மனோன்மணியம் சுந்தரனார் பல்கலைக்கழகம்

MANONMANIAM SUNDARANAR UNIVERSITY

SYLLABUS FOR ADVANCED DIPLOMA IN INFORMATION TECHNOLOGY PROGRAM OFFERED THROUGH DIRECTORATE OF VOCATIONAL EDUCATION (COMMUNITY COLLEGES AND VOCATIONAL SKILL DEVELOPMENT CENTRES) FROM 2019 - 2020

கல்விசார் நிலைக்குழுக் கூட்டம்

MEETING OF THE STANDING COMMITTEE ON ACADEMIC AFFAIRS HELD ON WEDNESDAY THE 22nd JANUARY 2020

ADVANCED DIPLOMA IN INFORMATION TECHNOLOGY
மேம்பட்ட தகவல் தொழில்நுட்பம் பட்டயம்

SCHEME OF EXAMINATION

Subject Code	Title of the Course	Credit	Hours	Passing Minimum
Semester I				
C19IN11/E19IN01	Principles of Information Technology	6	90	40/100
C19IN12/E19IN02	Computer Hardware and Maintenance	6	90	40/100
C19IN13/E19IN03	Office Automation	6	90	40/100
C19CE10/E19CE10	Communicative English	6	90	40/100
C19INP1/E19INP1	Practical I-Computer Hardware and Maintenance Laboratory	4	120	40/100
Semester II				
C19IN21/E19IN04	Data Communication and Networking	6	90	40/100
C19IN22/E19IN05	Programming in C	6	90	40/100
C19LS23/E19LS05	Life Skill	6	90	40/100
C19IN24/E19IN06	Operating System	6	90	40/100
C19INP2/E19INP2	Practical II-C Programming Laboratory	4	120	40/100
Semester III				
C19IN31/E19IN07	Database Management Systems	6	90	40/100
C19IN32/E19IN08	Adobe Photoshop	6	90	40/100
C19IN33/E19IN09	Web based Application Development using PHP and MySQL	6	90	40/100
C19INP3/E19INP3	Practical III-Adobe Photoshop Laboratory	4	120	40/100
C19INP4/E19INP4	Practical IV-Web based Application Development Laboratory using PHP and MySQL	4	120	40/100
Semester IV				
C19IN41/E19IN10	Python Programming	6	90	40/100
C19IN42/E19IN11	Mobile apps development with Android Studio	6	90	40/100
C19IN43/E19IN12	Essentials of Cloud Computing	6	90	40/100
C19INP5/E19INP5	Practical V-Python Programming Laboratory	4	120	40/100
C19INPW/E19INPW	Project	10	150	40/100

Eligibility for admission: Pass in 10ᵗʰstd examination conducted by the Govt. of Tamil Nadu Board of Secondary Education, Government of Tamil Nadu or any other equivalent examination.

Examination: Passing Minimum for each Course is 40%. Classification will be done on the basis of percentage marks of the total marks obtained in all the Courses and as given below:

40 % but less than 50 %   - Third class
50 % but less than 60 %   - Second class
60 % and above   - First class

Theory Paper

Internal Marks-25
External Marks-75

Syllabus

First Semester:-
Course I   - Principles of Information Technology
Course II   - Computer Hardware and Maintenance
Course III   - Office Automation
Course IV   - Communicative English
Course V   - Practical I-Computer Hardware and Maintenance
              Laboratory

Second Semester:-
Course VI   - Data Communication and Networking
Course VII   - Programming in C
Course VIII   - Life Skill
Course IX   - Operating System
Course X   - Practical II-C Programming Laboratory

Third Semester:-
Course XI   - Database Management Systems
Course XII   - Adobe Photoshop
Course XIII   - Web based Application Development using PHP and My
              SQL
Course XIV   - Practical III-Adobe Photoshop Laboratory
Course XV   - Practical IV-Web based Application Development
              Laboratory using PHP and My SQL

Fourth Semester:-
Course XVI   - Python Programming
Course XVII   - Mobile apps development with Android Studio
Course XVIII -Essentials of Cloud Computing
Course XIX   - Practical V- Python Programming Laboratory
Course XX   - Project

*(Semester Pattern for Community College Only)

Program Objectives

1. To ensure development of skilled professionals to meet the industrial requirements in Information Technology industry.
2. To empower graduands with skills which will help them establish start-ups in Information Technology and related sectors.
3. To encourage the graduands continue their higher studies and contribute to the needs of the community through research.

Course I

(C19IN11/E19IN01)PRINCIPLES OF INFORMATION TECHNOLOGY

Objectives

1. To understand the IT based environment in terms of various concepts, techniques and tools.
2. To know the IT based business applications and the latest trends in industry.

Unit-I   **18 Hrs**

Information Technology Basics: Introduction, Need for Information Storage and Processing, Information Technology Components, Role of Information Technology, Information Technology and the Internet.

Unit-II   **18 Hrs**

Internet: Introduction, Internet Evolution, Basic Internet Terminology, Data over Internet, Modes of Data Transmission, How the Internet Works: Accessing Internet, Connecting to the Internet, Steps to Connect to the Internet, Internet protocol (IP) address, Domain name, The World Wide Web, The URL.

Unit-III   **18 Hrs**

Networks: Types of Networks, Types of Topologies, and Protocols used in the Internet, Internet Applications, Getting Connected to Internet Applications, Computer Ethics.

Unit-IV   **18 Hrs**

Electronic Commerce (E-Commerce): E-commerce features, Business to business (B-to-B or B2B) E- Commerce, Business to consumer (B-to-C or B2C) E- Commerce, Business to Government (B-to-G or B2G) E- Commerce, Government to Consumer (G-to-C or G2C) E- Commerce, Consumer to consumer(C-to-C or C2C) E- Commerce.

Unit-V   **18 Hrs**

Emerging Trends in IT: Introduction, Electronic Data Interchange (EDI), Smart Cards, Mobile Communication, Internet Protocol TV, Virtual Reality, Augmented Reality, Internet of Things.

REFERENCES:

- ❖ Satcey C. Sawyer, Brain K. Williams Sarah E Hutchinson, Using Information Technology, Brief version, 2nd edition McGraw Hill.
- ❖ www.tutorialspoint.com/e_commerce/e_commerce_business_models.
- ❖ Principles of Information Technology Kathleen M. Austin, Lorraine N. Bergkvist

Course II
(C19IN12/E19IN02)COMPUTER HARDWARE AND MAINTANANCE

Objectives:
1. To understand in details the different Computer hardware, configuration and maintenance.
2. To acquire skills to pursue career in Computer Maintenance.

Unit-I   18 Hrs

Inside the PC: Block diagram of Pentium - Inside the Pentium – Parts - Mother board, chipset, expansion slots, memory, Power supply, drives and connectors
 Systems: Desktop, Lap Top, Specification and features - Comparison table. Server - system – IBM server families, Sun Server, Intel processor etc – Workstation
Mother Board: Evolution – Different forms of mother boards – Riser - Architectures. Intel, AMD and VIA motherboards. **Chipsets:** Introduction – 945 chipset
 Bus Standards: Introduction – ISA Bus – PCI Bus – PCI Express, USB, High speed Bus, – Pin details and Architecture.
Bios-setup: Standard CMOS setup, Advanced BIOS setup, Power management, Advanced chipset features, PC Bios communication – upgrading BIOS, Flash, BIOS –setup
 Processors: Introduction – Pentium IV, Hyper threading, dual core technology, Core2Duo technology — AMD Series, Athlon 2000, Xeon processor. Comparison tables. Pentium Pin details, Itanium Processor - Pentium packaging styles, Parallel Computer Architectures, GPU.

Unit-II   18 Hrs

Memory and I/O
Memory: Introduction - Main memory – Evolution - DRAM – EDO RAM - SDRAM – DDR RAM versions – IT RAM – Direct RDRAM – Memory Chips (SIMM, DIMM, RIMM)- Extended – Expanded – Cache - Virtual Memory Causes of false memory errors.
Graphic Cards: Introduction - Definition and Layout of Components in Graphics card – Graphics Processor – Video memory – RAMDAC – Driver Software – 3D – Video capture card installation.
Sound Cards: Introduction - Definition of Various Components – Connectivity – Standards – A3D – EAX – MIDI – General MIDI – PCI Audio – USB Sound – MP3 – SDMI.
Displays: Introduction – CRT – Anatomy – Resolution – refresh rate – interlacing – Digital CRT's – Panel Displays – Introduction – LCD Principles – Plasma Displays – TFT displays. **Display adapter:** Introduction - VGA and SVGA cards, flickering, Demagnetizing and precautions.
Keyboard, and Mouse and barcode scanner: Introduction – Keyboard , wireless Keyboard – Signals – operation - troubleshooting - Mouse types, connectors , Serial mouse, PS/2 mouse and Optical mouse operation – Signals – Installation – barcode scanner – operation.
I/O Ports: Serial – Parallel – USB – Game Port – Blue tooth interface, IR connector, Signal specification problems with interfaces.

Unit-III 18 Hrs

Disk Drives

Hard Disk: Introduction – Construction – Working Principle - Specification of IDE, EIDE, Ultra ATA, Serial ATA, SCSI, Disk Array controller, solid state drive. HDD Installation – Partition – Formatting. Troubleshooting hard disk drives; problem diagnosis, typical problems and troubleshooting; Hard disk drive, components, Head Actuator mechanism Head positioning of a voice coil base system.

CD/DVD ROM: Introduction – Basics, Working principle – various formats – CD-R, CD-RW, DVD: Introduction – Formats – Technology – DVDROM, DVD Video, DVD Audio – Recordable formats – DVD-R, DVD-RW, DVD-RAM
Special type of drives: Zip drive, Memory stick, USB-flash drive, IPod Dock version and installation.

Unit-IV 18 Hrs

I/o devices and Power Supply

Printers: Introduction – Types of printers – Dot Matrix – Inkjet – Laser Operation – Construction – Features – Troubleshooting Dot matrix, Inkjet and laser printer problems. **Modem and Router:** Modem - Introduction – Operation – Types – Installation – Router - introduction. **Scanners**: Introduction – operation – Scan Resolution - Color Scanners – Scan modes – File formats - Simple problems and troubleshooting.

Digital Camera: Introduction – Operation – Features.

Web Camera, Biometric devices: Thump scanner, Iris scanner, speech synthesizer - operation and installation - Trouble shooting.

SMPS: Principles of Operation – Block Diagram – AT & ATX Power Supply, connector specifications and protection.

Unit-V 18 Hrs
Trouble Shooting PC

Room Preparation and Power supply: Location – Pollution – Air-conditioning – Power Supply – Voltage Regulators – Servo Stabilizers – UPS, Surge suppressors and spike isolators. **Installation practice:** Routine checks - Preventive maintenance - problem causes, peripheral and general precautions.

Faults elimination process: Dead system spurious problem - security failures heartbeats and multiple faults - Systematic trouble shooting – Symptoms observation – analysis - Fault diagnosis and fault rectification.
POST: Definition – IPL hardware – POST Test sequence – beep codes and error messages. **Diagnostic Software and Viruses:** Computer Viruses – Precautions – Anti-virus Software – identify the signature of viruses – Firewalls and latest diagnostic software.

REFERENCES:

❖ IBM PC and CLONES B.Govindrajalu Tata McGrawhill Publishers

❖ Computer Installation and Servicing D.Balasubramanian

❖ 3. Computer Installation and Troubleshooting Tata McGraw Hill, 2005 M.Radhakrishnan ISTE- Learning Materials 2001

❖ The complete PC upgrade and Maintenance Mark Minasi BPB Publication

❖ Inside the PC Peter Norton Tech Media

❖ Troubleshooting, Maintaining and Repairing PCs Stephen J Bigelow

❖ Basic Refrigeration and Air Conditioning Tata Mc Graw Hill Pub 2001 Ananthanrayanan P.N Tata Mc Grawhill Publishers

(C19IN13/E19IN03)OFFICE AUTOMATION

Objectives
1. To master various Office Automation tools in the MS Office Suite.
2. To understand the basic Internet tools and the implementation of E-governance.

Unit – I   **18 Hrs**

Computer & Internet: Desktop computers, Block diagram of a computer, Input and output devices, memory and storage devices, different ports and its uses, Different type of printers. Software: OS, Windows OS, Application software. Networking, different LAN and WAN connections, connecting to a network, testing connection, Internet, IP address, Hypertext, Uniform Resource Locator, Web Browsers, IP Address, Domain Name, Internet Services Providers, Internet Security, Internet Requirements, Web Search Engine, Net Surfing, Internet Services.

Windows XP: Windows concepts, Features, Windows Structure, Desktop, Taskbar, Start Menu, My Computer, Recycle Bin, Windows Accessories-Calculator, Notepad, Paint, Wordpad, Character Map, Windows Explorer, Entertainment, Managing Hardware & Software, Installation of Hardware & Software, Using Scanner, System Tools, Communication, Sharing Information between programs.

Unit – II   **18 Hrs**

Word Processing- MS Word: Features, Creating, Saving and Opening Documents in Word, Interface, Toolbars, Ruler, Menus, Keyboard Shortcut, Editing, Previewing, Printing,& Formatting a Document, Advanced Features of MS Word, Find & Replace, Using Thesaurus, Using Auto-Multiple Functions, Mail Merge, Handling Graphics, Tables & Charts, Converting a word document into various formats like- Text, Rich Text format, Word perfect, HTML,PDF etc.

Worksheet- MS-Excel: Worksheet basics, creating worksheet, entering into worksheet, heading information, data, text, dates, alphanumeric values, saving & quitting worksheet, Opening and moving around in an existing worksheet, Toolbars and Menus, Keyboard shortcuts, Working with single and multiple workbook, working with formulae & cell referencing, Auto sum, Coping formulae, Absolute & relative addressing, Worksheet with ranges, formatting of worksheet, Previewing & Printing worksheet, Graphs and charts, Database, Creating and Using macros, Multiple worksheets-concepts, creating and using.

Unit – III   **18 Hrs**

MS Power Point: Creating slide show with animations. Auto centre Wizard, creating a blank presentation, auto layout, Power point screen: screen layout and Views, insert a new slide, applying design template, changing slide layout, reordering and hiding slides, slide show and editing custom slide. Resizing a text box ,Text box properties, Delete   a text box, Bulleted lists, Numbered lists, Adding notes, Video and Audio, Adding text Editing options, Formatting text, Replace fonts, Line spacing, Change case Spelling check, Color schemes , Adding clip art, Adding an image from a file Editing graphic, AutoShapes, WordArt, Backgrounds, Action buttons Slide animation preview Slide transitions Slide show options Slide master Header and footer Slide numbers Date and time.

Unit - IV   **18 Hrs**

Database Management & MS Access: Databases, Records, Fields, data types, Database Types, Library Catalogues, Introduction into Microsoft Access, Starting Up Microsoft Access, Creating New, Opening Existing Databases, Creating a database using a wizard, Creating a database without using a wizard, Tables - What they are and how they work, Create a table from scratch in Design view, Primary Keys, Switching Views, Entering Data,   Manipulating Data, Advanced Table Feature   Examples, Relationships - How to link multiple tables together, Forms - What they are and how they work, Creating A Form Using A Wizard, Reports - What they are and how they work, Creating A Report Using A Wizard, Creating Mail Merge Labels using a Wizard.

Unit - V   **18 Hrs**

Intranet tools and E-Governance: E-mail: Anatomy of e-mail, e-mail address, finding e-mail address, adding signature, attaching files, opening attachments,   managing e-mail account, Web mail, Yahoo Mail, Outlook express, Web pages, HTML, basics of HTML, Page Properties, Text, Hyperlinks, Tables, Graphics and Pictures, Miscellaneous, Shared borders, Navigation bars, Cascading Style Sheets, Themes, Frames, Components, Forms, create web site. Uploading and downloading files. Portals, creating portals, digital signature, computer virus and antivirus software.

E-governance implementations: Software and Hardware required for E-governance Implementation, E-governance in a Small Office, and Web Portal for E-governance, E-governance for Public utilities, E-governance in a Medium Enterprise, E-governance & Finance, E-Tender & Web E-governance efforts of State Government of Rajasthan, Andhra Pradesh Model.

REFERENCES:

- ❖ Professional Office Procedure by Susan H Cooperman, Prentice Hall
- ❖ Information Technology: Principles, Practices and Opportunities by James A Senn, Prentice Hall
- ❖ Technology and Procedures for Administrative Professionals by Patsy Fulton- Calkins, Thomson Learning
- ❖ Computer Basics with Office Automation by Archana Kumar

(C19CE10/E19CE10)**COMMUNICATIVE ENGLISH**

1. **Basic Grammar**:
   a. Review of grammar
   b. Remedial study of grammar
   c. Simple sentence
   d. Word passive voice etc.

2. **Bubbling Vocabulary**:
   a. Synonyms
   b. Antonyms
   c. One – work Institution

3. **Reading and Understanding English**
   a. Comprehension passage
   b. Précis – writing
   c. Developing a story from hints.

4. **Writing English**
   a. Writing Business letters.
   b. Paragraph writing
   c. Essay writing
   d. Dialogue writing

5. **Speaking English**
   a. Expressions used under different circumstances
   b. Phonetics

REFERENCES :

❖ V.H.Baskaran – "English Made Easy"

❖ V.H.Baskaran – "English Composition Made Easy" Shakespeare Institute of English Studies, Chennai

❖ N.Krishnaswamy – "Teaching English Grammar", T.R.Publication,

   Chennai

❖ "Life Skill" – P.Ravi, S.Prabakar and T.Tamzil Chelvam, M.S.University, Tirunelveli.

Course V
Practical I

(C19INP1/E19INP1)**COMPUTER HARDWARE AND MAINTENANCE
LABORATORY**

List of Ex.

1. Identify the parts of different types of Computers and understand all their possible specifications.

2. Assemble and dismantle the PC components.

3. Identify the components of a motherboard and understand the uses of different components.

4. Practice connecting different components on the motherboard.

5. Understand the different components in the back panel.

6. Understand the different Power supply components, their specifications, and possible connections.

7. Practice troubleshooting, Power supply problems, Voltage regulatory module.

8. Understand BIOS,CMOS, UEFI

9. Understand Bootable Media

10. Practice single Operating system installation and understand its setup

11. Practice Dual Operating Systems Installation.

12. Practice installation of different device drivers.

13. Practice installation of Antivirus and Firewall.

Course VI

(C19IN21/E19IN04)DATA COMMUNICATION AND NETWORKING

Objectives:

1. To understand the basic concepts and techniques of Data Communication.
2. To understand the different layers of a standard communication protocol.

Unit-I   **18 Hrs**
Overview: Introduction, Network models, Physical layer and Media, Data and Signals, Encoding and Modulation, Multiplexing and Spreading, Transmission Media, Switching, Telephone and Cable Networks.

Unit-II   **18 Hrs**
Data link layer: Error Detection and Correction, Data Link Control and Protocols, Random and Controlled Accesses, Local Area Networks (LANs), Wide Area Networks (WANs), SONET/SDH, Frame Relay and ATM.

Unit-III   **18 Hrs**
Network layer: Logical Addressing, IPv4 Protocol, Address Mapping, Error Reporting, and Multicasting, Packet Delivery, Forwarding, and Routing.

Unit-IV   **18 Hrs**
Transport layer: Transport layer in the Internet (UDP, TCP, SCTP), Congestion control and Quality of Service (QoS).

Unit-V   **18 Hrs**
Application layer: Domain Name System (DNS), Remote Logging, Electronic Mail and FTP, World Wide Web and HTTP, Network Management, Multimedia.

REFERENCES:

- ❖ Data Communications and Networking, 4th ed., Behrouz A. Forouzan, McGraw-Hill, 2007.
- ❖ Data and Computer Communications, 8th ed., William Stallings, Prentice Hall, 2006. Computer Networks, 5th ed., Andrew Tanenbaum, Prentice Hall, 2008.

(C19IN22/E19IN05)**PROGRAMMING IN C**

Objectives
1. To learn the basic programming constructs through C.
2. To develop possible logic and then corresponding programs and applications in C.

Unit - I   **18 Hrs**

Overview of C: History of C, Importance of C, Basic Structure of C Programs. Constants, Variables, Data Types, Operators and Expression Managing Input and Output Operations, Reading and Writing Character, Formatted Input and Output. Decision Making and Branching: Simple IF, IF Else, Nesting of IF-ELSE, ELSE-IF Ladder, Switch Statements, GOTO Statements. Decision Making and Looping: WHILE Statement, DO Statement FOR Statement.

Unit- II   **18 Hrs**

Arrays: Definition, One -Dimensional Arrays, Declaration of One-Dimensional Arrays, Initialization of One -Dimensional Arrays, Two-Dimensional Arrays, Initializing Two-Dimensional Arrays, Multidimensional Arrays, Dynamic Arrays.

Unit- III   **18 Hrs**

Character Arrays And Strings: Introduction, Declaring And Initializing String Variables, Reading Strings From Terminal, Writing Strings To Screen, String Handling Functions, pointers, Files, opening/closing files, input/output, error handling during I/O operations, Random access to files, command line arguments.

Unit - IV   **18 Hrs**

Data structures: Definition, Categories of data structures, Arrays: Array operations: Merging of two arrays - Two dimensional arrays. Stacks: Definition - Operations on stack - Representation of a stack as an array - Representation of a stack as a Linked list - Evaluation of expression: Infix to Prefix conversion – Infix to Postfix conversion. Queues: Definition - Operations on Queue - Representation of Queue as an array - Representation of Queue as a linked list – Circular Queues. Linked list: Definition - Operations on linked list – Circular list - Doubly linked list - Operations on doubly linked list - Polynomial addition.

Unit- V   **18 Hrs**

Trees: Definition & Terminology - Binary trees - Traversal of a binary tree: In order, Pre order and Post order. Representation of a Binary tree in memory – Linked representation of binary trees – array representation of binary trees - Operations on a Binary search tree: Searching Operation - Insertion Operation and Deletion operation. Forest Tree: Conversion of a Forest Tree to Binary Tree - Graphs: Definition & Terminology - Graph representations - Graph travels: Depth first search & Breadth first search. Shortest path Algorithm (Using Dijikstra's Algorithm).

REFERENCES:
❖ Programming in ANSI C E.Balgurusamy
❖ Data Structures through C Yashavant Kanethar
❖ Programming in ANSI C E.Balgurusamy
❖ Data Structures through C Yashavant Kanethar   13

(C19LS23/E19LS05)**LIFE SKILL**

I Life Coping or adjustment

   (a) External and internal influence in one's life
   (b) Process of coping or adjustment
   (c) Coping with physical change and sexuality
   (d) Coping with stress, shyness, fear, anger far live and criticism.

II Attitude

   (a) Attitude
   (b) Self acceptance, self – esteem and self actualization
   (c) Positive thinking

III Problem Solving

   (a) Goal Setting
   (b) Decision Making
   (c) Time Management and stress Management.

IV Computers

   (a) Introduction to Computers
   (b) M.S.Office
   (c) Power Point

V Internet

   (a) Introduction to internet
   (b) E – mail
   (c) Browsing

   REFERENCES:

   ❖ Life Skill Programme course I & II by Dr. Xavier Alphona MCRDCE Publications. R.K.Mutt Road, Chennai – 28
   ❖ ஆளுமை பண்பு வளர்த்தல் மற்றும் தகவல் தொடர்பு by M.Selvaraj Community College,Palayamkottai
   ❖ "Life Skill" –P.Ravi, S.Prabahar & T.Tamil Chelvam, M.S. University, Tirunelveli

(C19IN24/E19IN06)OPERATING SYSTEM

Objectives:

1. To understand Operating System as an interface between application software and the   Hardware.
2. To learn the concepts of Operating System which manages the Computer Hardware.

Unit-I   **18 Hrs**

Introduction: What is an operating system – History of operating systems – Operating system concepts – System calls – Operating system structure.

Process Management: Introduction to processes – Interprocess communication: Race conditions – Critical sections – Mutual exclusion – Semaphores – Event counters – Monitors – Message passing – Process scheduling – Round robin scheduling – Priority scheduling – Multiple queues – Shortest job first – Policy driven scheduling – Two level scheduling.

Unit-II   **18 Hrs**

Input / Output Management: I/O Devices – Device controllers – Goals of I/O software – Interrupt handlers – Device drivers – Device-independent I/O software – User-space I/O software – Deadlocks: Resources – Deadlock modeling – Detection and recovery – Deadlock prevention – Avoidance.

Unit-III   **18 Hrs**

Memory Management: Memory management without swapping or paging: Multiprogramming without swapping or paging – Multiprogramming and memory usage – Multiprogramming with fixed partitions.

Unit-IV   **18 Hrs**

Swapping: Multiprogramming with variable partitions – Memory management with Bit-maps, Linked-lists and Buddy system – Analysis of swapping systems – Virtual memory: Paging – Segmentation – Page replacement algorithms.

Unit-V   **18 Hrs**

File Management: File basics – Directories – Disk space management – File storage – Directory structure – Shared files – File system reliability – File system performance – File servers – Security – Protection mechanisms.

REFERENCES:
1. James L Peterson & Abraham Silberschatz, Operating System Concepts, Addision Wesley (1985).
2. Andrew S Tanenbaum, Operating Systems Design and Implementation, Prentice Hall (1987).
3. Philippe A Janson, Operating Systems Structures and Mechanisms, Academic Press (1985).
4. Harvey M Deitel, An Introduction to Operating Systems, Addison Wesley (1984).
5. Stuart E Madnick& John J Donovan, Operating Systems, McGraw-Hill, ISE (1968).
6. Per Brinch Hansen, Operating System Principles, Prentice-Hall of India (1973).

Course X
Practical II

(C19INP2/E19INP2)**C PROGRAMMING LABORATORY**

List of Ex

1. Program to display Hello World.

2. Program to do all arithmetic operations and display their results.

3. Program to find area of trapezium, ellipse, parallelogram and display their results.

4. Program to find Fibonacci series using recursive function.

5. Program to find palindrome.

6. Program to take input of name, rollno and marks obtained by a student in 5 subjects and display the name, rollno with percentage score secured.

7. Program to swap two variables values with and without using third variables.

8. Program to find the largest and smallest among three entered numbers and also display whether the identified largest/smallest number is even or odd.

9. Program to read two matrices of order 3 * 2, add them and display the resultant matrix in matrix form.

10. Program to display largest and smallest element of an array.

11. Implement a queue using an array.

12. Implement a binary tree using linked list.

(C19IN31/E19IN07)**DATABASE MANAGEMENT SYSTEMS**

Objectives:

1. To understand how Database Management systems are used for creating and maintaining databases.
2. To understand how Database Management Systems serve as an intermediary between user and the database.

Unit-I   **18 Hrs**
DBMS Architecture and Design: What is DBMS? Application, Types, Example, Advantages, Disadvantages, DBMS Architecture: 1-Tier, 2-Tier & 3-Tier, DBMS Schemas: Internal, Conceptual, External, Relational Data Model in DBMS: Concepts, Constraints, Example, ER Diagram Tutorial in DBMS, Examples, Relational Algebra in DBMS with Examples.

Unit-II   **18 Hrs**
DBMS Concepts: ACID Properties, Schedule, DBMS Concurrency Control: Two Phase, Timestamp, Lock-Based Protocol, DBMS Keys: Primary, Candidate, Super, Alternate and Foreign, Examples, DBMS Functional Dependency: Transitive, Trivial, Multi valued Examples, Codd's rules.

Unit-III   **18 Hrs**
I**ndexing and Hashing:** Indexing, types, Sparse Index, Dense Index, Multilevel Indexing, B+ tree, Insertion and Deletion, Hashing, Hash Organization, Static and Dynamic Hashing, Bucket Overflow.

Unit-IV   **18 Hrs**
Overview of the SQL Query Language: Basic Structure of SQL Queries, Set Operations, Aggregate Functions, GROUPBY, HAVING, Nested Sub queries, Views, Triggers, SQL Joins: Inner, Left, Right and Theta Joins, Examples. Relational Query Optimization, Transacting SQL queries.

Unit-V   **18 Hrs**
File organization: File organization, various kinds of indexes. Query Processing, Measures of query cost, Selection operation, Projection operation, set operation and aggregate operation, Estimating the cost, Equivalence Rules.

REFERENCES:

❖ Data base System Concepts, Silberschatz, Korth, McGraw hill, Sixth Edition
❖ Data base Management Systems, Raghurama Krishnan, Johannes Gehrke, TATA McGrawHill, 3rd Edition.
❖ Fundamentals of Database Systems, Elmasri Navathe Pearson Education.
❖ www.guru99.com
❖ www.tutorialspoint.com
❖ www.geeksforgeeks.org/dbms

(C19IN32/E19IN08)**ADOBE PHOTOSHOP**

Objectives:

1. To understand the editing and photo manipulating concepts supported by Photoshop.
2. To acquire skills to become a Graphics and Animation designer.

Unit-I 18 Hrs

About Photoshop : Navigating Photoshop - Menus and panels - Opening new files - Opening existing files - Getting Started with Photoshop : Exploring the Toolbox - The New CS4 Applications Bar & the Options Bar - Exploring Panels & Menus - Creating & Viewing a New Document - Customizing the Interface - Setting Preferences - Working with Images: Zooming & Panning an Image - Working with Multiple Images, Rulers, Guides & Grids - Undoing Steps with History - Adjusting Color with the New Adjustments Panel - The New Masks Panel &Vibrance Color Correction Command - The New Note Tool & the Save for Web & Devices Interface - The New Auto-Blend & Auto-Align Layers Commands - The New 3D Commands.

Unit-II 18 Hrs

Resizing & Cropping images: Understanding Pixels & Resolution - The Image Size Command - Interpolation Options - Resizing for Print & Web - Cropping & Straightening an Image - Adjusting Canvas Size & Canvas Rotation - working with basic selections: Selecting with the Elliptical Marquee Tool - Using the Magic Wand & Free Transform Tool - Selecting with the Regular & Polygonal Lasso Tools - 4. Combining Selections - Using the Magnetic Lasso Tool - Using the Quick Selection Tool & Refine Edge - Modifying Selections.

Unit-III   **18 Hrs**

Getting started with layers: Understanding the Background Layer - Creating, Selecting, Linking & Deleting Layers - Locking & Merging Layers - Copying Layers, Using Perspective & Layer Styles - Filling & Grouping Layers - Introduction to Blending Modes - Blending Modes, Opacity & Fill - Creating & Modifying Text painting in Photoshop: Using the Brush Tool - Working with Colors & Swatches - Creating & Using Gradients - Creating & Working with Brushes - Using the Pencil & Eraser Tools - Painting with Selections.

Unit-IV   **18 Hrs**

Photo retouching: The Red Eye Tool - The Clone Stamp Tool - The Patch Tool & the Healing Brush Tool - The Spot Healing Brush Tool - The Color Replacement Tool - The Toning & Focus Tools - Painting with History - Introduction to color correction : Color Spaces & Color Modes - The Variations Command - The Auto Commands - Adjusting Levels - Adjust Curves, Non-Destructively, with Adjustment Layers - Using quick mask mode - Quick Mask Options - Painting a Selection - Saving & Removing a Selection from the Background.

Unit-V   **18 Hrs**

Working with the pen tool: Understanding Paths & the Pen Tool - Creating Straight & Curved Paths Creating Combo Paths - Creating a Clipping Path - Creating special effects: Getting Started with Photoshop Filters - Smart Filters - Creating Text Effects - Applying Gradients to Text , Exporting your work : Saving with Different File Formats - Saving for Web & Devices - Printing Options.

REFERENCES:

❖ Mastering Photoshop for Web Designers, Smashing Media Publications, April 2011.
❖ http://photoshopcafe.com/csc/PhotoshopCAFE_CS6Superguide.pdf
❖ http://nettkringkasting.no/~wictor/Tutorials/Photoshop/Photoshop%20 6%20Classroom%20in%20a%20Book.pdf

Course XIII
(C19IN33/E19IN09)WEB BASED APPLICATION DEVELOPMENT USING PHP AND MYSQL

Objectives:
1. To learn the fundamentals of web application development tools: PHP and MySQL.
2. To develop dynamic database driven websites.

Unit-I   **18 Hrs**

Introduction to PHP: Configuration of PHP, Apache Web Server, MySQL, Relationship between Apache, MySQL and PHP(AMP Module), Installing PHP for Windows, Wamp server, XAMP server.

PHP Structure and Syntax, Creating PHP pages, Rules of PHP syntax, Integrating HTML with PHP, Constants, Variables: Static and Global Variable, Conditional Structure and Looping, PHP operators, Arrays, constructs, User Defined function, argument function, variable function, Return function, default argument, variable length argument.

Unit-II   **18 Hrs**

In built functions: Variable Function: gettype, settype, isset, strval, floatval, intval, print_r String function: Chr, ord, strtolower, strtoupeer, strlen, ltrim, rtrim, trim, substr, strcmp, strcasecmp, ctrops, strops, stristr, str_replace, strrev, echo, print, MATH functions: Abs, ceil, floor, round, fmod, min, max, pow, sqrt, rand,

Date function: Date, getdate, setdate, checkdate, time, mktime, Array Function: Count, list, in_array, current, next, previous, end, each, sort, array_merge, array_reverse File function: Fopen, fread, fwrite, fclose

Unit-III   **18 Hrs**

Working with Data and forms: Reading data using Form Controls: Text Fields, Text Areas, Check Boxes, Radio Buttons, List Boxes, Password Controls, Hidden Controls, Image Maps, File Uploads, Buttons Submitting form values: using $_Get and $_Post Methods, $_REQUEST Accessing form inputs with Get/Post functions, Combining HTML and PHP codes together on single page, Redirecting the user.

Unit-IV   **18 Hrs**

Introducing MySQL: Concepts and Installation of MySQL on Windows, MySQL structure and syntax, Data Types and Attributes, Working with Tables of MySQL tables and Storage engines, MySQL commands.

Unit-V   **18 Hrs**

Database Connectivity: Integration of PHP with MySQL, Connection to the MySQL Database, Creating and Deleting MySQL database using PHP, Updating, Inserting, Deleting records in the MySQL database, MySQL Views: Creating ,Executing , Viewing Information, Modifying, Deleting, Updating Views.

Querying Multiple Tables with Subqueries: Performing Comparisons with Subqueries, Determining Existence with Subqueries, Performing Database Maintenance with Subqueries, Using Subqueries with PHP, Creating the Web Site - Saving the site - Working on the web site - Creating web site structure - Creating Titles for web pages - Themes-Publishing web sites.

REFERENCES:

- ❖ http://www.codecademy.com/tracks/php

- ❖ http://www.w3schools.com/PHP

- ❖ http://www.tutorialpoint.com

- ❖ http://www.homeandlearn.co.uk

Course XIV

Practical III

(C19INP3/E19INP3)ADOBE PHOTOSHOP LABORATORY

List of Ex.

Practice Exercises for the following:

1. Changing the size of an image
2. Adjust image quality
3. Using layers in the layers panel
4. Working with selection tools
5. Adding text and shapes
6. Using pen tool
7. Combing images
8. Using different filters
9. Creating masks
10. Adding texture
11. Using Photoshop Blend Modes
12. Making animated gif
13. Creating style frames and double exposure
14. Aging photographs
15. Making Posters

Course XV

Practical IV

(C19INP4/E19INP4)WEB BASED APPLICATION DEVELOPMENT LABORATORY USING PHP AND MYSQL

List of Ex

1. Display Hello World on the browser.
2. Find the use of phpinfo() function
3. Using arithmetic operators and variables.
4. Create forms with responses
5. Create interactive forms.
6. Program to create Chess board in PHP using for loop
7. Understand PHP sessions: creating a session, getting PHP session variable values, modifying session variables, destroying a session value.
8. Connect to MySQL database using PHP.
9. Insert records into MySQL database from PHP.
10. Write programs to demonstrate the use of cookies
11. program to select data and show into table format.
12. Create a student Registration in PHP and Save and Display the student Records on another page
13. Write PHP code to upload image

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Semester IV
Course XVI

(C19IN41/E19IN10)**PYTHON PROGRAMMING**

Objectives:

1. To understand Python as a simple and easy general purpose high level programming language.
2. To understand Python programming for complex numeric and scientific computations in this era of Data Science.

Unit-I   **18 Hrs**
Introduction: Python Environment Setup, Basic Syntax, Variable Types, Basic Operators, Numbers, Strings, Lists, Tuples, Dictionary, Date & Time.

Unit-II   **18 Hrs**
Conditional and Iteration Statements: If statements, If else Statements, Nested If Statements, break & continue statements, while/else statements, for/else statements.

Unit-III   **18 Hrs**
Using and Writing Functions: Function Basics, Parameter Passing, Documenting Functions, Function examples, Refactoring, Custom Functions, Standard Functions, Global Variables, Default Parameters, Recursion.

Unit-IV   **18 Hrs**
Classes and Objects: Overview of OOP Terminology, Creating Classes, Creating Instance Objects, Accessing Attributes, Built-In Class Attributes, Destroying Objects (Garbage Collection), Class Inheritance, Overriding Methods, Base Overloading Methods, Overloading Operators, Data Hiding.

Unit-V   **18 Hrs**
Database Access and CGI : MySQLdb, Install MySQLdb , Database Connection, Creating Database Table, INSERT Operation, READ Operation, Update Operation, DELETE Operation, Performing Transactions, COMMIT Operation, ROLLBACK Operation, Disconnecting Database, Handling Errors, CGI, Web browsing, CGI Architecture, Web Server Support and Configuration, Simple CGI Program, CGI Environment Variables, Get and Post Methods.

REFERENCES:

❖ www.tutorialspoint.com/python
❖ https://books.goalkicker.com/PythonBook/
❖ www.davekuhlman.org/python_book_01.pdf
❖ www.brianheinold.net/python/A_Practical_Introduction_to_Python_Progr amming_Heinold.pdf
❖ Python The Ultimate Beginner's Guide, Andrew Johansen, (http://astronomi.erciyes.edu.tr/wp-content/uploads/astronom/pdf/Python%20-%20Andrew%20Johansen.pdf)

(C19IN42/E19IN11)MOBILE APPS DEVELOPMENT WITH ANDROID STUDIO

Objectives:

1. To understand the environmental setup for working with Android Studio.
2. To understand the essential tools in Android Studio to develop Mobile Apps.

Unit-I   **18 Hrs**
Basics: Android Environmental Setup, Architecture, Application Components, Resources, Activities, Services, Broadcast Receivers, Content Providers, Fragments, Intents, Filters.

Unit-II   **18 Hrs**
User Interface: Layouts, Controls, Event Handling, Styles and Themes, Custom Components, Drag and Drop, Location based Services, Sending SMS, Sending Email, Sending Phone Calls, Exercises.

Unit-III   **18 Hrs**
Useful Concepts: Alert Dialogues, Animations, Audio Capture, Audio Manager, Bluetooth, Exercises.

Unit-IV   **18 Hrs**
Advanced Concepts: Camera, Clipboard, Custom Fonts, Data Backup, Developer Tools, Emulator, Face book Integration, Gestures, Google Maps.

Unit-V   **18 Hrs**
UI Design: UI Design, UI Patterns, UI Testing, WebView Layout, Image Effects, Image Switcher, Internal Storage, Jet Player, Login Screen, Media Player, Text to Speech.

REFERENCES:

- ❖ Android App Development in Android Studio: Java + Android Edition for

  Beginners Courseback, J. Paul Cardle

- ❖ www.tutorialspoint.com/android

- ❖ www.youtube.com/playlist?list=PLS1QuIWo1RIbb1cYyzZpLFCKvdYV_yJ-E

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Course XVIII

(C19IN43/E19IN12)**ESSENTIALS OF CLOUD COMPUTING**

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Objectives:

1. To understand the need of a Cloud, basics of a Cloud architecture, deployment model.

2. To make simple applications in the Cloud.

Unit-I   **18 Hrs**

Basics: Advantages of Cloud Computing, Planning Business Requirements, Technologies, Architecture, Cloud Infrastructure.

Unit-II   **18 Hrs**

Deployment Models: Public Cloud Model, Private Cloud Model, Hybrid Cloud Model, Community Cloud Model.

Unit-III   **18 Hrs**

Service Models: Infrastructure-as-a-Service, Platform-as-a-Service, Software-as-a-Service, Identity-as-a-Service, Network-as-a-Service.

Unit-IV   **18 Hrs**

Advanced Concepts: Management, Data Storage, Virtualization, Security, Operations.

Unit-V   **18 Hrs**

Cloud Providers: Amazon, vmForce, Google App Engine, Azure, Heroku, App Force, Use Case: Develop an application in Cloud.

REFERENCES:

- ❖ George Reese, "Cloud application architectures", O'Reilly Sebastopol, CA [ISBN: 978-0596156367] 2009.
- ❖ Eugenio Pace, Dominic Betts, Scott Densmore, Ryan Dunn, Masashi Narumoto, MatiasWoloski, "Developing Applications for the Cloud on the Microsoft Windows Azure Platform" Microsoft Press,2010.
- ❖ www.tutorialspoint.com/cloud_computing

Course XIX

Practical V

(C19INP5/E19INP5)PYTHON PROGRAMMING LABORATORY

List of Exercises

1. Print Hello Python
2. Build the data structures: queue, linked list.
3. Program to do matrix manipulation.
4. Program to compute distance between two points taking input from the user.
5. Find mean, median, mode for the given set of numbers in a list.
6. Write a program to solve knapsack problem.
7. Implement Linear and Binary searching algorithms.
8. Implement Merge and Quick Sorting algorithms.

Course XX

(C19INPW/E19INPW)PROJECT