, worms, Trojan horse, ransom ware, botnet, key logger spyware, adware, spam
- Medium of malware spreading
- How to block malware infection

IDCHMN 202- NETWORK ADMINISTRATION AND MAINTENANCE (40 Hrs)

NETWORKS BASICS (10 HOURS)

- Introduction to computer networks
- Advantages of computer networking
- Different types of networking – PAN, LAN, WLAN, CAN, MAN, SAN, WAN
- Server based networking and peer to peer networking

NETWORK PACKET

- Contents in network packet header
- Segment – packet – frame
- OSI model layers – application layer, presentation layer, session layer, transport layer, network layer data link layer, physical layer

NETWORK PROTOCOL

- Different types of network protocol – TCP/IP protocol suite- ETHERNET, TCP, UDP, IP, HTTP, HTTPS, SSL, FTP, TELENET, SMTP, POP, IMAP

NETWORK TOPTLOGY AND DEVICES (10 HOURS)

NETWORK TOPOLOGY

- Topology – bus, star, ring, mesh
- Hub, switch, router, bridge, repeater, gateway, modem
- DSL
- Travelling route of a frame in the network

NETWORK ADDRESS

- Logical address, physical address, Port address, Specific address
- IP address rules
- Class A, class B, class C IP address
- Private IPs

NETWORK CABLES AND CONNECTORS

- Network cables – twisted pair, co-axial, fiber optic
- Network connectors – RJ45, BNC,
- Crimping of UTP cable with RJ45

NETWORK CONFIGURATION (16 HOURS)

- configuration of Peer to peer network using windows
- configuration Peer to peer network using Linux

- configuration Client-server network using windows
- configuration Internet café network in windows
- Important roles of server
- configuration Domain network system in Windows
- Ad Hoc Network configuration

NETWORK COMMANDS IN LINUX (4 HOURS)

- Linux commands used to check connectivity of computers in networks and internet : netstat,ss ,ssh,sudo,Ifconfig,nslookup etc
-

IDCHMN LAB 203 -COMPUTER HARDWARE LAB III

(Assembly, Trouble shoot and Maintenance) (80 Hours)

IDENTIFICATION OF HARDWARE PARTS (10 Hours)

Identification of

- SATA hard disk, IDE hard disk, SSD
- Parts of CRT monitor (electron gun, deflection coil, CRT tube, SMPS)
- Parts of LCD monitor (CCFL back light, LED back light, LCD panel, SMPS, Picture controller)
- Parts of LCD projector
- Parts of Mechanical Mouse, LED mouse
- Parts of Rubber Dom membrane keyboard
- Parts of Dot matrix printer, ink jet printer, Laser printer
- Flat bed scanner, barcode scanner

ASSEMBLING OF COMPUTER (24 Hours)

- Assembling of computer using different Components (Mother Board, CUP, SMPS, RAM, HDD,SSD,DVD)
- Connect External devices one by one (monitor, keyboard, mouse)

SMPS TESTING (6 Hours)

- Testing of SMPS Voltages by using Multimeter
- Testing of SMPS Voltages by using Power supply tester

TROUBLE SHOOTING PROCEDURE (20 Hours)

- IF POWER LED IS OFF ?
 - Check power in wall socket using voltage tester
 - Check power code continuity
 - Check SMPS standby voltage (5v)
 - Observe SMPS fan is running or not
 - Check 5v in motherboard front panel power switch point
 - Check SMPS 24 pin connector terminal voltages

- IF MONITOR OFF?
 - Clean and Re insert RAM
 - Replace RAM
 - Change RAM in DIMM port
 - Replace BIOS battery
 - Reset CMOS settings
 - Remove Hardware devices one by one and Restart
 - IF NO BOOTING?
 - Clean or Replace RAM
 - Check Hard disk detection in BIOS
 - Repair boot files Operating system
 - Reinstall operating system
 - IF SYSTEM RESTARTING SUDDENLY
 - Check processor Fan running or not
 - Check Processor heat sink, and paste
- SOFTWARE – INSTALLATION and Repair (20 Hours)**
- Hard disk partitioning using UBUNTU (LINUX) DVD, (or USB drive)
 - Ubuntu (Linux) installation
 - Driver software installing- searching and downloading from internet
 - Installing Application software
 - Antivirus scanning,
 - Hard disk cleaning by disk cleanup software,
 - Defragment fragmented files of hard disk using disk defragmenter software,
 - Study about system restore software
-

IDCHMN LAB 204 -COMPUTER HARDWARE LAB IV (Network implementation, Administration and Maintenance) (40 Hours)

IDENTIFICATION OF COMPONENTS AND DEVICES USED IN NETWORKING (6 Hours)

- Study of Repeater, Hub, Bridge, Switch, Router and Modem
- Co axial, Twisted Pair and Fire Optic cables
- BNC, Terminators, RJ45, ST and SC connectors, Crimping Tool
- UTP Cable crimping (Std A and Std B)

STUDY OF NETWORK COMMANDS (6 Hours)

- Study of commands to view MAC address
- Network Connectivity and Internet connection
- Study of Network protocol DNS and DHCP
- Internet café networking using DHCP protocol
- Study of connectivity of Wireless devices in Networking

CONFIGURATION OF WINDOWS NETWORKS (18 Hours)

- configuration of Peer to peer network using windows
- configuration Client-server network using windows

- configuration Internet café network in windows
- Important roles of server
- Study of Client -Server and Domain connectivity
- configuration Domain network system in Windows
- File and Printer sharing in Windows
- Starting and Stopping services
- Ad Hoc Network configuration

CONFIGURATION OF LINUX NETWORK (6 Hours)

- Configuration Peer to peer network using Linux
- File and Printer sharing in Linux

INSTALLATION SOFTWARES and DATA SHARING IN NETWORKS (4 Hours)

- Study of Telnet and FTP PROTOCOLS
- Apache and Tomcat

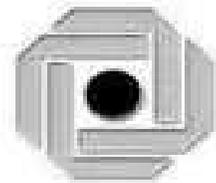
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LBS CENTRE FOR SCIENCE & TECHNOLOGY

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Kerala 0471 - 2324396
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POST GRADUATE DIPLOMA IN COMPUTER APPLICATIONS (PGDCA)

(Two semesters)



**Scheme & Syllabus
2023**

ABOUT THE COURSE

The LBS Centre for Science and Technology (LBSCS &T), Thiruvananthapuram the premier institute of computer training and consultancy, registered under the Travancore-Cochin Literary, Scientific and Charitable Societies Registration Act XII of 1955 was established by Government of Kerala in 1976. The L B S is conducting a Two semester Post Graduate Diploma in Computer Applications course, Candidates successfully completing the course, will be awarded the Post Graduate Diploma by the LBS Center.

Objectives

The course aims to

- Give the students a sound background in Computer programming and computer software subjects.
- Train future industry professionals.

ELIGIBILITY FOR ADMISSION

Degree in any discipline from any one of the Universities in Kerala or recognized by any one of the Universities in Kerala. Suitable Weightage will be given for engineering/Post Graduate Degree and Experience in relevant fields. Weightage will be given as follows.

B.Tech or BE	-	20%
PG Degree	-	10%
Experience	-	2 marks per year (maximum of 10 marks)

DURATION OF THE COURSE

The duration of the course is 1 year comprising of 2 semesters. The classes will be held on 5 days per week with 3 Hrs/day.

MEDIUM OF INSTRUCTION:

The medium of Instruction will be English

EXAMINATION

There will be Examination at the end of each semester. The conduct of examination,

valuation, declaration of results, issue of certificates, mark lists etc, of this course are done by LBS Center., Govt. of Kerala.

COURSE FEE:

SLNO	SEMESTER	FEE PARTICULARS	Fee Amount(Rs.)
1	First Semester	Admission Fee	100.00
		Semester Fee	12500.00
2	Second Semester	Semester	12500.00
Total			26200.00

EXAMINATION FEE

SLNO	PARTICULARS	AMOUNT
1	For Regular examination	1000.00
2	For Supplementary examination	300.00 / paper
3	For cancellation of Examination	300.00

RE-ADMISSION RULES

Students who discontinue the course after the commencement of the classes and who are not eligible to appear for the examination for want of attendance will be re- admitted to the same semester on request as per the existing rules of LBS Centre such that the candidate shall study the course and write exam as per the scheme and syllabi of the PGDCA course to which he/she is readmitted.

RULES & REGULATIONS OF CONDUCT OF CLASS / EXAM OF THE PGDCA

1. Instructional duration in an academic year

- Each Semester consists of a minimum of 20 weeks of instruction, including intervening holidays, but excluding the period of examinations and study holidays.
- The course will follow Semester pattern, with an end semester examination, conducted by the LBS Center, Kerala State.
- Classes will be held on 5 days per week with 3 Hrs/day.

2. Minimum attendance required for obtaining eligibility to appear for the Examination

- Candidates must secure a minimum of 80% attendance in each Semester, in order to secure the eligibility to appear for each Semester Examination.
- In the case of those students with 65% or more attendance but could not attain 80% attendance due to Medical reasons, the Head of Institution, at his/her discretion, may grant the eligibility to appear for the examination, subject to the remittance of “Condonation Fee”, fixed by the LBS Center from time to time.
- Students who have secured less than 65% attendance are not eligible to apply for “Condonation”, and will not be allowed to appear for the examination under any circumstances.
- Students who have shortage of attendance, but not condoned, in any semester are not eligible to be promoted to the higher semesters. They may seek readmission in the same semester and repeat.

3. Scheme of Evaluation

- The scheme of evaluation shall consist of - (1) Internal assessment (Sessional) and (2) End Semester examinations in Theory and Practical Subjects. The marks for End Semester Examinations, and Internal Assessment, both for the Theory and practical papers will be 100 and 50 respectively.
- The Total marks (Internal and End Semester Examination) will be as follows.

Semester I – 1200 Marks

Semester II- 1050 Marks

4. Award of Internal Assessment Marks.

In respect of theory subjects the award of Sessional mark will be on a continuous Evaluation method, based on tests, assignments and attendance in the proportion of 40% for tests, 40% for test assignments and 20% for attendance. There will be a minimum of

two tests and Two Assignments, and all the 2 Test papers and 2 Assignments are taken in to account for the calculation of Final Internal Assessment Marks.

- **Split up of Internal Assessment Marks.**

A. Attendance

Sl.No	Percentage of Attendance	Marks to be awarded (Computed for 10 Marks)
1	Below 65	Zero
2	65 to 79	4
3	80 to 84	5
4	85 to 89	6
5	90 to 94	8
6	95 and above	10

B. Practical

Sl No	Criteria Component	Marks to be awarded
1	Observation/ Rough Record	20%
2	Fair Record (Timely Submission, Accuracy and Neatness)	20%
3	Lab Attendance	20%
4	Computer lab tests	40%

Percentage of Attendance for that particular subject only is counted here.

C. Seminar

Sl.No	Criteria Component	Marks to be awarded
1	Relevance of Topic	10%
2	Collection of materials	20%
3	Presentation (Presentation using Audio visual Projectors and Delivery)	40%

4	Question-Answer/ Discussion	20%
5	Seminar Report	10%

D. Project Work

Sl.No	Criteria Component	Marks to be Awarded
1	Relevance of Project Work & Selection of languages and programming tools	10%
2	Knowledge in the language and the project topic	10%
3	Preparation of SRS,UML Diagrams/ data flow diagrams etc	20%
4	Proficiency in Design, coding and testing the project work	30%
5	Role of the candidate in the project Team	20%
6	Project Report	10%

- The faculty concerned will maintain a record of all details regarding Attendance and Internal Assessment marks awarded in the prescribed log book. The students can represent their grievances, if any, in respect of marks awarded, to the concerned Head of institution for clarification.
- The students are required to keep a record of all their laboratory exercise performed by them in the form of a laboratory record. This record has to be authenticated by the teacher in charge of the laboratory before he is allowed to take the practical examinations. No students will be permitted to take any practical examinations without bona fide Record.

5. End Examination

In each theory subject, there will be an end examination in each Semester conducted by the LBS Center, Kerala State as per the pre-announced notification of examinations.

- The question paper for each Theory paper will consist of three parts.

Part A - for a maximum of 10 marks containing 10 very short answer types questions of 1 marks each (answer in one or two sentence) covering the whole subjects area. There will be no choice in part A.

Part B - for a maximum of 30 marks containing 10 short answer types questions of 3

marks each covering the whole subjects area. There will be 15 questions of this type and students need to write any 10 from above.

Part C - for a maximum of 60 marks containing 5 long answer types questions of 12 marks each covering the whole subjects area. There will be 10 questions of this type, two questions from each module and students need to answer one question from each module.

- The part A, Part B and Part C will be given together in one question paper.

For practical end examinations, the LBS Centre will appoint examiners who will set a question paper consisting of Practical exercises.

6. Minimum marks for a pass.

A candidate must secure a minimum of 40% marks in the End Semester examination in each Theory, practical and 40% for total (Internal + Theory/Practical) for a pass in each subject.

7. Rules for promotion to the Higher Semesters

Candidates shall be allowed to go to the next higher Semester, if he/she attended the previous Semester and has fulfilled the conditions of attendance required and registered for the concerned semester examination.

8. Classification of successful candidates

- Candidates shall be declared to have passed the PGDCA course only if he/she has secured a Pass in all the theory and practical subjects in all the Semester of study.
- There will be 3 classifications of passed candidates namely
 - ✓ First class with distinction
 - ✓ First class
 - ✓ Second class
- The total marks of all the Semesters shall be considered to classify the successful candidates. The marks obtained in all the semesters will be added and the percentage of marks is worked out.

FIRST CLASS WITH DISTINCTION: A candidate will be declared to have passed the PGDCA Course in First Class with Distinction, if he/she secures not less than 75% of the aggregate marks in all Semester put together and passes all the above semester in the first appearance itself, within the stipulated period of normal study, i.e., Two Consecutive Semesters, without any break.

FIRST CLASS: - A candidate will be declared to have passed the PGDCA Course in First Class if he/she secures not less than 60% of the aggregate marks in all Semesters put together and

passes all the above semesters, within two consecutive chances including his regular appearance offered by the Lbs Centre for Science and Technology.

SECOND CLASS: - All other successful candidates will be declared to have passed in the Second Class.

9. Maximum duration of the PGDCA Course

Normal duration of the course is 2 consecutive Semesters over a period of one year. However in the case of those who have not acquired PGDCA within the stipulated minimum duration of 2 Semesters, he/she can acquire the PG Diploma taking a maximum duration of another 3 years.

10. Cancellation of Candidature in the Examination.

If a candidate desire to cancel his candidature for end semester Examination she/he should forwards the duly filled in application form, recommended by the Head of Institution along with the required fee, so as to reach the office within 10 days after the completion of the last theory examination of that particular semester examination. For those who have applied for the examination and absent without cancelling their candidature, it will be treated as an attempt/chance. Cancellation of candidature in the PGDCA Examination is allowed only once for a particular Semester examination. Candidates reported for malpractice will not be eligible for cancellation of examination.

Syllabus

Semester 1

Code	Subject	Hours/Week		Internal Marks	End Exam		End Exam Total
		Theory	Practical		Theory	Practical	
L101	Information Technology - Paper 1 (Computer Architecture and Operating System)	2		50	100		150
L102	C++ Programming and Data Structures	2		50	100		150
L103	DBMS & Oracle	2		50	100		150
L104	Web Development Using PHP and MySQL	2		50	100		150
L105	C++ Programming Lab		2	50		100	150
L106	Oracle and PL/SQL Lab		2	50		100	150
L107	Web Development Using PHP Lab		2	50		100	150
L108	Office Automation Packages and Malayalam Computing Lab		1	50		100	150
Total		8	7	400	400	400	1200

Semester 2

Code	Subject	Hours/Week		Internal Marks	End Exam		End Exam Total
		Theory	Practical		Theory	Practical	
L201	Information Technology - Paper 2 (Software Engineering and Computer Networks)	2		50	100		150
L202	Python Programming and Data Science	2		50	100		150
L203	Elective 1 A. Cloud Computing B. Cyber Security C. Machine Learning D. Software Testing	2		50	100		150
L204	Elective 2 A. Java and Smart Device Application Using Android B. C# Programming and ASP.NET	2		50	100		150
L205	Python Programming Lab		2	50		100	150
L206	Elective 2 Lab		2	50		100	150
L207	Project and Seminar	1	2	50		100	150
Total		9	6	350	400	300	1050

First Semester

L101 Information Technology – Paper 1 (Computer Architecture and Operating System) (40 Hours)

Module 1: Computer Fundamentals and Number Systems (8 Hours)

Introduction to computers and their history, Computer hardware and software, Digital data representation and communication, Number systems (binary, decimal, hexadecimal), Logic gates and Boolean algebra

Module II: Input/Output and Memory (8 Hours)

Input devices - Keyboard, Mouse, Track ball, Joystick, Web Camera, Scanners, OMR, Barcode Reader, Light pen and Touch Screen,

Output devices - Computer Monitor – LCD, LED, TFT, Projector, Speaker, Printer – Inkjet and Laser Printers

Types of memory - Primary – Secondary - Cache, Memory hierarchy and organization

Primary Memory - Types of RAM and ROM,

Secondary storage devices – Hard Disk, Solid-state Drive, Flash Memory, Cache Memory – L1,L2,L3

Module III: Memory and Processor (8 Hours)

Microprocessor- Evolution, Basic Terms -Instruction Set,Bus,IPC, Bandwidth,Word Length,Word Length

Types of Microprocessors - (Vector Processor, Array Processor or SIMD Processor, Scaler Processor, RISC and CISC Processor, Digital Signal Processor, Symbolic Processor, Graphics Processor)

Processor architecture and organization

Instruction sets and addressing modes

Machine language and assembly language

Data transfer and communication between devices, Device drivers and interfaces.

Module IV: Operating System Fundamentals, Process Management and Memory Management (8 Hours)

Introduction to Operating Systems, Types of operating systems (e.g., batch, real-time, time-sharing), Process management and scheduling, Memory management and virtual memory, File systems and storage management

Module V: Operating System I/O Management and Security (8 Hours)

I/O management and device drivers, User and kernel modes, Shell and command-line interfaces, Graphical user interfaces, Protection and security

Books :

- Computer Fundamentals, by PritiSinha, Pradeep K., Sinha , BPB Publications
 - Digital Principles and Applications (SIE) | 8th Edition, Malvino, Leach, McGraw Hill
 - Microprocessors and Microcontrollers, 3ed , R S Kaler, Dreamtech Press
 - Operating System Concepts, Silberschatz, Galvin, Gagne, Wiley Publications
-

L102 C++ Programming and Data Structures (40 Hours)**Module I (8 Hrs)**

Steps in Problem Solving Using Computers – Algorithm & Flow Charts with Examples – Procedure Oriented Languages – Variables – Constants and Expressions – Data Types- Header Files – Operators- Type Cast Operators-Implicit Conversions - Operator Precedence - Managing Output with Manipulators – Branching & Looping – Procedure Oriented Programs based on above features.

Module II (8 Hrs)

Arrays – One Dimensional and Two Dimensional Arrays- Character, Numeric Arrays Programs for One and Two Dimensional Arrays – Pointers In C++ Functions In C++- Built In Functions – User Defined Functions- Call By Value And Call By Reference – Functions Overloading In C++ Inline Functions- Strings Functions – Programs based on above features.

Module III (10 Hrs)

OOPs Features – Structure of OOPs Programs Using C++ - Objects and Classes- Data Members- Member Functions – Access Specifiers- Public and Private– Memory Allocation for Objects – Arrays Of Objects – Objects As Function Arguments- Class Programs - Constructors And Destructors – Operator Overloading (Unary & Binary). Inheritance – Different Types with Diagram, Protected Visibility Mode .Programs Based on Above Features.

Module IV (6 Hrs)

Managing Console I/O Operators: Introduction- C++ Streams- C++ Stream Classes - Working With Files: Introduction- Classes For File Stream Operators-Opening And Closing A File- Detecting End-Of-File-More About Open (): File Modes-File Pointers And Their Manipulations- Sequential Input And Output Operators-Updating A File: Random Access-Error Handling During File Operations –Command- Line Arguments - Programs Based on Above Features.

Module V (8 Hrs)

Introduction and Definition of Data Structure, Classification of Data, Various types of Data Structure, Static and Dynamic Memory Allocation. Introduction to Stack, Definition, Stack Implementation, Operations of Stack. Introduction to Queue, Definition, Queue Implementation, Operations of Queue, Circular Queue. Introduction, Representation and Operations of Linked Lists, Singly Linked List, Doubly Linked List, Circular Linked List, And Circular Doubly Linked List. Introduction to Tree, Binary Tree, Binary Search Tree, Tree Traversal.

References:

Text Books: E. Balaguruswamy

Bjarne Stroustrup

Web Site : <https://www.w3schools.com>

L103 DBMS & Oracle (40 Hours)

Module I (8 Hours)

Database Systems– Data – Information - Field - Record – Table – Database - Physical record – Logical Record –Attribute – Entity.-DBMS – Advantages and Disadvantages –application Areas – database Users. Architecture – Schema - subschema, Data independence – Physical and logical data independence. DBMS Components – Data Dictionary, DDL, DML. Data models – Hierarchical, Network and Relational, DBMS Architecture - Database Languages – Classification. Tuple, Cardinality. Data mining & Data warehousing concepts.

Module II (8 hours)

ER model – Entity – Attribute – Keys – Relationship types – Sets – Keys- ER diagram – Weak entity set – strong entity — Relationship types - sets - Enhanced ER – sub class – super class – inheritance – UML – features- views- diagrams- model elements (A brief description only)..- Relational model – Concepts – Keys -- Relational algebra operations –Unary & Binary relational operations. Aggregation, Generalization.

Module III(8 hours)

Relational Database Design – Mapping E-R Model to Relational Model – Constraints – Domain Constraints -Key constraints – Referential integrity – Foreign keys - Functional dependency – Normalization – 1NF – 2NF – 3NF– Boyce Codd Normal Form – Decomposition – Dependency preservation – Multi valued dependencies – 4NF – Join dependencies – 5NF. Transaction concepts, ACID properties. Concurrency control, Lock based protocols- Time stamp based and two phase locking. Deadlocks – Conditions leading to dead lock, Deadlock recovery – Rollback, Log based recovery.

Module IV(10 hours)

SQL – Features of SQL – Data types in SQL, CREATE TABLE command,-Constraints – NULL, DEFAULT, CHECK, PRIMARY KEY, UNIQUE, referential Integrity –DROP TABLE Command, ALTER TABLE, CREATE INDEX, CREATE UNIQUE INDEX, DROP INDEX-SELECT statements with WHERE, ORDER BY, UPDATE Statement, INSERT, DELETE, Simple and nested Queries. Functions in SQL – String & Aggregate functions. Joining tables, Grouping - GROUP BY, HAVING clauses. Join, Union, Intersection, Minus. Views.

Module V(6 hours)

SQL plus, introduction to PL/SQL, Control structures. Use of Triggers, and cursors – stored procedures and functions, embedded SQL,

Text Books:

- Introduction to Database Systems, CJ Date, Pearson
- The Database Systems – The Complete Book, HG Molina, J D Ullman, J Widom Pearson
- Database Management Systems, Raghuram Krishnan, Johannes Gehrke, TATA McGraw Hill 3rd Edition
- Oracle PL/SQL Programming 6th Edition, Steven Feuerstein

L104 Web Development Using PHP and MySQL (40 Hours)

Module I: Web Technologies and Web Design Basics (8 Hours)

Overview of different web technologies, Introduction to the World Wide Web and the Internet, Understanding the client-server architecture, Understanding the basics of HTTP and HTTPS protocols, Introduction to HTML (Hypertext Markup Language), Understanding the structure and syntax of HTML, HTML tags, attributes, and elements, Creating simple HTML documents with basic tags, Understanding the role of CSS (Cascading Style Sheets) in web development, Understanding the basics of CSS, Using CSS to style a webpage.

Module II: Web Design principles and Introduction to Java script (8 Hours)

Understanding the design principles, Importance of user experience design, Designing layouts, color schemes, and typography, Creating wireframes and prototypes, Mobile web and responsive design, Introduction to Bootstrap framework and its usage in web development, Creating responsive websites using Bootstrap, Introduction to JavaScript, Understanding the syntax and structure of JavaScript, Basic programming constructs of JavaScript like variables, loops, and functions, Event-driven programming with JavaScript.

Module III: PHP Programming (8 Hours)

Installing a local web server (e.g., XAMPP, LAMP) and configuring it to work with PHP and MySQL, Setting up a development environment, Introduction to PHP scripting language and its features, Understanding PHP syntax and data types, Variables and operators in PHP, Conditional statements and loops in PHP, Functions and arrays in PHP.

Module IV: OOP in PHP and MySQL Integration (8 Hours)

OOP - Classes and Objects, Define a Class, Objects, Constructor, Destructor, Access Modifiers, Inheritance, Abstract Classes, Interfaces, About MySQL, Creating MySQL databases and tables SQL in MySQL, Understanding the role of PHP and MySQL in web development, Connecting to MySQL database using PHP, Querying and updating MySQL database using PHP.

Module V: Advanced PHP and MySQL Concepts (8 Hours)

Performing CRUD (Create, Read, Update, Delete) operations in MySQL, Understanding PHP sessions and cookies, Validating user input using PHP and JavaScript, Creating dynamic web pages using PHP and MySQL, Implementing authentication and authorization in web applications, Understanding web security and preventing SQL injection attacks.

Text Books:

- PHP and MySQL Web Development Luke Welling 5th edition, Addison-Wesley
- Learning PHP, MySQL & JavaScript Robin Nixon 5th edition O'Reilly

L105 C++ Programming Lab (40 Hours)

Model Questions for Lab Practical Session

1. Program to convert from degree centigrade to degree Fahrenheit
2. Program to print roots of a Quadratic Equation
3. Program to print largest of 3 numbers
4. Program to print Prime, Perfect Numbers, Perfect Squares etc between 2 limits
5. Program to print sum of digits, reversing number, palindrome checking etc
6. Program to input a date and print next day's date
7. Program to print an array in reverse order
8. Program to print largest and smallest element in a One & Two Dimensional Array
9. Program to sort an Array
10. Write a C++ program that uses functions a) To swap two integers b) To swap two characters c) To swap two real numbers.
Note: Use overloaded functions.
11. Program to find $nC_r = n! / r! (n - r)!$ using function
12. Program to add 2 matrices
13. Program to check whether a String is Palindrome or not
14. Program to merge two integer arrays
15. Program to illustrate the use of class, object, member functions, constructors and destructors.
16. Program to add 2 distance Objects – using Member functions having arguments and Member functions returning Objects
17. Program to add 2 Weight Objects – using Friend Functions
18. Program to concatenate 2 strings using Operator Overloading
19. Program to illustrate use of overloading any unary operator
20. Program to overload + operator to add two points
21. Program to prepare a Salary Report employing using Inheritance
22. Program to illustrate the use of hybrid inheritance
23. Program to find sum of n numbers using Command Line Argument
24. Program to write no, name, marks of students in a class and print rank list
25. Write a C++ program to a) write an object to a file. b) To read an object from the file.

L106 Oracle and PL/SQL Lab (40 Hours)

Create the following tables.

1. Admission – details of students studying in different centres of LBS.
2. Centre – Details of the different centres in which the students are studying.
3. Student – Details of students.
4. Student Worker – Students who are also doing part time work.

ADMISSION

sl. no.	field name	type	width	remark
1.	studno	vvarchar2	5	unique id of student
2.	studname	vvarchar2	25	name of student
3.	centrecode	vvarchar2	3	unique id of centre
4.	familyincome	number	8,2	familyincome of student
5.	employee	boolean		true if the student is a part time employee
6.	centrecode	vvarchar2	3	unique id of centre in which the student is studying
7.	fees	number	8,2	fees paid by student

CENTRE

sl. no.	field name	type	width	remark
1.	centrecode	vvarchar2	3	unique id of centre
2.	city	vvarchar2	20	city in which centre is located

STUDENT

sl. no.	field name	type	width	remark
1.	studcode	vvarchar2	5	unique id of student (same as that of admission table)
2.	city	vvarchar2	20	city in which student is living
3.	house	vvarchar2	20	house name
4.	post	vvarchar2	20	post office
5.	phone	vvarchar2	15	phone number

STUDENTWORKER

sl. no.	field name	type	width	remark
1.	empno	varchar2	5	unique id of student employee
2.	studcode	varchar2	5	unique id of student (same as that of admission table)
3.	centrecode	varchar2	3	unique id of centre (same as that of centre table)
4.	salary	number	8,2	salary of student employee

1. Describe the tables which are already created.
2. Insert data into the tables.
3. List data from the tables.
4. Update tables
5. Join and Cartesian product.
 - a. Show the name of students whose city of residence is Trivandrum and city of study Centre is Kollam.
 - b. Show the name of students who are students as well as part time workers.
 - c. Show the name of students who are part time workers and city of residence is where student with code 11111 is living.
6. Set Operations.
7. Show the name of students whose family income >100000 and not part time workers.
8. Aggregate functions.
9. Group by and Having.
10. Update statement.
11. Delete statement.
12. Advanced queries.- nested queries
13. Create a PL/SQL program using cursors to display the contents of the file ADMISSION.
14. Create a PL/SQL program using cursors to display the details of students who are also part time employees.
15. Create a PL/SQL program to display the details of students including salary who are part time employees.
16. Create PL/SQL program which handles different types of exceptions.
17. Create PL/SQL program to display the details of a student on giving the STUDNO. (Use Procedure).
18. Create PL/SQL program to display the details of fee collected at each centre. (Use function procedure).
19. Create PL/SQL program to add new students to the table ADMISSION. Use triggers to check whether the centre code typed is a valid one.
20. Create PL/SQL program to Modify Question 19. to include the necessary updates in the tables CENTRE, STUDENT and STUDENTWORKER.

L107 Web Development using PHP Lab (40 Hours)

Module I Lab Exercises:

- Create a simple HTML document with basic tags and add some text and images to it.
- Create a hyperlink to an external website and make it open in a new tab.
- Insert an image in your web page and resize it using HTML.
- Use the "ul" tag to create an unordered list of items.
- Html tables
- Use CSS to style the HTML document created in the first exercise, changing its background color, font size, and adding a border.
- Create a basic webpage using Bootstrap, incorporating different Bootstrap components.

Module II Lab Exercises:

- Create a simple web page using JavaScript, with a button that changes the color of a background.
- Create a wireframe and prototype for a website design, incorporating design principles such as color schemes and typography.
- Create a responsive webpage using Bootstrap, with elements that adjust to different screen sizes.
- Add event listeners to a webpage created in the previous exercise, changing the color or text when clicked.
- Use JavaScript to create a pop-up alert box when a user submits a form.

Module III Lab Exercises:

- Create programs using class to perform basic concepts of OOP.
- Program to implement concepts in inheritance
- Create program which show the concepts in abstract class and interfaces
- Introduction to web development environments (e.g., local vs. remote development, IDEs, text editors, etc.)
- Installing a local web server (e.g., XAMPP, WAMP, MAMP, LAMP) and configuring it to work with PHP and MySQL
- Creating a new project directory and setting up a basic file structure (e.g., index.php, style.css, script.js)
- Testing the web server and verifying that PHP and MySQL are properly configured
- Testing the web server and verifying that PHP and MySQL are properly configured
- Creating a MySQL database and user account

- Installing and using a web-based database management tool (e.g., phpMyAdmin) to interact with the database
- Write a PHP script to display information about a user's browser, operating system, and IP address.
- Create a PHP script that checks if a user is over 18 years old and displays a message accordingly.
- Use PHP to create a simple calculator, taking user input and performing basic operations.

Module IV Lab Exercises:

- Create a MySQL database and table, and use PHP to insert data into the table.
- Create a PHP script that displays data from a MySQL database on a webpage.
- Use PHP to update and delete data from a MySQL database, based on user input.

Module V Lab Exercises:

- Performing CRUD (Create, Read, Update, Delete) operations in MySQL
 - Use JavaScript to validate user input on a form before submitting it to a PHP script.
 - Implement PHP sessions and cookies to keep track of user data across multiple pages.
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L108 Office Automation Packages and Malayalam Computing Lab (20 Hours)

Module I: Windows and Linux (3 Hours)

Introduction to Windows Operating System, Desktop, Taskbar, Start Menu, My Computer, Windows Explorer, Recycle Bin, Accessories – Calculator, Notepad, Paint, WordPad, Entertainment & System Tools, Introduction to Linux Operating System - Linux Structure, Hardware requirements of Linux, Login & Logout from Linux System, Linux basic commands

Module II Word Processing Packages – MS Word and OpenOffice.Org Writer (6 Hours)

Introduction Microsoft Word - Office Button - Basic Editing & Formatting-, Columns, Tabs, - Tables –Page Formatting -inserting Graphics, Pictures, Field, Hyperlinks, Table of Contents-Advanced Tools - Spelling & grammar, Thesaurus, Auto Correct, Word Count, Mail Merge, Document Protection, Printing document

Practice the same with OpenOffice.Org Writer

Module III Spreadsheet Packages – MS Excel and OpenOffice.Org Calc (4 Hours)

Worksheets, Cell, Cell Range Operations, Fill Series, Protecting Worksheets- Functions - sum, average, if, Financial and Statistical functions, Mathematical functions.- Database Operations – Sort, Filter (Auto Filter and Advanced filter, Subtotals, Table, Validation)- Charts – Standard and Custom type-Printing Worksheet

Practice the same with OpenOffice.Org Calc.

Module IV Presentation Packages -MS PowerPoint and OpenOffice.Org Impress (3 Hours)

Creating basic presentation – Creating new Presentation, Opening, Closing, and Saving Presentation. – Inserting New slides, applying Layouts and Backgrounds.- Understanding Presentation Views -Using Text - Inserting and Editing & Formatting Text, Paragraph formatting-.Slide Masters &, Slide Transition, Custom Animation setting up – (slide show, rehearsing timing, and recording narration) a presentation.-Working with Objects, Tables and Charts .

Practice the same with OpenOffice.Org Impress

Module V Malayalam Computing (4 Hours)

Introduction to Malayalam computing.-Understanding Malayalam scripts.- Typing practice using ISM - Enabling Unicode Malayalam in Windows and Linux, Malayalam typing Practice.

Practice the same with OpenOffice.org

Introduction to Internet – Applications - Browsers – Email - Search Engines.

Second Semester

L201 Information Technology - Paper 2 (Software Engineering and Computer Networks) (40 Hours)

Module I: Introduction to Software Engineering (10 Hours)

Overview of software engineering, Software development life cycle (SDLC), Requirements engineering, Software design and modeling, Agile Model, Software testing – White box, Black box, New trends in Software Testing - AI and Machine Learning, Software Quality Assurance

Module II: Software Project Management and Maintenance (8 Hours)

Software project management, Software metrics and estimation, Software maintenance and evolution, Software configuration management, Software engineering ethics and professionalism

Module III: Introduction to Computer Networks (6 Hours)

Overview of computer networks, LAN, MAN, WAN, Network topologies – Star, Ring, Bus, Mesh, Tree, Hybrid, Network Models– OSI Model, TCP/IP Model, Layers of TCP/IP Model

Module IV: Network Communication and Internet Protocols (8 Hours)

Network communication concepts, Communication media – Coaxial cable, Fiber Optic, Satellite, Microwave, Protocols, Internet protocols (TCP/IP), Application layer protocols (HTTP, FTP, DNS), Transport layer protocols (TCP, UDP), IP Address – classes of IP Address, IP V6, Network addressing and routing

Module V: Network Security and Wireless Networks (8 Hours)

Network security threats and vulnerabilities, Security mechanisms and protocols (firewalls, VPN, SSL/TLS), Wireless networks (Wi-Fi, Bluetooth, Cellular networks), Mobile and wireless security, Brief introduction of 3G,4G and 5G networks

Books :

- Software Engineering, Ian Sommerville, McGraw Hill
- Software Engineering – A practitioner's Approach, Stephen Pressman, , McGraw Hill
- Computer Networks, Tanbaum, Pearson Education Publications
- Computer Networks, Forouzon, McGraw Hill
- Computer Networks, Kurose, Pearson Education Publications

L202 Python Programming and Data Science (40 Hours)

Module I (6 Hrs)

Introduction of Python, Features of Python, Install Python and Environment Setup, Variable, Data types, casting, Basic input output operations-input() and print(), General Structure of Python program, different operators, control statements, string operations , Lists, Tuple, Dictionary, sets

Module II (6 Hrs)

Arrays, User defined functions, Python modules and packages(pre defined package, user defined package), Lambda functions and map, Exception handling in Python using Raise, Try, Except and Finally, Basic operations of Files –Open, Close, Read, Write, Working with real files.

Module III (8 Hrs)

Writing GUI in Python(Tkinter Programming) –introduction, components and events, An example GUI, the root component, adding a Button, Entry Widgets, Text Widgets, Check buttons, Object oriented programming in Python, Creating Class and Object, Constructors in Python – Parameterized and Non-parameterized, Inheritance in Python, different types of inheritance, In built class methods and attributes..

Module IV (10 Hrs)

Using Databases in Python- Python MySQL Database Access, Install the MySQLdb and other Packages Create Database Connection CREATE, INSERT, READ, UPDATE and DELETE Operation , DML and DDL Operation with Databases , Introduction of frame work, features of frame work, The MVC Design Pattern, DJANGO overview, Django installation, creating a project, creating an application, understanding folder structure, Database and views, static files and forms, Database connections, Django admin, Models in Django. Forms in Django. Views in Django, template in Django.

Module V (10 Hrs)

Data Science introduction, need for Data Science, Application of Data Science, Data Science components, Python libraries used for Data Science- Numpy, pandas, Matplotlib, Numpy-Introduction to numpy, Various application of numpy in Data Science, Creating Arrays, Indexing Arrays, Array Transposition, Universal Array Function, Array Processing, Array Input and Output, **Pandas**- Introduction, different applications of pandas, Series, DataFrames, Index Objects, Reindexing, Drop Entry, Selecting Entries, Data Alignment, Rank and Sort, Data

visualization with Python –introduction of Matplotlib, installation of Matplotlib, Pyplot, plotting, Markers, line, labels, Grid, subplot, scatter, Bars, Histograms, pie charts.

Text Books:

- The complete reference PYTHON by Martin C. Brown
- Python: A Guide for Data Scientists by Andreas C. Müller, Sarah Guido
- Python Data Science Handbook: Tools and Techniques for Developers

Internet resources:

- <https://www.w3schools.com/python/>
 - <https://www.javatpoint.com/python-tutorial>
 - <https://www.tutorialspoint.com/python/index.htm>
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L203 Elective 1 (40 Hours)

L203 - A. Cloud Computing (40 Hours)

Module I Introduction to Cloud computing (8 Hours)

Definition of a Cloud Computing, Characteristics of Cloud Computing, Advantages and Disadvantages, Types of Cloud : Public – Private – Hybrid – Community , Cloud Computing Architecture, Cloud Computing Vs Grid Computing, Cloud Computing Applications

Module II Cloud Computing Architecture (8 Hours)

Cloud Computing Architecture: Front end, Back End, Benefits of Cloud Computing Architecture
Multicore Architecture
Multicores in Cloud Computing – Parallel Hardware, Parallel Software, Classes of Parallelism, Limitations of Muticore Architecture

Module III Cloud Service Models (8 Hours)

Layers in cloud architecture, Software as a Service (SaaS), features of SaaS and benefits, Platform as a Service (PaaS), features of PaaS and benefits, Infrastructure as a Service (IaaS), features of IaaS and benefits, Service providers, challenges and risks in cloud adoption.
Virtualization in Cloud Computing

Concept behind Virtualization, Types of Virtualization: Data - Hardware – Software- Server – Storage

Module IV Cloud Security (8 Hours)

Cloud Security Fundamentals – Cloud Security Services, Type of Auditors, Infrastructure Security: Network level security - Host level Security – Application level Security. Data privacy and security issues, Access control and Authentication in Cloud Computing.

Module V Migrating into a Cloud (8 Hours)

Introduction, Challenges while migrating to Cloud, Broad approaches to migrating into the cloud, why migrate -deciding on cloud migration, the Seven-step model of migration into a cloud, Migration Risks and Mitigation.

Cloud Case Study

- Amazon Web Service (AWS)
- Google Cloud Platform (GCP)

Books :

- Cloud Computing – Concepts, Technology and Architecture, Eri, Pearson Education Publications
- Cloud Computing – A practical Approach for learning and Implementation, Srinivasan, Pearson Education
- Cloud Computing, Nithin N. Sakhare, Nirali Prakasan Publications

L203 - B. Cyber Security (40 Hours)

Module I (10 Hrs)

Introduction to Cyber Security - Basic Cyber Security Concepts, layers of security Computer Security, Threats, Harmful act, Vulnerabilities, Controls, Authentication, Access Control and Cryptography. Cyber Threats-Cyber Warfare, Cyber Crime, Cyber terrorism, Cyber Espionage, etc., Comprehensive Cyber Security Policy. **Web attack:** Browser Attacks, Web Attacks Targeting Users, Obtaining User or Website Data, Email Attacks. **Network Vulnerabilities:** Overview of vulnerability scanning, Open Port / Service Identification, Banner /Version Check, Traffic Probe, Vulnerability Probe, Vulnerability Examples, OpenVAS, Metasploit. **Networks Vulnerability Scanning** (Ncat, Socat), Network Sniffers and Injection tools.

Module II (8 Hrs)

Network Defense tools - Firewalls and Packet Filters: Firewall Basics, Packet Filter Vs How a Firewall Protects a Network, Packet Characteristic to Filter, Stateless Vs Stateful Firewalls, Network Address Translation (NAT) and Port Forwarding. **VPN**: the basic of Virtual Private Networks. **Firewall**: Introduction, Linux Firewall, Windows Firewall. **Snort**: Introduction Detection System.

Module III (8 Hrs)

Web Application Tools - Scanning for web vulnerabilities tools: Nikto, W3af, HTTP utilities - Curl, OpenSSL and Stunnel. Application Inspection tools – Zed Attack Proxy, Sqlmap, DVWA, Webgoat. Password Cracking and Brute-Force Tools: John the Ripper, L0htcrack, Pwdump, HTC-Hydra.

Module IV (8 Hrs)

Introduction to Cyber Crime, law and Investigation : Cyber Crimes, Types of Cybercrime, Hacking, Attack vectors, Cyberspace and Criminal Behavior, Clarification of Terms, Traditional Problems Associated with Computer Crime, Introduction to Incident Response, Digital Forensics, Computer Language, Network Language, Realms of the Cyber world.

Module V (6 Hrs)

Internet crime and Act: A Brief History of the Internet, Recognizing and Defining Computer Crime, Contemporary Crimes, Computers as Targets, Contaminants and Destruction of Data, Indian IT ACT2000. Firewalls and Packet Filters, password Cracking, Key loggers and Spyware, Virus and Worms, Trojan and backdoors, Steganography, DOS and DDOS attack, SQL injection, Buffer Overflow, Attack on wireless Networks.

Text Books :

1. Nina Godbole and Sunit Belpure, Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Wiley
2. B.B.Gupta, D.P.Agrawal, Haoxiang Wang, Computer and Cyber Security: Principles, Algorithm, Applications, and Perspectives, CRC Press, ISBN 9780815371335, 2018.

<https://www.javatpoint.com/cyber-security-technology>

[https://www.studocu.com/in/document/gujarat-technological-](https://www.studocu.com/in/document/gujarat-technological-university/cybersecurity/network-defense-tools-firewalls-and-packet-filters/47149772)

[university/cybersecurity/network-defense-tools-firewalls-and-packet-filters/47149772](https://www.studocu.com/in/document/gujarat-technological-university/cybersecurity/network-defense-tools-firewalls-and-packet-filters/47149772)

L203 - C. Machine Learning (40 Hours)

Module I: Introduction to Artificial Intelligence (8 Hrs)

Definition of Artificial intelligence (AI), Why is it important?, Real-world applications of AI: Examples of AI in everyday life, The impact of AI on society, Ethical considerations in AI development and deployment, The future of AI and its potential impact on society, Basic concepts: algorithms, data, training, testing.

Module II: Machine Learning (ML) (8 Hrs)

Definition of machine learning, Advantages and disadvantages, Applications, Basic types of machine learning: supervised, unsupervised, and reinforcement learning, Overview of Python programming language and libraries.

Module III: Data Preparation and Preprocessing (8 Hrs)

Data cleaning and handling missing data, Feature selection and feature engineering, Data scaling and normalization, Data visualization, correlation analysis.

Module V: Supervised Learning Algorithms (8 Hrs)

Regression - univariate, multivariate analysis, Regression algorithms: Linear Regression, Logistic Regression, Classification algorithms: K-Nearest Neighbors, Decision Trees, Naive Bayes.

Module V: Unsupervised Learning Algorithms (8 Hrs)

Clustering algorithms: K-Means, Hierarchical Clustering, Dimensionality reduction algorithms: Principal Component Analysis.

Text Books:

- Machine Learning For Absolute Beginners by Oliver Theobald
- The Hundred-Page Machine Learning Book by Andriy Burkov

L203 - D. Software Testing (40 Hours)

Module I (6 Hrs)

Software testing, Testing Principles, Various Task Involved In Testing, □Difference between Verification & Validation, Manual Testing, Introduction of Software Process, Phases in SDLC, Waterfall Model , Spiral Model , Prototype Model

Module II (8 Hrs)

Types & Levels of testing-Types of testing - manual and automation , Introduction to testing methods - white-box, black-box , Introduction to functional testing , Introduction to non-functional testing , Introduction to levels of testing - Unit Testing, Integration Testing, System Testing, User Acceptance Testing , Introduction to types of testing - Regression Testing, Smoke Testing, Database Testing, Usability Testing, Performance Testing, Security Testing

Module III (8 Hrs)

Test Planning , Test Strategy , Overview on Budgeting , Scheduling , Configuration Management, Test Design - Test Scenarios ,Test Cases , Test Data , Test Coverage - Traceability Matrix , Test Reporting ,Defect Management , Defect Severity and Priority , Defect Life Cycle Assignment , Create a test plan for a sample project , Create test case document , Create a sample traceability matrix

Module IV (8 Hrs)

Introduction to automation system- what is automation testing, advantages of automation testing, fundamentals of test automation, ROI in test automation, automation frame work, Introduction to Selenium-what is Selenium, Why Selenium, Features of selenium, Selenium IDE -Selenium IDE Introduction, Downloading and Installing Selenium IDE, Recording and Running a Sample Test, Selenium IDE–Features, Selenium Test, Runner ,Creating Selenium Test Suites.

Module V (10 Hrs)

How to download and install Selenium Webdriver, browser drivers for Chrome, IE, Edge, Firefox, Sample webdriver script using java, Element identification using locators, Xpath, Element identification-Textbox, Button, Dropdown, Radiobutton, Checkbox, Calendar, Label, click(),sendkeys(), Synchronization-Static and dynamic waits, Mouse click and Keyboard events, Validation in Selenium.

Text book:

- Software Testing: A Craftsman's Approach by Paul C. Jorgensen

- The Art of Software Testing by Glenford J. Myers
- The Just Enough Software Test Automation by The authors Dan Mosley and Bruce Posey

Reference:

- <https://www.geeksforgeeks.org/software-testing-basics/>
 - <https://www.javatpoint.com/software-testing-tutorial>
 - <https://www.guru99.com/software-testing.html>
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L204 Elective 2

L204 - A. Java and Smart Device Application Using Android (40 Hours)

Module I (8 Hrs)

History of Java, Features of Java, Java versions, Basic Object Oriented concepts, java vs C++, Java programming Environment and Runtime Environment, Development Platforms -Standard, Enterprise. Difference between - JDK, JRE, and JVM. Java compiler, Byte code. Data types, variables, Type Conversion and Casting, Operators - Arithmetic Operators, Bitwise Operators, Relational Operators, Boolean Logical Operators, Assignment Operator, increment and decrement operator, Conditional (Ternary) Operator, and Operator Precedence. Mathematical Functions. Understand the Input / Output operations in Java-Reading data from console, writing data to console. Control Statements – decision making and branching statements (simple if, if..else, if..else if ladder, Nested if statements, switch), Iterative Statements (for, while, do while). Java break and continue statements. The ?: operator. Exception handling in java – Types of errors, Exceptions in java, exception handling code (try..catch block) , multiple catch statements, finally statement, Throwing user defined exceptions.

Module II (8 Hrs)

Understand the concept of classes, objects and methods-Creation and implementation of classes, objects in Java, Constructors, Method Overloading, and static members. Inheritance - types of inheritance, Base class and derived class, super keyword, Final Variables and methods. Final

classes, finalizer methods. Visibility control – public, private, protected. Method Overriding, Abstract methods and classes. Arrays – one and two dimensional arrays, for..each statement for arrays, string arrays, string methods. Wrapper classes, Vectors. Static and this keywords. Concept of Interfaces – definition, extending, and implementing interfaces.

Module III (10 Hrs)

Packages -API and system packages, package naming conventions – creating, Accessing, and using packages. Multi threaded programming – creating threads, extending the thread class, life cycle of Thread class, Thread priority and synchronization. Applet Programming – Applets vs Applications, applet life cycle, building an executable applet , applet tag, adding applet to HTML file, running applet. Graphics – The Graphic class-java awt, lines, rectangle, circles, ellipses, arcs, polygons. Files in java – concepts of streams – stream classes – Byte Stream and Character Stream classes, I/O classes, File class, reading and writing characters and byte files. Random access files.

Module V (8 Hrs)

Android-OverView - What is Android, Features Android, Android Applications. Android versions. Android-Environment Setup – Create Android Virtual Device, **Android- Architecture** – Linux kernel, Libraries,Android Runtime, Application Framework, Applications. **Emulator-Android Virtual Device** - Launching emulator, Editing emulator settings, Emulator shortcuts, Logcat usage, Introduction to DDMS. **Android-Applications Component** – Activities, Services, Broadcast Receivers, Content Providers, and Additional Components. **Application Structure** (in detail with simple example) – Anatomy of Android Application, Main Activity File, Manifest File, String File, The R file, Layout File – Running Application. Android – **Organizing & Accessing the resources** – Organize Resources, Accessing Resources – in Code and in XML. **Android – Activities** with life cycle, Content Providers, Fragments with life cycle, Intent & filters. **Android-UI layouts** – Layout types, layout attributes [dip, dp, sip, sp] versus px., and view identification. **Android UI controls** - Form widgets, different Views (Button, Text/Lables, Edit Text, Toggle Button etc) and layouts [dip, dp, sip, sp] versus px. **Android-Event Handling** – Event Listeners & Event Handlers, Event Listeners Registration with an example - Event driven programming in Android (using Edit Text, Button, Text/Labels).

Module V (6 Hrs)

Menu - Option menu, Context menu, Sub menu, menu from xml, menu via code. **Intents** (in detail) Explicit Intents, Implicit intents. **UI design** – using - Time and Date, Images and media, AlertDialogs & Toast. **Styles & Themes** - styles.xml, drawable resources for shapes, gradients, style attribute in layout file, Applying themes via code and manifest file. **Adapters and**

Widgtes - Adapters:- ArrayAdapter, BaseAdapters, ListView and ListActivity, Custom listview, GridView using adapters. **Notifications** - Broadcast Receivers, Services and notifications, Toast. **Content Providers** - SQLite Programming, SQLiteOpenHelper, SQLiteDatabase, Cursor, Reading and updating Contacts .

Books:

Herbert Schildt, “Java the complete reference”, McGraw Hill, Osborne, 7th Edition, 2011

P.Radha Krishna , “Object Oriented programming through Java”, CRC Press, 1 st Edition, 2007

Internet resources:

<http://www.oracle.com/technetwork/java/javase/overview/index.html> 5

<http://docs.oracle.com/javase/tutorial/>

<https://www.javatpoint.com/>

Reto Meier – Professional Android Application Development.

<https://developer.android.com/>

L204 - B. C# Programming and ASP.NET (40 Hours)

Module I (8 Hours)

Microsoft Visual Studio.Net- Introduction, NET Framework- CLR, CTS, CLS, MSIL, JIT, Net Languages, Class Libraries, Assemblies, namespaces, Execution of an application in net frame work (Block Diagram),

Introduction to Visual C#.Net- Features, Type of applications, Console Application- Application Structure, Variables- Static variables, Instance Variables, Constants, Data types- Number, Character, String , Boolean. Operators- Arithmetic Operators, Relational Operators, Logical Operators. I/O statements- Console. Read Line, Console.WriteLine, Control Structures - if, switch, while, for, for each, Arrays-Types of Arrays - Array Elements, Single Dimensional Arrays, Multi-dimensional Arrays, Jagged Arrays- Array Initialization, Accessing of Array Elements, Sorting , Introduction to Data types Structure, Enum, and Delegate etc. , Functions and Procedures- Parameters, Parameter Passing- Value Parameter, Reference Parameter

Module II (8 Hours)

Object Oriented Programming- Class, structure of the class, Object, Constructor, destructor , class members- field, Method, Properties, Access modifiers- Public, Private, Protected.. OOP concepts- Polymorphism, Encapsulation, Data Abstraction, Inheritance, Operator Overloading, Function Overloading, static class, Interface , LINQ (Language Integrated Queries)- Class wizard-Creation of class- access modifiers, Fields, Method, and Property- Set/Get- File Handling- File Streams, Stream Reader, Stream Writer, File- Creation, Open, Opening Modes- Methods and Properties.

Module III (10 Hours)

Windows Application- Introduction, IDE, Components of IDE- Menu Bar, Tool Bar, Tool Box, Property Window, Solution Explorer, Form Designer Window, Code Editor Window. Application Interfaces- Form

Common Controls/ Objects- Button, Text Box, Label, Group Box , Tool Tip, List Box, Combo Box, Check Box, Radio Button, Picture Box, Scroll Bars, Timer, Numeric Up Down, Menu Strip, Date Time Picker, Month Calendar and introduce all objects with Properties, Methods, Events.

Dialog Boxes- Message Box, Common Dialogs- Open, Save, Font, Color. Database Programming - ADO.Net, Components of ADO.Net- Data Adapter, Data set, Controls used to manage Database (Insert, Retrieve, Delete and Update Records) , Report Viewer.

Module IV (6 Hours)

Introduction to ASP.Net, Net Framework SDK- Creation of web forms- Adding controls(Text Box, Label, Button etc.), Handling Events and Web Page Processing. State management in web Forms (View state, Session etc) ASP.Net Validation Controls.- Simple Web Site Project.

Module V (8 Hours)

Server Controls (Grid View, Dropdown List), Master Pages and Themes, Handling User Input(Query String, Form Data, Cookies), Handling File Uploads(File Upload Control), Working with Data Sources(SQL Data Source, Object Data Source),Disconnected Architecture, Data Binding and Data Display(Grid View, Repeater, etc..), Connecting to Data Base (SqlConnection, SqlCommand), Executing Queries and Stored Procedures(ExecuteNonQuery, ExecuteScalar, ExecuteReader)

L205 Python Programming Lab (40 Hours)

1. Develop basic programs of Python
2. Programs to implement control statements
3. Program to create a user defined package
4. Program to store and read the file
5. Program to create a user defined function
6. Reverse a list in Python
7. Reverse the Tuple
8. Swap two Tuples in python
9. Merge two Python dictionaries in to one
10. Add a list of element in to a Set
11. Program to write and read the data from a file
12. Develop 1 to 5 programs using GUI(Tkinter)
13. Program to implement class
14. Program to implement constructor
15. Program for different types of inheritance
16. Write a program to input the details of the train such as trainnumber, trainname, source, and destination. Then store all the information on a MYSQL database
17. Write a program to input the trainnumber and check whether the train is available on a database. If available, print the details of the train.
18. Write a program to input the trainnumber and display the details from the database file. Then update the details.
19. Write a program to input the trainnumber and check whether the train is available or not. If available ,delete the information from the database file.
20. Create a Django App in a project to print “welcome to Web Programming”
21. Create a login system in python using Django
22. Create a registration form in python using Django
23. How to search the maximum and minimum element in the given array using NumPy?
24. How to sort the elements in the given array using Numpy?
25. How to reverse a NumPy array?

26. How to multiply two matrices in a single line using NumPy?
 27. Date Series Generation USING pandas
 28. Dictionary-to-Dataframe Conversion using pandas
 29. Conditional Selection of Rows in a DataFrame
 30. Joining 2 DataFrames by a Common Column (key)
 31. Visualization programs using Matplotlib
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L206 Elective 2 Lab

L206 A. Java and Smart Device Application Using Android Lab (40 Hours)

Module I

1. Simple Example program to show implementation of Arithmetic Operators, Bitwise Operators, Assignment operators.
2. Simple Example program to show implementation of , increment and decrement operator, Conditional (Ternary) Operator
3. Simple Example program to show implementation of **the Input / Output operations** in Java-Reading data from console, writing data to console.
4. Write a java program to show implementation of (simple if, and if..else). – Write a program to check whether an inputted number is +ve, -ve, or zero.
5. Write a java program to show implementation of (Nested if statements). – Write a program to print largest from three inputted numbers.
6. Write a java program to show implementation of (, if...else if ladder and switch). – Write a program to convert an inputted digit to into its corresponding “Word” form.
7. Write a java program to show implementation of The? operator. Write a program to print smallest from three inputted numbers using The? operator.
8. Write a java program to show implementation of (while, do while and for). Write a program to print multiplication table of an inputted number up to 10 terms using while loop.
9. Write a program to check if the given number is a prime number. Using do.....while loop.
10. Write a program to print factorial of an inputted number using for loop.
11. Write a java program to show implementation of predefined Exception in java.
12. Write a java program to show implementation of user defined Exception in java.

Module II

1. Write a java program to show implementation Creation and implementation of classes, objects in Java.
2. Write a program to show implementation of Constructor in java.
3. Write a program to show implementation of static members of a class.
4. Write a program to show implementation of method overloading.
5. Write separate program to show implementation of various types of Inheritance in java.
6. Write a simple program to show implementation of Visibility control – public,private, protected.
7. Write program to show implementation of method overriding.
8. Write program to show implementation of Abstract methods and classes.
9. Write a program to show implementation of one dimensional array in java (using sort program.)
10. Write a program to show implementation of two dimensional arrays in java (using matrix multiplication program.)
11. Write a program to show implementation for...each statement in java (using sort program.)
12. Write a program to show implementation of string arrays in java (using student name sorting)
13. Write a program to show implementation of wrapper class and vectors using suitable example.
14. Write a program to demonstrate interface in java.

Module III

1. Write a program to demonstrate user defined packages in java.
2. Write a program to demonstrate multithreading in java.
3. Write a program to show implementation of Thread priority and synchronization.
4. Write a program to demonstrate applet in java using The Graphic class-java awt, lines, rectangle, circles, ellipses, arcs, polygons.
5. Write a program to create a text file in java.
6. Write a program to display content of a text file in java.
7. Write a program to copy one file to another file.

Module IV

1. Write a program to show implementation of activity life cycle in Android.
2. Program to receive user name and password and check user validity (using Label box, EditText and Buttons)

3. Program to show implementation of CheckBox, and RadioButtons.
4. Write a program to show a picture on smart device screen using ImageView Control.
5. Program to show implementation of LinearLayout, RelativeLayout, ScrollView, and TableLayout in smart devices.
6. Program to Design an Digital and Analog Clock in smart devices.
7. Write a program to compute age from inputted date of birth using DateTimePicker.

Module V

1. Write a program to show implementation of Menu in Android.
 2. Write a program to show implementation of Styles & Themes in Android.
 3. Write a program to demonstrate Adapters and Widgets in Android.
 4. Write a program to show implementation of Notification in Android.
 5. Design a database (in SQLite) called “PhoneDirectory”, which contain columns such as PersonName, MobileNo, and LandlineNo. Then design a program which should contain buttons for the following operations.
Save, Search, Edit, and Delete.
-

L206 B. C# Programming and ASP.NET Lab (40 Hours)

Module I

1. Calculate sum Two Numbers(Usage Operator, Console.ReadLine, Console.WriteLine)
2. Display Largest/ Smallest Number (Usage of If)
3. Generate Number sequences like Natural, Even Numbers(Looping)
4. Find the Largest and smallest element from single Dimensional Array
5. Sort Single Dimensional Array(Bubble sort Algorithm)
6. Find the number of words from a line of text
7. Demonstrate Two Dimensional Array(Matrix Addition)
8. Factorial of a given number.

Module II

1. Creation of a class named Rectangle with properties length and width , and two methods Area and Perimeter

2. Create a class hierarchy for different types of animals, with a base class named Animal and derived classes for specific animals (e.g., Cat, Dog, and Bird).
3. Create a generic class for a stack data structure, with methods for pushing, popping, and checking if the stack is empty.
4. Create a program that uses LINQ to find the largest and smallest numbers in an array of integers.

Module III

- 1 An application to Demonstrate Arithmetic Operations
- 2 An application to Generate Sequence Numbers like Natural Numbers, Perfect, amstrong, Prime Numbers etc.
- 3 An application to Manage Two List Boxes- copy, copy all, Move Move all etc.
- 4 Demonstrate the functions of an Editor Application- usage menu strip, Common Dialog Controls, context menu strip,
- 5 Demonstration of Scroll Bars.
- 6 Demonstration of a database program (DataGrid view, Text boxes..) perform DML- Data Insertion, Deletion, Updation and selection.

Module IV

- 1 Create a simple Web Forms page that displays a welcome message and a button.
- 2 Add a server control to the Web Forms page and handle its Click event to display a message.
- 3 Use ViewState to store and retrieve data across postbacks.
- 4 Use Session to store and retrieve user-specific data across different pages.
- 5 Add validation controls to a Web Forms page to validate user input.

Module V

- 1 Create a Web Forms page that displays data from a database using a GridView control.
- 2 Create a Master page and apply it to multiple content pages.
- 3 Implement file upload functionality on a Web Forms page.
- 4 Use LINQ to filter and sort data in a Web Forms page.
- 5 Create a database in SQL Server and connect to it from a Web Forms application.
- 6 Demonstrate Web Application to manage a Database(CRUD opeartion)

L207 Project and Seminar (40 Hours)

Project

Synopsis, preferably should be about 3-4 pages

The content should be as brief as is sufficient enough to explain the objective and implementation of the project that the candidates are going to take up. The write should be include the following (not necessary in order as given below)

Name / Title of the project, Statement about the problem, why is the particular topic chosen? Objective and scope of the project, Hardware and Software to be used, testing technologies used.

Submission of project Report

The following suggested guidelines may be followed in preparing the final project report

Good quality white executive bond paper a4 size should used for typing and duplication. Page specification: (Written paper and source code)

Left margin	3.0 cms
Right margin	3.0 cms
Top Margin	2.7 cms
Bottom Margin	2.7 cms

Page numbers- All text pages as well as Program source code listing should be numbered at the bottom centre of the pages.

Format of the student Project report on Completion of the Project

1. Cover Page
2. Certificate of Institution
3. Certificate of the Company / Organization
4. Acknowledgement.
5. Main Report
 - Objective & Scope of the Project
 - Theoretical Background
 - Definition of problem

- System Analysis & design vis-à-vis User Requirements
- Details of Hardware and Software used.
- ERD / DFD / UML
- Input and output design screen
- Process involved
- Methodology used for testing
- Test report, Printout of the Report, Printout of code sheet

Annexure

1. Brief back ground of the organization where the student developed the project.
2. Data Dictionary
 - This should give a catalogue of the data elements used in the system / sub system developed
 - The following are the details required. Write NA if NOT Applicable
 - Data name
 - Aliases if any
 - Length (size)
 - Type, Numeric, Alpha, Binary etc
3. List of Abreactions, Figures, Tables
4. Reference
 - Bibliography
 - Website
5. Soft copy of the project

Seminar

The student will have to prepare and present a topic relevant to information technology and its latest applications. A report submitted for evaluation.

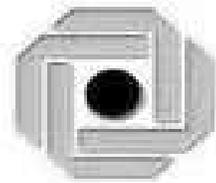
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LBS CENTRE FOR SCIENCE & TECHNOLOGY

Nandavanam, Palayam, Thiruvananthapuram- 33
Kerala 0471 - 2324396
www.lbscentre.kerala.gov.in email : mail@lbscentre.org

POST DIPLOMA IN COMPUTER APPLICATIONS (PDCA)

(Two semesters)



**Scheme & Syllabus
2023**

ABOUT THE COURSE

The LBS Centre for Science and Technology (LBSCS &T), Thiruvananthapuram the premier institute of computer training and consultancy, registered under the Travancore-Cochin Literary, Scientific and Charitable Societies Registration Act XII of 1955 was established by Government of Kerala in 1976. The L B S is conducting a Two semester Post Diploma in Computer Applications course, Candidates successfully completing the course, will be awarded the Post Graduate Diploma by the LBS Center.

Objectives

The course aims to

- Give the students a sound background in Computer programming and computer software subjects.
- Train future industry professionals.

ELIGIBILITY FOR ADMISSION

3 year Polytechnic Diploma in any discipline from DTE, Kerala or equivalent recognized DTE Kerala.

DURATION OF THE COURSE

The duration of the course is 1 year comprising of 2 semesters. The classes will be held on 5 days per week with 3 Hrs/day.

MEDIUM OF INSTRUCTION:

The medium of Instruction will be English

EXAMINATION

There will be Examination at the end of each semester. The conduct of examination, valuation, declaration of results, issue of certificates, mark lists etc, of this course are done by LBS Center., Govt. of Kerala.

COURSE FEE:

SLNO	SEMESTER	FEE PARTICULARS	Fee Amount(Rs.)
1	First Semester	Admission Fee	100.00
		Refundable Caution Deposit	1000.00
		Library Enhancement Fee	100.00
		Semester Fee	12500.00 (In lump sum) or in two installments of 6250/- each
2	Second Semester	Semester Fee	12500.00 (In lump sum) or in two installments of 6250/- each
Total			26200.00

EXAMINATION FEE

SLNO	PARTICULARS	AMOUNT
1	For Regular examination	1000.00
2	For Supplementary examination	300.00 / paper
3	For cancellation of Examination	300.00

RE-ADMISSION RULES

Students who discontinue the course after the commencement of the classes and who are not eligible to appear for the examination for want of attendance will be re- admitted to the same semester on request as per the existing rules of LBS Centre such that the candidate shall study the course and write exam as per the scheme and syllabi of the PDCA course to which he/she is readmitted.

RULES & REGULATIONS OF CONDUCT OF CLASS / EXAM OF THE PDCA

1. Instructional duration in an academic year

- Each Semester consists of a minimum of 20 weeks of instruction, including intervening holidays, but excluding the period of examinations and study holidays.
- The course will follow Semester pattern, with an end semester examination, conducted by the LBS Center, Kerala State.
- Classes will be held on 5 days per week with 3 Hrs/day.

2. Minimum attendance required for obtaining eligibility to appear for the Examination

- Candidates must secure a minimum of 80% attendance in each Semester, in order to secure the eligibility to appear for each Semester Examination.
- In the case of those students with 65% or more attendance but could not attain 80% attendance due to Medical reasons, the Head of Institution, at his/her discretion, may grant the eligibility to appear for the examination, subject to the remittance of “Condonation Fee”, fixed by the LBS Center from time to time.
- Students who have secured less than 65% attendance are not eligible to apply for “Condonation”, and will not be allowed to appear for the examination under any circumstances.
- Students who have shortage of attendance, but not condoned, in any semester are not eligible to be promoted to the higher semesters. They may seek readmission in the same semester and repeat.

3. Scheme of Evaluation

- The scheme of evaluation shall consist of - (1) Internal assessment (Sessional) and (2) End Semester examinations in Theory and Practical Subjects. The marks for End Semester Examinations, and Internal Assessment, both for the Theory and practical papers will be 100 and 50 respectively.
- The Total marks (Internal and End Semester Examination) will be as follows.

Semester I – 1200 Marks

Semester II- 1050 Marks

4. Award of Internal Assessment Marks.

In respect of theory subjects the award of Sessional mark will be on a continuous Evaluation method, based on tests, assignments and attendance in the proportion of 40% for tests, 40% for test assignments and 20% for attendance. There will be a minimum of two tests and Two Assignments, and all the 2 Test papers and 2 Assignments are taken in to account for the calculation of Final Internal Assessment Marks.

- **Split up of Internal Assessment Marks.**

A. Attendance

Sl.No	Percentage of Attendance	Marks to be awarded (Computed for 10 Marks)
1	Below 65	Zero
2	65 to 79	4
3	80 to 84	5
4	85 to 89	6
5	90 to 94	8
6	95 and above	10

B. Practical

Sl No	Criteria Component	Marks to be awarded
1	Observation/ Rough Record	20%
2	Fair Record (Timely Submission, Accuracy and Neatness)	20%
3	Lab Attendance	20%
4	Computer lab tests	40%

Percentage of Attendance for that particular subject only is counted here.

C. Seminar

Sl.No	Criteria Component	Marks to be awarded
1	Relevance of Topic	10%
2	Collection of materials	20%
3	Presentation (Presentation using Audio visual Projectors and Delivery)	40%
4	Question-Answer/ Discussion	20%
5	Seminar Report	10%

D. Project Work

Sl.No	Criteria Component	Marks to be Awarded
1	Relevance of Project Work & Selection of languages and programming tools	10%
2	Knowledge in the language and the project topic	10%
3	Preparation of SRS,UML Diagrams/ data flow diagrams etc	20%
4	Proficiency in Design, coding and testing the project work	30%
5	Role of the candidate in the project Team	20%
6	Project Report	10%

- The faculty concerned will maintain a record of all details regarding Attendance and Internal Assessment marks awarded in the prescribed log book. The students can represent their grievances, if any, in respect of marks awarded, to the concerned Head of institution for clarification.
- The students are required to keep a record of all their laboratory exercise performed by them in the form of a laboratory record. This record has to be authenticated by the teacher in charge of the laboratory before he is allowed to take the practical examinations. No students will be permitted to take any practical examinations without bona fide Record.

5. End Examination

In each theory subject, there will be an end examination in each Semester conducted by the LBS Center, Kerala State as per the pre-announced notification of examinations.

- The question paper for each Theory paper will consist of three parts.

Part A - for a maximum of 10 marks containing 10 very short answer types questions of 1 marks each (answer in one or two sentence) covering the whole subjects area. There will be no choice in part A.

Part B - for a maximum of 30 marks containing 10 short answer types questions of 3 marks each covering the whole subjects area. There will be 15 questions of this type and students need to write any 10 from above.

Part C - for a maximum of 60 marks containing 5 long answer types questions of 12

marks each covering the whole subjects area. There will be 10 questions of this type, two questions from each module and students need to answer one question from each module.

- The part A, Part B and Part C will be given together in one question paper.

For practical end examinations, the LBS Centre will appoint examiners who will set a question paper consisting of Practical exercises.

6. Minimum marks for a pass.

A candidate must secure a minimum of 40% marks in the End Semester examination in each Theory, practical and 40% for total (Internal + Theory/Practical) for a pass in each subject.

7. Rules for promotion to the Higher Semesters

Candidates shall be allowed to go to the next higher Semester, if he/she attended the previous Semester and has fulfilled the conditions of attendance required and registered for the concerned semester examination.

8. Classification of successful candidates

- Candidates shall be declared to have passed the PDCA course only if he/she has secured a Pass in all the theory and practical subjects in all the Semester of study.
- There will be 3 classifications of passed candidates namely
 - ✓ First class with distinction
 - ✓ First class
 - ✓ Second class
- The total marks of all the Semesters shall be considered to classify the successful candidates. The marks obtained in all the semesters will be added and the percentage of marks is worked out.

FIRST CLASS WITH DISTINCTION: A candidate will be declared to have passed the PDCA Course in First Class with Distinction, if he/she secures not less than 75% of the aggregate marks in all Semester put together and passes all the above semester in the first appearance itself, within the stipulated period of normal study, i.e., Two Consecutive Semesters, without any break.

FIRST CLASS: - A candidate will be declared to have passed the PDCA Course in First Class if he/she secures not less than 60% of the aggregate marks in all Semesters put together and passes all the above semesters, within two consecutive chances including his regular appearance offered by the Lbs Centre for Science and Technology.

SECOND CLASS: - All other successful candidates will be declared to have passed the PDCA Course in the Second Class.

9. Maximum duration of the PDCA Course

Normal duration of the course is 2 consecutive Semesters over a period of one year. However in the case of those who have not acquired PDCA within the stipulated minimum duration of 2 Semesters, he/she can acquire the Post Diploma taking a maximum duration of another 3 years.

10. Cancellation of Candidature in the Examination.

If a candidate desire to cancel his candidature for end semester Examination she/he should forwards the duly filled in application form, recommended by the Head of Institution along with the required fee, so as to reach the office within 10 days after the completion of the last theory examination of that particular semester examination. For those who have applied for the examination and absent without cancelling their candidature, it will be treated as an attempt/chance. Cancellation of candidature in the PDCA Examination is allowed only once for a particular Semester examination. Candidates reported for malpractice will not be eligible for cancellation of examination.

Syllabus

Semester 1

Code	Subject	Hours/Week		Internal Marks	End Exam		End Exam Total
		Theory	Practical		Theory	Practical	
L101	Computer Fundamentals and Operating System	2		50	100		150
L102	C++ Programming and Data Structures	2		50	100		150
L103	DBMS & Oracle	2		50	100		150
L104	Web Development Using PHP and MySQL	2		50	100		150
L105	C++ Programming Lab		2	50		100	150
L106	Oracle and PL/SQL Lab		2	50		100	150
L107	Web Development Using PHP Lab		2	50		100	150
L108	Office Automation Packages and Malayalam Computing Lab		1	50		100	150
Total		8	7	400	400	400	1200

Semester 2

Code	Subject	Hours/Week		Internal Marks	End Exam		End Exam Total
		Theory	Practical		Theory	Practical	
L201	Principles Of Software Development And Computer Networks	2		50	100		150
L202	Python Programming and Data Science	2		50	100		150
L203	Elective 1 A. Cloud Computing B. Cyber Security C. Machine Learning D. Software Testing	2		50	100		150
L204	Elective 2 A. Java and Smart Device Application Using Android B. C# Programming and ASP.NET	2		50	100		150
L205	Python Programming Lab		2	50		100	150
L206	Elective 2 Lab		2	50		100	150
L207	Project and Seminar	1	2	50		100	150
Total		9	6	350	400	300	1050

First Semester

L101 Computer Fundamentals and Operating System (40 Hours)

Module 1: Computer Fundamentals and Number Systems (8 Hours)

Introduction to computers and their history, Computer hardware and software, Digital data representation and communication, Number systems (binary, decimal, hexadecimal), Logic gates and Boolean algebra

Module II: Input/Output and Memory (8 Hours)

Input devices - Keyboard, Mouse, Track ball, Joystick, Web Camera, Scanners, OMR, Barcode Reader, Light pen and Touch Screen,

Output devices - Computer Monitor – LCD, LED, TFT, Projector, Speaker, Printer – Inkjet and Laser Printers

Types of memory - Primary – Secondary - Cache, Memory hierarchy and organization

Primary Memory - Types of RAM and ROM,

Secondary storage devices – Hard Disk, Solid-state Drive, Flash Memory, Cache Memory – L1,L2,L3

Module III: Memory and Processor (8 Hours)

Microprocessor- Evolution, Basic Terms -Instruction Set,Bus,IPC, Bandwidth,Word Length,Word Length

Types of Microprocessors - (Vector Processor, Array Processor or SIMD Processor, Scaler Processor, RISC and CISC Processor, Digital Signal Processor, Symbolic Processor, Graphics Processor)

Processor architecture and organization

Instruction sets and addressing modes

Machine language and assembly language

Data transfer and communication between devices, Device drivers and interfaces.

Module IV: Operating System Fundamentals, Process Management and Memory Management (8 Hours)

Introduction to Operating Systems, Types of operating systems (e.g., batch, real-time, time-sharing), Process management and scheduling, Memory management and virtual memory, File systems and storage management

Module V: Operating System I/O Management and Security (8 Hours)

I/O management and device drivers, User and kernel modes, Shell and command-line interfaces, Graphical user interfaces, Protection and security

Books :

- Computer Fundamentals, by PritiSinha, Pradeep K., Sinha , BPB Publications
 - Digital Principles and Applications (SIE) | 8th Edition, Malvino, Leach, McGraw Hill
 - Microprocessors and Microcontrollers, 3ed , R S Kaler, Dreamtech Press
 - Operating System Concepts, Silberschatz, Galvin, Gagne, Wiley Publications
-

L102 C++ Programming and Data Structures (40 Hours)

Module I (8 Hrs)

Steps in Problem Solving Using Computers – Algorithm & Flow Charts with Examples – Procedure Oriented Languages – Variables – Constants and Expressions – Data Types- Header Files – Operators- Type Cast Operators-Implicit Conversions - Operator Precedence - Managing Output with Manipulators – Branching & Looping – Procedure Oriented Programs based on above features.

Module II (8 Hrs)

Arrays – One Dimensional and Two Dimensional Arrays- Character, Numeric Arrays Programs for One and Two Dimensional Arrays – Pointers In C++ Functions In C++- Built In Functions – User Defined Functions- Call By Value And Call By Reference – Functions Overloading In C++ Inline Functions- Strings Functions – Programs based on above features.

Module III (10 Hrs)

OOPs Features – Structure of OOPs Programs Using C++ - Objects and Classes- Data Members- Member Functions – Access Specifiers- Public and Private– Memory Allocation for Objects – Arrays Of Objects – Objects As Function Arguments- Class Programs - Constructors And Destructors – Operator Overloading (Unary & Binary). Inheritance – Different Types with Diagram, Protected Visibility Mode .Programs Based on Above Features.

Module IV (6 Hrs)

Managing Console I/O Operators: Introduction- C++ Streams- C++ Stream Classes - Working With Files: Introduction- Classes For File Stream Operators-Opening And Closing A File- Detecting End-Of-File-More About Open (): File Modes-File Pointers And Their Manipulations- Sequential Input And Output Operators-Updating A File: Random Access-Error Handling During File Operations –Command- Line Arguments - Programs Based on Above Features.

Module V (8 Hrs)

Introduction and Definition of Data Structure, Classification of Data, Various types of Data Structure, Static and Dynamic Memory Allocation. Introduction to Stack, Definition, Stack Implementation, Operations of Stack. Introduction to Queue, Definition, Queue Implementation, Operations of Queue, Circular Queue. Introduction, Representation and Operations of Linked Lists, Singly Linked List, Doubly Linked List, Circular Linked List, And Circular Doubly Linked List. Introduction to Tree, Binary Tree, Binary Search Tree, Tree Traversal.

References:

Text Books: E. Balaguruswamy

Bjarne Stroustrup

Web Site : <https://www.w3schools.com>

L103 DBMS & Oracle (40 Hours)

Module I (8 Hours)

Database Systems– Data – Information - Field - Record – Table – Database - Physical record – Logical Record –Attribute – Entity.-DBMS – Advantages and Disadvantages –application Areas – database Users. Architecture – Schema - subschema, Data independence – Physical and logical data independence. DBMS Components – Data Dictionary, DDL, DML. Data models – Hierarchical, Network and Relational, DBMS Architecture - Database Languages – Classification. Tuple, Cardinality. Data mining & Data warehousing concepts.

Module II (8 hours)

ER model – Entity – Attribute – Keys – Relationship types – Sets – Keys- ER diagram – Weak entity set – strong entity — Relationship types - sets - Enhanced ER – sub class – super class – inheritance – UML – features- views- diagrams- model elements (A brief description only)..- Relational model – Concepts – Keys -- Relational algebra operations –Unary & Binary relational operations. Aggregation, Generalization.

Module III(8 hours)

Relational Database Design – Mapping E-R Model to Relational Model – Constraints – Domain Constraints -Key constraints – Referential integrity – Foreign keys - Functional dependency – Normalization – 1NF – 2NF – 3NF– Boyce Codd Normal Form – Decomposition – Dependency

preservation – Multi valued dependencies – 4NF – Join dependencies – 5NF. Transaction concepts, ACID properties. Concurrency control, Lock based protocols- Time stamp based and two phase locking. Deadlocks – Conditions leading to dead lock, Deadlock recovery – Rollback, Log based recovery.

Module IV(10 hours)

SQL – Features of SQL – Data types in SQL, CREATE TABLE command,-Constraints – NULL, DEFAULT, CHECK, PRIMARY KEY, UNIQUE, referential Integrity –DROP TABLE Command, ALTER TABLE, CREATE INDEX, CREATE UNIQUE INDEX, DROP INDEX-SELECT statements with WHERE, ORDER BY, UPDATE Statement, INSERT, DELETE, Simple and nested Queries. Functions in SQL – String & Aggregate functions. Joining tables, Grouping - GROUP BY, HAVING clauses. Join, Union, Intersection, Minus. Views.

Module V(6 hours)

SQL plus, introduction to PL/SQL, Control structures. Use of Triggers, and cursors – stored procedures and functions, embedded SQL,

Text Books:

- Introduction to Database Systems, CJ Date, Pearson
- The Database Systems – The Complete Book, HG Molina, J D Ullman, J Widom Pearson
- Database Management Systems, Raghuram Krishnan, Johannes Gehrke, TATA McGraw Hill 3rd Edition
- Oracle PL/SQL Programming 6th Edition, Steven Feuerstein

L104 Web Development Using PHP and MySQL (40 Hours)

Module I: Web Technologies and Web Design Basics (8 Hours)

Overview of different web technologies, Introduction to the World Wide Web and the Internet, Understanding the client-server architecture, Understanding the basics of HTTP and HTTPS protocols, Introduction to HTML (Hypertext Markup Language), Understanding the structure and syntax of HTML, HTML tags, attributes, and elements, Creating simple HTML documents with basic tags, Understanding the role of CSS (Cascading Style Sheets) in web development, Understanding the basics of CSS, Using CSS to style a webpage.

Module II: Web Design principles and Introduction to Java script (8 Hours)

Understanding the design principles, Importance of user experience design, Designing layouts, color schemes, and typography, Creating wireframes and prototypes, Mobile web and responsive design, Introduction to Bootstrap framework and its usage in web development, Creating responsive websites using Bootstrap, Introduction to JavaScript, Understanding the syntax and structure of JavaScript, Basic programming constructs of JavaScript like variables, loops, and functions, Event-driven programming with JavaScript.

Module III: PHP Programming (8 Hours)

Installing a local web server (e.g., XAMPP, LAMP) and configuring it to work with PHP and MySQL, Setting up a development environment, Introduction to PHP scripting language and its features, Understanding PHP syntax and data types, Variables and operators in PHP, Conditional statements and loops in PHP, Functions and arrays in PHP.

Module IV: OOP in PHP and MySQL Integration (8 Hours)

OOP - Classes and Objects, Define a Class, Objects, Constructor, Destructor, Access Modifiers, Inheritance, Abstract Classes, Interfaces, About MySQL, Creating MySQL databases and tables SQL in MySQL, Understanding the role of PHP and MySQL in web development, Connecting to MySQL database using PHP, Querying and updating MySQL database using PHP.

Module V: Advanced PHP and MySQL Concepts (8 Hours)

Performing CRUD (Create, Read, Update, Delete) operations in MySQL, Understanding PHP sessions and cookies, Validating user input using PHP and JavaScript, Creating dynamic web pages using PHP and MySQL, Implementing authentication and authorization in web applications, Understanding web security and preventing SQL injection attacks.

Text Books:

- PHP and MySQL Web Development Luke Welling 5th edition, Addison-Wesley
- Learning PHP, MySQL & JavaScript Robin Nixon 5th edition O'Reilly

L105 C++ Programming Lab (40 Hours)

Model Questions for Lab Practical Session

1. Program to convert from degree centigrade to degree Fahrenheit
2. Program to print roots of a Quadratic Equation
3. Program to print largest of 3 numbers
4. Program to print Prime, Perfect Numbers, Perfect Squares etc between 2 limits
5. Program to print sum of digits, reversing number, palindrome checking etc
6. Program to input a date and print next day's date
7. Program to print an array in reverse order
8. Program to print largest and smallest element in a One & Two Dimensional Array
9. Program to sort an Array
10. Write a C++ program that uses functions a) To swap two integers b) To swap two characters c) To swap two real numbers.
Note: Use overloaded functions.
11. Program to find $nCr = \frac{n!}{r!(n-r)!}$ using function
12. Program to add 2 matrices
13. Program to check whether a String is Palindrome or not
14. Program to merge two integer arrays
15. Program to illustrate the use of class, object, member functions, constructors and destructors.
16. Program to add 2 distance Objects – using Member functions having arguments and Member functions returning Objects
17. Program to add 2 Weight Objects – using Friend Functions
18. Program to concatenate 2 strings using Operator Overloading
19. Program to illustrate use of overloading any unary operator
20. Program to overload + operator to add two points
21. Program to prepare a Salary Report employing using Inheritance
22. Program to illustrate the use of hybrid inheritance
23. Program to find sum of n numbers using Command Line Argument
24. Program to write no, name, marks of students in a class and print rank list
25. Write a C++ program to a) write an object to a file. b) To read an object from the file.

L106 Oracle and PL/SQL Lab (40 Hours)

Create the following tables.

1. Admission – details of students studying in different centres of LBS.
2. Centre – Details of the different centres in which the students are studying.
3. Student – Details of students.
4. Student Worker – Students who are also doing part time work.

ADMISSION

sl. no.	field name	type	width	remark
1.	studno	vvarchar2	5	unique id of student
2.	studname	vvarchar2	25	name of student
3.	centrecode	vvarchar2	3	unique id of centre
4.	familyincome	number	8,2	familyincome of student
5.	employee	boolean		true if the student is a part time employee
6.	centrecode	vvarchar2	3	unique id of centre in which the student is studying
7.	fees	number	8,2	fees paid by student

CENTRE

sl. no.	field name	type	width	remark
1.	centrecode	vvarchar2	3	unique id of centre
2.	city	vvarchar2	20	city in which centre is located

STUDENT

sl. no.	field name	type	width	remark
1.	studcode	vvarchar2	5	unique id of student (same as that of admission table)
2.	city	vvarchar2	20	city in which student is living
3.	house	vvarchar2	20	house name
4.	post	vvarchar2	20	post office
5.	phone	vvarchar2	15	phone number

STUDENTWORKER

sl. no.	field name	type	width	remark
1.	empno	varchar2	5	unique id of student employee
2.	studcode	varchar2	5	unique id of student (same as that of admission table)
3.	centrecode	varchar2	3	unique id of centre (same as that of centre table)
4.	salary	number	8,2	salary of student employee

1. Describe the tables which are already created.
2. Insert data into the tables.
3. List data from the tables.
4. Update tables
5. Join and Cartesian product.
 - a. Show the name of students whose city of residence is Trivandrum and city of study Centre is Kollam.
 - b. Show the name of students who are students as well as part time workers.
 - c. Show the name of students who are part time workers and city of residence is where student with code 11111 is living.
6. Set Operations.
7. Show the name of students whose family income >100000 and not part time workers.
8. Aggregate functions.
9. Group by and Having.
10. Update statement.
11. Delete statement.
12. Advanced queries.- nested queries
13. Create a PL/SQL program using cursors to display the contents of the file ADMISSION.
14. Create a PL/SQL program using cursors to display the details of students who are also part time employees.
15. Create a PL/SQL program to display the details of students including salary who are part time employees.
16. Create PL/SQL program which handles different types of exceptions.
17. Create PL/SQL program to display the details of a student on giving the STUDNO. (Use Procedure).
18. Create PL/SQL program to display the details of fee collected at each centre. (Use function procedure).
19. Create PL/SQL program to add new students to the table ADMISSION. Use triggers to check whether the centre code typed is a valid one.
20. Create PL/SQL program to Modify Question 19. to include the necessary updates in the tables CENTRE, STUDENT and STUDENTWORKER.

L107 Web Development using PHP Lab (40 Hours)

Module I Lab Exercises:

- Create a simple HTML document with basic tags and add some text and images to it.
- Create a hyperlink to an external website and make it open in a new tab.
- Insert an image in your web page and resize it using HTML.
- Use the "ul" tag to create an unordered list of items.
- Html tables
- Use CSS to style the HTML document created in the first exercise, changing its background color, font size, and adding a border.
- Create a basic webpage using Bootstrap, incorporating different Bootstrap components.

Module II Lab Exercises:

- Create a simple web page using JavaScript, with a button that changes the color of a background.
- Create a wireframe and prototype for a website design, incorporating design principles such as color schemes and typography.
- Create a responsive webpage using Bootstrap, with elements that adjust to different screen sizes.
- Add event listeners to a webpage created in the previous exercise, changing the color or text when clicked.
- Use JavaScript to create a pop-up alert box when a user submits a form.

Module III Lab Exercises:

- Create programs using class to perform basic concepts of OOP.
- Program to implement concepts in inheritance
- Create program which show the concepts in abstract class and interfaces
- Introduction to web development environments (e.g., local vs. remote development, IDEs, text editors, etc.)
- Installing a local web server (e.g., XAMPP, WAMP, MAMP, LAMP) and configuring it to work with PHP and MySQL
- Creating a new project directory and setting up a basic file structure (e.g., index.php, style.css, script.js)
- Testing the web server and verifying that PHP and MySQL are properly configured
- Testing the web server and verifying that PHP and MySQL are properly configured
- Creating a MySQL database and user account

- Installing and using a web-based database management tool (e.g., phpMyAdmin) to interact with the database
- Write a PHP script to display information about a user's browser, operating system, and IP address.
- Create a PHP script that checks if a user is over 18 years old and displays a message accordingly.
- Use PHP to create a simple calculator, taking user input and performing basic operations.

Module IV Lab Exercises:

- Create a MySQL database and table, and use PHP to insert data into the table.
- Create a PHP script that displays data from a MySQL database on a webpage.
- Use PHP to update and delete data from a MySQL database, based on user input.

Module V Lab Exercises:

- Performing CRUD (Create, Read, Update, Delete) operations in MySQL
- Use JavaScript to validate user input on a form before submitting it to a PHP script.
- Implement PHP sessions and cookies to keep track of user data across multiple pages.

L108 Office Automation Packages and Malayalam Computing Lab (20 Hours)

Module I: Windows and Linux (3 Hours)

Introduction to Windows Operating System, Desktop, Taskbar, Start Menu, My Computer, Windows Explorer, Recycle Bin, Accessories – Calculator, Notepad, Paint, WordPad, Entertainment & System Tools, Introduction to Linux Operating System - Linux Structure, Hardware requirements of Linux, Login & Logout from Linux System, Linux basic commands

Module II Word Processing Packages – MS Word and OpenOffice.Org Writer (6 Hours)

Introduction Microsoft Word - Office Button - Basic Editing & Formatting-, Columns, Tabs, - Tables –Page Formatting -inserting Graphics, Pictures, Field, Hyperlinks, Table of Contents-Advanced Tools - Spelling & grammar, Thesaurus, Auto Correct, Word Count, Mail Merge, Document Protection, Printing document.

Practice the same with OpenOffice.Org Writer

Module III Spreadsheet Packages – MS Excel and OpenOffice.Org Calc (4 Hours)

Worksheets, Cell, Cell Range Operations, Fill Series, Protecting Worksheets- Functions - sum, average, if, Financial and Statistical functions, Mathematical functions.- Database Operations – Sort, Filter (Auto Filter and Advanced filter, Subtotals, Table, Validation)- Charts – Standard and Custom type-Printing Worksheet

Practice the same with OpenOffice.Org Calc.

Module IV Presentation Packages -MS PowerPoint and OpenOffice.Org Impress (3 Hours)

Creating basic presentation – Creating new Presentation, Opening, Closing, and Saving Presentation. – Inserting New slides, applying Layouts and Backgrounds.- Understanding Presentation Views -Using Text - Inserting and Editing & Formatting Text, Paragraph formatting.-.Slide Masters &, Slide Transition, Custom Animation setting up – (slide show, rehearsing timing, and recording narration) a presentation.-Working with Objects, Tables and Charts .

Practice the same with OpenOffice.Org Impress

Module V Malayalam Computing (4 Hours)

Introduction to Malayalam computing.-Understanding Malayalam scripts.- Typing practice using ISM - Enabling Unicode Malayalam in Windows and Linux, Malayalam typing Practice.

Practice the same with OpenOffice.org

Introduction to Internet – Applications - Browsers – Email - Search Engines.

Second Semester

L201 Principles of Software Development And Computer Networks (40 Hours)

Module I: Introduction to Software Engineering (10 Hours)

Overview of software engineering, Software development life cycle (SDLC), Requirements engineering, Software design and modeling, Agile Model, Software testing – White box, Black box, New trends in Software Testing - AI and Machine Learning, Software Quality Assurance

Module II: Object Oriented Modeling and Design using UML(8 Hours)

Overview - Object basics - Object state and properties, Behavior, Methods, Messages. Object Oriented system development life cycle. Benefits of OO Methodology.
Introduction to UML Important Diagram to be modeled for system by UML- Class Diagram, Component Diagram, Deployment Diagram, Object Diagram.

Use Case Diagram, Activity Diagram

Module III: Introduction to Computer Networks (6 Hours)

Overview of computer networks, LAN, MAN, WAN, Network topologies – Star, Ring, Bus, Mesh, Tree, Hybrid, Network Models– OSI Model, TCP/IP Model ,Layers of TCP/IP Model

Module IV: Network Communication and Internet Protocols (8 Hours)

Network communication concepts, Communication media – Coaxial cable, Fiber Optic, Satellite, Microwave, Protocols, Internet protocols (TCP/IP), Application layer protocols (HTTP, FTP, DNS), Transport layer protocols (TCP, UDP), IP Address – classes of IP Address, IP V6, Network addressing and routing

Module V: Network Security and Wireless Networks (8 Hours)

Network security threats and vulnerabilities, Security mechanisms and protocols (firewalls, VPN, SSL/TLS), Wireless networks (Wi-Fi, Bluetooth, Cellular networks), Mobile and wireless security, Brief introduction of 3G,4G and 5G networks

Books :

- Software Engineering, Ian Sommerville, McGraw Hill
- Software Engineering – A practitioner’s Approach, Stephen Pressman, , McGraw Hill
- Computer Networks, Tanbaum, Pearson Education Publications

- Computer Networks, Forouzon, McGraw Hill
- Computer Networks, Kurose, Pearson Education Publications

L202 Python Programming and Data Science (40 Hours)

Module I (6 Hrs)

Introduction of Python, Features of Python, Install Python and Environment Setup, Variable, Data types, casting, Basic input output operations-input() and print(), General Structure of Python program, different operators, control statements, string operations , Lists, Tuple, Dictionary, sets

Module II (6 Hrs)

Arrays, User defined functions, Python modules and packages(pre defined package, user defined package), Lambda functions and map, Exception handling in Python using Raise, Try, Except and Finally, Basic operations of Files –Open, Close, Read, Write, Working with real files.

Module III (8 Hrs)

Writing GUI in Python(Tkinter Programming) –introduction, components and events, An example GUI, the root component, adding a Button, Entry Widgets, Text Widgets, Check buttons, Object oriented programming in Python, Creating Class and Object, Constructors in Python – Parameterized and Non-parameterized, Inheritance in Python, different types of inheritance, In built class methods and attributes..

Module IV (10 Hrs)

Using Databases in Python- Python MySQL Database Access, Install the MySQLdb and other Packages Create Database Connection CREATE, INSERT, READ, UPDATE and DELETE Operation , DML and DDL Operation with Databases , Introduction of frame work, features of frame work, The MVC Design Pattern, DJANGO overview, Django installation, creating a project, creating an application, understanding folder structure, Database and views, static files and forms, Database connections, Django admin, Models in Django. Forms in Django. Views in Django, template in Django.

Module V (10 Hrs)

Data Science introduction, need for Data Science, Application of Data Science, Data Science components, Python libraries used for Data Science- Numpy, pandas, Matplotlib, Numpy- Introduction to numpy, Various application of numpy in Data Science, Creating Arrays, Indexing Arrays, Array Transposition, Universal Array Function, Array Processing, Array Input and Output, **Pandas**- Introduction, different applications of pandas, Series, DataFrames, Index

Objects, Reindexing, Drop Entry, Selecting Entries, Data Alignment, Rank and Sort, Data visualization with Python –introduction of Matplotlib, installation of Matplotlib, Pyplot, plotting, Markers, line, labels, Grid, subplot, scatter, Bars, Histograms, pie charts.

Text Books:

- The complete reference PYTHON by Martin C. Brown
- Python: A Guide for Data Scientists by Andreas C. Müller, Sarah Guido
- Python Data Science Handbook: Tools and Techniques for Developers

Internet resources:

- <https://www.w3schools.com/python/>
 - <https://www.javatpoint.com/python-tutorial>
 - <https://www.tutorialspoint.com/python/index.htm>
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L203 Elective 1 (40 Hours)

L203 - A. Cloud Computing (40 Hours)

Module I Introduction to Cloud computing (8 Hours)

Definition of a Cloud Computing, Characteristics of Cloud Computing, Advantages and Disadvantages, Types of Cloud : Public – Private – Hybrid – Community , Cloud Computing Architecture, Cloud Computing Vs Grid Computing, Cloud Computing Applications

Module II Cloud Computing Architecture (8 Hours)

Cloud Computing Architecture: Front end, Back End, Benefits of Cloud Computing Architecture
Multicore Architecture
Multicores in Cloud Computing – Parallel Hardware, Parallel Software, Classes of Parallelism, Limitations of Muticore Architecture

Module III Cloud Service Models (8 Hours)

Layers in cloud architecture, Software as a Service (SaaS), features of SaaS and benefits, Platform as a Service (PaaS), features of PaaS and benefits, Infrastructure as a Service (IaaS), features of IaaS and benefits, Service providers, challenges and risks in cloud adoption.

Virtualization in Cloud Computing

Concept behind Virtualization, Types of Virtualization: Data - Hardware – Software- Server – Storage

Module IV Cloud Security (8 Hours)

Cloud Security Fundamentals – Cloud Security Services, Type of Auditors, Infrastructure Security: Network level security - Host level Security – Application level Security. Data privacy and security issues, Access control and Authentication in Cloud Computing.

Module V Migrating into a Cloud (8 Hours)

Introduction, Challenges while migrating to Cloud, Broad approaches to migrating into the cloud, why migrate -deciding on cloud migration, the Seven-step model of migration into a cloud, Migration Risks and Mitigation.

Cloud Case Study

- Amazon Web Service (AWS)
- Google Cloud Platform (GCP)

Books :

- Cloud Computing – Concepts, Technology and Architecture, Eri, Pearson Education Publications
- Cloud Computing – A practical Approach for learning and Implementation, Srinivasan, Pearson Education
- Cloud Computing, Nithin N. Sakhare, Nirali Prakasan Publications

L203 - B. Cyber Security (40 Hours)

Module I (10 Hrs)

Introduction to Cyber Security - Basic Cyber Security Concepts, layers of security Computer Security, Threats, Harmful act, Vulnerabilities, Controls, Authentication, Access Control and Cryptography. Cyber Threats-Cyber Warfare, Cyber Crime, Cyber terrorism, Cyber Espionage, etc., Comprehensive Cyber Security Policy. **Web attack:** Browser Attacks, Web Attacks Targeting Users, Obtaining User or Website Data, Email Attacks. **Network Vulnerabilities:** Overview of vulnerability scanning, Open Port / Service Identification, Banner /Version Check, Traffic Probe, Vulnerability Probe, Vulnerability Examples, OpenVAS, Metasploit. **Networks Vulnerability Scanning** (Ncat, Socat), Network Sniffers and Injection tools.

Module II (8 Hrs)

Network Defense tools - Firewalls and Packet Filters: Firewall Basics, Packet Filter Vs How a Firewall Protects a Network, Packet Characteristic to Filter, Stateless Vs Stateful Firewalls, Network Address Translation (NAT) and Port Forwarding. **VPN**: the basic of Virtual Private Networks. **Firewall**: Introduction, Linux Firewall, Windows Firewall. **Snort**: Introduction Detection System.

Module III (8 Hrs)

Web Application Tools - Scanning for web vulnerabilities tools: Nikto, W3af, HTTP utilities - Curl, OpenSSL and Stunnel. Application Inspection tools – Zed Attack Proxy, Sqlmap, DVWA, Webgoat. Password Cracking and Brute-Force Tools: John the Ripper, L0htcrack, Pwdump, HTC-Hydra.

Module IV (8 Hrs)

Introduction to Cyber Crime, law and Investigation : Cyber Crimes, Types of Cybercrime, Hacking, Attack vectors, Cyberspace and Criminal Behavior, Clarification of Terms, Traditional Problems Associated with Computer Crime, Introduction to Incident Response, Digital Forensics, Computer Language, Network Language, Realms of the Cyber world.

Module V (6 Hrs)

Internet crime and Act: A Brief History of the Internet, Recognizing and Defining Computer Crime, Contemporary Crimes, Computers as Targets, Contaminants and Destruction of Data, Indian IT ACT 2000. Firewalls and Packet Filters, password Cracking, Key loggers and Spyware, Virus and Worms, Trojan and backdoors, Steganography, DOS and DDOS attack, SQL injection, Buffer Overflow, Attack on wireless Networks.

Text Books :

1. Nina Godbole and Sunit Belpure, Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives, Wiley
2. B.B. Gupta, D.P. Agrawal, Haoxiang Wang, Computer and Cyber Security: Principles, Algorithm, Applications, and Perspectives, CRC Press, ISBN 9780815371335, 2018.

<https://www.javatpoint.com/cyber-security-technology>

[https://www.studocu.com/in/document/gujarat-technological-](https://www.studocu.com/in/document/gujarat-technological-university/cybersecurity/network-defense-tools-firewalls-and-packet-filters/47149772)

[university/cybersecurity/network-defense-tools-firewalls-and-packet-filters/47149772](https://www.studocu.com/in/document/gujarat-technological-university/cybersecurity/network-defense-tools-firewalls-and-packet-filters/47149772)

L203 - C. Machine Learning (40 Hours)

Module I: Introduction to Artificial Intelligence (8 Hrs)

Definition of Artificial intelligence (AI), Why is it important?, Real-world applications of AI: Examples of AI in everyday life, The impact of AI on society, Ethical considerations in AI development and deployment, The future of AI and its potential impact on society, Basic concepts: algorithms, data, training, testing.

Module II: Machine Learning (ML) (8 Hrs)

Definition of machine learning, Advantages and disadvantages, Applications, Basic types of machine learning: supervised, unsupervised, and reinforcement learning, Overview of Python programming language and libraries.

Module III: Data Preparation and Preprocessing (8 Hrs)

Data cleaning and handling missing data, Feature selection and feature engineering, Data scaling and normalization, Data visualization, correlation analysis.

Module V: Supervised Learning Algorithms (8 Hrs)

Regression - univariate, multivariate analysis, Regression algorithms: Linear Regression, Logistic Regression, Classification algorithms:K-Nearest Neighbors, Decision Trees, Naive Bayes.

Module V: Unsupervised Learning Algorithms (8 Hrs)

Clustering algorithms: K-Means, Hierarchical Clustering, Dimensionality reduction algorithms: Principal Component Analysis.

Text Books:

- Machine Learning For Absolute Beginners by Oliver Theobald
- The Hundred-Page Machine Learning Book by Andriy Burkov

L203 - D. Software Testing (40 Hours)

Module I (6 Hrs)

Software testing, Testing Principles, Various Task Involved In Testing, □Difference between Verification & Validation, Manual Testing, Introduction of Software Process, Phases in SDLC, Waterfall Model , Spiral Model , Prototype Model

Module II (8 Hrs)

Types & Levels of testing-Types of testing - manual and automation , Introduction to testing methods - white-box, black-box , Introduction to functional testing , Introduction to non-functional testing , Introduction to levels of testing - Unit Testing, Integration Testing, System Testing, User Acceptance Testing , Introduction to types of testing - Regression Testing, Smoke Testing, Database Testing, Usability Testing, Performance Testing, Security Testing

Module III (8 Hrs)

Test Planning , Test Strategy , Overview on Budgeting , Scheduling , Configuration Management, Test Design - Test Scenarios ,Test Cases , Test Data , Test Coverage - Traceability Matrix , Test Reporting ,Defect Management , Defect Severity and Priority , Defect Life Cycle Assignment , Create a test plan for a sample project , Create test case document , Create a sample traceability matrix

Module IV (8 Hrs)

Introduction to automation system- what is automation testing, advantages of automation testing, fundamentals of test automation, ROI in test automation, automation frame work, Introduction to Selenium-what is Selenium, Why Selenium, Features of selenium, Selenium IDE -Selenium IDE Introduction, Downloading and Installing Selenium IDE, Recording and Running a Sample Test, Selenium IDE–Features, Selenium Test, Runner ,Creating Selenium Test Suites.

Module V (10 Hrs)

How to download and install Selenium Webdriver, browser drivers for Chrome, IE, Edge, Firefox, Sample webdriver script using java, Element identification using locators, Xpath, Element identification-Textbox, Button, Dropdown, Radiobutton, Checkbox, Calendar, Label, click(),sendkeys(), Synchronization-Static and dynamic waits, Mouse click and Keyboard events, Validation in Selenium.

Text book:

- Software Testing: A Craftsman's Approach by Paul C. Jorgensen

- The Art of Software Testing by Glenford J. Myers
- The Just Enough Software Test Automation by The authors Dan Mosley and Bruce Posey

Reference:

- <https://www.geeksforgeeks.org/software-testing-basics/>
 - <https://www.javatpoint.com/software-testing-tutorial>
 - <https://www.guru99.com/software-testing.html>
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L204 Elective 2

L204 - A. Java and Smart Device Application Using Android (40 Hours)

Module I (8 Hrs)

History of Java, Features of Java, Java versions, Basic Object Oriented concepts, java vs C++, Java programming Environment and Runtime Environment, Development Platforms -Standard, Enterprise. Difference between - JDK, JRE, and JVM. Java compiler, Byte code. Data types, variables, Type Conversion and Casting, Operators - Arithmetic Operators, Bitwise Operators, Relational Operators, Boolean Logical Operators, Assignment Operator, increment and decrement operator, Conditional (Ternary) Operator, and Operator Precedence. Mathematical Functions. Understand the Input / Output operations in Java-Reading data from console, writing data to console. Control Statements – decision making and branching statements (simple if, if..else, if..else if ladder, Nested if statements, switch), Iterative Statements (for, while, do while). Java break and continue statements. The ?: operator. Exception handling in java – Types of errors, Exceptions in java, exception handling code (try..catch block) , multiple catch statements, finally statement, Throwing user defined exceptions.

Module II (8 Hrs)

Understand the concept of classes, objects and methods-Creation and implementation of classes, objects in Java, Constructors, Method Overloading, and static members. Inheritance - types of inheritance, Base class and derived class, super keyword, Final Variables and methods. Final

classes, finalizer methods. Visibility control – public, private, protected. Method Overriding, Abstract methods and classes. Arrays – one and two dimensional arrays, for..each statement for arrays, string arrays, string methods. Wrapper classes, Vectors. Static and this keywords. Concept of Interfaces – definition, extending, and implementing interfaces.

Module III (10 Hrs)

Packages -API and system packages, package naming conventions – creating, Accessing, and using packages. Multi threaded programming – creating threads, extending the thread class, life cycle of Thread class, Thread priority and synchronization. Applet Programming – Applets vs Applications, applet life cycle, building an executable applet , applet tag, adding applet to HTML file, running applet. Graphics – The Graphic class-java awt, lines, rectangle, circles, ellipses, arcs, polygons. Files in java – concepts of streams – stream classes – Byte Stream and Character Stream classes, I/O classes, File class, reading and writing characters and byte files. Random access files.

Module V (8 Hrs)

Android-OverView - What is Android, Features Android, Android Applications. Android versions. Android-Environment Setup – Create Android Virtual Device, **Android- Architecture** – Linux kernel, Libraries,Android Runtime, Application Framework, Applications. **Emulator-Android Virtual Device** - Launching emulator, Editing emulator settings, Emulator shortcuts, Logcat usage, Introduction to DDMS. **Android-Applications Component** – Activities, Services, Broadcast Receivers, Content Providers, and Additional Components. **Application Structure** (in detail with simple example) – Anatomy of Android Application, Main Activity File, Manifest File, String File, The R file, Layout File – Running Application. Android – **Organizing & Accessing the resources** – Organize Resources, Accessing Resources – in Code and in XML. **Android – Activities** with life cycle, Content Providers, Fragments with life cycle, Intent & filters. **Android-UI layouts** – Layout types, layout attributes [dip, dp, sip, sp] versus px., and view identification. **Android UI controls** - Form widgets, different Views (Button, Text/Lables, Edit Text, Toggle Button etc) and layouts [dip, dp, sip, sp] versus px. **Android-Event Handling** – Event Listeners & Event Handlers, Event Listeners Registration with an example - Event driven programming in Android (using Edit Text, Button, Text/Labels).

Module V (6 Hrs)

Menu - Option menu, Context menu, Sub menu, menu from xml, menu via code. **Intents** (in detail) Explicit Intents, Implicit intents. **UI design** – using - Time and Date, Images and media, AlertDialogs & Toast. **Styles & Themes** - styles.xml, drawable resources for shapes, gradients, style attribute in layout file, Applying themes via code and manifest file. **Adapters and**

Widgtes - Adapters:- ArrayAdapter, BaseAdapters, ListView and ListActivity, Custom listview, GridView using adapters. **Notifications** - Broadcast Receivers, Services and notifications, Toast. **Content Providers** - SQLite Programming, SQLiteOpenHelper, SQLiteDatabase, Cursor, Reading and updating Contacts .

Books:

Herbert Schildt, “Java the complete reference”, McGraw Hill, Osborne, 7th Edition, 2011

P.Radha Krishna , “Object Oriented programming through Java”, CRC Press, 1 st Edition, 2007

Internet resources:

<http://www.oracle.com/technetwork/java/javase/overview/index.html> 5

<http://docs.oracle.com/javase/tutorial/>

<https://www.javatpoint.com/>

Reto Meier – Professional Android Application Development.

<https://developer.android.com/>

L204 - B. C# Programming and ASP.NET (40 Hours)

Module I (8 Hours)

Microsoft Visual Studio.Net- Introduction, NET Framework- CLR, CTS, CLS, MSIL, JIT, Net Languages, Class Libraries, Assemblies, namespaces, Execution of an application in net framework (Block Diagram),

Introduction to Visual C#.Net- Features, Type of applications, Console Application- Application Structure, Variables- Static variables, Instance Variables, Constants, Data types- Number, Character, String , Boolean. Operators- Arithmetic Operators, Relational Operators, Logical Operators. I/O statements- Console. Read Line, Console.WriteLine, Control Structures - if, switch, while, for, for each, Arrays-Types of Arrays - Array Elements, Single Dimensional Arrays, Multi-dimensional Arrays, Jagged Arrays- Array Initialization, Accessing of Array Elements, Sorting , Introduction to Data types Structure, Enum, and Delegate etc. , Functions and Procedures- Parameters, Parameter Passing- Value Parameter, Reference Parameter

Module II (8 Hours)

Object Oriented Programming- Class, structure of the class, Object, Constructor, destructor , class members- field, Method, Properties, Access modifiers- Public, Private, Protected.. OOP concepts- Polymorphism, Encapsulation, Data Abstraction, Inheritance, Operator Overloading, Function Overloading, static class, Interface , LINQ (Language Integrated Queries)- Class wizard-Creation of class- access modifiers, Fields, Method, and Property- Set/Get- File Handling- File Streams, Stream Reader, Stream Writer, File- Creation, Open, Opening Modes- Methods and Properties.

Module III (10 Hours)

Windows Application- Introduction, IDE, Components of IDE- Menu Bar, Tool Bar, Tool Box, Property Window, Solution Explorer, Form Designer Window, Code Editor Window. Application Interfaces- Form

Common Controls/ Objects- Button, Text Box, Label, Group Box , Tool Tip, List Box, Combo Box, Check Box, Radio Button, Picture Box, Scroll Bars, Timer, Numeric Up Down, Menu Strip, Date Time Picker, Month Calendar and introduce all objects with Properties, Methods, Events.

Dialog Boxes- Message Box, Common Dialogs- Open, Save, Font, Color. Database Programming - ADO.Net, Components of ADO.Net- Data Adapter, Data set, Controls used to manage Database (Insert, Retrieve, Delete and Update Records) , Report Viewer.

Module IV (6 Hours)

Introduction to ASP.Net, Net Framework SDK- Creation of web forms- Adding controls(Text Box, Label, Button etc.), Handling Events and Web Page Processing. State management in web Forms (View state, Session etc) ASP.Net Validation Controls.- Simple Web Site Project.

Module V (8 Hours)

Server Controls (Grid View, Dropdown List), Master Pages and Themes, Handling User Input(Query String, Form Data, Cookies), Handling File Uploads(File Upload Control), Working with Data Sources(SQL Data Source, Object Data Source),Disconnected Architecture, Data Binding and Data Display(Grid View, Repeater, etc..), Connecting to Data Base (SqlConnection, SqlCommand), Executing Queries and Stored Procedures(ExecuteNonQuery, ExecuteScalar, ExecuteReader)

L205 Python Programming Lab (40 Hours)

1. Develop basic programs of Python
2. Programs to implement control statements
3. Program to create a user defined package
4. Program to store and read the file
5. Program to create a user defined function
6. Reverse a list in Python
7. Reverse the Tuple
8. Swap two Tuples in python
9. Merge two Python dictionaries in to one
10. Add a list of element in to a Set
11. Program to write and read the data from a file
12. Develop 1 to 5 programs using GUI(Tkinter)
13. Program to implement class
14. Program to implement constructor
15. Program for different types of inheritance
16. Write a program to input the details of the train such as trainnumber, trainname, source, and destination. Then store all the information on a MYSQL database
17. Write a program to input the trainnumber and check whether the train is available on a database. If available, print the details of the train.
18. Write a program to input the trainnumber and display the details from the database file. Then update the details.
19. Write a program to input the trainnumber and check whether the train is available or not. If available ,delete the information from the database file.
20. Create a Django App in a project to print “welcome to Web Programming”
21. Create a login system in python using Django
22. Create a registration form in python using Django
23. How to search the maximum and minimum element in the given array using NumPy?
24. How to sort the elements in the given array using Numpy?
25. How to reverse a NumPy array?

26. How to multiply two matrices in a single line using NumPy?
 27. Date Series Generation USING pandas
 28. Dictionary-to-Dataframe Conversion using pandas
 29. Conditional Selection of Rows in a DataFrame
 30. Joining 2 DataFrames by a Common Column (key)
 31. Visualization programs using Matplotlib
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L206 Elective 2 Lab

L206 A. Java and Smart Device Application Using Android Lab (40 Hours)

Module I

1. Simple Example program to show implementation of Arithmetic Operators, Bitwise Operators, Assignment operators.
2. Simple Example program to show implementation of , increment and decrement operator, Conditional (Ternary) Operator
3. Simple Example program to show implementation of **the Input / Output operations** in Java-Reading data from console, writing data to console.
4. Write a java program to show implementation of (simple if, and if..else). – Write a program to check whether an inputted number is +ve, -ve, or zero.
5. Write a java program to show implementation of (Nested if statements). – Write a program to print largest from three inputted numbers.
6. Write a java program to show implementation of (, if...else if ladder and switch). – Write a program to convert an inputted digit to into its corresponding “Word” form.
7. Write a java program to show implementation of The? operator. Write a program to print smallest from three inputted numbers using The? operator.
8. Write a java program to show implementation of (while, do while and for). Write a program to print multiplication table of an inputted number up to 10 terms using while loop.
9. Write a program to check if the given number is a prime number. Using do. while loop.
10. Write a program to print factorial of an inputted number using for loop.
11. Write a java program to show implementation of predefined Exception in java.
12. Write a java program to show implementation of user defined Exception in java.

Module II

1. Write a java program to show implementation Creation and implementation of classes, objects in Java.
2. Write a program to show implementation of Constructor in java.
3. Write a program to show implementation of static members of a class.
4. Write a program to show implementation of method overloading.
5. Write separate program to show implementation of various types of Inheritance in java.
6. Write a simple program to show implementation of Visibility control – public,private, protected.
7. Write program to show implementation of method overriding.
8. Write program to show implementation of Abstract methods and classes.
9. Write a program to show implementation of one dimensional array in java (using sort program.)
10. Write a program to show implementation of two dimensional arrays in java (using matrix multiplication program.)
11. Write a program to show implementation for...each statement in java (using sort program.)
12. Write a program to show implementation of string arrays in java (using student name sorting)
13. Write a program to show implementation of wrapper class and vectors using suitable example.
14. Write a program to demonstrate interface in java.

Module III

1. Write a program to demonstrate user defined packages in java.
2. Write a program to demonstrate multithreading in java.
3. Write a program to show implementation of Thread priority and synchronization.
4. Write a program to demonstrate applet in java using The Graphic class-java awt, lines, rectangle, circles, ellipses, arcs, polygons.
5. Write a program to create a text file in java.
6. Write a program to display content of a text file in java.
7. Write a program to copy one file to another file.

Module IV

1. Write a program to show implementation of activity life cycle in Android.
2. Program to receive user name and password and check user validity (using Label box, EditText and Buttons)

3. Program to show implementation of CheckBox, and RadioButtons.
4. Write a program to show a picture on smart device screen using ImageView Control.
5. Program to show implementation of LinearLayout, RelativeLayout, ScrollView, and TableLayout in smart devices.
6. Program to Design an Digital and Analog Clock in smart devices.
7. Write a program to compute age from inputted date of birth using DateTimePicker.

Module V

1. Write a program to show implementation of Menu in Android.
 2. Write a program to show implementation of Styles & Themes in Android.
 3. Write a program to demonstrate Adapters and Widgets in Android.
 4. Write a program to show implementation of Notification in Android.
 5. Design a database (in SQLite) called “PhoneDirectory”, which contain columns such as PersonName, MobileNo, and LandlineNo. Then design a program which should contain buttons for the following operations.
Save, Search, Edit, and Delete.
-

L206 B. C# Programming and ASP.NET Lab (40 Hours)

Module I

1. Calculate sum Two Numbers(Usage Operator, Console.ReadLine, Console.WriteLine)
2. Display Largest/ Smallest Number (Usage of If)
3. Generate Number sequences like Natural, Even Numbers(Looping)
4. Find the Largest and smallest element from single Dimensional Array
5. Sort Single Dimensional Array(Bubble sort Algorithm)
6. Find the number of words from a line of text
7. Demonstrate Two Dimensional Array(Matrix Addition)
8. Factorial of a given number.

Module II

1. Creation of a class named Rectangle with properties length and width , and two methods Area and Perimeter

2. Create a class hierarchy for different types of animals, with a base class named Animal and derived classes for specific animals (e.g., Cat, Dog, and Bird).
3. Create a generic class for a stack data structure, with methods for pushing, popping, and checking if the stack is empty.
4. Create a program that uses LINQ to find the largest and smallest numbers in an array of integers.

Module III

- 1 An application to Demonstrate Arithmetic Operations
- 2 An application to Generate Sequence Numbers like Natural Numbers, Perfect, amstrong, Prime Numbers etc.
- 3 An application to Manage Two List Boxes- copy, copy all, Move Move all etc.
- 4 Demonstrate the functions of an Editor Application- usage menu strip, Common Dialog Controls, context menu strip,
- 5 Demonstration of Scroll Bars.
- 6 Demonstration of a database program (DataGrid view, Text boxes..) perform DML- Data Insertion, Deletion, Updation and selection.

Module IV

- 1 Create a simple Web Forms page that displays a welcome message and a button.
- 2 Add a server control to the Web Forms page and handle its Click event to display a message.
- 3 Use ViewState to store and retrieve data across postbacks.
- 4 Use Session to store and retrieve user-specific data across different pages.
- 5 Add validation controls to a Web Forms page to validate user input.

Module V

- 1 Create a Web Forms page that displays data from a database using a GridView control.
- 2 Create a Master page and apply it to multiple content pages.
- 3 Implement file upload functionality on a Web Forms page.
- 4 Use LINQ to filter and sort data in a Web Forms page.
- 5 Create a database in SQL Server and connect to it from a Web Forms application.
- 6 Demonstrate Web Application to manage a Database(CRUD opeartion)

L207 Project and Seminar (40 Hours)

Project

Synopsis, preferably should be about 3-4 pages

The content should be as brief as is sufficient enough to explain the objective and implementation of the project that the candidates are going to take up. The write should be include the following (not necessary in order as given below)

Name / Title of the project, Statement about the problem, why is the particular topic chosen? Objective and scope of the project, Hardware and Software to be used, testing technologies used.

Submission of project Report

The following suggested guidelines may be followed in preparing the final project report

Good quality white executive bond paper a4 size should used for typing and duplication. Page specification: (Written paper and source code)

Left margin	3.0 cms
Right margin	3.0 cms
Top Margin	2.7 cms
Bottom Margin	2.7 cms

Page numbers- All text pages as well as Program source code listing should be numbered at the bottom centre of the pages.

Format of the student Project report on Completion of the Project

1. Cover Page
2. Certificate of Institution
3. Certificate of the Company / Organization
4. Acknowledgement.
5. Main Report
 - Objective & Scope of the Project
 - Theoretical Background
 - Definition of problem

- System Analysis & design vis-à-vis User Requirements
- Details of Hardware and Software used.
- ERD / DFD / UML
- Input and output design screen
- Process involved
- Methodology used for testing
- Test report, Printout of the Report, Printout of code sheet

Annexure

1. Brief back ground of the organization where the student developed the project.
2. Data Dictionary
 - This should give a catalogue of the data elements used in the system / sub system developed
 - The following are the details required. Write NA if NOT Applicable
 - Data name
 - Aliases if any
 - Length (size)
 - Type, Numeric, Alpha, Binary etc
3. List of Abreactions, Figures, Tables
4. Reference
 - Bibliography
 - Website
5. Soft copy of the project

Seminar

The student will have to prepare and present a topic relevant to information technology and its latest applications. A report submitted for evaluation.

.....XXX.....

SYLLABUS

Course Name : COMPUTERISED FINANCIAL ACCOUNTING & GST USING TALLY

Duration : 120 Hours

Course fee : Rs.5000/-

Eligibility : The minimum qualification prescribed for admission is +2 (commerce)/B.Com OR DCP (Diploma in Commercial Practice)/HDC/JDC/BBA. Qualification can be relaxed for those having proper background in accounting field (+2 with Minimum 1 year experience)

Objective : To test the ability of the students to handle Tally Accounting Software independently and to mould a novice to professional accountant who can manage and organize financial transactions and applications of GST of MSME/ Large Scale Organizations.

Scheme and Syllabus:

Theoretical aspects of Tally ERP 9 and GST (Total Hours - 30)

Accounting software - Tally ERP 9 (Practical: Total Hours - 70)

MS Word and MS Excel (Total Hours - 20)

THEORETICAL ASPECTS OF TALLY ERP 9 AND GST (Total Hours-30)**Basic Accounting Concepts**

Evolution – Meaning – Objectives – Book Keeping And Accounting – Basic Terms – Types – Golden Rules Of Accounting – Journal – Meaning – Debit And Credit – Ledger Posting – Cash Book- Trial Balance- Profit & Loss Account – Balancesheet – Practical Work In Accounting – Compound Journal Entries – Trade Discount And Cash Discount – Banking Transaction – Opening Entries – Adjustment Entries In Final Accounts

Introduction to Tally ERP 9

Features– Tally Licenses – Opening screen of Tally – Buttons on the button panel – Configuring company – Group – Ledger - Creation , Alteration and Deletion - various types of Accounting Vouchers - Meaning of cost category and cost centre – Types of Budget - Introducing stock group, units of measure, locations / godowns, Stock item – Types of inventory vouchers - Purchase order and Sales order- Interest Calculation - Payroll Accounting – Theoretical aspects of VAT and Evolution of GST– GST in India – Types(CGST,IGST,SGST and UTGST) - Ledger accounts –Schedules – Rates of GST– Enabling GST in Tally – GSTIN – Ledger Creation under GST (Purchase, Purchase Return, Sales, Sales Return) – Applying GST to Stock Items – Voucher Entry - GST Forms - GST Reports. GST Accounting for Un Registered Dealer and Composition Dealer. Tax Deducted at Source (TDS) and Tax Collected at Source (TCS)

Accounting software-Tally ERP 9 (Practical: Total Hours-70)

1.1 Fundamentals of Tally ERP 9

- Getting started with Tally ERP 9
- Creation of Company – Types Of Company, Create,Alter, Delete
- Introducing F11 Features and F12 configuration.
- Backup and Restore of Data and copying of data of a company

1.2 Accounting Masters in Tally ERP 9

- Ledger creation, alteration, deletion in Tally ERP 9.
- Setting up account heads.

1.3 Inventory In TallyERP 9

- Stock group
- Stock categories
- Godowns/Locations
- Units of Measure
- Stock Items
- Creating Inventory Account Heads.

1.4 Voucher Entries in Tally ERP 9

- Introduction to Accounting and Inventory vouchers
- Voucher Entries
- Adjustment entries
- Interest calculation

1.5 Payroll Accounting

- Enabling Payroll
- Creation of Employee group, Employee, Pay head
- Salary details
- Voucher Entry
- Payroll Reports

1.6 Goods and Service Tax(GST)

- Enabling GST in Tally ERP9
- Ledger creation under GST
- CGST, IGST, SGST and UTGST ledger accounts
- GST Portal
- Registration
- Applying GST to stock items
- Voucher entry in GST
- GST Forms
- GST Reports
- GST Efiling

MS Word and MS Excel (Total Hours-20)**MS WORD (6 hrs)**

- Introduction to MS Word
- Working with basic tools in MS Word
- Cut, Copy and Paste options, Format painter, Applying borders and styles...

MS Excel (14hrs)

- Fundamentals
- Working with various Excel formulas and functions – Pivot Table, Lookup etc.
- Creation of Charts
- Filter Data by using Auto Filter, Custom Filter and Advance Filter
- Data Consolidation
- Data Validation
- Scenario Manager
- Goal Seek
- Data Table

DATA ENTRY AND OFFICE AUTOMATION COURSE (ENGLISH AND MALAYALAM - 4 MONTHS)

Eligibility: A pass in SSLC or equivalent

Duration: 3 months (5 days per week, 2 hours per day)

- Classes will be held on 5 days per week with 2 Hrs/day.
- Candidates must secure a minimum of 80% attendance in order to secure the eligibility to appear for end examination.

Subjects (160 hours)

Windows Operating System	- 20 Hours (10 Theory + 10 Practical)
Ms Word	- 30 Hours (10 Theory + 20 Practical)
MS Excel	- 20 Hours (10 Theory + 10 Practical)
Ms Access	- 10 Hours (5 Theory + 5 Practical)
Malayalam Computing	- 10 Hours (10 Theory)
English typing Practice	- 40 Hours
Malayalam Typing Practice	- 30 Hours

Rules of End Examination

End examination consists of one theory and one practical examination (50 Marks each) covering the entire syllabus. A candidate must secure a minimum of 40% marks in the Theory and practical to pass the examination.

Classification of Grades

90% and above	: A++
70% to 89%	: A+
50% to 69%	: A
40% to 49%	: B

Theory Question Pattern :

Part A (20 Marks) : Short answer questions (2 Marks each)

Part B (30 Marks) : Essay type questions. The candidate should answer 6 out of 8 questions. (5 Marks each)

Speed Test Certificate

English - Candidate should attain 10,000 Kd/Hrs

Malayalam - Candidate should attain 15 Words/Minute

Contents:

1. Windows Operating system
2. MS Word
3. MS Excel
4. MS Access
5. Data entry software – English and Malayalam

Detailed Syllabus

Windows Operating System

start menu, icons on desktop, desktop settings, operations on files and folders control panel, accessories- paint, notepad, calculator, command prompt, windows explorer, address book.

MS Word

- Opening a New Document
- Saving a Document
- Getting Help with MS Word

Basic Editing

- The Cursor
- Inserting Text
- Deleting Text
- Moving Text
- Undo and Redo
- Wrap Text Formatting
- Selecting Text
- Applying a Font
- Selecting Text
- Applying a Font
- Changing Font Size
- Font Attributes
- Font Color
- Clear Formatting
- Text Alignment

Copying and Moving Text and **Objects**

- The Clipboard
- Paste
- Formatting
- Changing Defaults
- Drag and Drop Text

Editing Features

- Spell Check
- Thesaurus

- Accepting and Rejecting Changes
- Page View
- Zoom

Paragraph Formatting

- Changing Paragraph Alignment
- Indenting Paragraphs
- Add Borders or Shading to a Paragraph
- Apply Paragraph Styles
- Creating Links within a Document
- Change Spacing Between Paragraphs and Lines

Tables

- Creating Tables
- Creating a table by highlighting the boxes
- Create a table by using the Insert Table command
- Drawing a Table
- Converting text into a table
- Quick Tables
- Entering Text
- Table Tools
- Inserting and deleting
- Merging and Splitting cells
- Adjusting column width
- Position Text within cell
- Cell Borders and shading

Lists

- Bulleted and Numbered Lists
- Creating a Nested List
- Format Your List
 - Creating Outlines Page Formatting
- Page Margins
- How to Change the Orientation, Size of the Page, or Size of the Columns
- Apply a Page Border and Color
- Insert Headers and Footers (Including Page Numbers)
- Create a Page Break
- Insert a Cover Page
- Insert a Blank Page

Inserting Graphics, Pictures, and Table of Contents

- Inserting Special Characters Into Your Document
- Inserting Equations
- How to Insert Illustrations, Pictures, and SmartArt, Resizing Graphics
- Watermarks
- Table of Contents
- Creating a Table of Contents
- Update a Table of Contents
- Delete a Table of Contents Advanced Tools

- Placeholders
- Manage Sources
- Adding a Bibliography
- Adding Footnotes
- Compare and Merge Documents
- Protect Document
- Mailing Lists, mail merge

Excel

- Introduction Excel
- Starting Excel 2007
 - Understanding the Excel 2007 Program Screen
- Understanding the Ribbon
- Using the Microsoft Office Button and Quick Access Toolbar
- Using Contextual Menus and the Mini Toolbar
- Using Help
- Exiting Excel 2007
- **Worksheet Basics**
- Creating a New Workbook
- Opening a Workbook
- Navigating a Worksheet
- Entering Labels
- Entering Values
- Selecting a Cell Range
- Overview of Formulas and Using AutoSum
- Entering Formulas
- Using AutoFill
- Understanding Absolute and Relative Cell References
- Using Undo and Redo
- Saving a Workbook
- Previewing and Printing a Worksheet
- Closing a Workbook
- **Editing a Worksheet**
- Editing Cell Contents
- Cutting, Copying, and Pasting Cells
- Moving and Copying Cells
- Using the Mouse
- Using the Office Clipboard
- Using the Paste Special Command
- Checking Your Spelling
- Inserting Cells, Rows, and Columns
- Deleting Cell/s, Rows, and Columns
- Using Find and Replace
- Using Cell Comments
- Tracking Changes
- Formatting a Worksheet
- Formatting Labels
- Formatting Values
- Adjusting Row height and column Width
- Working With Cell Alignment
- Adding Cell Borders

- Applying Conditional Formatting
- Creating and Managing Conditional Formatting Rules
- Finding and Replacing
- **Formatting Creating and Working with Charts**
- Creating a Chart
- Resizing and Moving a Chart
- Changing Chart Type
- Applying Built-in Chart Layouts and Styles
- Working with Chart Labels
- Working with Chart Axes
- Working with Chart Backgrounds
- Working with Chart Analysis Commands
- - Formatting Chart Elements
- Changing a Chart's Source Data
- Using Chart Templates

FUNCTIONS

- What is a function
- Common functions
- Sum function
- Average function
- Max function
- Min function
- Count function
- IF functions
- Using the IF function

Manipulating Data

Data Names and Ranges

- Filter
- Sort
- Validation Lists
- consolidate
- What-if Analysis
- Subtotal
- Data from External Sources

MS Access

Introduction to Databases

- Database Basics
- What is a Table, Form, Query, Report

Creating and Working with a Database

- Planning a Database
- *Creating a New Database*
- Creating a Table
- Modifying a Table
- Creating a Query

Different types of Wizards

- *Creating a Form with the Form Wizard*
- *Creating a Report with the Report Wizard*

Finding, Filtering, and Formatting Data

- Finding and Replacing Data
- Sorting Records
- Using Common Filters
- Filtering by Selection
- Filtering by Form
- Creating an Advanced Filter

Data Entry software

keyboard layouts, fingering
practice On typing tutors
practice lessons (text and record sets)
creating tables and data entry forms using Access Forms.

Malayalam computing-

IT and Malayalam Language – ASCII and UNICODE

Enabling Unicode in Computer

Software used in the area of Malayalam Computing – Fonts – Malayalam fonts-
Font installation.

Different keyboard Layouts- Advantage of using Inscript layout in regional
language

typing- Familiarization of Malayalam inscript layout- Editing Malayalam
documents using inscript layout.

Malayalm typing using ISM

Malayalm typing using ileap

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DATA ENTRY AND OFFICE AUTOMATION COURSE (English) (3 MONTHS)

Eligibility: A pass in SSLC or equivalent

Duration: 3 months (5 days per week, 2 hours per day)

- Classes will be held on 5 days per week with 2 Hrs/day.
- Candidates must secure a minimum of 80% attendance in order to secure the eligibility to appear for end examination.

Subjects (120 hours)

Windows Operating System	- 20 Hours (10 Theory + 10 Practical)
Ms Word	- 30 Hours (10 Theory + 20 Practical)
MS Excel	- 20 Hours (10 Theory + 10 Practical)
Ms Access	- 10 Hours (5 Theory + 5 Practical)
English typing Practice	- 40 Hours

Rules of End Examination

End examination consists of one theory and one practical examination (50 Marks each) covering the entire syllabus . A candidate must secure a minimum of 40% marks in the Theory and practical to pass the examination.

Classification of Grades

90% and above	: A++
70% to 89%	: A+
50% to 69%	: A
40% to 49%	: B

Theory Question Pattern :

Part A (20 Marks) : Short answer questions (2 Marks each)

Part B (30 Marks) : Essay type questions. The candidate should answer 6 out of 8 questions. (5 Marks each)

Speed Test Certificate

English - Candidate should attain 10,000 Kd/Hrs

Contents:

1. InttOdUCtion to Windows
2. Word 2007
3. Excel 2007
4. Access 2007
5. Data entry software

Detailed Syllabus

Introduction to Windows

start menu, icons on desktop, desktop settings, operations on files and folders, control panel, accessories- paint, notepad, calculator, command prompt, windows explorer, address book.

Word 2007 Beginning with

Microsoft Word 2007

- Opening a New Document
- Saving a Document
- Getting Help with MS Word 2007

Basic Editing

- The Cursor
- Inserting Text
- Deleting Text
- Moving Text
- Undo and Redo

• Wrap Text Formatting

- Selecting Text
- Applying a Font

- Selecting Text
- Applying a Font
- Changing Font Size
- Font Attributes
- Font Color
- Clear Formatting
- Text Alignment

Copying and Moving Text and **Objects**

- The Clipboard
- Paste
- Formatting
- Changing Defaults
- Drag and Drop Text

Editing Features

- Spell Check
- Thesaurus
- Auto Correct
- Check Word Count
- Track Changes
- Accepting and Rejecting Changes
- Page View
- Zoom

Paragraph Formatting

- Changing Paragraph Alignment
- Indenting Paragraphs
- Add Borders or Shading to a Paragraph
- Apply Paragraph Styles
- Creating Links within a Document
- Change Spacing Between Paragraphs and Lines

Tables

- Creating Tables
- Creating a table by highlighting the boxes
- Create a table by using the Insert Table command
- Drawing a Table
- Converting text into a table
- Quick Tables
- Entering Text
- Table Tools

- Inserting and deleting
- Merging and Splitting cells
- Adjusting column width
- Position Text within cell
- Cell Borders and shading

Lists

- Bulleted and Numbered Lists
- Creating a Nested List
- Format Your List
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- Page Margins
- How to Change the Orientation, Size of the Page, or Size of the Columns
- Apply a Page Border and Color
- Insert Headers and Footers (Including Page Numbers)
- Create a Page Break
- Insert a Cover Page
- Insert a Blank Page

Inserting Graphics, Pictures, and Table of Contents

- Inserting Special Characters Into Your Document
- Inserting Equations
- How to Insert Illustrations, Pictures, and SmartArt, Resizing Graphics
- Watermarks
- Table of Contents
- Creating a Table of Contents
- Update a Table of Contents
 - Delete a Table of Contents Advanced Tools
- References and Citations
- How to Insert Citations
- Placeholders
- Manage Sources
- Adding a Bibliography
- Adding Footnotes
- Compare and Merge Documents
- Protect Document
- Mailing Lists, mail merge

Excel2007

Introduction Excel

- Starting Excel 2007
 - Understanding the Excel 2007 Program Screen
- Understanding the Ribbon
- Using the Microsoft Office Button and Quick Access Toolbar
- Using Contextual Menus and the Mini Toolbar
- Using Help
- Exiting Excel 2007
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- Entering Values
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- Overview of Formulas and Using AutoSum
- Entering Formulas
- Using AutoFill
- Understanding Absolute and Relative Cell References
- Using Undo and Redo
- Saving a Workbook
- Previewing and Printing a Worksheet
- Closing a Workbook
- **Editing a Worksheet**
- Editing Cell Contents
- Cutting, Copying, and Pasting Cells
- Moving and Copying Cells
- Using the Mouse
- Using the Office Clipboard
- Using the Paste Special Command
- Checking Your Spelling
- Inserting Cells, Rows, and Columns
- Deleting Cells, Rows, and Columns
- Using Find and Replace
- Using Cell Comments
- Tracking Changes
- Formatting a Worksheet
- Formatting Labels
- Formatting Values

- Adjusting Row height and column Width
- Working With Cell Aligment
- Adding Cell Borders,
- Background Colors
- Using the Format Painter Using Cell Styles
- Using Document Themes
- Applying Conditional Formatting
- Creating and Managing Conditional Formatting Rules
- Finding and Replacing
- **Formatting Creating and Working with Charts**
- Creating a Chart
- Resizing and Moving a Chart
- Changing Chart Type
- Applying Built-in Chart Layouts and Styles
- Working with Chart Labels
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- Working with Chlrt Analysis Commands
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- Using Chai1 Templates

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- Average function
- Max function
- Min function
- Count function
- IF functions
- Using the IF function

Manipulating Data

Data Names and Ranges

- Filters

- Sort
- Validation Lists
- consolidate
- What-if Analysis
- Subtotal
- Data from External Sources

Access 2007

Introduction to Databases

- Database Basics
- What is a Table,Form,Query ,Report

Creating and Working with a Database

- Planning a Oatabase
- *Creating a New Database*
- Creating a Table
- Modifying a Table
- Creating a Query
- Sorting a Query•
- " Using AND and OR Operators in a Query
- *Converting an Access Database*

Different types of Wizards

- *Creating a Form with the Form Wizard*
- *Creating a Report with the Report Wizard*

Finding, Filtering, and Formatting Data

- Finding and Replacing Data
- Sorting Records
- Using Common Filters
- Filtering by Selection
- Filtering by Form
- Creating an Advanced Filter

Data EntFy software

keyboard layouts,finering
 practlce On typing tutors
 practice lessons (text and record sets)
 creating tables and data entry forms using Access Forms.

DESK TOP PUBLISHING

Eligibility:A pass in SSLC or equivalent

Duration:3 months(5 days per week, 2 hours per day), **Course Fee:** 5000/-

- Classes will be held on 5 days per week with 2 Hrs/day.
- Candidates must secure a minimum of 80% attendance in order to secure the eligibility to appear for end examination.

Subjects (120 hours)

Introduction to Windows	- 10 Hours (5 Theory + 5 Practical)
Ms Word	- 20 Hours (6 Theory + 14 Practical)
Adobe Indesign	- 40 Hours (10 Theory + 30 Practical)
Adobe Photoshop	- 30 Hours (5 Theory + 25 Practical)
Coral Draw	- 20 Hours (4 Theory + 16 practical)

Rules of End Examination

End examination consists of one theory and one practical examination (50 Marks each) covering the entire syllabus . A candidate must secure a minimum of 40% marks in the Theory and practical to pass the examination.

Classification of Grades

90% and above	: A++
70% to 89%	: A+
50% to 69%	: A
40% to 49%	: B

Question Pattern :

Part A (20 Marks) : Short answer questions (2 Marks each)

Part B (30 Marks) : Essay type questions. The candidate should answer 6 out of 8 questions. (5 Marks each)

Detailed Syllabus

Introduction to Windows

start menu, icons on desktop, desktop settings, operations on files and folders,

control panel, accessories- paint, notepad, calculator, command prompt, windows explorer, address book.

MS Word

Beginning with Microsoft Word

- Opening a New Document
- Saving a Document
- Getting Help with MS Word 2007

Basic Editing

- The Cursor
- Inserting Text
- Deleting Text
- Moving Text
- Undo and Redo
- Wrap Text

Formatting

- Selecting Text
- Applying a Font
- Changing Font Size
- Font Attributes
- Font Color
- Clear Formatting
- Text Alignment

Copying and Moving Text and Objects

- The Clipboard
- Cut,Copy,Paste
- Formatting

Editing Features

- Spell Check
- Thesaurus
- Auto Correct

- Translation

Paragraph Formatting

- Changing Paragraph Alignment
- Indenting Paragraphs
- Add Borders or Shading to a Paragraph
- Apply Paragraph Styles
- Creating Links within a Document
- Change Spacing Between Paragraphs and Lines

Tables

- Creating Tables
- Creating a table by highlighting the boxes
- Create a table by using the Insert Table command
- Drawing a Table
- Converting text into a table
- Quick Tables
- Entering Text
- Table Tools
- Inserting rows and columns
- Deleting Cells, Rows or Columns
- Merging Cells and Splitting Cells
- Adjusting Column Width
- Position Text Within A Cell
- Borders and Shading

Lists

- Bulleted and Numbered Lists
- Creating a Nested List

Page Formatting

- Page Margins
- How to Change the Orientation, Size of the Page, or Size of the Columns
- Apply a Page Border and Color
- Insert Headers and Footers (Including Page Numbers)
- Create a Page Break
- Insert a Cover Page
- Insert a Blank Page

Inserting Graphics, Pictures, and Table of Contents

- Inserting Special Characters Into Your Document
- Inserting Equations
- How to Insert Pictures, and SmartArt,Resizing Graphics
- Watermarks
- Table of Contents
- Creating a Table of Contents
- Update a Table of Contents
- Delete a Table of Contents

Working with Styles

- getting familiar with style set
- applying quick styles
- creating, modifying a quick style
- templates
- creating, modifying your own templates

Adobe InDesign.

Getting started with InDesign – Exploring InDesign workspace –Application Bar-Menu Bar- Control Panel – Tools Panel – Document Window - Work Area – Panel groups – Creating Workspace – Saving and Closing a document – Quitting the application.

Working with Document.

Opening an existing document – master page creation and deletion – Text frame creation-Adding text to the document – working with type on a path tool – creating type on a path – removing text from the path- removing text from the path. Basic Formatting – Changing the font size, color – Aligning the text – Character styles – paragraph styles.

Working with Drawing tools and Objects.

Using shape tools - Rectangle tool , ellipse tool, polygon tool- Pencil tool- drawing a freeform path and closed path, editing path – Using pen tool- Drawing straight line, drawing curves- Transforming object – Flipping, Rotating, Cropping and Shearing an Object.

Publishing the Document.

Creating table of Contents – Applying Styles to TOC – Printing the document – Print previewing the document- Saving document as a pdf file.

Adobe Photoshop

Familiarize the toolbox – working with images- understanding image resolution- changing the resolution of an image – changing the image size- Editing images – rotating, cropping- making color adjustments-levels, curves, brightness /contrast palettes.

Working with Selection Tools – Marquee Tool, Lasso Tool, Magic wand Tool, Modifying a selection- adding and subtraction from a selection.

Working with Drawing, Painting and retouching tools

Exploring color picker dialog box, Eye dropper tool, color palette, color replacement tool- Retouching tool – healing brush, patch tool, Clone stamp tool, Eraser tool - Background eraser, magic eraser.

Working with layers

Creating a new, hiding, showing and deleting layers, Applying blend modes.

CorelDraw

Workspace of Coreldraw - Drawing basic geometric figures – Saving and Opening a document –preview the drawings

Working with lines

Curves – Calligraphic lines – outline tool – outline setting – calligraphic outline

Working with objects

Selecting and deselecting, deleting, sizing, rotating and grouping objects.

Working with text

Artistic text and Paragraph text- Converting text from one type to another – Text formatting – font, font size, color, alignment – Wrapping paragraph around objects- fitting text to an object path.

Working with Bitmap

Cropping, re sampling and resizing a bitmap- Applying 3D effects to a bitmap.

LBS SKILL CENTRE

Course Title	Diploma in Cruise Tourism			
Abbreviation of Course Title	DCT			
Duration of the course in Hours	500			
Duration of the course in Months	1 year			
Course Fees	12500			
Eligibility	Plus two			
About the Course				
This course that focuses on areas of cruise tourism				
Objectives of the course				
To provide students with theoretical and practical training in cruise tourism and to follow the national and international innovations.				
Scheme of Study				
Subject Code	Name of the subject	Theory (hrs)	Practical (hrs)	Total (hrs)
DCT	Diploma in cruise Tourism	400	100	500
Syllabus of the course				

Chapter 1: Introduction to Cruise Tourism

Chapter 2 – The Cruise Tourism Destinations

Chapter 3 – Management of Cruise Tourism

Chapter 4 – The Geography of Cruising

Chapter 5 – Selling Cruise Packages

Chapter 6 – Selecting, Selling and Pricing Cruises

Chapter 6 – Selecting, Selling and Pricing Cruises

Method of Evaluation

Academic evaluation should be based on a continuous evaluation procedure. After completing all the theory and practical sessions, every student must carry out a project assigned by the instructor and submit the report.

End examination – Theory objective type

Minimum Attendance required for the candidate to appear for final examination: 75%