B.Sc. INFORMATION TECHNOLOGY

SEM	COURSE CODE	PART	COURSE	COURSE TITLE	HRS / WEEK	CREDIT	CIA MARK	SE MARK	TOTAL MARK
I	14 U1LT1/LA1/ LF1/LH1/LU1	I	Language –I		6	3	40	60	100
	14UCN1E1	II	English – I		6	3	40	60	100
	14 UIT1A1	III	Allied I	Mathematics for IT	6	4	40	60	100
	14 UIT1C1	III	Core I	Programming in C	6	4	40	60	100
	14 UIT1M1P	III	Major Based Elective – I	C Programming Lab	3	3	40	60	100
	14 UCN1VE	IV	Value Education	Value Education	3	3	40	60	100
TOTAL					**30**	**20**	**240**	**360**	**600**
II	14U2LT2/LA2/ LF2/H2/LU2	I	Language – II		6	3	40	60	100
	14UCN2E2	II	English – II		6	3	40	60	100
	14UIT2A2	III	Allied II	Resource Management Techniques	5	4	40	60	100
	14UIT2C2	III	Core II	Programming in C++	6	4	40	60	100
	14UIT2M2P	III	Major Based Elective– II	C++ Programming Lab	3	3	40	60	100
	14UIT2N1	IV	Non-Major Elective – I #		2	2	40	60	100
	14UCN2ES	IV	Environmental Studies	Environmental Studies	2	2	40	60	100
TOTAL					**30**	**21**	**280**	**420**	**700**
III	14U3LT3/LA3/ LF3/LH3/LU3	I	Language – III		6	3	40	60	100
	14UCN3E3	II	English – III		6	3	40	60	100
	14UIT3A3	III	Allied III	IT Marketing	6	4	40	60	100
	14UIT3C3	III	Core III	Data Structures and Algorithms	5	4	40	60	100
	14UIT3M3P	III	Major Based Elective – III	Data Structures Lab	3	3	40	60	100
	14UIT3N2	IV	Non-Major Elective – II #		2	2	40	60	100
	14UCN3S1	IV	Skill Based Elective – I	Soft Skills	2	2	40	60	100
TOTAL					**30**	**21**	**280**	**420**	**700**
IV	14 U4LT4/LA4/ LF4/LH4/LU4	I	Language – IV		6	3	40	60	100
	14UCN4E4	II	English – IV		6	3	40	60	100
	14UIT4A4	III	Allied IV	Organizational Dynamics	6	4	40	60	100
	14UIT4C4	III	Core IV	Digital Electronics	5	4	40	60	100
	14UIT4C5	III	Core V	Visual Programming	3	2	20	30	50
	14UIT4C5P	III	Core V	Visual Programming Lab	2	2	20	30	50
	14UIT4S2	IV	Skill Based Elective – II	General Aptitude	2	2	40	60	100
	14UCN4EA	V	Extension Activities	NCC, NSS, etc.	-	2	-	-	-
	14UIT4EC1		Extra Credit –I	Android Programming	-	4*	-	100*	100*
	14UIT4EC2		Extra Credit – II	WAP and XML	-	4*	-	100*	100*
TOTAL					**30**	**22**	**240**	**360**	**600**
V	14UIT5C6	III	Core VI	Internet and Java Programming	5	4	40	60	100
	14UIT5C7	III	Core VII	Relational Database Management System	4	4	40	60	100
	14UIT5C8	III	Core VIII	Operating Systems	4	4	40	60	100
	14UIT5C9	III	Core IX	IT Systems Management	4	4	40	60	100
	14UIT5C10	III	Core X	PHP Programming	4	4	40	60	100
	14UIT5C11	III	Core XI	Management Information Systems	4	4	40	60	100
	14UIT5M4P	III	Major Based Elective – IV	Java Programming Lab	3	3	40	60	100
	14UIT5S3P	IV	Skill Based Elective– III	RDBMS Lab	2	2	40	60	100
	14UIT5EC3		Extra Credit – III	C# Programming	-	4*	-	100*	100*
TOTAL					**30**	**29**	**320**	**480**	**800**
VI	14UIT6C12	III	Core XII	Communication Networks	5	4	40	60	100
	14UIT6C13	III	Core XIII	VB.Net	5	4	40	60	100
	14UIT6C14	III	Core XIV	Linux Administration	5	4	40	60	100
	14UIT6C15P	III	Core XV	.Net Lab	4	4	40	60	100
	14UIT6C16	III	Core XVI	Principles and Practices of Information Security	4	4	40	60	100
	14UIT6C17	III	Core XVII	Multimedia Technology	4	4	40	60	100
	14UIT6S4P	IV	Skill Based Elective – IV	Animation Lab	2	2	40	60	100
	14UCN6GS	V	Gender Studies	Gender Studies	1	1	40	60	100
	14UIT6EC4		Extra Credit – IV	SAP	-	4*	-	100*	100*
TOTAL					**30**	**27**	**320**	**480**	**800**
GRAND TOTAL					**180**	**140**	**1680**	**2520**	**4200**

Non Major Elective Courses offered to the other Departments:

SEM	COURSE TITLE
II	Fundamentals of Computers
III	Fundamentals of Multimedia

* Not considered for Grand Total and CGPA

SEMESTER - I:ALLIED–I
MATHEMATICS FOR IT

Course Code: 14UIT1A1 **Max. Marks : 100**
Hours/week: 6 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To provide basic knowledge of numerical and statistical methods for Computer Applications.

UNIT–I **18 hours**

Solution of Algebraic and Transcendental Equations, Iterative Methods – Bisection Method – Method of False Position – Newton Raphson Method – Rate of Convergence of the Iterative Procedure – Secant Method – Successive Approximation Method – Comparison of Iterative Methods.

UNIT–II **18 hours**

Solution of System of Linear Equations – Gauss Elimination Method, Gauss Jordan Method, Gauss Jacobi Method– Gauss Seidel Method. Interpolation – Introduction – #Linear Interpolation# – Gregory – Newton's Forward Interpolation Formula – Gregory – Newton's Backward Interpolation Formula (Simple Problems).

UNIT–III **18 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 – #Moments and Measures of Skewness and Kurtosis#.

UNIT-IV **18 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 **18 hours**

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

#.....# self-study portion.

Text Books:

1. Dr. M.K. Venkataraman, *Numerical Methods in Science and Engineering*, The National Publishing Company, Chennai. 2001.
2. S.C. Gupta, V.K. Kapoor, *Fundamentals of Mathematical Statistics,* Sulthan Chand & Sons,2009.

UNIT I : Chapter-3(section 1to 5) UNIT II: Chapter 4(section:1,2,6&7)
UNIT III :Chapter 2(section:2.1- 2.9, 2.12 - 2.13.4,12.15,12.5.7, 2.16 & 2.17)
UNIT IV : chapter 3(section:3.1-3.5,3.8-3.15,4.2),
Unit-V : chapter 10(section:10.1-10.4), chapter 11:(11.2.1-11.2.5)

Books for Reference

1.S.S. Sastry, Introductory methods of numerical analysis, prentice, Hall of indiaPvt.Ltd 2004.
2. S.C. Gupta, V.K. Kapoor, Elements *of Mathematical Statistics,* Sulthan Chand & Sons,2009.

SEMESTER - I: CORE - I
PROGRAMMING IN C

Course Code : 14UIT1C1 **Max. Marks : 100**
Hours/week : 6 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To learn the syntax of all the statements and to provide programming skills in C.

UNIT-I **18 hours**

Overview of C – Constants, Variables & Data Types – Operators and Expressions.

UNIT-II **18 hours**

Decision Making and Branching Statements – Looping Statements – User Defined Functions.

UNIT-III **18 hours**

Arrays – Strings – Structures and Unions.

UNIT-IV **18 hours**

Pointers – Pointer Expressions – #Pointers and Arrays# – Pointers and Functions.

UNIT-V **18 hours**

Files Management in C– #I/O Operations on Files# – Random Access Files.

 # ..... # self-study portion.

Text Book:

E. Balagurusamy, *Programming in ANSI C*, Tata McGrawHill Publishing Company, Fourth Edition, 2009.

UNIT I: Chapters 1(1.1 - 1.8) 2(2.1- 2.12) 3(3.1- 3.12)
UNIT II: Chapters 5(5.1- 5.9) 6(6.1 - 6.4) 9(9.1 - 9.15, 9.16)
UNIT III: Chapters 7(7.1 - 7.7) 8(8.1 - 8.4, 8.8) 12(12.1 - 12.5, 12.8, 12.12)
UNIT IV: Chapters 12(12.1 - 12.6, 12.8, 12.12, 12.15)
UNIT V :Chapters 12(12.1 - 12.7)

Books for Reference:

Let us C, Yeshavanth P. Kanetkar15th Edition, BPB Publications.

SEMESTER - I :MAJOR BASED ELECTIVE – I
C PROGRAMMING LAB

Course Code : 14UIT1M1P **Max. Marks : 100**
Hours/week : 3 **Internal Marks : 40**
Credit : 3 **External Marks : 60**

Objective:

1. Simple programs:
   (a) To find the volume of a cylinder.
   (b) To swap the values of two numbers without using third variable.**5 Hours**

2. Programs using operators and loops:
   (a) To find the smallest of three numbers using logical operators.
   (b) To display all the roll numbers of your class (increasing and decreasing order) using for loop and while loop.**5 Hours**

3. Programs to perform the following:-
   (a) Sum of 1+2+3+…..+n.
   (b) Addition, subtraction and multiplication of two numbers using switch statement.**6 Hours**

4. Program to display the following patterns:-

(a)
```
1
1 1
1 1 1
```

(c)
```
*
* *
* * *
* * * *
```

6 Hours

5. Declare, define and call three functions getdata(), calculate() and putdata(). Receive the inputs such as student name, rollno, mark1, mark2 and mark3 using getdata(). Calculate the total and average using calculate(). Display the student name, rollno, mark1, mark2, mark3, total and average using putdata(). **6 Hours**

6. Program to perform matrix addition using two dimensional arrays.**5 Hours**

7. Programs using strings concept:
   To display the following alphabetic patterns:-

(i)
```
A
A A
A AA
A AAA
```

(ii)
```
A
A B
A B C
A B C D
```
6hours

8. Program using files:
(a) Mark sheet preparation.

6hours

SEMESTER -II :ALLIED-II
RESOURCE MANAGEMENT TECHNIQUES

Course Code : 14UIT2A2 **Max. Marks : 100**
Hours/week : 5 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To provide an overall idea about the various operations research techniques and their applications.

UNIT-I **15 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 **15 hours**

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

UNIT-III **15 hours**

Transportation Problem – Introduction – LPP Form of Transportation Problem – Solutions of a Transportation Problem - Finding Initial BFS - NWC rule – LCM - VAM (Balanced Only).
Assignment Problem – Introduction – Mathematical Form of Assignment Problem – Hungarian Assignment Method (Balanced Only).

UNIT-IV **15 hours**

Sequencing Problems: Introduction – Processing of *n* Jobs through Two Machines – Processing of *n* Jobs through *k* Machines - Replacement Problem: Introduction – Replacement of Equipment / Asset that Deteriorates Gradually – #Replacement Policy when Value of Money Changes with Time#.

UNIT-V **15 hours**

Network Scheduling by PERT / CPM – Basic Concept – Construction of Networks – Critical Path Analysis – Probability Considerations- in PERT – Comparison of PERT and CPM.

 # ..... # self-study portion.

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 12 (12.1, 12.2, 12.8, 12.9), Chapter 12 (12.1 – 12.3)
UNIT IV: Chapter 12 (12.1 – 12.5), Chapter 18 (18.1, 18.2, 18.2.1, 18.2.2)
UNIT V: Chapters 25(25.1-25.8)

Books for Reference :

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 :CORE - II
PROGRAMMING IN C++

Course Code : 14UIT2C2 **Max. Marks : 100**
Hours/week : 6 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To give the concepts of Object Oriented Programming, the syntax of statements in C++ language 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 reference-Inline function-Function overloading-Default arguments-Math Library functions- 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 templates.

 # ..... # self-study portion

Text Book:

E. Balagurusamy,Object Oriented Programming With C++, [Fourth Edition],TataMcGraw 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

Books for Reference:

Herbert Schildt, Teach yourself C++, Third Edition, TataMcGraw Hill Publications, 2008.

SEMESTER - II : MAJOR BASED ELECTIVE – II
C++ PROGRAMMING LAB

Course Code : 14UIT2M2P **Max. Marks : 100**
Hours/week : 3 **Internal Marks : 40**
Credit : 3 **External Marks : 60**

Simple Programs

1. Write a C++ Program to convert centigrade to Fahrenheit
   [Formula F=(1.8*C)+32] **4 hours**
2. Write a C++ Program to convert decimal number to binary number.**4 hours**
3. Write a C++ Program to perform factorial of the given number.**4 hours**
4. Write a C++ Program to print Triangle of numbers.**4 hours**
5. Write a C++ Program to find no of vowels and no of consonants in a given string using array.**4 hours**

Programs using class and objects

6. Develop a C++ Program to print your personal details such as name, Roll no, 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.
   Write a main program to invoke the member functions.**5 Hours**
7. Develop a C++ Program to find volume of cube, cylinder and rectangular box using function overloading. **5 hours**
8. Develop a C++ Program to find mean of n numbers using friend function.
   5 hours
9. Develop a C++ Program to implement the concept of Single level inheritance.
   5 hours
10. Develop a C++ Program to illustrate the concept of virtual function.**5 hours**

SEMESTER- II : NON MAJOR ELECTIVE-I
FUNDAMENTALS OF COMPUTERS

Course Code : 14UIT2N1 **Max. Marks : 100**
Hours/week : 2 **Internal Marks : 40**
Credit : 2 **External Marks : 60**

Objective:

To impart knowledge about the fundamental concepts of computers in a logical and informative manner.

UNIT-I **6 hours**

Introduction: Characteristics of Computers – The Evolution of Computers – The Computer Generations. Basic Computer Organization: Input Unit – Output Unit - Storage Unit – Arithmetic Logic Unit – Control Unit – The Central Processing Unit. Processor and Memory: The Main Memory.

UNIT-II **6 hours**

Secondary Storage Devices: Sequential and Direct Access Devices – Magnetic Disk - Optical Disk – CD-ROM. Input-Output Devices: Input Devices: Keyboard – Point-and-Draw Devices – Data Scanning Devices – Electronic-card Reader. Output Devices: Monitors – Printers – Plotters. Computer Software:Types of Software.

UNIT-III **6 hours**

Operating Systems: Main Functions of an Operating System. Business Data Processing: Data Processing – Data Storage Hierarchy – Standard Methods of Organizing Data – File Management System: File Types – #File Organizations# – Database Management System: Database Models.

UNIT-IV **6 hours**

Data Communication and Computer Networks: Basic Elements of a Communication System – Data Transmission Modes – Data Transmission Speed – Data Transmission Media – Digital and Analog Data Transmission.

UNIT-V **6 hours**

The Internet: Definition- Basic Services: Electronic Mail – File Transfer Protocol – Telnet - The World Wide Web. WWW Browsers – Uses of the Internet. Multimedia: Multimedia Computer System – Multimedia Components –# Multimedia Applications#.

 # ..... # self-study portion

Text Book:

Pradeep K. Sinha and PritiSinha, *Computer Fundamentals*, 3rd Edition, BPB Publications, 2004.

UNIT I : Chapters 1(1.1– 1.3), Chapters2 (2.1 – 2.6), Chapters7 (7.12)
UNIT II : Chapters 8 (8.1, 8.3–8.5), Chapters9 (9.1(1-3, 5), 9.2(1-3)), Chapters 12 (12.3)
UNIT III : Chapters14 (14.1), Chapters16 (16.1–16.4, 16.5)
UNIT IV : Chapters17 (17.1 – 17.5)
UNIT V : Chapters18 (18.1(4-6), 18.2(3, 5), Chapters 19 (19.1, 19.2, 19.3)

Books for Reference

V. Rajaraman, Fundamentals of Computers,Prentice Hall India Pvt., Limited, 2009.

SEMESTER- III : ALLIED - III
IT MARKETING

Course Code : 14UIT3A3 **Max. Marks : 100**
Hours/week : 6 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To educate the students various concepts of Marketing and also to develop their interest in Marketing.

UNIT –I **18 hours**

Definition and meaning of marketing- Modern concept of marketing- Marketing and Selling- Marketing Functions- buying- #Transportation#- Warehousing-Standardization- Grading- Packaging.

UNIT-II **18 hours**

Product planning and development- product life cycle- Brand Management- developing new product – Market segmentation – Marketing mix.

UNIT-III **18 hours**

Pricing Decision - Meaning – objectives - Factors Determining Pricing – Pricing Policies – Kinds of Pricing.

UNIT-IV **18 hours**

Promotional methods – Advertising- Publicity- personal selling- #Sales promotion#

UNIT-V **18 hours**

E-Commerce: Electronic commerce Framework- Electronic commerce and Media coverage – the Anatomy of E- Commerce Applications- E-commerce consumer Applications – E-Commerce Organization Applications. The Network Infrastructure for E-commerce: Components of the I-way – #network Access Equipment#- Global information Distribution Networks.

 # ..... # self-study portion.

Text Books:

1. R.S.N.Pillai&Bagavathi: Modern Marketing Principles and Practice. S. Chand & company Ltd. New Delhi, 2010. (Unit - I, II, III&IV)
UNIT I : Chapter1&3
UNIT II: Chapter14&16
UNIT III: Chapter18
UNIT IV: Chapter24, 25, 26&27.
2. Ravikalakota& Andrew whinstone, frontiers of electronic commerce, Addison Wesley, 2000.(Unit - V)Unit-V: Chapter- book 2. (Page No. 1.1-1.5, 2.2-2.3, and 2.5)

Books for Reference:

Power, Daniel J, Decision Support, Analytics, Business Intelligence, Second Edition.

SEMESTER - III :CORE–III
DATA STRUCTURES AND ALGORITHMS

Course Code : 14UIT3C3 **Max. Marks : 100**
Hours/week : 5 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To understand the concepts of data structures.

UNIT–I **15 hours**

Introduction and Overview: Introduction – Basic Terminology; Elementary Data Organization – Data Structures – Data Structure Operations – Arrays: Introduction – Linear Arrays – Representation of linear arrays in memory – Insertion and Deletion – Sorting: bubble sort - Searching: Linear Search – Binary Search.

UNIT–II **15 hours**

Linked lists: Introduction – Linked Lists – Representation of Linked List in Memory – Traversing a Linked List – #Searching a Linked List#– Memory Allocation; Garbage Collection – Insertion into a Linked List – Deletion from a Linked List- Two – way Lists.

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 Queue – Deques.

UNIT–IV **15 hours**

Trees: Introduction – Binary Trees – Representing Binary Tress in Memory – Traversal Algorithms using Stacks – Binary Search Trees – Searching and Inserting in Binary Search Tress – Deleting in Binary Search Trees – Sorting: Introduction – #Insertion Sort#– Selection Sort-Quick Sort – Heap Sort.

UNIT–V **15 hours**

Algorithms analysis: Introduction – Problem solving: Categories of problem solving – Problem solving strategies. Modular Design: Bottom-up Design – Top-down Design. Implementation of Algorithm – Choice of Data Structure – Common Errors in implementation – #Testing#.

 # ..... # self-study portion.

Text Books:

1. Seymour Lipschutz, *Data Structures*, Tata McGraw – Hill Publishing Company Limited, New Delhi, 2006.
2. A. Chitra and P.T. Rajan, Data Structures, Tata McGraw – Hill Publishing Company Limited, New Delhi, 2007.(Unit - V)

UNIT I: 1.1 – 1.10, 4.1 – 4.8 UNIT II: 5.1- 5.10 UNIT III: 6.1 – 6.12
UNIT IV: 7.1 – 7.9 UNIT V: 9 – 16

Books for Reference:

Jean Paul Tremblay and Paul G. Sorenson, Second Edition, *An Introduction To Data StructuresWith Applications*,Tata McGraw-Hill, 2008.

SEMESTER - III :MAJOR BASED ELECTIVE – III
DATA STRUCTURES LAB

Course Code : 14UIT3M3P **Max. Marks : 100**
Hours/week : 3 **Internal Marks : 40**
Credit : 3 **External Marks : 60**

Write C programs to implement the following:

1. Bubble Sort. **4 hours**
2. Selection Sort. **4 hours**
3. Insertion Sort **4 hours**
4. Quick Sort **4 hours**
5. Searching (Linear Search, Binary Search) **6 hours**
6. Multidimensional Arrays (Matrix Operations, Addition and Multiplication) **6 hours**
7. Fibonacci Series using Recursion. **4 hours**
8. Stack Operations using Arrays. **4 hours**
9. Queue Operations using Arrays. **4 hours**
10. Singly Linked List Operations. **5 hours**

SEMESTER - III :NON MAJOR ELECTIVES-II
INTRODUCTION TO MULTIMEDIA

Course Code : 14UIT3N2 **Max. Marks : 100**
Hours/week : 2 **Internal Marks : 40**
Credit : 2 **External Marks : 60**

Objective:

To understand the concepts of Multimedia and its applications.

UNIT-I **6 hours**

Introduction: History of Multimedia-What is Multimedia? – The Multimedia Market – Resources for Multimedia Developers.

UNIT-II **6 hours**

Types of Products – Multimedia Hardware- Operating Systems and software – Multimedia Computer Architecture.Text: Elements of Text – Text Data files – Using Text in Multimedia Applications – Hypertext.

UNITIII **6 hours**

Text: Elements of Text – #Text Data files# – Using Text in Multimedia Applications – Hypertext.

UNIT-IV **6 hours**

Graphics: Elements of Graphics – Obtaining images for multimedia use – Using Graphics in Multimedia applications – Digital Audio systems – #MIDI# – computer animation -using digital video in multimedia applications.

UNIT-V **6 hours**

Multimedia and the Internet: The Internet – #HTML and Web Authoring# – The Multimedia Development Team: Team Approach.

 # ..... # self-study portion.

Text Book:

David Hillman, *Multimedia Technology and Applications*, David Hillman, Galgotia Publications (P) Ltd., 1998.

UNIT I: Chapter 1 UNIT II: Chapter 2 & 3 UNIT III: Chapter 4
UNIT IV: Chapter 5, 6 & 7 UNIT V: Chapter 10

Books for Reference:

Tay Vaughan , *Multimedia Making it Work*, Tata McGraw – Hill Edition , Fourth Edition, 2000.

SEMESTER - IV :ALLIED-IV
ORGANIZATIONAL DYNAMICS

Course Code : 14UIT4A4 **Max. Marks : 100**
Hours/week : 6 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To enable the students to understand the concepts of individual and group behavior in an organization.

UNIT – I **18 hours**

Nature of Organization: Concept of Organization –Features of Organization – Organization Goals (Meaning) – Individual Goals (Meaning) – Nature of Organizational Behavior: OB and Similar Fields of Studies – Nature of OB – Contributing Disciplines to Organizational Behavior – Nature of Human Behavior –Caused Nature of Behavior –Process of Behavior.

UNIT –II **18 hours**

Perception: Concept of Perception – Perception and Sensation –Perception Process – Managerial Implication of Perception – Developing Perceptual Skills. Learning: Components of Learning Process. – Learning Theory – Reinforcement Principle.Personality Concept – PersonalityTheories –#Determinants of Personality#.

UNIT –III **18 hours**

Attitude:Concept of Attitudes – Features – Motivation: Definition of Motivation – Theories of Motivation – Maslow's Need Hierarchy – Two-Factor Theory – Theory X and Y.Dynamicsof Stress – #Concept and Features of Stress# – Causes of Stress – Effects of Stress – Copying Strategies of Stress.

UNIT –IV **18 hours**

Group Dynamics: Concept of Group Dynamics – Concepts and Features of Group – Types of Groups – #Formal and Informal Groups# – Features and Distinction. Leadership: Meaning – Approaches – Styles.

UNIT – V **18 hours**

Communication: Concept – Communication Process – Direction of Communication – Barriers in Communication – Making Communication Effective. Organizational Change and Development: Reasons for Organization Change – Resistance to Change – Overcoming Resistance to Change – Organizational Development – Need for OD – Steps in OD.

 # ..... # self-study portion.

Text Book:

L.M.Prasad, *Organizational Behavior*, Sultan Chan and Sons, 1998

UNIT I : Chapter 1,3 UNIT II: Chapter 4 – 6 UNIT III: Chapter 7,9,21
UNIT IV: Chapter 13,16 UNIT V: Chapter 17,24,25

Books for Reference:

Fred Luthans, organizational Behaviour, 12th Edition Tata McGraw Hill Education (p) Limited Reprint, 2013.

SEMESTER- IV :CORE-IV
DIGITAL ELECTRONICS

Course Code : 14UIT4C4 **Max. Marks : 100**
Hours/week : 5 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To the principles of digital logic circuits and their design.

UNIT – I **15 hours**

Number Systems and Codes: Binary Number System – Binary to Decimal Conversion – Decimal to Binary Conversion – Octal Numbers – Hexadecimal Numbers. Arithmetic Circuits: Binary Addition – Binary Subtraction – Binary Multiplication and Division – Binary Codes – Decimal Codes - Error-Detection Codes – #Alphanumeric Codes#.

UNIT - II **15 hours**

Digital Logic: The Basic Gates - NOT, AND, OR - Universal Logic Gates – NOR, NAND - Positive and Negative Logic – Combinational Logic Circuits: Boolean Laws And Theorems – Sum-of-Products Method – Karnaugh Simplifications - Don't Care Conditions – Product-of-Sum Method – Product-of-Sums Simplification.

UNIT - III **15 hours**

Data Processing Circuits: Multiplexers – Demultiplexers – 1-to-16 Decoders – BCD-to-decimal Decoders -Encoders. Combinational Logic : Introduction – Adders –Subtractors – Binary Parallel Adder.

UNIT - IV **15 hours**

Sequential Logic Circuits: Flip Flops – RS Flip Flops – Edge -triggered RS Flip Flops – Edge -triggered D Flip Flops – Edge -triggered JK Flip-flops – JK Master-slave Flip-flops. Registers: Types – Serial In-Serial Out - #Serial In-Parallel Out#.

UNIT- V **15 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 – Counter Method – #Successive Approximation Method#.

 # ..... # self-study portion.

Text Book:

1. Digital Principles And Applications, Donald P Leach, Albert Paul Malvino, GoutamSaha,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. Digital Logic and Computer Design, M. Morris Mano, Prentice-Hall of India Private Limited, New Delhi,2001.
UNIT III – Chapter 4

Books for Reference:

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

SEMESTER - IV :CORE-V (A)
VISUAL PROGRAMMING

Course Code : 14UIT4C5 **Max. Marks : 50**
Hours/week : 3 **Internal Marks : 20**
Credit : 2 **External Marks : 30**

Objective:

To acquire basic knowledge of Visual Basic.

UNIT – I **9 hours**

Visual Basic Definition – Features – Editions – Philosophy – Developing an application – Integrated Development Environment (IDE) Features – Anatomy of a Form – Working with form property – Setting form's property – Introducing form events and form methods.

UNIT – II **9 hours**

Declaring variables – Data types – Null value – Error value – Empty value – the scope of the variable – Module level variables – constants – creating your own constants – scope of a constants – converting data types –#Arrays# – Declaring Arrays – Fixed size arrays – Dynamic arrays – Preserve keywords – ReDim.

UNIT – III **9 hours**

The anatomy of a Procedure – Subroutine and Functions – Language constructs – For..Next, the While loop, Select case .. End select, Exit statements with structure.

UNIT – IV **9 hours**

Introduction to standard controls – command buttons – text box – label box – option button – check boxes – frame control – list box – combo box – image box – picture box – time control – scroll bars – #file system controls#.

UNIT – V **9 hours**

DDE Methods – OLE properties – Active control creation and usage – ActiveX DLL creation and usage – Database Access – Data Control –#Field Control# – Data Grid record set using SQL to manipulate data – Open Database Connectivity (ODBC).

 # ..... # self-study portion.

Text Book:

"Programming with Visual Basic 6.0" by Mohamed Azam, published by Vikas Publishing House Private Limited, 2002.

UNIT I : Chapter 1(P.No.7– 12), Chapter 3 (P.No.33 – 37)
UNIT II : Chapter 4 (P.No.51– 68)
UNIT III : Chapter 5 (P.No.73–83)
UNIT IV : Chapter 2 (P.No.22 – 27), Chapter 6 (P.No.87– 90)
UNIT V : Chapter 18 (P.No.295 – 300), Chapter 2(P.No.22), Chapter 12(P.No.168-191), Chapter 12(P.No.181 – 191), Chapter 15 (P.No.253 – 259)

Books for Reference:

Gary Cornell, *visual basic 6 from the Ground Up*, Tata McGraw Hill Edition, 1998.

SEMESTER - IV :CORE-V (B)
VISUAL PROGRAMMING LAB

Course Code : 14UIT4C5P **Max. Marks : 50**
Hours/week : 2 **Internal Marks : 20**
Credit : 2 **External Marks : 30**

1. Simple exercises using standard controls.**3 hours**
2. Program to design a calendar of a year.**3 hours**
3. Program to scroll a text from left to right and right to left of the client area.**3 hours**
4. Program to design and implement a scientific calculator.**3 hours**
5. Program to expand and shrink an object while program is running.**3 hours**
6. Program to expand and shrink objects using timer control and move methods.

   3 hours
7. Program to create animation by using move method and a timer object.**3 hours**
8. Program to populate the table entities using data bound control.**3 hours**
9. Program to prepare a student's mark list.**3 hours**
10. Program to prepare an invoice report.**3 hours**

SEMESTER -IV :EXTRA CREDIT-I
ANDROID PROGRAMMING

Course Code : 14UIT4EC1 **Max. Marks : 100***
Hours/week : **Internal Marks : --**
Credit : 4* **External Marks :100***

Objective:

To provide sound knowledge in development of android applications.

UNIT- I

The Nuts and Bolts of Android: Why Develop for Android – Android Programming Basics – Hardware Tools – Software Tools – Prepping Your Development Headquarters: Assembling Your Toolkit - Deconstructing Your Project - Setting Up an Emulator - Creating Launch Configurations - Running the Hello Android App .

UNIT- II

Designing the User Interface: Laying Out the Application - Developing the User Interface - Adding an Image to Your Application - Creating a Launcher Icon for the Application - Adding a Toggle Button Widget - Previewing the Application in the Visual Designer. Coding Your Application: Understanding Activities - Creating Your First Activity.

UNIT - III

Working with the Android Framework Classes - Installing Your Application - Installing on a physical - Android device - Reinstalling Your Application. Understanding Android Resources: Understanding Resources - Working with Resources. Turning Your Application into a Home-Screen Widget: Working with App Widgets in Android - Working with Pending Intents.

UNIT - IV

Creating the Home-Screen Widget - Placing Your Widget on the Home Screen. Publishing Your App to the Android Market: Creating a Distributable File - Creating an Android Market Account - Pricing Your Application - Getting Screen Shots for Your Application - Uploading Your Application to the Android Market - Watching the Installs Soar.

UNIT - V

Designing the Task Reminder Application: Reviewing the Basic Requirements - Creating the Application's Screens - Creating Your First List Activity - Identifying Your Intent. Handling User Input: Creating the User Input Interface - Getting Choosy with Dates and Times - Creating Your First Alert Dialog Box - Validating Input.

Text Book:

DonnFelker, Android Application Development for Dummies,2012.

UNIT I: Chapter 1, 2, 3UNIT II: Chapter 4 & 5 UNIT III: Chapter 5, 6 & 7

UNIT IV: Chapter 7, 8UNIT V: Chapter 9 & 11

Books for Reference: Daniel Begun, Amazing Android Apps for Dummies, 2012.

SEMESTER - IV : EXTRA CREDIT-II
WAP AND XML

Course Code : 14UIT4EC2 **Max. Marks : 100***
Hours/week : **Internal Marks : --**
Credit : 4* **External Marks : 100***

Objective:

To learn the concepts and security features of Wireless Application Protocol.To understand WML and WML script.

UNIT-I

Overview of WAP – WAP and the Wireless World – WAP Application Architecture – WAP Internal Structure – WAP Versus the Web – WAP 1.2 – STA and Push Features – WAP Gateways – Functionality of a WAP Gateway – The Web Model Vs the WAP Model – Positioning of a WAP Gateway in the Network – Selecting a WAP Gateway

UNIT-II

Java, XML and WAP – Introduction to Servlets – Introduction to JSP – Design Considerations – ColdFusion – WAP and ColdFusion – ColdFusion Studio/HomesSite Editing Features for WAP Development.

UNIT-III

WAP Security – The Need for Security – Encryption Technologies – Comparing Security Models – Wireless Security Issues – TLS and WTLS – #Future of Wireless Security# – WTA – Fundamentals of WTA Architecture – WTA Interfaces – WTA State Model.

UNIT – IV

Introducing XML: What is XML – An introduction to XML applications: XML for XML - Your first XML document – Structuring data: preparing a style sheet for document display attributes, empty tags and XSL – Well formed XML documents.

UNIT - V:

Foreign Languages and Non Roman Text: Legacy character sets – Document type definitions: Document type definitions and validity – #Entities and external DTD subsets# – Attribute declarations in DTDs: What is an attribute? – Attribute types – Embedding Non-XML data

 # ..... # self-study portion.

Text Books:

Charles Arehart, Nirmal Chidambaram and others, *Professional WAP*, Shroff Publishers & Distributors Pvt. Ltd., 2000 Edition.
UNIT I, II, III.
XML Bible by Elliote Rusty Harold – IDG Books India (P) Ltd.First Edition 2000.
UNIT IV, V.

Books for Reference:

AtulKahate,XML and Related Technologies,Pearson Education India, 2009.

SEMESTER -V :CORE-VI
INTERNET AND JAVA PROGRAMMING

Course Code : 14UIT5C6 **Max. Marks : 100**
Hours/week : 5 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To understand the basic concepts of object oriented programming with Java language

UNIT–I **15 hours**

The creation of Java – The Byte code – The Java Buzzwords – Object Oriented Programming – Data Types – Variables – Arrays - Operators – Control Statements – Introducing Classes: Class fundamentals – Declaring objects – Introducing Methods – Constructors – 'this' keyword – Garbage Collection – Overloading Methods – Recursion - Understanding static - Introducing final.

UNIT- II **15 hours**

Inheritance: Inheritance Basics - Member Access and Inheritance - Using super - Method Overriding-Using Abstract Classes - Packages - Defining a Package – Access Protection – Importing Packages – Interfaces: Defining an Interface - Implementing Interfaces - Interfaces Can Be Extended.

UNIT - III **15 hours**

Exception Handling: Exception-Handling Fundamentals - Using try and catch - Multiple catch Clauses - Nested try Statements - throw - throws -#finally# - Creating Your Own Exception Subclasses. Multithreaded Programming: The Thread Class and the Runnable Interface – The Main Thread – Creating thread - Implementing Runnable Interface - Extending Thread - Thread Priorities – #Synchronization# – String Handling.

UNIT - IV **15 hours**

The Java I/O Classes: File - Directories - The Byte Streams: Input Stream – Output Stream – FileInputStream – FileOutputStream – SequenceInputStream. The Character Stream: Reader – Writer – FileReader – FileWriter – PrintWriter. Networking: Networking Basic – InetAddress – TCP/IP Client Sockets - #TCP/IP Server Socket#.

UNIT - V **15 hours**

The Applet Class: Applet Skeleton - The HTML APPLET Tag - Passing Parameters to Applets. Event Handling: The Delegation Event Model – Event Classes: ActionEvent – KeyEvent – FocusEvent. Event Listener Interfaces: The ActionListener Interface - The KeyListener Interface. Introducing the AWT: AWT classes – Window Fundamentals – Working with Frame windows - Working with Graphics - AWT Controls: Labels - Buttons - Check Boxes – CheckboxGroup - #TextField# – TextArea. Layout Managers: FlowLayout-BorderLayout – GridLayout.

 # ..... # self-study portion.

Text Book: Herbert Schildt, The Complete Reference of Java, Fifth Edition,2002.

UNIT I : Part I (1,2,3,4,5,6)UNIT II : Part I (8,9)UNIT III: Part I (10,1 1) & Part II (13)
UNIT IV: Part II (17,18) UNIT V : Part II (19, 20, 21, 22)

Books for Reference:P. Radha Krishna, *Object Oriented Programming through JAVA*, Universities Press, 2007.

SEMESTER -V :CORE-VII
RELATIONAL DATABASE MANAGEMENT SYSTEM

Course Code : 14UIT5C7 **Max. Marks : 100**
Hours/week : 4 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To provide the concepts of database management systems and RDBMS including transaction management and concurrency control.

UNIT–I **12 hours**

Introduction to Database Management Systems: File Based Data Management – Functions of DBMS – Components of DBMS – Database Users. Database Architecture and Design: Data Abstraction – Data Independence – Database Languages – Database Design – Design Constraints. Data Models: Hierarchical Data Model, Network Data Model, Relational Data Model, #E-R Model#: E-R Components, E-R Relationships, Types of E-R Diagrams, Object-oriented Models.

UNIT - II **12 hours**

RDBMS: Terminology – Relational Data Structure – Data Normalization – Pitfalls in Relational Database Design – Decomposition –#Functional Dependencies# – Normalization – Keys – FirstNormal Form(INF), Second Normal Form(2NF), Third Normal Form(3NF), Boyce-Codd Normal Form(BCNF) and Fourth Normal Form(4NF). Relational Algebraic Operations – Relational Calculus: Tuple Relational Calculus, Domain Relational Calculus.

UNIT - III **12 hours**

SQL: Characteristics of SQL – Advantages of SQL – Types of SQL Commands – SQL Operator.Tables and Views – Queries and Subqueries – Aggregate Functions –INSERT, UPDATE and DELETE operations.

UNIT - IV **12 hours**

Files, File Organization and File Structures: Operations on Files – File Storage Organization – Physical Storage Media – File Structure – Record Types. Indexing and Hashing – Database Security: Data Security Risks – Data Security Requirements – GRANT, REVOKE command –Data Encryption – #Network Security#.

UNIT - V **12 hours**

Transaction Management and Concurrency Control : Transactions – ACID Properties – Transaction States – Concurrency Control – Serializability – Recoverability – Concurrency Control Schemes – Transaction Management in SQL – Transactions and Recovery – User-defined Transactions – The COMMIT, ROLLBACK and SAVEPOINT Commands – Backup and Recovery.

 # ..... # self-study portion

Text Book:

Alexis Leon & Mathews Leon, *Essentials of Database Management Systems*, McGraw-Hill Education (India) Pvt. Limited, 2009.

UNIT I : Chapters: 1 Section (1.3,1.8–1.9,1.11), Section 2(2.3,2.5–2.8),
Section 3 (3.4–3.8),Section 4 (4.3– 4.5,4.8)

UNIT II : Chapters: 6 Section(6.2–6.3), Section8(8.2–8.6, 8.8–8.12), Section9 (9.2),
Section10(10.2–10.3)

UNIT III :Chapters: 12 Section(12.2 – 12.5),Section 13(13.1– 13.2),
Section14(14.1–14.2), 15,16

UNIT IV :Chapters: 20 Section(20.2–20.4,20.9–20.10), Section21(21.2–21.3), 22

UNIT V : Chapters: 23 Section(23.2–23.3,23.5–23.15), Section24(24.2–24.7, 24.8–24.13)

Books for Reference:

Rajesh Narang, *Database Management Systems*. PHI Learning (P) Ltd, New Delhi, 4th Printing 2009.

SEMESTER -V :CORE-VIII
OPERATING SYSTEMS

Course Code : 14UIT5C8 **Max. Marks : 100**
Hours/week : 4 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To provide fundamental concepts of all managements in an operating system.

UNIT –I **12 hours**

Introduction: What is an Operating System – Mainframe Systems – Multiprocessor Systems - Distributed System – Handheld Systems. Operating System Structures: System Components – Operating System Services - #System Programs# – System Structure-: Layered Approach.

UNIT - II **12 hours**

Memory Management: Single Contiguous Allocation – Example of Multiprogramming – Partitioned Memory Management – Paged Memory Management – Demand Paged Memory Management – #Segmented Memory Management#.

UNIT - III **12 hours**

Processor Management: Job Scheduling – Functions – Job Scheduling in Non-Multiprogrammed Environment – Job Scheduling in Multiprogrammed Environment – Process Scheduling Functions – Policies – Process Synchronization – Deadlocks: Deadlock Characterization – Deadlock Avoidance – Recovery from Deadlock.

UNIT - IV **12 hours**

Device Management: Techniques for Device Management – Device Characteristics – Hardware Considerations – Channels – #Control Units# – I/O Traffic Controller – I/O Scheduler – I/O Device Handler.

UNIT - V **12 hours**

File Management: File-System Interface: File Concept – Access Methods – Directory Structure: Single Level Directory – Tree-Structured. File-System Implementation: Overview – Directory Implementation – Allocation Methods.

 # ..... # self-study portion.

Text Books:

1. Stuart E. Madnick& John J. Donovan, *Operating Systems*, McGraw Hill International Editions, 1997. (Unit II, III, IV)
2. Abraham Silberschatz and Galvin Milan, *Operating System Concepts,* Sixth Edition,John Wiley & Sons, 2006.(Unit I, III, V)
   UNIT I : Chapter 1 (1.1, 1.2 , 1.4, 1.5, 1.8) Chapter 3(3.1, 3.2, 3.4, 3.5)
   UNIT II : Chapter 3
   UNIT III : Chapter 4, Chapter 8 (8.2, 8.5, 8.7)
   UNIT IV : Chapter 5
   UNIT V : Chapter 11(11.1 – 11.3), Chapter 12 12.2 , 12.4)

Books for Reference:

Charles Crowley, *Operating Systems – A Design Oriented Approach*, IRWIN Publication, 1997.

SEMESTER -V : CORE – IX
IT SYSTEMS MANAGEMENT

Course Code : 14UIT5C9 **Max. Marks : 100**
Hours/week : 4 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To provide the basic knowledge of designing, implementing and managing the infrastructure of an IT environment.

UNIT-I **12 hours**

Definition of Systems Management – Organizing for Systems Management – Staffing for Systems Management – Customer Service.

UNIT-II **12 hours**

Availability – Performance and Tuning – Product Acceptance.

UNIT-III **12 hours**

Change Management – Problem Management –#Storage Management#.

UNIT-IV **12 hours**

Network Management – Configuration Management –#Capacity Planning#.

UNIT-V **12 hours**

Strategic Security – #Disaster Recovery# – Facilities Management.

 # ..... # self-study portion.

Text Book:

Rich Schiesser, *IT Systems Management*, Prentice Hall of India Private Ltd., New Delhi, 2005.

UNIT I: Chapter-1, 5, 6 &3
UNIT II:Chapter-8, 9 &12
UNIT III:Chapter-12, 12&15
UNIT IV :Chapter-14, 15&16
UNIT V:Chapter-17,18&19.

Books for Reference:

Harris Kern, Mayra Muniz and Rich Schiesser ,Kindle eBook IT Production Services, Prentice Hall of India Private Ltd., New Delhi, 2006.

SEMESTER - V :CORE - X
PHP PROGRAMMING

Course Code : 14UIT5C10 **Max. Marks : 100**
Hours/week : 4 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective

To understand the concepts of PHP and MySQL.

UNIT - I **12 hours**

Introduction: What is PHP? – History of PHP – Installing PHP – Language Basics: Lexical Structure – Data types – What's a Variable?– PHP variable and value types – Using PHP Variables – #Expression and Operators# – Flow Control statements.

UNIT - II **12 hours**

Functions: Calling a function – Defining a function – Introduction to Strings – Comparing Strings – Manipulating and Searching strings – Arrays: Types of Arrays – Array functions – #Storing data in Arrays#.

UNIT - III **12 hours**

Form Handling – Form Validation – $_GET variable – $_ POST variable – $_REQUEST variable – Creating the Form – Creating the Upload script – Using your File system: File paths and permissions – Displaying directory contents – Working with fopen( ) and fclose( ).

UNIT - IV **12 hours**

Using Cookies: What are Cookies? – Setting Cookies – Using Cookie variables – Session Basics: What's a session? – Understanding Session variables – Managing User preferences with Sessions – Graphics: Drawing functions – #Creating and Drawing images#.

UNIT - V **12 hours**

Installing and Configuring MySQL – Establishing a connection and poking around – Creating a database table – Inserting data into the table – Selecting and displaying data.

 # ..... # self-study portion.

Text Book:

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

UNIT I:Chapter 3, 5
UNIT II: Chapter 6
UNIT III: Chapter-9, 12
UNIT IV: Chapter-16, 17
UNIT V: Chapter-1, 12, 12, 15, 14.

Books for Reference:

Kevin Tatroe, Peter MacIntyre and RasmusLerdorf, Programming PHP, O'REILLY media , 3rd edition, 2015.

SEMESTER -V :CORE - XI
MANAGEMENT INFORMATION SYSTEMS

Course Code : 14UIT5C11 **Max. Marks : 100**
Hours/week : 4 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To understand the concepts management information systems and their applications.To learn the concepts of systems engineering and ERP.

UNIT-I **12 hours**

Introduction to MIS – Concept – Definition of MIS – Role of MIS – MIS and the User – Management as a Control System – A Support to the Management – Organisation as a System. Strategic Management of Business – The Concept of Corporate Planning – Essentiality of Strategic Planning – Development of the Business Strategies – Types of Strategies – Short-Range Planning – Tools of Planning –Strategic Business Planning.

UNIT-II **12 hours**

Decision Making – Concepts – Process – Organisational Decision Making – MIS and Decision Making.Information and Knowledge – Information Concepts – Information A Quality Product – Classification of Information – Methods of Data and Information Collection – MIS and the Information and Knowledge.

UNIT-III **12 hours**

System Engineering – System Concepts – #System Control# – Types of Systems – Classes of Systems – Development of MIS – Development of Long Range Plans of MIS – Determining the Information Requirement – Development and Implementation of the MIS.MIS Development Process Model.

UNIT-IV **12 hours**

Application of MIS in Manufacturing Sector – Introduction – Personnel Management – Financial Management – #Production Management# – Marketing Management – Corporate Overview.MIS Applications in Service Industry.

UNIT-V **12 hours**

Enterprise Management System – #ERP System# – ERP Models and Modules Benefits of ERP – ERP Product Evaluation – Supply Chain Management (SCM) – Information Management in SCM – Customer Relationship Management – Technology of Information System – Data Processing – Transaction Processing – Application Processing – Information System Processing.

 # ..... # self-study portion.

Text Book:

Waman S Jawdekar, *Management Information Systems-Text and Cases,* Tata McGraw Hill Publishing Company Ltd., Third Edition, 2006.

Unit-I : Chapters 1(1– 1.3, 1.5–1.7, 1.9), Chapter 3 (3 – 3.7)
Unit-II : Chapter 6 (6.1, 6.2, 6.5, 6.6), Chapter 7 (7 – 7.4, 7.9)
Unit-III : Chapter 8 (8.1–8.3, 8.5), ,Chapter 12 (12, 12.1, 12.3, 12.7)
Unit-IV : Chapters 12 (12.1 – 12.4, 12.6, 12.7), Chapters 15 (15.7)
Unit-V : Chapters 15 (15 – 15.5, 15.7 – 15.9), Chapters 16 (16, 16.2 – 16.5)

Book for Reference: James A.O 'Brien and George M Marakas, *Management Information Systems*, Tata McGraw Hill Publishing Company Limited, Seventh Edition 2006.

SEMESTER -V :MAJOR BASED ELECTIVE – IV
JAVA PROGRAMMING LAB

Course Code : 14UIT5M4P **Max. Marks : 100**
Hours/week : 3 **Internal Marks : 40**
Credit : 3 **External Marks : 60**

1. Simple Programs using control statements:
    a. To reverse the number using while and do… while loop.
    b. To find the smallest and biggest number of given numbers using array.

3 hours

2. Write a java program to ncr value of given numbers using recursive function.

3 hours

3. Write a java program to find volume of rectangle and triangle using inheritance.

3 hours

4. Write a java program to prepare EB-bill using packages.**3 hours**
5. Write a java program to demonstrate interface concept.**3 hours**
6. Write a java program to create multiple threads using Thread class.**3 hours**
7. Write a Java program to demonstrate various methods in the String handling methods.

3 hours

8. Write a Java program to implement the concept of Exception Handling.**4 hours**
9. Write java program to display all sub directories and files of given path using Streams.

4 hours

10. Write a java program to find the IP address of the machine.**4 hours**
11. Write a java program to send a message and reply the same path using Sockets.

4 hours

12. Write a java program to display basic shapes and fill them and set background and foreground colors using Applet.**4 hours**
13. Develop a java program for simple calculator using AWT controls. **4 hours**

SEMESTER -V :SKILL BASED ELECTIVE - III
RDBMS LAB

Course Code : 14UIT5S3P **Max. Marks : 100**
Hours/week : 2 **Internal Marks : 40**
Credit : 2 **External Marks : 60**

1. SQL - Data Definition Language
   Table Creation
   Table Altering
   Drop table**6 Hours**

2. SQL - Data Manipulation Language
   Data Insertion
   Built-in Functions
   Set operations
   Join Operation
   Nested Subqueries**8 Hours**

3. PL/SQL Procedure
   Reversea string
   Delete any record and count it
   Student mark sheet preparation
   Pay Roll preparation
   Splitting a table into two tables
   Joining two tables into one table
   Using recursive function – Factorial & Fibonacci series**16 Hours**

SEMESTER - V :EXTRA CREDIT-III
C# PROGRAMMING

Course Code : 14UIT5EC3 **Max. Marks : 100***
Hours/week : **Internal Marks : --**
Credit : 4* **External Marks: 100***

Objective:

UNIT–I

Introducing C# - Evolution of C#-Characteristics of C# - Applications of C# - Overview of C# - Literals, Variables and Data Types.

UNIT–II

Operators and Expressions - Decision Making and Branching and Looping.

UNIT–III

Methods in C# - Declaring Methods-The Main Method – Invoking Method- Nesting of Methods-Pass by Value-Pass by Reference- Handling Arrays: One Dimensional Arrays-Two Dimensional Arrays – Creating Strings- String Methods- Comparing Strings.

UNIT - IV

Structures and Enumerations: Structures- Structs with methods-Nested Structs-Enumerations-Enumerator Initialization- Classes and Objects: Basic Principles of OOP-Defining a Class –Creating Objects- Constructors-Overloaded Constructors-Static Members – Copy constructors-Destructors –#The this Reference#.

UNIT–V

Inheritance and Polymorphism: Classical Inheritance-Containment Inheritance – Defining a Subclass-Defining Subclass Constructor—#Multilevel Inheritance#-Overriding Methods-Defining an Interface-Implementing Interface-Overloaded Operators-Overloaded Unary Operator –Overloaded Binary Operator.

 # ..... # self-study portion.

Text Book:

E.Balagurusamy,*PROGARAMMING IN C#*, Tata McGraw-Hill Publishing Company Limited, New Delhi, 2002.

UNIT I: Chapter 1,4 UNIT II: Chapter 5-7 UNIT III: Chapter 8-10
UNIT IV: Chapter 11,12 UNIT V: Chapter 13-15

Books for Reference:

YashwantKanetkar, Let Us C#, Tata McGraw-Hill Publishing Company Ltd, New Delhi.

SEMESTER - VI :CORE-XII
COMMUNICATION NETWORKS

Course Code : 14UIT6C12 **Max. Marks : 100**
Hours/week : 5 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To learn the concepts of data communication technologies and computer networks. To understand the applications, management and security aspects in networks.

UNIT-I **15 hours**

Introduction: Applications – Computer Network Topologies – Categories of Networks – Networks – Network Architecture – OSI Model – TCP/IP Architecture. Communication Media and Data Transmission: Analog and Digital Data Transmission – Modulation and demodulation – Transmission Media – Transmission Modes – Interfacing – Multiplexing.

UNIT-II **15 hours**

Error Detection and Correction: Types of Errors – Error Detection – Error Correction.Data Link Control and Protocol Concepts: Flow Control – Error Control – Asynchronous Protocols – Synchronous Protocols HDLC. Integrated Services and Routing Protocols: Integrated Services – ISDN Services – ISDN Topology – ISDN Protocols – ATM – Characteristics – Frame Relay – Comparison of ISDN, ATM and Frame Relay.

UNIT-III **15 hours**

LAN: Types of Network and Topology – LAN Transmission Equipment – Ethernet – Token bus – Token ring – Fibre Distributed Data Interface – Distributed Queue Dual Bus – LAN Operating Systems and Protocols – Ethernet Technologies. WAN: Transmission Methods – Carrier Types – Transmission Equipment –#Design and Multicast Considerations# – Protocols.

UNIT-IV **15 hours**

Wireless LAN: Applications – Requirements – Planning – Architecture – IEEE 802.12 – Protocol Layer – Physical Layer – Designing the Wireless LAN Layout – WAP Services.
Internetworking: Principles – Routing – Internetwork Protocols. TCP Reliable Transport Services: Transport Protocols – The Service TCP Provides to Applications – End-to-End Service and Datagrams – #Transmission Control Protocol# – User Datagram Protocol.

UNIT-V **15 hours**

Network Applications: Client-Server Model – DNS – Telnet – File Transfer and Remote File Access – Electronic Mail – World Wide Web. Network Management: Goal of Network Management – Standards – Network Management Model – Infrastructure for Network Management – Simple Network Management Protocol. Network Security: Fundamental Concepts – Identification and Authentication – #Access Control# – Network Security Model – Malicious Software.

 # ..... # self-study portion.

Text Book:

Brijendra Singh, *Data Communications and Computer Networks,* PHI, Second Edition, 2006.
UNIT I: Chapter1&3
UNIT II: Chapter3,5&8
UNIT III: Chapter6&7
UNIT IV: Chapter9,12&12
UNIT V: Chapter12,15&14.

Books for Reference:

BehrouzA.Forouzan, *Data Communications and Networking*, Tata McGraw Hill, Second Edition, 2006.

SEMESTER -VI: CORE–XIII
VB.NET

Course Code : 14UIT6C13 **Max. Marks : 100**
Hours/week : 5 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To understand the concepts of .NET technology

UNIT- I **15 hours**

Introduction: Welcome to IDE - Creating a Shortcut to Start VB.NET –What is IDE – Opening and Closing Windows and Toolbars – Opening an Existing project – Docking and Undocking the Windows – Placing the Controls on a Form –Selecting a Form and the Controls – Resizing a Form and the Controls – Setting the Startup Object – Setting Properties using the Properties Window.

UNIT- II **15 hours**

Variables and Data Types – Arithmetic Operators – Text-box Control – Radio-button Control – Programming Statements: If...Then and if...Then...EndIf – If...Then...Else...End If - Constants – Using the Imports Statement – Know the Functions – Function Call and Arguments – Text Editor Toolbar – InputBox() Function – List-Box Control – Programming Statement: Select Case.

UNIT- III **15 hours**

Logical Operators – Check-Box Control – Iteration Statements – Do While Loop Statement – Do Loop While Statement – Do Until Loop Statement – Do Loop Until Statement – For Next Statement – Arrays – Timer Control – #Picture-box Control# – Group-box Control – Combo-box Control – Horizontal Scrollbar and Vertical Scrollbar Controls – Numeric-up-down, Track-bar, and Progress-bar Controls.

UNIT- IV **15 hours**

Generic Procedure of Creating Menus – Creating a Simple Menu Application – Modifying the Existing Menu – Dynamically Growing Menus – #Pop-up Menus# – A Brief Introduction to Files – Using Dialog-Boxes: Dialog-box Open – Dialog-box Save As – Dialog-box Color – Dialog-box Font- Built-in-Functions – Mathematical Functions – Strings Handling Functions–DateandTime Handling Functions.

UNIT- V **15 hours**

Structured Programming – What is Structured Programming? – Events, Subroutines and Functions – Scope of Variables – #Scope of Procedures# – Working with Files: Classification of Files – Handling Files and Folders using Functions – Directory Class – File Class.

 # ..... # self-study portion.

Text Book

ShirishChavan, Visual Basic.NET*, Pearson Edition*, 3rd Edition 2009.

UNIT I: Chapter 2, 3 UNIT II: Chapter5, 6
UNIT III: Chapter7, 8 UNIT IV: Chapter9, 12
UNIT V: Chapter12, 15.

Books for Reference:

Michael Halvorson, Microsoft Visual Basic .NET Deluxe Learning Edition, Published by Microsoft Press, 2010.

SEMESTER - VI :CORE-XIV
LINUX ADMINISTRATION

Course Code : 14UIT6C14 **Max. Marks : 100**
Hours/week : 5 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

UNIT –I **15 hours**

Unix : An introduction – Unix file system – Unix versions – Linux : An introduction – Linux file system – Linux distributions - Linux login and logout – Linux Commands: Command format – Directory oriented commands – File oriented commands – File access permissions – Process oriented commands - Background processing – Communication oriented commands – General purpose commands.

UNIT - II **15 hours**

Pipes and Filters: Introduction – Pipe - Redirection – Filters – VI Editor: Starting Vi modes – insert, delete, cursor movement and replace commands – Search Commands – Redo, Undo Commands Shell Programming : Shell Script – Command grouping – Shell variables – Conditional parameter substitution – Escape mechanisms – Positional Parameters – Control Statements – Iterative Statements – Shell Functions.

UNIT - III **15 hours**

Some Sample Shell Scripts – System Administration: System administrator –# booting#, shutting down the system.

UNIT - IV **15 hours**

The C Shell: Login Files – Setting Variables – #arrays# – input – computation – control constructs – loops.

UNIT - V **15 hours**

MySQL and PHP : MySQL : Operators – Data Types – Built-in functions – Creating a database – Creating a table – inserting, selecting, updating, deleting and dropping a table - PHP –#First example# – variables.

 # ..... # self-study portion.

Text Book:

Linux – The Complete Reference, By Richard Petersen, Sixth Edition, Tata McGRAW Hill Publications.

UNIT I: Chapter 1 &2
UNIT II: Chapter 3,4 &5
UNIT III: Chapter 6 &7
UNIT IV:Chapter 9
UNITV:Chapter 10

Books for Reference:

1. Linux – A Practical Approach, By Mohamed Ibrahim, Firewall Media publications

2. The Most Complete Reference – Special Edition Using LINUX

SEMESTER - VI :CORE - XV
.NET LAB

Course Code : 14UIT6C15P **Max. Marks : 100**
Hours/week : 4 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

1. Placing Textboxes dealing with its properties.**7 hours**

2. Making use of placeholders, literals and controls.**7 hours**

3. Making use of list box, check box and radio button controls.**7 hours**

4. Setting up and using Adrotator control.**7 hours**

5. Making use required field validator and compare validator controls.**8 hours**

6. Using range validator, regular expression validator and validation summary.**8 hours**

7. Database connectivity through connected approach.**8 hours**

8. Data view with the help of grid view control.**8 hours**

SEMESTER – VI :CORE-XVI
PRINCIPLES AND PRACTICES OF INFORMATION SECURITY

Course Code : 14UIT6C16 **Max. Marks : 100**
Hours/week : 4 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

To introduce the basic concepts of information security.To provide knowledge of security management and the technical components of security.

UNIT-I **12 hours**

Introduction to Information Security: What is Security? - Security Systems Development Lifecycle - Need for Security: Business needs first - Threads - Attacks - Secure Software Development.

UNIT-II **12 hours**

Risk Management: An Overview of Risk Management - Risk Identification – Risk Assessment - Risk Control Strategies - Selecting Risk Control Strategies - Quantitative Verses Qualitative Risk Control Practices - #Risk Management Discussion Points# - Recommended Risk Control Practices.

UNIT-III **12 hours**

Security Technology: Firewall and VPN: Introduction - Physical Design - #Firewalls# - Protecting Remote Connection.

UNIT-IV **12 hours**

Security Technology: Intrusion Detection - Access Control & Other Security Tools: Introduction - IDSs & IPSs - Honey Pots, Honey Nets & Padded Cell Systems - Scanning & Analysis Tools - Access Control Devices.

UNIT-V **12 hours**

Information Security Maintenance: Introduction - #Security Management Models# - The Maintenance Model - Digital Forensics.

 # ..... # self-study portion.

Text Book:

Michael E. Whitman & Herbert J. Mattord, *Principles and Practices of Information Security*, Cenage Learning, 2009.

UNIT I : Chapters 1(1.3, 1.12), Chapter 2 (2.1 – 2.5) UNIT II: Chapter 4 (4.1– 4.12)
UNIT III : Chapter 6 (6.1–6.4) UNIT IV: Chapter 7 (7.1 – 7.5)
UNIT V : Chapters 12 (12.1 – 12.4)

Books for Reference:

Linda Volonino, Stephen R. Robinson,Principles and Practice of Information Security Pearson/Prentice Hall, 2004.

SEMESTER - VI :CORE - XVII
MULTIMEDIA TECHNOLOGY

Course Code : 14UIT6C17 **Max. Marks : 100**
Hours/week : 4 **Internal Marks : 40**
Credit : 4 **External Marks : 60**

Objective:

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

UNIT-I **12 hours**

Multimedia: Introduction – Use of Multimedia – Virtual Reality – Kiosk – Use of Public Places – Railway Stations – Bank ATM's – Delivering Multimedia – CD, DVD, Flash Drives.

UNIT-II **12 hours**

Text: Fonts – Faces – Designs – HTML – Images – Capture – Types of Images – BMP, JPG, GIF, and PNG – Vector Drawing – 3D Drawing, Rendering.

UNIT-III **12 hours**

Audio: Digital Audio – MIDI Audio – Audio File Formats – Video: Analog – Digital – LED, LCD, Plasma, Screen Touch – Video Clipping – Video Tips.

UNIT-IV **12 hours**

Multimedia Skills: Creativity – User – Administrator – Multimedia Team – Project Manager – Designer – Writer –#Director# – Video, Audio Specialist –Programmer.

UNIT-V **12 hours**

Multimedia Project: Design – Organization – Communication – Text Editing – OCR – Painting, Drawing – Image and Sound Editing – Animation – Authoring Tools – Multimedia Planning – Costing – #Designing# – Producing.

 # ..... # self-study portion.

Text Books:

1. Tay Vaughan , *Multimedia Making it Work*, Tata McGraw – Hill Edition , Fourth Edition, 2000. (Unit I, IV & V)

2. David Hillman, *Multimedia Technology and Applications*, Galgotia Publications Pvt. Ltd., Year 1998. (Unit II & III)

UNIT I: Chapter 1 UNIT II: Chapter 4 & 5
UNIT III: Chapter 6 && UNIT IV: Chapter 3
UNIT V: Chapter 10,11,15 & 16

Books for Reference:

Dragorad A. Milovanovic K.R. RaoZoran S. Bojk ,Introduction To Multimedia Communications: Applications, Middleware, Networking,Wiley India Pvt. Ltd,2002.

SEMESTER - VI :SKILL BASED ELECTIVE – IV
ANIMATION LAB

Course Code : 14UIT6S4P **Max. Marks : 100**
Hours/week : 2 **Internal Marks : 40**
Credit : 2 **External Marks : 60**

Photoshop:

1. (i) Handling different file formats and interchanging them, changing the resolution, color, grayscales and size of the images.

(ii) Using brushes and creating multicolor reallife images. **2 hours**

2. Cropping, rotating, overlapping, superimposing, pasting photos on a page. **2 hours**

3. Creation of a single image from selected portions of many. **2 hours**

4. Developing a commercial brochure with backgroundtints. **2 hours**

5. Creating an image with multi-layers of images and texts.**2 hours**

6. Applying masks and filtering on images.**2 hours**

Flash:

Develop an image(s) and do the following. **2 hours**

1. Basic Drawing and Painting. **2 hours**

2. Working with Strokes and Fills. **2 hours**

3. Creating Custom Colors, Gradients, and Line Styles Transforming and Grouping Objects **3 hours**

4. Creating and Managing Multiple Layers. **3 hours**

5. Converting Text into Shapes. **3 hours**

6. Animate using motion, shape, Tweening, and actions. **3 hours**

SEMESTER – VI :EXTRA CREDIT-IV
SAP

Course Code : 14UIT6EC4 **Max. Marks : 100***
Hours/week : - **Internal Marks : --**
Credit : 4* **External Marks : 100***

Objective :

To understand the fundamentals of SAP

UNIT–I

A Gateway to SAP: Architecture of SAP-SAP Integrated-Three Tier Architecture – Integrated Environments.

UNIT–II

SAP Easy Access: SAP User Menu-The Client Concepts-SAP Settings-Navigating in the Workplace Menu- Creating Favorites-#Role of a User#.

UNIT–III

SAP User Interface: SAP GUI –The Menu bar- The Standard Toolbar-The Application Toolbar-The Status bar-Table Controls-Radio Buttons and Checkboxes.

UNIT - IV

Starting and Shutting the SAP System: Starting the System-Logging into SAP-The SAP Logon-#Configuring the SAP Logon#-SAP Shortcuts.

UNIT–V

Handling Tasks in SAP: Accessing Task in SAP System-Entering Data on Screen-Reports in SAP-Report Execution-Selection Criteria-Variants in reports-Printing Options.

 # ..... # self-study portion.

Text Book:

SAP R/3,Black Book, Dreamtech Software Team Publishing, New Delhi, 2006.

UNIT I: Chapter 1 UNIT II: Chapter 2 UNIT III: Chapter 3
UNIT IV: Chapter 4 UNIT V: Chapter 5

Books for Reference:

Bonnen, Volker Drees, Andre Fischer, Ludwig Heinz, KarstenStrothmann, OData and SAP NetWeaver Gateway, 2011.