DEPARTMENT OF INFORMATION TECHNOLOGY
JAMAL MOHAMED COLLEGE AUTONOMOUS
TIRUCHIRAPPALLI – 620020

BACHELOR OF INFORMATION TECHNOLOGY
SYLLABUS – 2017
UNDER CHOICE BASED CREDIT SYSTEM

BSc - IT Programme – Course Structure under CBCS

Applicable to the candidates admitted from the academic year 2017 -2018 onwards

SEM	COURSE CODE	PART	COURSE	COURSE TITLE	Ins Hrs / Week	CREDIT	MARKS		TOTAL
							CIA	ESE	
I	17U1LT1/LA1/LF 1/LH1/LU1	I	Language – I		6	3	25	75	100
	17UCN1E1	II	English – I		6	3	25	75	100
	17UIT1C1	III	Core – I	Programming in C	5	5	25	75	100
	17UIT1C2P		Core – II	C Programming Lab	3	2	20	80	100
	17UIT1A1		Allied – I	Mathematics for IT	5	4	25	75	100
	17UIT1A2		Allied – II	Entrepreneurship Development	3	2	25	75	100
	17UCN1VE	IV	Value Education	Value Education	2	2	-	100	100
			TOTAL		**30**	**21**			**700**
II	17U2LT2/LA2/LF 2/LH2/LU2	I	Language – II		6	3	25	75	100
	17UCN2E2	II	English – II		6	3	25	75	100
	17UIT2C3	III	Core – III	Programming in C++	6	5	25	75	100
	17UIT2C4P		Core – IV	C++ Programming Lab	3	2	20	80	100
	17UIT2A3		Allied – III	Resource Management Techniques	4	3	25	75	100
	17UIT2A4		Allied –IV	Digital Electronics	3	2	25	75	100
	17UCN2ES	IV	Environmental Studies	Environmental Studies	2	2	-	100	100
			TOTAL		**30**	**20**			**700**
III	17U3LT3/LA3/LF 3/LH3/LU3	I	Language – III		6	3	25	75	100
	17UCN3E3	II	English – III		6	3	25	75	100
	17UIT3C5	III	Core – V	Java Programming	4	4	25	75	100
	17UIT3C6P		Core – VI	Java Programming Lab	3	2	20	80	100
	17UIT3A5		Allied– V	Shell Programming	4	3	25	75	100
	17UIT3A6P		Allied–VI	Shell Programming Lab	3	2	20	80	100
	17UIT3N1	IV	Non Major Elective – I #		2	2	-	100	100
	17UCN3S1		Skill Based Elective – I@	Soft Skills Development	2	2	-	100	100
			TOTAL		**30**	**21**			**800**
IV	17U4LT4/LA4/LF 4/LH4/LU4	I	Language–IV		6	3	25	75	100
	17UCN4E4	II	English– IV		6	3	25	75	100
	17UIT4C7	III	Core– VII	Database Management Systems	5	5	25	75	100
	17UIT4C8P		Core – VIII	RDBMS Lab	3	2	20	80	100
	17UIT4A7		Allied– VII	Web Design	5	3	25	75	100
	17UIT4A8P		Allied–VIII	Web Design Lab	3	2	20	80	100
	17UIT4N2	IV	Non Major Elective – II #		2	2	-	100	100
	17UCN4EA		Extension Activities	NCC, NSS, etc.	-	1	-	-	-
			TOTAL		**30**	**21**			**700**
V	17UIT5C9	III	Core – IX	VB .Net	6	5	25	75	100
	17UIT5C10		Core – X	Operating Systems	5	5	25	75	100
	17UIT5C11		Core – XI	Data Structures and Algorithms	5	5	25	75	100
	17UIT5C12T		Core – XII A	PC Hardware and Troubleshooting	2	2	10	40	50
	17UIT5C12P		Core – XII B	VB .Net Lab	3	3	10	40	50
	17UIT5M1 A/B		Major Based Elective–I**		5	4	25	75	100
	17UIT5S2 A/B P	IV	Skill Based Elective – II@		2	2	--	100	100
	17UIT5S3 A/B P		Skill Based Elective – III@		2	2			100
	17UIT5EC1		Extra Credit – I	C# and .Net Programming	-	4*	--	100*	100*
			TOTAL		**30**	**28**			**700**
VI	17UIT6C13	III	Core– XIII	Wireless Communication	5	5	25	75	100
	17UIT6C14		Core– XIV	Software Engineering	5	5	25	75	100
	17UIT6C15		Core – XV	Multimedia Systems	5	5	25	75	100
	17UIT6C16P		Core – XVI	Software Development Lab	5	5	20	80	100
	17UIT6M2 A/B		Major Based Elective–II**		5	4	25	75	100
	17UIT6M3 A/B P		Major Based Elective–III**		4	4	20	80	100
	17UCN6GS	V	Gender Studies	Gender Studies	1	1	--	100	100
	17UIT6EC2		Extra Credit – II	Embedded Systems	-	4*	--	100*	100*
			TOTAL		**30**	**29**			**700**
			GRAND TOTAL		**180**	**140**			**4300**

* Not Considered for Grand Total and CGPA.

** MAJOR BASED ELECTIVES

SEMESTER	COURSE CODE	COURSE TITLE
V	17UIT5M1A	PHP Programming
	17UIT5M1B	Python Programming
VI	17UIT6M2A	Mobile Application Development
	17UIT6M2B	Open Source Technologies
	17UIT6M3AP	Mobile Application Development Lab
	17UIT6M3BP	Open Source Lab

@ SKILL BASED ELECTIVES

SEMESTER	COURSE CODE	COURSE TITLE
V	17UIT5S2AP	PHP Programming Lab
	17UIT5S2BP	Python Programming Lab
	17UIT5S3AP	PC Hardware and Trouble Shooting Lab
	17UIT5S3BP	Ubuntu Lab

Non Major Elective Courses offered to the other Departments:

SEMESTER	COURSE CODE	COURSE TITLE
III	17UIT3N1	Multimedia Basics
IV	17UIT4N2	Information and Communication Technologies

SEMESTER – I: CORE – I: PROGRAMMING IN C

Subject Code	**: 17UIT1C1**	**Maximum Marks**	**: 100**
Hours	**: 5**	**Internal Marks**	**: 25**
Credits	**: 5**	**External Marks**	**: 75**

Objective To learn the basics of C and to develop the programming skills in C

UNIT I **15 Hours**

Overview of C:-History of C-Importance of C - Basic structure of C program - Executing a C program - Unix system and MS-DOS system. Constants, Variables and Data types: Character set - C Tokens-Keywords and Identifiers – Constants – Variables - Data types - Declaration of variables - Assigning values to the variables - Defining symbolic constant. # Simple Programs using above all concepts#

UNIT II **15 Hours**

Operators and Expression: Arithmetic Operators - Relational Operator - Logical Operator - Assignment Operators - Increment and Decrement Operator - Conditional Operator - Bitwise Operator - Arithmetic Expression-Evaluation of Arithmetic Expression - Precedence of Expression - Type Conversion in Expression - Mathematical Functions. Decision Making and Branching Statements: Different form of IF statement - Switch statement - goto statement #Programs based on IF and switch#

UNIT III **15 Hours**

Decision Making and Looping: The WHILE statement-The DO statement - FOR statement-Jumps in Loops. Arrays: One Dimensional Array: Declaration-Initialization- Example. Two Dimensional Array-Declaration – Initialization- Example-Dynamic Arrays. #Programs based on all the Loops and Arrays#

UNIT IV **15 Hours**

User Defined Functions: Need for user defined Function-Elements of User defined Function - Definition of functions - Return values and types - Function calls - Function declaration - Categories of Function Structure, Union and Pointers: Defining a structure-Declaring structure variables-Structure Initialisation-Arrays of structures – Unions - Understanding pointers - Declaring and initialization of pointer variables - Pointer Expression-Pointer Increment and scale factor #Programs based on User Defined Function, Structures and Pointers#

UNIT V **15 Hours**

File Management: Defining and opening a file - closing a file - Input/Output Operations on files - Error Handling during I/O operations - Random Access to Files. Dynamic Memory Allocation: #Allocating a block of memory: MALLOC - Allocating multiple blocks of memory: CALLOC-Releasing the used space

 # ..... # Self-study portion

Text Book

E. Balagurusamy, *Programming in ANSI C*, Tata McGraw-Hill Publishing Company, Fourth Edition

UNIT I **:** Chapter 1.1, 1.2, 1.8, 1.10, 1.11, 1.12, 2.2, to 2.9, 2.11
UNIT II **:** Chapter 3.2 to 3.12, 3.14, 3.16, 5.1 to 5.7
UNIT III **:** Chapter 6.2 to 6.5, 7.2 to 7.6, 7.8
UNIT IV **:** Chapter 9.1, 9.4 to 9.9, 10.2, 10.3, 10.5, 10.8, 10.12, 11.2, 11.4, 11.5, 11.8, 11.9
UNIT V **:** Chapter 12.2 to 12.6, 13.2 to 13.5

Reference Book

Yeshavanth P. Kanetkar, *Let us C*, BPB Publications, 13th Edition 2013

SEMESTER – I: CORE – II: C PROGRAMMING LAB

Subject Code	**: 17UIT1C2P**	**Maximum Marks**	**: 100**
Hours	**: 3**	**Internal Marks**	**: 20**
Credits	**: 2**	**External Marks**	**: 80**

1. Program to display your name, roll number, class, section, college using constants and variables
2. Using variables and constants display your Higher Secondary Mark sheet
   Name, Register no, Subject, Marks, and Name of School
3. Program to check whether you are eligible for vote or not using if –else statement
4. Program to print the week days using switch case
5. Print the following series using while and do while
   a. 7,14,21,28…….70
   b. -50,-45,-40,……..0
   c. 90,-85,-80…….0
   d. -100,-90,…….90
6. Program to print the following pattern using for loop

   A
   AA
   AAA
   AAAAA
   AAAAAA
7. Declare, define and call three functions getdata, calculate and putdata. Receive the inputs such as student name, roll number, mark1, mark2 and mark3 using getdata. Calculate the total and average using calculate . Display the student name, roll number, mark1, mark2, mark3, total and average using putdata
8. Program for addition of four numbers using pointers
9. Develop a file program for your personal information

SEMESTER - I: ALLIED–I: MATHEMATICS FOR IT

Course Code	**: 17UIT1A1**	**Maximum Marks**	**: 100**
Hours/week	**: 5**	**Internal Marks**	**: 25**
Credit	**: 4**	**External Marks**	**: 75**

Objective To provide basic knowledge of numerical and statistical methods

UNIT I **15 Hours**

Solution of algebraic and transcendental equations- Bisection method- Method of Successive Approximation or Iteration method , Method of False Position – Newton Raphson Method

UNIT II **15 Hours**

Solution of System of Linear Equations – Gauss Elimination Method, Gauss Jordan Method, Gauss Jacobi Method– Gauss Seidel Method

UNIT III **15 Hours**

Diagrammatic and Graphical Representation of Numerical Data – Formation of Frequency Distribution– Histogram, Cumulative Frequency – Polygon and Ogives – Measures of Central Tendency – Measures of Dispersion

UNIT IV **15 Hours**

Theory of Probability – Definitions of Probability – Sample Space – Probability of an Event – Independence of Events – Theorems on Probability – Conditional Probability – Baye's Theorem

UNIT V **15 Hours**

Correlation and Regression – Properties of Correlation and Regression Coefficients – Numerical Problems for Finding the Correlation and Regression Coefficients

Text Books

1. Dr. M.K. Venkataraman, *Numerical Methods in Science and Engineering*, the National Publishing Company, Chennai, 2001

UNIT I : Chapter 3 - Section 1 to 5
UNIT II : Chapter 4 - Section: 1 & 2

2. S.C. Gupta, V.K. Kapoor, *Fundamentals of Mathematical Statistics*, Sulthan Chand & Sons, 2009

UNIT III : Chapter 2 - Section: 2.1 to 2.9, 2.12 to 2.14
UNIT IV : Chapter 3 – Section: 3.1-3.5, 3.8-3.13, 4.2
UNIT V : Chapter 10 - Section: 10.1 – 10.4.2, 10.7, Chapter 11: 11.1 – 11.2.5

Reference Books

1. S.S. Sastri, *Introductory Methods of numerical analysis*, Prentice Hall of India Pvt. Ltd., 2004
2. S.C. Gupta, V.K. Kapoor, *Elements of Mathematical Statistics*, Sultan Chand & Sons, 2009

SEMESTER – I: ALLIED II: ENTREPRENEURSHIP DEVELOPMENT

Course code	**: 17UIT1A2**	**Maximum Marks**	**: 100**
Hours/Week	**: 3**	**Internal Marks**	**: 25**
Credit	**: 2**	**External Marks**	**: 75**

Objective To provide entrepreneurial skills to the students and know about the entrepreneurs

UNIT I **9 Hours**

Entrepreneur - Meaning – Definition – Characteristics – Functions – Classification of Entrepreneurs

UNIT II

9 Hours

Entrepreneurship – Concept – Distinction between Entrepreneur and Entrepreneurship – Entrepreneurship Development Programmes – Objectives

UNIT III

9 Hours

Small Enterprise: Definition – Charateristics – Objectives – Scope – Problem of Small-Scale Industries

UNIT IV

9 Hours

Women Entrepreneurs – Concept of Women Entrepreneurship – Types of Women Enterpreneurs – Problem of Women Enterpreneurs

UNIT V

9 Hours

Project Identification : Meaning of Definition – Project Classification – Project Identification Sources, Services and Systems of Business Information

Text Books

1. E. Gordon & K. Natarajan – Entrepreneurship Development, Himalaya Publishing House, 5th Revised Edition

UNIT I : Chapter 1 **UNIT II** : Chapter 2 & 4

UNIT IV: Chapter 5 **UNIT V** : Chapter 8

2. Dr. S. S. Khanka – Entrepreneurial Development, S. Chand& Company Ltd, Delhi
UNIT III : Chapter 10

Reference Book

Sangeeta Sharma, *Entrepreneurship Development*, Prentice Hall of India Private Ltd, New Delhi, 2016

SEMESTER - II: CORE– III: PROGRAMMING IN C++

Course Code	**: 17UIT2C3**	**Maximum Marks**	**: 100**
Hours/week	**: 6**	**Internal Marks**	**: 25**
Credit	**: 5**	**External Marks**	**: 75**

Objective To give the concepts of Object Oriented Programming and to impart the programming skills in C++

UNIT I **18 Hours**

Object Oriented Programming concepts: Basic concepts of OOP-Structure of C++ Program – Tokens – Keywords - Identifiers-constants - Basic data types - User defined data types-Derived data types - Declaration of variables-Reference variables-Manipulators - Operator in C++ - Scope Resolution Operator - Type cast Operator - Expression and its types - control structures

UNIT II **18 Hours**

Functions: Main Function - Call by value- Call by reference-Inline function-Function overloading - Default arguments. Classes and Objects: Specifying the class – Defining Member Function – A C++ Program with class - Nesting of Member Function - Arrays within a class - Static data members and Static member functions - Friend Function - Returning Object

UNIT III **18 Hours**

Constructor and Destructor: Constructors - Parameterized constructor-Multiple constructor in a class - Dynamic initialization of the objects - Copy constructor - Dynamic constructor-Destructor. Operator Overloading and Type conversion: Defining operator overloading - Overloading unary operator - Type conversion

UNIT IV **18 Hours**

Inheritance: Introduction - Single Inheritance - Multilevel inheritance - Multiple inheritance - hierarchical inheritance - Virtual base classes. Polymorphism: Pointers - Pointer to objects – this pointer - Pointer to derived classes - Virtual Functions

UNIT V **18 Hours**

Working with Files: Introduction-Classes for File stream - Opening and closing the file - Detecting end of file-File modes. Templates: Introduction - Class templates - Class templates with multiple parameters - Function templates – Member Function template

Text Book

E. Balagurusamy, *Object Oriented Programming with C++*, [Fourth Edition], Tata McGraw Hill Publications, 2008

UNIT I **:** 1 .5, 2.6, 3.2 – 3.7, 3.10, 3.17, 3.13, 3.14, 3.18, 3.24
UNIT II **:** 4.2, 4.4, 4.6, 4.7, 4.9, 4.11, 5.3 - 5.7, 5.9, 5.11, 5.12, 5.15 – 5.16
UNIT III **:** 6.2, 6.3 – 6.8, 7.1 – 7.3
UNIT IV **:** 8.1, 8.3, 8.5 – 8.7, 9.1 – 9.6
UNIT V **:** 11.1 – 11.5, 12.1 – 12.4, 12.7

Reference Book

Herbert Schildt, *Teach yourself C++*, Third Edition, Tata McGraw Hill Publications, 2008

SEMESTER - II: CORE – IV C++ PROGRAMMING LAB

Course Code	**: 17UIT2C4P**	**Maximum Marks**	**: 100**
Hours/week	**: 3**	**Internal Marks**	**: 20**
Credit	**: 2**	**External Marks**	**: 80**

Simple Programs

1. Program to convert temperature from Centigrade to Fahrenheit [Formula F= 1.8*C + 32]

2. Program to convert decimal number to binary number

3. Program to perform factorial of the given number

4. Program to print numbers in triangular form

5. Program to find no of vowels and no of consonants in a given string using array

6. Program to find prime numbers

7. Program to swap two variables without using third or temp variable

8. Program to find Palindrome number

9. Program to find the area and perimeter of a rectangle

Programs using class and objects

10. Program to print your personal details such as name, Roll number, Gender M/F, Marks for five subjects, Total, Result Pass/Reappear by taking input from the user and display the same using two member functions

11. Program to find volume of cube, cylinder and rectangular box using function overloading

12. Program to find mean of n numbers using friend function

13. Program to implement the concept of Single level inheritance

14. Program to illustrate the concept of virtual function

15. Program to illustrate Stream Classes

SEMESTER-II: ALLIED – III: RESOURCE MANAGEMENT TECHNIQUES

Course Code	**: 17UIT2A3**	**Maximum Marks**	**: 100**
Hours/week	**: 4**	**Internal Marks**	**: 25**
Credit	**: 3**	**External Marks**	**: 75**

Objective To provide the various operations research techniques and their applications

UNIT I **12 Hours**

Operations Research – Nature and Features of Operations Research – Advantages and Limitations Operations Research - Linear Programming Problem LPP - Mathematical Formulation of the Problem – Graphical Solution of LPP

UNIT II **12 Hours**

General LPP – Canonical and Standard Forms of LPP – The Computational Procedure – Simplex Method - Two Phase Simplex Method

UNIT III **12 Hours**

Transportation Problem – Introduction – LPP Form of Transportation Problem – Solutions of a Transportation Problem - Finding Initial BFS – North West Corner rule – Least Cost Method – Vogel's Approximation Method

UNIT IV **12 Hours**

Assignment Problem – Introduction – Mathematical Form of Assignment Problem – Hungarian Assignment Method Balanced Only. Sequencing Problems: Introduction – Processing of n Jobs through Two Machines – Processing of n Jobs through k Machines

UNIT V **12 Hours**

PERT / CPM – Basic Components – logical sequencing – Rules of Network Construction -Critical Path Analysis –Probability Considerations- in PERT

Text Book

KantiSwarup, P.K. Gupta and Man Mohan, *Operations Research*, Sultan Chand and Sons Publishers, New Delhi, 1992

UNIT I : Chapters 1 & 2, Chapter 3 (3.1 – 3.3)
UNIT II : Chapter 3 (3.4, 3.5, Chapter 4 (4.1, 4.3 Except Big -M Method)
UNIT III : Chapter 10 (10.1, 10.2, 10.8, 10.9),
UNIT IV : Chapter 11 (11.1 – 11.3 Chapter 12 (12.1 – 12.5,
UNIT V : Chapters 25(25.1 – 25.4, 25.6, 25.7

Reference Books

1. Hamdy A. Taha, *Operations Research: An Introduction*, PHI, New Delhi, 8th Edition 2008
2. A. Ravindran, Don T. Phillips, James J. Solberg, *Operations Research Principles and Practice*, John Wiley & Sons, Second Edition, Third Reprint 2007

SEMESTER-II: ALLIED – IV: DIGITAL ELECTRONICS

Course Code	**: 17UIT2A4**	**Maximum Marks**	**: 100**
Hours/week	**: 3**	**Internal Marks**	**: 25**
Credit	**: 2**	**External Marks**	**: 75**

Objective To study the principles of digital logic circuits and their design

UNIT I **9 Hours**

Number Systems and Codes: Binary, Decimal, Octal and hexadecimal number systems – Conversion from one system to another – Binary Addition – Binary Subtraction – # Binary Multiplication and Division. # Binary Code (8421, Gray, Excess-3)

UNIT II **9 Hours**

Digital Logic: The Basic Gates - AND, OR, NOT - Universal Logic Gates – NOR, NAND. # Boolean Laws and Theorems # –Simplification – Sum of Products Method – Karnaugh Simplification (upto 3 variables)

UNIT III **9 Hours**

Combinational logic circuits: Multiplexers – Demultiplexers –Decoders -Encoders. Arithmetic Bulding Blocks – Half adder – Half subtractor – Full adder – Full subtractor.

UNIT IV **9 Hours**

Sequential Logic Circuits: Flip Flops – RS Flip Flops – D Flip Flops- T Flip Flops –JK Flip-flops. Shift Registers (Serial-In-Serial-Out).

UNIT V **9 Hours**

D/A and A/D Conversion – Variable Resistor Network – Binary Ladder – D/A Converter – D/A Accuracy and Resolution – A/D Converters – # Simultaneous Method #

 # ..... # Self-study portion

Text Books

1. Donald P Leach, Albert Paul Malvino, GoutamSaha,*Digital Principles and Applications*, Tata McGraw Hill Education Private Limited, New Delhi, Sixth Edition, 2002

UNIT I **:** Chapter 5 & 6 **UNIT II** **:** Chapter 2 & 3
UNIT III **:** Chapter 4 **UNIT IV** **:** Chapter 8 & 9
UNIT V **:** Chapter 12

2. M. Morris Mano, *Digital Logic and Computer Design*, Prentice-Hall of India Private Limited, New Delhi, 2001

UNIT III **:** Chapter 4

Reference Book

Albert Paul Malvino and Donald P. Leach, *Digital Principles and Applications*, Tata McGraw Hill, Fourth Edition, 1996

SEMESTER - III: CORE - V: JAVA PROGRAMMING

Subject Code	**: 17UIT3C5**	**Maximum Marks**	**: 100**
Hours	**: 4**	**Internal Marks**	**: 25**
Credits	**: 4**	**External Marks**	**: 75**

Objective To understand the basic concepts of Object Oriented Programming with Java language

UNIT I **12 Hours**

Introduction to Java Programming: Introduction – Features of Java – Applications and Applets – Java Developer Kit. Java Language Fundamentals: The Building Blocks of Java – Data Types – Variable Declarations: Declaring, Initializing and Variables – Variable Types in Java. Wrapper Classes – Operators – Control Structures – Arrays – Strings

UNIT II **12 Hours**

Java as an OOP Language – Defining Classes – Defining Methods – Knowing This – Passing Arguments to Methods – Overloading Methods – Constructor Methods – Inheritance– Overriding Methods – Modifiers: The Four Ps of Protection – Finalizing Classes, Methods and Variables – Abstract Classes and Methods – Packages – Interfaces

UNIT III **12 Hours**

Exception Handling: Introduction – Basics of Exception Handling in Java – Exception Hierarchy – Constructors and Methods in Throwable Class – Handling Exceptions in Java – Throwing User Defined Exceptions. Multithreading – Overview of Threads – Creating Threads – Thread Life – cycle – Thread Priorities and Thread Scheduling

UNIT IV **12 Hours**

Files and I/O Streams: Java I/O – File Streams – FileInputStream and FileOutputStream – Filter Streams – RandomAccessFile. Applets: Introduction – Java Applications Versus Java Applets – Applet Life Cycle – Working with applets – The HTML APPLET Tag

UNIT V **12 Hours**

The Abstract Window Toolkit: Basic Classes in AWT – Drawing with Graphics class - Class Hierarchy in AWT – Event Handling – AWT Controls – Layout Managers

Text Book

P. Radha Krishna, *Object Oriented Programming through JAVA*, Universities Press, 2007

UNIT I	**:** Chapter 1 & 2	**UNIT II**	**:** Chapter 3
UNIT III	**:** Chapter 5 & 6	**UNIT IV**	**:** Chapter 7 & 8
UNIT V	**:** Chapter 10		

Reference Book

Herbert Scheldt, *The Complete Reference Java*, Fifth Edition, Tata McGraw-Hill, 2008

SEMESTER - III CORE-VI: JAVA PROGRAMMING LAB

Subject Code	**: 17UIT3C6P**	**Maximum Marks**	**: 100**
Hours	**: 3**	**Internal Marks**	**: 20**
Credits	**: 2**	**External Marks**	**: 80**

1. Simple Programs using Control Statements
   a If statement
   b) while loop
   c for loop
   d) switch statement

2. Program to arrange the alphabetical order of given names using string handling function

3. Program to demonstrate the class and objects

4. Program to demonstrate the following inheritance
   a Single Inheritance
   b) Multilevel inheritance

5. Program to demonstrate the concepts
   a Interface
   b) Abstract Class

6. Program to calculate EB-Bill preparation using package

7. Program to demonstrate multiple catch clauses

8. Program to create a Thread using the following
   a Extends Thread Class
   b) Implements Runnable interface

9. Program to demonstrate various I/O Streams
   a To find the properties of a given directory or file
   b) To copy a file into another.

10. Program to display geometrical objects using Applet

11. Program to create a simple calculator using AWT controls

12. Program to demonstrate the layout managers
    a BorderLayout
    b) FlowLayout
    c GridLayout

SEMESTER – III: ALLIED V: SHELL PROGRAMMING

Course Code	**: 17UIT3A5**	**Maximum Marks**	**: 100**
Hours/week	**: 4**	**Internal Marks**	**: 25**
Credit	**: 3**	**External Mark**	**: 75**

Objective To understand the fundamental and advance concepts of Linux Programming

UNIT I **12 Hours**

Starting with Linux: Introduction to Linux – What is Linux – GNU Project and the free software foundation – Linux distributions – Programming Linux – Linux Programs – Text Editors – The C compiler. Shell Programming: What is Shell –# pipes and Redirection# – Shell as a programming language – Shell Syntax

UNIT II **12 Hours**

Working with files - File structure – Library functions – Standard I/O Library – Formatted Input and Output – File and Directory Maintenance – Scanning Directories – Errors – Linux Environment: Program arguments – # Environment variables# – Time and date – Temporary files – User information – Host information

UNIT III **12 Hours**

Terminals: Talking to the terminal – the terminal structure – Terminal Output – Detecting keystrokes – consoles. Managing Text based screens with curses: The screen – The keyboard – Windows – Pads. Data Management – Managing directory – file locking - # Databases#

UNIT IV **12 Hours**

Development tools – The make command and Make files – Source code control – RPM packages – other package formats. Debugging: General debugging techniques – Debugging with gdb – # debugging tools. # Processes and signals: Process structure – Starting a new process – Signals. Pipes: Process pipes – The Pipe Call – Named Pipes

UNIT V **12 Hours**

Programming GNOME and KDE: Introduction to Programming GNOME using GTK+ - Introducing X – Introducing GTK+ - GTK widgets – Dialogs. Programming KDE using Qt – Installing Qt – Qt widgets – Dialogs – Menus and toolbars with KDE

 # ..... # Self-study portion

Text Book

Neil Matthew, Richard Stones, *Beginning Linux Programming*, 4th Edition, 2014

UNIT I	**:** Chapter 1 and 2	**UNIT II**	**:** Chapter 3 and 4
UNIT III	**:** Chapter 5, 6 and 7	**UNIT IV**	**:** Chapters 9, 10, 11 and 12
UNIT V	**:** Chapters 16 and 17		

Reference Book

Richard Petersen, *Linux – The Complete Reference,* Sixth Edition, Tata McGraw-Hill Publications

SEMESTER – III: ALLIED VI: SHELL PROGRAMMING LAB

Course Code	**: 17UIT3A6P**	**Maximum Marks**	**: 100**
Hours/week	**: 3**	**Internal Marks**	**: 20**
Credit	**: 2**	**External Mark**	**: 80**

1. Program to read a string using while and continue statements. If the given string has no value in it, then display "Null String" otherwise display the given string
2. Program to read 2 words one after another. Display the first word, go to sleep mode for 30 seconds using 'sleep' command. After 30 seconds, display the second word
3. Program for finding out the factorial of a given number using for loop
4. Program to delete the files interactively using 'rm' command and 'while' statement
5. Program using 3 arguments to take the pattern as well as input and output file names. If the pattern is found then display "Pattern Found" else display "Error Message". Also check if right number of arguments is entered
6. Write a shell script to check the user is eligible for vote or not [one must attain 18 years for voting. Ignore month differences
7. Write a shell script to check whether a given string is palindrome or not
8. Enhance the cp command to copy files. Display the necessary error message if error occurs
9. Write a shell script for a file contains records with each record containing name of the city, name of the state and name of the country. How would you sort this file with country as the primary sort key and state as the secondary sort key?
10. Program to prepare the electricity bill based on the following conditions:

    1 to 100 units – Rs. 0.75/unit
    101 to 200 units – Rs. 1.50/unit
    Above 200 units – Rs. 3.00/unit
11. Menu driven program to copy, edit , rename and delete a file
12. Write a shell script to display the result "PASS" or "FAIL" using the information like Student, Name, Student Register Number, Mark1, Mark2, Mark3, Mark4. The Minimum pass for each subject is 50
13. Menu driven program for converting all the capital letters in a file to small case letters and vice versa
14. Program which accepts the name of the file from the standard input and then performs the following operations:

    i Enter the 5 names in a file
    ii Sort the names in existing file
    iii List unsorted and sorted file
    iv) Quit
15. Write a shell script to sum up the following series:

$$\frac{1}{1!} + \frac{2}{2!} + \frac{3}{3!} + \cdots$$

SEMESTER – III: NON - MAJOR ELECTIVE - I: MULTIMEDIA BASICS

Subject Code	**: 17UIT3N1**	**Maximum Marks**	**: 100**
Hours	**: 2**	**Internal Marks**	**: -**
Credits	**: 2**	**External Marks**	**: 100**

Objective To provide a sound knowledge in various concepts of Multimedia and its applications

UNIT I **6 Hours**

Introduction: Brief history of Multimedia – What is Multimedia - The Multimedia Market – Resources for Multimedia developers – Types of Products

UNIT II **6 Hours**

Hardware, Operating Systems and software – Multimedia computer Architecture- Text: Elements of Text – Text data files – Using text in Multimedia applications

UNIT III **6 Hours**

Graphics: Elements of Graphics – Images and color – Graphics File and Application Formats – Obtaining images for Multimedia use – Using graphics in Multimedia applications

UNIT IV **6 Hours**

Digital Audio : Characteristics of Sound and Digital Audio – Digital Audio Systems- MIDI - Audio File Formats - Using Audio in Multimedia Applications

UNIT V **6 Hours**

Digital Video and Animation**:** Background on Video – Characteristics of Digital Video – Computer Animation - # Using Digital Video in Multimedia Applications # - Multimedia Development Team: Team Approach

 # ……. # Self Study Portion

Text Book

David Hillman, *Multimedia Technology and Applications*, Galgotia Publications Pvt. Ltd.

UNIT I	**:** Chapter 1, 2	**UNIT II**	**:** Chapter 3, 4
UNIT III	**:** Chapter 5	**UNIT IV**	**:** Chapter 6
UNIT V	**:** Chapter 7, 11		

Reference Book

V.K. Jain, *Introduction to Multimedia and its applications*, Khanna Publishing, 2012

SEMESTER - IV: CORE - VII: DATABASE MANAGEMENT SYSTEMS

Subject Code : 17UIT4C7		**Maximum Marks**	**: 100**
Hours	**: 5**	**Internal Marks**	**: 25**
Credits	**: 5**	**External Marks**	**: 75**

Objective To provide the concepts of database management systems

UNIT I **15 Hours**

Introduction to Database Systems: Basic Concepts and Definitions – Data Dictionary – Database – Database Systems – Database Administrator – File-oriented system versus Database System – Database Languages

UNIT II **15 Hours**

Database System Architecture: Schemas, Sub Schemas and Instance – Three Level Database Architecture – Data Independence – Mappings – Structure, Components, and Functions of DBMS – Data Models: Relational Model – Entity Relationship Data Model – Object Oriented Data Model – Basic Concepts of Files – Indexing

UNIT III **15 Hours**

Relational Model: Structure of Relational Database – Relational Algebra – Relational Query Languages: Structured Query Languages – QBE – Entity – Relational Model: Basic E-R Concepts – Conversion of E-R Model into Relations - E-R Diagram Symbols

UNIT IV **15 Hours**

Database Design: Database Development Life Cycle - Functional Dependency: FD Diagram and Examples – FFD – Armstrong's Axioms for FD – Closures of a Set of Functional Dependencies – Decomposition – Normalization- Normal Forms: First Normal Form – Second Normal Form – Third normal Form- Boyce-Codd Normal Form

UNIT V **15 Hours**

Transaction Concepts: Transaction Execution and Problem – Transaction Properties – Concurrency Control: Problem – Schedule –Serializable Schedule – Locking Methods – Timestamp Methods - Database Recovery Concepts – Types of Database Failures – Types of Database Recovery – Recovery Techniques

 # ..... # Self-study portion

Text Book

S.K. Singh, *Database Systems Concepts, Design and Applications*, Pearson Education, Inc., Copyright 2006 Dorling Kindersley (India Pvt. Ltd

UNIT I **:** Chapter 1 (1.2-1.5, 1.7, 1.8, 1.10)
UNIT II **:** Chapter 2 & 3 (2.2-2.6, 2.7.6, 2.7.7, 2.7.8, 3.4, 3.6)
UNIT III **:** Chapter 4, 5 & 6 (4.3, 4.4, 5.5, 5.7, 6.2, 6.3, 6.5)
UNIT IV **:** Chapter 8, 9 &10 (8.3, 9.2, 9.3, 10.2, 10.3, 10.4)
UNIT V **:** Chapter 12 & 13 (12.2.1, 12.2.3, 12.3.1, 12.3.2, 12.3.5, 13.2-13.5)

Reference Book

Rajesh Narang, *Database Management Systems*, PHI Learning (P Lt d, New Delhi, 4th Printing 2009

SEMESTER - IV: CORE-VIII: RDBMS LAB

Subject Code	**: 17UIT4C8P**	**Maximum Marks**	**: 100**
Hours	**: 3**	**Internal Marks**	**: 20**
Credits	**: 2**	**External Marks**	**: 80**

1. SQL: Data Definition Languages

Table Creation - Primary Key, Candidate key
Table Alteration - Rename table and Column name,
Add Column, Drop column,
Modify Column size and Data type
Drop Table

2. SQL: Data Manipulation Languages

Insertion
Updates
Deletion
String Operations
Set Operations
Tuple Variables
Aggregate Functions with Grouping and Having Clause
Ordering Tuples
Nested Subqueries
Join Operations
Views

3. PL/SQL Procedure

Reverse the String
Find Factorial number using Recursive Function
Prepare Student Mark Sheet
Employee Pay Roll

4. SQL Forms

Pay Roll Preparation
Student Mark Sheet

SEMESTER – IV: ALLIED VII: WEB DESIGN

Course Code	**: 17UIT4A7**	**Maximum Marks**	**: 100**
Hours/week	**: 5**	**Internal Marks**	**: 25**
Credit	**: 3**	**External Mark**	**: 75**

Objective To provide the basic knowledge of various web designing technologies

UNIT I **15 Hours**

Introduction to HTML – information files creation – web server-web client/Browser-commonly used html commands - Titles and Footers - Text Formatting - Styles - Lists - Adding graphics - Tables - Links - Frames

UNIT II **15 Hours**

Dynamic HTML- Cascading Style Sheet - Class - Using the <Span> tag - External Style Sheet – Working with JSSS - Using tag - Layers

UNIT III **15 Hours**

VB Script Introduction - Embedding VB Script code - Comments - Variable - Operators - Procedures - Conditional Statements - Looping Constructs - Object and VB Script - Cookies

UNIT IV **15 Hours**

Introduction to Java script: Java script in web pages - Java script - Writing Java script into HTML - Basic programming techniques - Operators and Expression in Java script - Programming constructs - Conditional checking - Super controlled loops - Functions in Java script-user defined functions-Dialog Boxes

UNIT V **15 Hours**

The Form Object - Built in Object - User defined Object – Cookies

Text Books

1. Ivan Bayross, *Web Enabled commercial Application Development using..*, 3rd Revised Edition, BPB publications, New Delhi-1

UNIT I : Chapters 2 **UNIT II** : Chapter 12

2. N.P.Gopalan and J.Akilandeswari, *Web Technology*, PHI learning private limited, New Delhi-1.

UNIT III : Chapter 6 **UNIT IV** : Chapter 8

UNIT V : Chapters 10

Reference Book

Jeffrey C. Jackson, *Web Technologies: A Computer Science Perspective*, 2007

SEMESTER – IV: ALLIED VIII: WEB DESIGN LAB

Course Code	**: 17UIT4A8P**	**Maximum Marks**	**: 100**
Hours/week	**: 3**	**Internal Marks**	**: 20**
Credit	**: 2**	**External Mark**	**: 80**

1. Design a colorful webpage of your home town
2. Design a timetable using table tag and various font styles
3. Develop a html program using div tag and span tag
4. Develop a html program using order list and unordered list
5. Write a html program to demonstrate Internal Cascade Style Sheet
6. Develop a Resume Registration form using suitable controls
7. Design a html program using dropdown list
8. Write a JavaScript program to compute the sum of an array of Integers
9. Write a JavaScript to perform multiplication & division of two numbers by getting from user
10. Write a JavaScript program to accept two integers and display the largest
11. Write a VBScript program for Fibonacci using for loop
12. Write a VBScript program to demonstrate the checkbox and list box

SEMESTER - IV: NON - MAJOR ELECTIVE - II:
INFORMATION AND COMMUNICATION TECHNOLOGIES

Course Code	**: 17UIT4N2**	**Maximum Marks**	**: 100**
Hours/week	**: 2**	**Internal Marks**	**: -**
Credit	**: 2**	**External Marks**	**: 100**

Objective To study the basic concepts of ICT and Information Technology

UNIT I **6 Hours**

ICT – Concepts, Objectives, Need and Importance of ICT – Characteristics and Scope of ICT – Recent Trends in the area of ICT – Interactive Video – Interactive White Board – Video Conferencing – M-Learning

UNIT II **6 Hours**

Social Media – Community Radio – GyanDarshan – Gyanvani – Sakshat Portal – e-Gyankosh – Blog – MOCC – WhatsApp, Facebook, Twitter

UNIT III **6 Hours**

Introduction – History of the Internet – Understanding WWW – Web Browsers – Favourites and bookmarks – Kinds of information available – Parts of Internet – Searching the net – Researching on the net

UNIT IV **6 Hours**

Introduction – Overview of a Network – Communication Processors – Communication Media – Types of Networks – Network Topologies – Network Architecture – Communication Satellites – Radar – Fiber Optics – ISDN

UNIT V **6 Hours**

Computers in Business and Industry – Computers in Home – Computers in Education and Training – Computers in Entertainment, Science, Medicine and Engineering

Text Books

1. G. Kavitha, *Information and Communication Technology in Education*, Saradha Publication, Chennai
   - **UNIT I** **:** Chapters 1.1, 1.1.1, 1.1.2, 1.1.3, 2.1 – 2.5
   - **UNIT II** **:** Chapters 2.6, 2.7.1 – 2.7.9
   - **UNIT III** **:** Chapters 6.1 – 6.9

2. Alexis Leon and Mathews Leon, *Fundamentals of Information Technology*, Vikas Publishing House Pvt Ltd, 2009
   - **UNIT IV** **:** Chapters 18.1 – 18.4, 18.7, 18.8, 18.11, 19.6, 19.9, 19.11, 19.12
   - **UNIT V** **:** Chapters 33, 34, 35, 36

Reference Book

A. Kumar, *Internet and IT*, Anmol Publications Pvt Ltd, First Edition, 2002

SEMESTER - V: CORE - IX: VB.NET

Course Code	**: 17UIT5C9**	**Maximum Marks**	**: 100**
Hours/Week	**: 6**	**Internal Marks**	**: 25**
Credit	**: 5**	**External Marks**	**: 75**

Objective To understand the basic concepts of VB.Net

UNIT I **18 Hours**

NET Framework and VB.NET: Overview of .Net Framework – DLL, COM, COM+, DCOM and Assemblies – VB.Net Language. Features in VS.NET: The IDE Main Window – Class View Window – Object Browser – Code Window – Intellisense – Compiling the code – Code Debugging – Developing a simple VB.NET Console Application and Project through Visual Studio IDE

UNIT II **18 Hours**

Variables, Constants and Expressions: Value Types and Reference Types – Variable Declaration and Initialization – Value Data Types – Reference Data Types- Boxing and Unboxing – Arithmetic Operators- TextBox Control – Label Control – Button Control. Control Statements: If statement – Radio Button Control – CheckBox Control – GroupBox Control – ListBox Control - Select ...Case Statement – while Statement – Do Statement – For Statement

UNIT III **18 Hours**

Methods and Arrays: Types of Methods – Arrays – One-dimensional Arrays – Multidimensional Arrays – Jagged Arrays. Classes: Definition and Usage of a Class – Constructor Overloading – Instance and Shared Class Members – Shared Constructors. Inheritance and Polymorphism: Introduction – Virtual Methods – Abstract Classes and Abstract Methods – Sealed Class

UNIT IV **18 Hours**

Exception Handling: Default Exception – handling Mechanism – User-defined Exception handling Mechanism – Backtracking – The "Throw" Statement – Custom Exception. Multi-Threading: Introduction – Usage of Threads – "Thread" Class – Start, Abort, Join(a nd Sleep(Methods - Suspend(and Resume (Methods - Thread Priority – Synchronization

UNIT V **18 Hours**

Database Connectivity: Advantages of ADO.NET – Managed Data Providers – Creation of a Data Table – Retrieving Data from Tables – Table Updating – Disconnected Data Access Through Dataset Object. Basic Web Controls: Server – side Controls – Calendar Control – AdRotator Control. Validation and List web Controls: Validation Controls – List Controls

Text Book

C. Muthu, *Visual Basic.Net*, Vijay Nicole Imprints Private Limited, 2007

UNIT I	**:** Chapter 1&2	**UNIT 1I**	**:** Chapter 3&4
UNIT III	**:** Chapter 5, 6 (6.1 – 6.6, 7	**UNIT IV**	**:** Chapter 10&11
UNIT V	**:** Chapter 15, 16 (16.4, 16.7, 16.8) & 17 (17.2, 17.3)		

Reference Book

Steven Holzner, *Visual Basic .NET Black Book*, 2007. Private Ltd., 2007

SEMESTER - V: CORE- X: OPERATING SYSTEMS

Course Code	**: 17UIT5C10**	**Maximum Marks**	**: 100**
Hours/Week	**: 5**	**Internal Marks**	**: 25**
Credit	**: 5**	**External Marks**	**: 75**

Objective To provide the fundamental concepts of an Operating System.

UNIT I **15 Hours**

Introduction - What is an Operating System? - Mainframe Systems - Multiprocessor Systems - Distributed Systems - Real-time Systems - Computing Environment. Operating System Structures: System Components - Operating System Services - #System Design and Implementation#.

UNIT II **17 Hours**

Memory Management: Single Contiguous Allocation - Example of Multiprogramming - Partitioned Memory Management - Paged Memory Management - Demand Paged Memory Management - Future trends in Memory Management: #Large Main Memories and Storage Hierarchies#.

UNIT III **18 Hours**

Processor Management: Process Scheduling Functions - Policies - Job Scheduling in Non-Multiprogrammed Environment - Job Scheduling in Multiprogrammed Environment.
Deadlocks: Deadlock Characterization - Deadlock Prevention - Safe and Unsafe States in Deadlock Avoidance - Recovery from Deadlock.

UNIT IV **15 Hours**

Device Management : Techniques for Device Management - Device Characteristics: Hardware Considerations - Channels and Control Units - #I/O Traffic Controller# - I/O Scheduler - I/O Device Handler - Virtual Devices: Relationship between SPOOLing and job Scheduling.

UNIT V **10 Hours**

File Management: File System Interface: File Concept - Access Methods - File Protection - Directory Implementation - Allocation Methods - #Network File System: Overview#.
 # .....# self-study portion.

Text Books

1. Stuart E. Madnick & John J. Donovon, *Operating Systems*, Tata McGraw Hill Edition - 2011
UNIT II **:** Chapter 3 **UNIT III** **:** Chapter 4 **UNIT IV** **:** Chapter 5

2. Abraham Silberschatz, Galvin& Gagne, *Operating System Concepts*, VI Edition-2006
UNIT I **:** Chapter 1 (1.1, 1.2, 1.4, 1.5, 1.7, 1.10) Chapter 33.1, 3.2, 3.6.1)
UNIT III **:** Chapter 8 (8.2, 8.5.1, 8.7)
UNIT V **:** Chapter 11 (11.1, 11.2, 11.6 Chapter 12 (12.3, 12.4, 12.9)

Reference Book

Andrew S. Tanenbaum and Albert S. Woodhull, *Operating Systems - Design and Implementation*, III Edition, 2006

SEMESTER - V: CORE – XI: DATA STRUCTURES AND ALGORITHMS

Code	**: 17UIT5C11**	**Maximum Marks**	**: 100**
Hours/week	**: 5**	**Internal Marks**	**: 25**
Credits	**: 5**	**External marks**	**: 75**

Objective To understand the concepts of data structures and algorithms

UNIT I **15 Hours**

INTRODUCTION TO DATA STRUCTURES: Overview – The Need for Data Structures - Definitions – Data Structures. – ALGORITHM ANALYSIS: Introduction – Problem Solving – Modular Design – Implementation of Algorithms – Testing – Verification – Algorithm Analysis – Time Complexity Classes. ARRAYS: Overview – Introduction – Range of an Array – Primitive operations – Element Access in an Array – One-dimensional Array - Two-dimensional Array Multidimensional Arrays

UNIT II **15 Hours**

LINKED LISTS - Overview – Introduction – Memory Allocation – Benefits – Limitations – Types – Basic Operations – Singly Linked Lists – Simple Algorithms on Linked Lists - Circular Linked Lists - Doubly Linked Lists – Applications – Polynomial Representation – Polynomial Addition

UNIT III **15 Hours**

STACKS, QUEUES AND RECURSION: Introduction – Stacks – Array and Linked Representations of Stacks – Arithmetic Expressions; Polish Notation – Recursion: Towers of Hanoi – Queues: Array representation of Queue - Linked representation of Queues – Deques

UNIT IV **15 Hours**

TREES: Introduction – Binary Trees– Representing Binary Tress in Memory – Traversing Binary Trees - Traversal Algorithms using Stacks – Header Nodes - Binary Search Trees – Searching and Inserting in Binary Search Trees – Deleting in a Binary Search Tree - Heap Sort

UNIT V **15 Hours**

GRAPHS AND THEIR APPLICATIONS: Sequential Representation of Graphs – Warshall's Algorithm – Linked Representation of a Graph – Operations on Graphs – Traversing a Graph – Topological Sorting. SORTING AND SEARCHING: Introduction – Insertion Sort – Selection Sort – Merging – Merge Sort – Radix Sort – Quick Sort - Searching and Data Modification – Hashing

Text Books

1. A. Chitra and P.T. Rajan, *Data Structures,* Tata McGraw – Hill Publishing Company Limited, New Delhi
   UNIT I **:** Chapters 1, 2 & 3 **UNIT II** **:** Chapter 4
2. Seymour Lipschutz, *Data Structures*, Tata McGraw – Hill Publishing Company Limited, New Delhi, 2006
   UNIT III **:** Chapter 6 **UNIT IV** **:** Chapter 7 (7.1 – 7.9
   UNIT V **:** Chapter 8 & 9

Reference Book

Jean Paul Tremblay and Paul G. Sorenson, *An Introduction To Data Structures With Applications*, Tata McGraw-Hill, Second Edition

SEMESTER – V: CORE – XII A: PC HARDWARE AND TROUBLESHOOTING

Course Code	**: 17UIT5C12T**	**Maximum Marks**	**: 50**
Hours/ Week	**: 2**	**Internal Marks**	**: 10**
Credit	**: 2**	**External Marks**	**: 40**

Objective To impart basic knowledge of troubleshooting a PC

UNIT I **8 Hours**

Introduction to Computer Hardware – Main System Unit - The Motherboard - Motherboard Components – The Chipsets- Chipset Types - Connectors on the Motherboard – Processor – Processor types - Processor/CPU Architecture - SMPS – Scanner – Secondary storage devices - #Types of secondary storage devices# – Monitors - Types of monitors – Ports and cables

UNIT II **5 Hours**

Memory : Memory – Primary Memory – Secondary Memory – Bits & Bytes – RAM – ROM – Parity – ECC Memory – Motherboard Memory Capacity – BIOS - Keyboard – Keyboard Switch – Keyboard Organization - Keyboard Type – Mouse – Mouse Type – #Connecting Mouse# – Mouse Resolution

UNIT III **5 Hours**

Backup Troubleshooting - BIOS Upgrade Troubleshooting - CMOS Maintenance and Troubleshooting - Troubleshooting CPU Problems - Troubleshooting Cooling Problems

UNIT IV **6 Hours**

Keyboard Maintenance and Troubleshooting - Memory Troubleshooting - Motherboard Troubleshooting - #Parallel Port Troubleshooting# - Plug-and-Play Configuration and Troubleshooting

UNIT V **6 Hours**

Installing Speakers/Headphones - Installing the Operating System - Removal and Replacement Procedures - #Upgrading PC Components# - Installing PC Peripherals - Installing Network/Modem Connections

 # ..... # Self-study portion

Text Books

1. Manohar Lotia, Pradeep Nair, Payal Lotia, *Modern Computer Hardware Course*, BPB Publications, Second Revised Edition, 2006

UNIT I **:** Chapter I, II & III **UNIT II** **:** Chapter IV

2. Stephen J. Bigelow, *PC Troubleshooting & Repair - The Ultimate Reference*, Dreamtech, Second Edition, Reprint, 2004

UNIT III **:** Chapter 4, Chapter 6, Chapter 8, Chapter 10, Chapter 12, Chapter 14, Chapter 15, Chapter 18, Chapter 19, Chapter 20

UNIT IV **:** Chapter 22, Chapter 23, Chapter 24, Chapter 26, Chapter 27, Chapter28

UNIT V **:** Chapter 29, Chapter 30, Chapter 32, Chapter 34, Chapter 35). Chapter 14, Chapter 8 (A+ Complete Reference

Reference Book

David Groth - Sybex, *A+ Complete Study Guide*, Third Edition, 1999

SEMESTER – V: CORE – XII B: VB.Net Lab

Subject Code	**: 17UIT5C12P**	**Maximum Marks**	**: 50**
Hours	**: 3**	**Internal Marks**	**: 10**
Credits	**: 3**	**External Marks**	**: 40**

1. Develop a VB.Net Windows Application Program to calculate the factorial of the given number
2. Develop a VB.Net Windows Application Program to calculate the Simple Interest and Compound Interest Using Radio Button
3. Develop a VB.Net Windows Application Program to calculate the amount of CD Sales Using Arrays
4. Develop a VB.Net Windows Application Program to find the volume of rectangle using Constructor Overloading.
5. Develop a VB.Net Windows Application Program to display the College name , Principal Name, Department Name, H.O.D Name in the TextBox Using Inheritance Concept
6. Develop a VB.Net Windows Application Program to implement the concept of Multi-Threading
7. Develop a VB.Net Windows Application Program to implement the concept of Exception Handling
8. Write an VB.Net application to retrieve data from database and display it in a table format
9. Create a VB.Net Application for manipulating student details using DML Commands
10. Making Use of AdRotator
11. Create a Bio – data using Validation Control

SEMESTER – V: MAJOR BASED ELECTIVE – I: PHP PROGRAMMING

Course Code	**: 17UIT5M1A**	**Maximum Marks**	**: 100**
Hours/ Week	**: 5**	**Internal Marks**	**: 25**
Credit	**: 4**	**External Marks**	**: 75**

Objective To understand the concept of PHP Programming

UNIT I **15 Hours**

Introduction and Overview: Lexical Structure – Data types – Expressions, Operators, Control Statements and Functions: Operator Precedence –Arithmetic, String Concatenation, Comparison, Bitwise, Logical and Assignment Operators – Flow Control Statements – Functions

UNIT II **15 Hours**

Strings: Quoting String Constants – Printing Strings – Cleansing Strings – Comparing Strings – Manipulating and Searching Strings – Arrays: Types of Arrays – Important functions in array – Functions on Complete Arrays – Sorting

UNIT III **15 Hours**

Graphics: Basics of Computer Graphics – Creating and Drawing Images – Basic Drawing functions – Using text in Images – Files and Directories : Opening and Creating Files in PHP – Closing Files in PHP – File uploading in PHP – File downloading in PHP – Reading the contents of a directory – Deleting the directory and its contents

UNIT IV **15 Hours**

Cookies: Need for Cookies – Uses of Cookies – Anatomy of a Cookie – Creating and Accessing Cookies in PHP – Deleting Cookies – PHP Sessions – Starting a PHP Session – Storing a Session variable – Destroying a Session – Forms: Form Handling – Processing Forms – Form Validation

UNIT V **15 Hours**

MySQL: Connecting to and disconnecting from the Server – MySQL data types – SHOW and CREATE databases – Creating a table – DESCRIBE, INSERT and SELECT command – DROP tables and databases – Update, Alter and Delete Operations – MySQL access with PHP: Open a connection to the MySQL server – Disconnect a connection from MySQL server – Creating a database using PHP – Selecting MySQL database using PHP – Creating a table using PHP -Insert data into MySQL using PHP

Text Book

Hajiram Beevi J, Khairunnisa and Munawara Banu S, *Primer on PHP*, Yazhini Publication, 1st Edition, 2016

UNIT I	**:** Chapter 1(1.3, 1.4, Chapter 2 (2.1, 2.3 -2.10, 2.12)	**UNIT II**	**:** Chapter 3, 4
UNIT III	**:** Chapter 5, Chapter 66.1, 6.2, 6.8 – 6.11)	**UNIT IV**	**:** Chapter 7, 11
UNIT V	**:** Chapter 8 (8.1- 8.9), Chapter 9(9.1 -9.6)		

Reference Book

Julie Meloni and Matt Telles, *PHP 6*, Course Technology, CENGAGE Learning, India Edition, 2008

SEMESTER – V: MAJOR BASED ELECTIVE – I: PYTHON PROGRAMMING

Course Code : 17UIT5M1B	**Maximum Marks : 100**
Hours/ Week : 5	**Internal Marks : 25**
Credit : 4	**External Marks : 75**

Objective To understand the concept of Python Programming

UNIT I **15 Hours**

Welcome to Python - What is Python – History of Python – Features of Python – Installing Python – Running Python - Comments - Operators - Variables and Assignment – Numbers – Strings - Lists and Tuples – Dictionaries - if Statement - while Loop - for Loop and the range Built -in Function - Files and the open(Built -in Function

UNIT II **15 Hours**

Errors and Exceptions – Functions – Classes – Modules - Python Objects - Standard Types - Other Built-in Types - Internal Types - Standard Type Operators - Standard Type Built-in Functions - Categorizing the Standard Types - Unsupported Types - Introduction to Numbers – Integers - Floating Point Real Numbers - Complex Numbers – Operators - Built-in Functions

UNIT III **15 Hours**

Sequences : Strings, Lists, and Tuples – Sequences – Strings - Strings and Operators - String-only Operators - Built-in Functions - String Built-in Methods - Special Features of Strings - Lists **–** Operators - Built-in Functions - List Type Built-in Methods - Special Features of Lists

UNIT IV **15 Hours**

Tuples - Tuple Operators and Built-in Functions - Special Features of Tuples - Conditionals and Loops - if statement - else statement - else if statement - while statement - for statement - break statement - continue statement - pass statement - else statement

UNIT V **15 Hours**

File Objects - File Built-in Function - File Built-in Methods - File Built-in Attributes - Standard Files - Command-line Arguments - File System - File Execution - Persistent Storage Modules

Text Book

Chun, J Wesley, *CORE Python Programming*, 2nd Edition, Pearson, 2007 Reprint 2010

UNIT I	**:** Chapter 1, 2	**UNIT II**	**:** Chapter 4, 5
UNIT III	**:** Chapter 6	**UNIT IV**	**:** Chapter 6, 8
UNIT V	**:** Chapter 9		

Reference Book

Dave Kuhlman, *A Python Book: Beginning Python, Advanced Python and Python exercises*, 1st Edition.

SEMESTER – V: SKILL BASED ELECTIVE – II: PHP PROGRAMMINGLAB

Course Code	**: 17UIT5S2AP**	**Maximum Marks**	**: 100**
Hours/Week	**: 2**	**Internal Marks**	**: -**
Credit	**: 2**	**External Marks**	**: 100**

1. Program using Conditional Statements (Switch and If…Else
2. Program to generate prime numbers series in PHP
3. Program to find the GCD of two numbers using user-defined functions
4. Program to perform minimum 6 string functions
5. Program to perform matrix addition
6. Program for sorting an Associative array alphabetically
7. Program to draw a human face
8. Program to copy and rename a file
9. Develop a web page to download a file from the server in PHP
10. Develop a web page for user login using ‘COOKIES’ in PHP
11. Program to store page views count in ‘SESSION’, to increment the count on each refresh and to show the count on web page
12. Develop a web page to perform form validation in PHP
13. Program to create a table in MySQL database
14. Program to fetch the data from MySQL database
15. Create a MySQL database and execute queries to insert, fetch, delete and update a record from that database

SEMESTER – V: SKILL BASED ELECTIVE – II: PYTHON ROGRAMMING LAB

Course Code	**: 17UIT5S2BP**	**Maximum Marks**	**: 100**
Hours/Week	**: 2**	**Internal Marks**	**: -**
Credit	**: 2**	**External Marks**	**: 100**

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1. Program to demonstrate arithmetic operations
2. Program using numbers and operators
3. Program using string built-in functions
4. Program using functions and modules
5. Program using lists
6. Program using tuples
7. Program using conditional statement
8. Program using looping statement
9. Program using continue, pass and else statement
10. Program using dictionaries
11. Program to demonstrate exception handling
12. Program to read and write file

SEMESTER – V: SKILL BASED ELECTIVE – III:
PC HARDWARE & TROUBLESHOOTING LAB

Course Code : 17UIT5S3AP	**Maximum Marks : 100**
Hours/Week : 2	**Internal Marks : -**
Credit : 2	**External Marks : 100**

1. Identification of basic electronic components
2. Power supply functions and operations. Identification and function of Motherboards, CPUs and RAMs
3. Identification and function of Storage Devices FDD, SCSI -HDD, CD-ROM, and DVD). Identification of input devices keyboard, mouse.
4. Identification of Various adapter cards, ports and cables. Identification of Output devices Monitor, Printer.
5. Assembling a PC
    - Gathering Parts
    - Installing the Motherboard
    - Installing the Power supply
    - Installing Storage Devices
    - Installing Expansion cards
    - Installing other external Peripherals
    - Connecting the Power, Testing and Configuring CMOS
    - Installing Network/Modem connections
    - Installing Speakers/Headphones.
6. Disassembling PC , Removing and replacement of components
7. Upgrade the PC components
8. Installation procedure for Operating System DOS, Windows XP, 7.0, 10.0, Linux , Ubuntu
9. Installation procedure for Operating System by using Pen drive booting
10. Hardware Troubleshooting :
    - POST Routines
    - BIOS problems
    - Power supply problems
    - Motherboard problems
    - Hard disk problems
    - Keyboard and Mouse problems
    - Monitor problems
    - Other Peripheral Problems
11. Software Troubleshooting (Windows, Linux

SEMESTER – V: SKILL BASED ELECTIVE – III: UBUNTU LAB

Course Code	**: 17UIT5S3BP**	**Maximum Marks**	**: 100**
Hours/Week	**: 2**	**Internal Marks**	**: -**
Credit	**: 2**	**External Marks**	**: 100**

1. Study of Writer
2. Study of Calc
3. Study of Impress
4. Study of Base
5. Study of Vi Editor
6. Write a shell script to perform the following:

i Copying a file ii moving a file iii renaming a file iv) deleting a file v) Creating a directory vi removing a directory (vii Changing a direct ory (viii Knowing the type of file

7. Write a shell script to perform the following:

i Viewing file permission (ii Altering file permission

iii Chan ging ownership of a file iv) Creating/displaying file content

v) less vi head

vii tail

8. Write a shell script to perform the following commands:

i find (ii locate

iii whereis (iv) File Size

v) File Type (vi Free Space

vii Using GREP to find text

SEMESTER – V: EXTRA CREDIT – I: C# AND .NET PROGRAMMING

Course Code : 17UIT5EC1	**Maximum Marks : 100**
Hours/ Week : -	**Internal Marks : -**
Credit : 4	**External Marks : 100**

Objective To understand the basic concepts of C# and .Net Programming language

UNIT I

What is C# - Why C# - Evolution of C# - Characteristics of C# - application of C# – The Origin of .Net Technology – The .Net framework – The Common Language Runtime - .Net language – Benefits of .Net Approach – C# and the .Net – Literals – Variables – Data Types – Declaration and Initialization of variables – Constant variables – Scope of variables – Boxing and unboxing

UNIT II

Operators in C# - Expressions in C# - Decision making with if statement – Simple if statement – if…else statement – nested if … else statement – else if ladder - switch statement - ?: operator – while statement – do statement – for statement – foreach statement – Declaring methods – main methods- invoking methods – nesting of methods –Handing arrays in C# - Manipulation Strings: String Methods

UNIT III

Classes and objects – Inheritance and Polymorphism: Containment inheritance – Defining sub class - visibility control – multilevel inheritance – overriding methods – hiding methods – abstract class - defining an interface – extending interface –implementing interface. Delegates and Events – Managing Console I/O operations

UNIT IV

Managing Errors and Exceptions – Types of Errors – Syntax of Exception Handling code – Multiple catch statements – The Exception Hierarchy – General catch handler – using finally statement – Nested try blocks – Throwing our own exceptions - using Exception for debugging – Multithreading in C#

UNIT V

Windows Forms and Web based application Development on Net: creating windows forms – Customizing a form – Creating and running a sample win app widows application – overview of design patterns – creating and sample app- web based application on .Net

Text Book

E. Balagurusamy, *Programming in C#*, Tata McGraw Hill Education Pvt. Ltd, New Delhi, 3rd edition 2012

Reference Book

Troy Dimes, *C# Programming for Beginners*, Kindle Edition, 2015

SEMESTER - VI: CORE – XIII: WIRELESS COMMUNICATION

Course Code	**: 17UIT6C13**	**Maximum Marks**	**: 100**
Hours/Week	**: 5**	**Internal Marks**	**: 25**
Credit	**: 5**	**External Marks**	**: 75**

Objective To provide an introduction to Mobile Communication and focus on digital data transfer

UNIT I **15 Hours**

Introduction: Application – History of wireless communication – Market for Mobile Communication. Wireless Transmission: Frequencies for radio transmission – Signals – Antennas - Multiplexing

UNIT II **15 Hours**

Telecommunication Systems: GSM: Mobile Services – System Architecture – Protocols – Localization and Calling – Handover – Security

UNIT III **15 Hours**

Wireless LAN: Infrared vs radio transmission – Infrastructure and ad-hoc network – Bluetooth: Architecture – Radio layer – Baseband layer – Link manager protocol

UNIT IV **15 Hours**

Mobile Transport Layer : Traditional TCP – Classical TCP improvements – TCP over 2.5 / 3G wireless network – Performance enhancing proxies

UNIT V **15 Hours**

Support for mobility: WAP – Architecture – Wireless datagram protocol – Wireless transport layer security – Wireless transaction protocol – Wireless session protocol – Wireless application environment – WML – WML Script – Wireless telephony application – Push architecture – i-mode – SyncML – WAP 2.0

Text Book

Jochen Schiller, *Mobile Communications*, Pearson Education, Second edition, 2011

UNIT I **:** Chapter 1 (1.1 – 1.3), 2(2.1-2.3, 2.5)
UNIT II **:** Chapter 4 (4.1.1, 4. 1.2, 4.1.4, 4.1.5, 4.1.6, 4.1.7)
UNIT III **:** Chapter 7 (7.1, 7.2, 7.5 – 7.5.2, 7.5.3, 7.5.4, 7.5.5)
UNIT IV **:** Chapter 9 9.1 - 9.4)
UNIT V **:** Chapter 10 (10.3 -10.6)

Reference Book

Gordon L.Stuber, *Principles of Mobile Communication*, Springer, 1996

SEMESTER - VI: CORE – XIV: SOFTWARE ENGINEERING

Course Code	**: 17UIT6C14**	**Maximum Marks**	**: 100**
Hours/Week	**: 5**	**Internal Marks**	**: 25**
Credit	**: 5**	**External Marks**	**: 75**

Objective To provide fundamental concepts of software model, design, testing and quality

UNIT I **15 Hours**

Introduction-The evolving role of the software – The changing nature of software – Software myths – A generic view of process – A process framework – The CMM integration – The process models – The Waterfall model – The RAD model – The Evolutionary software process models – The Prototyping model – The Spiral model – Specialized Process models – The Component based development – # The formal methods model#

UNIT II **15 Hours**

Systems engineering hierarchy – Requirement engineering tasks – Requirements analysis – Analysis modeling approaches – #Data modeling concepts#– Flow-oriented modeling

UNIT III **15 Hours**

Design process and design quality – Design concepts – #Data design# – Architectural design –The art of debugging

UNIT IV **15 Hours**

Software testing fundamentals – White-box testing – Basis-path testing – Control structure testing – Black-box testing – Validation testing – System testing

UNIT V **15 Hours**

Quality Concepts – Software quality assurance – Software reviews – Formal technical reviews – Software measurement – Metrics for software quality

 # ..... # Self-study portion

Text Book

Roger S Pressman, *Software Engineering-A Practitioner's Approach*, McGraw Hill International Edition, USA, 2008

UNIT I : Chapters 1 Section (1.1, 1.3, and 1.5), Chapters 2 Section (2.2, 2.3) Chapters 3 Section (3.2, 3.3.2, 3.4.1, 3.4.2, 3.5.1, 3.5.2)

UNIT II : Chapters 6.2, 7.2, 8.1, 8.2, 8.3, 8.6

UNIT III : Chapters 9.2, 9.3, 10.2, 10.4, 13.7

UNIT IV : Chapters 14.1, 14.3, 14.4, 14.5, 14.6, 13.5, 13.6

UNIT V : Chapters 26.1, 26.2, 26.3, 26.4, 22.2, 22.3

Reference Book

K.L.James, *Software Engineering*, PHI Learning Pvt Ltd, Second edition, 2015

SEMESTER - VI: CORE – XV: MULTIMEDIA SYSTEMS

Course Code	**: 17UIT6C15**	**Maximum Marks**	**: 100**
Hours/Week	**: 5**	**Internal Marks**	**: 25**
Credit	**: 5**	**External Marks**	**: 75**

Objective To provide various concepts of multimedia and its tools

UNIT I **15 Hours**

What is Multimedia? - Definition: Uses of Multimedia - Multimedia in Business - Schools - Home - Public Places - Virtual Reality - Introduction to making Multimedia: Hardware - Software - Creativity - Organization

UNIT II **15 Hours**

Multimedia Skills: The Team - Project Manager - Multimedia Designer - Interface Designer - Writer - Video Specialist - Audio Specialist - Multimedia Programmer- Text: Using Text in Multimedia - Hypermedia and Hypertext

UNIT III **15 Hours**

Sound: Multimedia System Sounds: - Digital Audio - Making MIDI Audio - Audio File Formats - Music CDs - Images: Making Still Images: Bitmaps - Vector Drawing - 3D Drawing and Rendering - Color - Understanding Natural Light and Color - Computerized Color - Color Palettes

UNIT IV **15 Hours**

Animation: Principles - Animation by Computer - Making Animations That Work – Video: How Video Works? - Analog Display Standards - Digital Display Standards

UNIT V **15 Hours**

Basic Software Tools: OCR Software - Painting and Drawing Tools - 3D Modeling and Animation Tools - Image Editing Tools - Sound Editing Tools - Multimedia Authoring Tools: Making Instant Multimedia - Types of Authoring Tools

Text Book

Tay Vaughan, *Multimedia Making it Work*, Tata McGraw – Hill Edition, Seventh Edition

Reference Book

V.K. Jain, *Introduction to Multimedia and its applications*, Khanna Publishing, 2012

SEMESTER – VI: CORE – XVI: SOFTWARE DEVELOPMENT LAB

Course Code	**: 17UIT6C16P**	**Maximum Marks**	**: 100**
Hours/ Week	**: 5**	**Internal Marks**	**: 20**
Credit	**: 5**	**External Marks**	**: 80**

1. Web Page Development

Objective To provide basic coding knowledge for web designing

To design a Website using HTML, CSS and Java Script on any one of the following topics

i Hotel Booking System
ii E-Commerce Website
iii Virtual Keyboard Design
iv) College Website
v) Tourism Website

2. Application with Database

Objective To provide basic knowledge of the real time applications of the IT industry

To develop mini real time applications using Java with MySQL on any one of the following topics

i Attendance Management System
ii Campus Recruitment System
iii Student Feedback System
iv) Course Registration System
v) Web portal for Health Care

SEMESTER VI: MAJOR BASED ELECTIVE – II: MOBILE APPLICATION DEVELOPMENT

Subject Code	**: 17UIT6M2A**	**Maximum Marks**	**: 100**
Hours	**: 5**	**Internal Marks**	**: 25**
Credits	**: 4**	**External Marks**	**: 75**

Objective To understand the basic concepts of mobile application

UNIT I **15 Hours**

Introduction - Installation and Configuration of Your Development Platform: Installing Eclipse and Java – Installing Android Developer Kit -Starting an Android Application Project

UNIT II **15 Hours**

Application Design –Controls and User interface: Check Boxes, Radio Button, The Spinner, and Date Picker – Key classes

UNIT III **15 Hours**

Basic Graphics by Extending the View Class - Multi Screen applications: Stretching the Screen – Pop-up Dialog Boxes – Menus on the Android Devices – Key Classes

UNIT IV **15 Hours**

Working with Images - Text Files – Data Tables and XML: Working with Text Files – Data Tables using SQLite – Using XML for Data Exchange – Key classes

UNIT V **15 Hours**

Client Server Application – Key classes: Socket – Server Socket – HTTP URL connection – URL

Text Book

James C. Sheusi, *Android Application Development for Java Programmers*, Course Technology, 2013

UNIT I	**:** Chapter 1 & 2	**UNIT II**	**:** Chapter 3 & 4
UNIT III	**:** Chapter 5 & 7	**UNIT IV**	**:** Chapter 8 & 9
UNIT V	**:** Chapter 10		

Reference Book

Wei Meng Lee, *Beginning Android Application Development*, Wiley Publishing, Inc, 2011

SEMESTER - VI: MAJOR BASED ELECTIVE – II: OPEN SOURCE TECHNOLOGIES

Subject Code : 17UIT6M2B	**Maximum Marks : 100**
Hours : 5	**Internal Marks : 25**
Credits : 4	**External Marks : 75**

Objective

To understand the basic concepts of open source software like Linux, MySQL and PHP.

UNIT I **15 Hours**

Linux – The choice of a GNU generation – Introduction – Linux distributions – Download and install – Decisions, Decisions – # Linux Partition Sizes # – Accounts – Security – Basic Unix. Apache Web Server: Introduction – Starting, Stopping and Restarting Apache - Configuration – Securing Apache.

UNIT II **15 Hours**

MySQL – Introduction – SHOW DATABASES and CREATE DATABASE – USE Command – CREATE TABLE and SHOW TABLE Command – DESCRIBE, INSERT, SELECT, UPDATE & DELETE Command – Some administrative details – Table Joins – #Loading and Dumping a database #.

UNIT III **15 Hours**

Essential PHP – Creating a first PHP page – More echo power – Using PHP "Here" documents – Working with variables – Creating constants – # Understanding PHP's internal data types # – Operators and Flow control – Working with the Assignment operators – The PHP String operators – Bitwise operator – PHP Comparison operators – PHP Logical operators – Ternary operators – Using if, else, else if statement – Switch statement – Using for, while, do...while, for each loops.

UNIT IV **15 Hours**

Strings and Arrays – The String functions – Converting to and from strings – Formatting text strings – Building yourself some arrays – PHP array functions – Sorting Arrays – Handling Multi-dimensional arrays – # Splitting and Merging arrays # – Creating functions in PHP.

UNIT V **15 Hours**

File Handling – Opening files using fopen – Reading text from a file using fgets – Closing a file – Checking if a file exists with file exists – Writing to a file with fwrite – Sessions, Cookies, and FTP – Setting a cookie – Reading a cookie – Setting cookie's expiration – Deleting cookies – Working with FTP – # Downloading files with FTP #.

 # ..... # Self-study portion

Text Books

1. James Lee and Brent Ware, *Open Source Web Development with LAMP using Linux, Apache, MySQL, Perl and PHP*, Dorling Kindersley (India Pvt. Ltd., 2008.
   UNIT I : Chapters 2 & 3 **UNIT II :** Chapter 5
2. Steven Holzner, *The Complete Reference PHP*, Tata McGraw Hill, New Delhi, 2007.
   UNIT III : Chapters 1& 2 **UNIT IV:** Chapters 3 & 4
   UNIT V : Chapters 9 & 11

Reference Book

M.N. Rao, *Fundamentals of Open Source Software*, PHI Learning Private Ltd., Delhi, 2015.

SEMESTER VI: MAJOR BASED ELECTIVE – III:
MOBILE APPLICATION DEVELOPMENT LAB

Subject Code : 17UIT6M3AP	**Maximum Marks : 100**
Hours : 4	**Internal Marks : 20**
Credits : 4	**External Marks : 80**

1. Program to display a welcome message using basic control
2. Program to demonstrate the check box and Radio button
3. Program to demonstrate Spinner
4. Program to display Today date using Date Picket controls
5. Program for change the background color using buttons
6. Program to perform addition and subtraction operations using simple controls
7. Program to demonstrate various dialog boxes
8. Program to display your name using Toast
9. Program to create simple menu application for college course details
10. Program to change various shapes for Button using XML
11. Program for various DML manipulation using database
12. Program for send a message using Intent
13. Program to zoom the picture using zooming controls

SEMESTER - VI: MAJOR BASED ELECTIVE – III: OPEN SOURCE LAB

Subject Code : 17UIT6M3BP		**Maximum Marks**	**: 100**
Hours	**: 4**	**Internal Marks**	**: 20**
Credits	**: 4**	**External Marks**	**: 80**

LINUX

1. Perform basic commands – ls, cp, cat, more, chmod, head, tail, mv, cd, pwd in vi editor.
2. Script to perform the following basic math operations:
   i. Addition
   ii. Subtraction
   iii. Multiplication
   iv. Division

MySQL

1. Perform DDL and DML commands using MySQL.
2. Implement queries using Aggregate functions, Group By, Having Clause and Order Clause.
3. Implement different types of joins in MySQL.

PHP

1. Check whether the given character is a vowel or a consonant.
2. Generate a multiplication table using for each statement.
3. Create a chess board using nested for loop.
4. Sort the given set of positive integers using arrays.
5. Check whether a passed string is a palindrome or not using functions.
6. Addition of two given matrices.
7. Get all combinations of a string using arrays
8. Design an authentication web page in PHP with MySQL to validate username and password.
9. Create a visitor counter using file concept.

SEMESTER – VI: EXTRA CREDIT – II: EMBEDDED SYSTEMS

Course Code : 17UIT6EC2	**Maximum Marks : 100**
Hours/ Week : -	**Internal Marks : -**
Credit : 4	**External Marks : 100**

Objective

To provide fundamental concept of Embedded systems, programming and real time operating systems.

UNIT I

Introduction to Embedded systems: Embedded Systems – Processor embedded into a system – software embedded in a system – Embedded hardware units and devices in a system – Design process in embedded system - Challenges in Embedded system – Design examples in Embedded System – # Classification in Embedded System #

UNIT II

Devices and Communication buses for Devices Network: I/O types and examples – Serial communication devices – Parallel device ports – Interfacing features in device ports – Wireless devices – Timer and counting devices – Watchdog timer – Network embedded systems – Serial bus communication protocols

UNIT III

Device Drivers – interrupt service mechanism – Interrupt sources – Multiple interrupts – Direct memory access – Direct Memory Access - Device driver programming. Interprocess communication and synchronization of processes, threads and tasks – Multiple process in an application – Multiple threads in an application – Tasks – Task states – Semaphores – Semaphore

UNIT IV

Programming concepts and embedded programming in C, C++ and Java – Software programming in Assembly Language ALP and in high level language C – C program elements: Header and source files and preprocessor directives

UNIT V

Real-Time operating systems: OS services – process management – Timer functions – Event functions – Device , File and I/O subsystems management – Interrupt routines in RTOS Environment and Handling of Interrupt source calls – Real time operating system – Basic design using an RTOS – RTOS task scheduling models, interrupt latency and response of the task as performance Metrics .

Text Book

Embedded systems – Architecture, Programming and Design by Raj Kamal, Second Edition – TMH, 2008.

Reference book

Mohamed Ali Maszidi & Janice Gillispie Maszidi, “The 8051 Microcontroller and Embedded System”, Pearson Publishers.