B.Sc. COMPUTER SCIENCE

SEM.	COURSE CODE	PART	COURSE	COURSE TITLE	HRS / WEEK	CREDIT	CIA MARKS	SE MARKS	TOTAL MARKS
I	14 U1LT1/LA1/ LF1/LH1/LU1	I	Language-I		6	3	40	60	100
	14 UCN1E1	II	English-I		6	3	40	60	100
	14 UMA1A1	III	Allied I	Calculus and Numerical method	8	4	40	60	100
	14 UCS1C1	III	Core I	Programming in C	4	4	40	60	100
	14 UCS1M1P	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	14 U2LT2/LA2/ LF2/LH2/LU2	I	Language-II		6	3	40	60	100
	14 UCN2E2	II	English-II		6	3	40	60	100
	14 UMA2A2	III	Allied II	Statistics and Operation Research	7	4	40	60	100
	14UCS2C2	III	Core II	Object Oriented Programming with C++	4	4	40	60	100
	14UCS2M2P	III	Major Based Elective – II	C++ Programming Lab	3	3	40	60	100
	14UCS2N1	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
	14UPH3A3	III	Allied III	Applied Physics - I	4	2	20	30	50
	14UPH3A3P	III	Allied III P	Applied Physics I - Practical	3	2	20	30	50
	14UCS3C3	III	Core III	Database Management Systems	4	4	40	60	100
	14UCS3M3P	III	Major Based Elective – III	DBMS Lab	3	3	40	60	100
	14UCS3N2	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	14U4LT4/LA4/ LF4/LH4/LU4	I	Language-IV		6	3	40	60	100
	14UCN4E4	II	English-IV		6	3	40	60	100
	14UPH 4A4	III	Allied IV	Applied Physics – II	5	2	20	30	50
	14UPH 4A4P	III	Allied IV	Applied Physics II - Practical	3	2	20	30	50
	14UCS4C4	III	Core IV	Data Structures and Algorithms	4	4	40	60	100
	14UCS4C5	III	Core V	Web Design	2	2	20	30	50
	14UCS4C5P	III	Core V	Data Structures Lab	2	2	20	30	50
	14UCS4S2	IV	Skill Based Elective – II	General Aptitude	2	2	40	60	100
	14UCN4EA	V	Extension Activities	NCC, NSS, etc.	-	2	-	-	-
	14UCS4EC1		Extra Credit – I	E-Commerce	-	4*	-	100*	100*
	14UCS4EC2		Extra Credit – II	Data Mining	-	4*	-	100*	100*
	TOTAL				**30**	**22**	**240**	**360**	**600**
V	14UCS5C6P1	III	Core VI	Java Programming Lab	3	2	20	30	50
	14UCS5C6P2	III	Core VI	Web Design Lab	2	2	20	30	50
	14UCS5C7	III	Core VII	Scripting Languages	4	4	40	60	100
	14UCS5C8	III	Core VIII	Java Programming	4	4	40	60	100
	14UCS5C9	III	Core IX	Computer Organization and Architecture	4	4	40	60	100
	14UCS5C10	III	Core X	Operating Systems	4	4	40	60	100
	14UCS5C11	III	Core XI	Software Engineering	4	4	40	60	100
	14UCS5M4	III	Major Based Elective – IV	VB. Net	3	3	40	60	100
	14UCS5S3	IV	Skill Based Elective – III	Multimedia Fundamentals	2	2	40	60	100
	14UCS5EC3		Extra Credit – III	Software Testing	-	4*	-	100*	100*
	TOTAL				**30**	**29**	**320**	**480**	**800**
VI	14UCS6C12	III	Core XII	Computer Graphics	5	4	40	60	100
	14UCS6C13	III	Core XIII	Computer Networks	5	4	40	60	100
	14UCS6C14P1	III	Core XIV	Digital and Microprocessor Lab	3	2	20	30	50
	14UCS6C14P2	III	Core XIV	Open Source Lab	2	2	20	30	50
	14UCS6C15	III	Core XV	Microprocessor Fundamentals	4	4	40	60	100
	14UCS6C16P1	III	Core XVI	.Net Lab	2	2	20	30	50
	14UCS6C16P2	III	Core XVI	Multimedia Lab	2	2	20	30	50
	14UCS6C17	III	Core XVII	Open Source Technology	4	4	40	60	100
	14UCS6S4	IV	Skill Based Elective – IV	PC Hardware & Troubleshooting	2	2	40	60	100
	14UCN6GS	V	Gender Studies	Gender Studies	1	1	40	60	100
	14UCS6EC4		Extra Credit – IV	Network Security	-	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	Internet and Its Applications
III	Fundamentals of Web Design

* Not considered for Grand Total and CGPA

SEMESTER - I : CORE - I
PROGRAMMING IN C

Course Code : 14UCS1C1	**Max. Marks : 100**
Hours/Week : 4	**Internal Marks : 40**
Credit : 4	**External Marks: 60**

Objective:
   To impart basic knowledge of programming skills in C.

UNIT I   **12 hours**
   History of C – Importance of C – Basic Structure of C Programs – Constants, Variables and Data Types – Operators and Expressions – # Managing Input and Output Operations #.

UNIT II   **12 hours**
   Decision Making and Branching – Decision Making with IF Statement – Simple IF Statement – The IF … ELSE Statement – Nesting of IF … ELSE Statements – # The ELSE IF Ladder # – The Switch Statement – The ?: Operator – The GOTO Statement – Decision Making and Looping – The WHILE Statement – The DO Statement – The FOR Statement.

UNIT III   **12 hours**
   Arrays – One Dimensional Arrays – Two Dimensional Arrays – Multi-dimensional Arrays – Character Arrays and Strings – Declaring and Initializing String Variables – Reading and Writing Strings – Arithmetic Operations on Characters – Comparison of Two Strings – # String-handling Functions #.

UNIT IV   **12 hours**
   User-Defined Functions – Function Declaration – Category of Functions – Nesting of Functions – Recursion – Storage Classes – Structures and Union – Arrays of Structures – Arrays within Structures – # Structures within Structures # – Structures and Functions – Unions.

UNIT V   **12 hours**
   Pointers – Pointer Declaration – Pointer Expression – Pointers and Arrays – Pointers and Character Strings – Array of Pointers – Pointers to Function – 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 – # Command Line Arguments #.

 # .... # self-study portion.

Text Book

1. E. Balagurusamy, *Programming in ANSI C*, Tata McGraw Hill Education Private Ltd., Fifth Edition, 2011.

UNIT I	**:** Chapters 1 Sections 1.1, 1.2, 1.8, Chapter 2, Chapter 3, Chapter 4
UNIT II	: Chapter 5, Chapter 6 Sections 6.1 – 6.4
UNIT III	: Chapter 7 Sections 7.1 – 7.7, Chapter 8 Sections 8.1 – 8.8
UNIT IV	: Chapter 9, Chapter 10 Sections 10.1 – 10.12
UNIT V	: Chapter 11 Sections 11.1 – 11.15, Chapter 12

Books for Reference
1. D. Ravichandran, *Programming in C*, New Age International (P) Ltd., First Edition, 1996.

Course Code : 14UCS1M1P   **Max. Marks   : 100**
Hours/Week : 3   **Internal Marks : 40**
Credit   : 3   **External Marks: 60**

1.   a) Program to find Simple Interest
        b) Program to calculate area of rectangle, square and triangle
        c) Program to find whether the given number is odd or even

2   a) Program to find the roots of a quadratic equation using if … else statement
        b) Program to find the biggest of 3 given numbers using nested if … else statement

3.   a) Program to find sum of individual digits of a given number using while statement
        b) Program to find the sum of odd numbers between 1 and 100 using do … while
           statement.
        c) Program to find the sum and average of the given 'n' numbers using for loop

4.   a) Program to find the factorial of the given number using recursive function
        b) Program to calculate the binomial coefficient.

5.   a) Program to sort the given set of numbers
        b) Program to perform the addition of two given matrices.
        c) Program to perform the multiplication of two given matrices.

6.   a) Program to check whether the given string is palindrome or not.
        b) Program to arrange the given set of names in alphabetical order.

7.   a) Program to illustrate the use of pointers in arithmetic operations
        b) Program to compute the sum of all elements stored in an array using pointers.
        c) Program to swap the two values using pointers

8.   Program to prepare mark sheet using file

VALUE EDUCATION

Course Code :14UCN1VE	**Max. Marks : 100**
Hours/Week : 3	**Internal Marks : 40**
Credit : 3	**External Marks: 60**

Objective::
- To impact the meaning and purpose of Life
- To understand basic culture and individual qualities of human
- To give awareness on human rights and anti-corruption

UNIT-I   **9 hours**

    Purpose and Philosophy of life – Basic needs, safety measures, ethics, wisdom of perfection stages. Law of nature – unified force, cause and effect system. Education – nonviolence, five-fold moral culture. Protecting nature.

UNIT-II   **9 hours**

    Greatness of life force and mind- Maintaining youthfulness, bio-magnetism and body, food-transformation into seven minerals, reasons for hunger, circular movement of live force, mind-development of mind in ten stages, mental frequency, meditation – benefits.

UNIT-III   **9 hours**

    Individual qualities-Indian culture-four structures-spiritually guided young age, family life, introspection – analysis of thought, six roots for thoughts, introspection for analysis of thoughts, practical technique for analysis of thoughts, service.

    Desire-moralization of desire, analysis of desire. Anger–definition, neutralization of anger-method of neutralization of anger. Benefits of blessings, Greatness of friendship. Love and compassion.

UNIT-IV   **9 hours**

    Human Rights-Introduction-definition of human rights and duties-nature of human rights-Characteristics of human rights-Functional principles of human rights-Historical backgrounds of human rights-Classification of human rights.

    Theories of human rights-theory of natural rights, legal theory of rights, historical theory of rights, social theory of rights, economic theory of rights and human duties.

UNTI-V   **9 hours**

    Anti-Corruption- Corruption – causes, anticorruption measures in India - CBI, Santhanam Committee's recommendations – CVC (Central Vigilance Commission) – functions – LOKPAL – salient features of LOKPAL bill 2001 – Lokayukta, Right to information Act – features and advantages.

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SEMESTER - II : CORE - II
OBJECT ORIENTED PROGRAMMING WITH C++

</div>

Course Code : 14UCS2C2	**Max. Marks : 100**
Hours/Week : 4	**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 12 hours

Principles of Object Oriented Programming – Software Evolution – Basic Concepts of Object Oriented Programming – Benefits of OOP – Applications of OOP – Structure of C++ Program – Tokens – Keywords – Identifiers and Constants – Basic Data Types – User Defined Data Types – Derived Data Types – Declaration of Variables – Operators – Manipulators – # Expressions and their types # – Control Structures.

UNIT II 12 hours

Functions – The Main Function – Function Prototyping – Call by Reference – Return by Reference – Inline Functions – Default Arguments – Function Overloading. Classes and Objects – Specifying a Class – Defining Member Functions – A C++ program with Class – # Static Data Members – Static Member Functions # – Arrays of Objects – Objects as Function Arguments – Friendly Functions – Returning Objects.

UNIT III 12 hours

Constructors and Destructors – Constructors - Parameterized Constructors – Multiple Constructors in a Class – Copy Constructors – Destructors – Operator Overloading – Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators – # Overloading Binary Operators using Friends # – Rules for Overloading Operators.

UNIT IV 12 hours

Inheritance: Extending Classes – Defining Derived Classes – Single Inheritance – Multilevel Inheritance – Multiple Inheritance – Virtual Base Classes – Pointer, Virtual Functions and Polymorphism – Pointers - Pointers to Objects – this Pointer – # Pointers to Derived Classes # – Virtual Functions – Pure Virtual Functions.

UNIT V 12 hours

Managing Console I/O Operations – C++ Streams – C++ Stream Classes – Unformatted I/O Operations – Formatted Console I/O Operations – Working with Files – Classes for File Stream Operations – Opening and Closing a File – Detecting End-of-file – # More about Open( ): File Modes #.

 # .... # self-study portion.

Text Book

1. E. Balagurusamy, *Object-Oriented Programming with C++,* Tata McGraw Hill Education Private Ltd., New Delhi, Fourth Edition, 2008.

UNIT I : Chapter 1, Chapter 2 Section 2.6, Chapter 3
UNIT II : Chapter 4 Sections 4.1 – 4.7, 4.9, Chapter 5 Sections 5.3 – 5.6, 5.11 – 5.16
UNIT III : Chapter 6 Sections 6.1 – 6.4, 6.7, 6.11, Chapter 7 Sections 7.1 – 7.5, 7.7
UNIT IV : Chapter 8 Sections 8.1 – 8.3, 8.5, 8.6, 8.9, Chapter 9 Sections 9.1 – 9.7
UNIT V : Chapter 10 Sections 10.1 – 10.5, Chapter 11 Sections 11.1 – 11.5

Books for Reference

1. Robert Lafore, *Object-Oriented Programming in Turbo C++,* Galgotia Publications Pvt. Ltd., New Delhi, 1994.

1. a) Program to find factorial of a given number.
    b) Program to convert dollars to rupees.

2. Program to illustrate the call by value and call by reference

3. Define a class to represent a bank account. Include the following members:
    Data members : Name of the depositor, Account number, Type of account
                             Balance amount in the account
    Member functions : To assign initial values, To deposit an amount, To withdraw
                             an amount after checking the balance, To display the name
                             and balance.
    Write a main program to invoke the member functions.

4. Consider a shopping list of items for which orders are placed with a dealer. The
    list should include the code number and price of each item. Operations such as
    adding an item to the list, deleting an item from the list and printing the total
    value of the order are to be provided for. Write a program to implement the
    above using a class with arrays as data members.

5. a) Program to find the largest of three numbers using inline function.
    b) Program to find mean of 'N' numbers using friend function.

6. a) Program to find volume of cube, cylinder and rectangular box using function
        overloading.
    b) Program to add two times in hours and minutes format using objects as function
        arguments.

7. Program to illustrate the use of arrays of objects.

8. Program to add two complex numbers using overloaded constructors

9. Program to illustrate unary and binary operator overloading

10. Program to check whether the given string is a palindrome or not using pointer
    method.

11. Program to read the derived class data members such as name, roll number, sex,
    height and weight from the keyboard and display the contents of a class on the
    screen. Write a program to demonstrate a single inheritance.

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SEMESTER - II : NON-MAJOR ELECTIVE – I
INTERNET AND ITS APPLICATIONS

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Course Code : 14UCS2N1   **Max. Marks   : 100**
Hours/Week : 2   **Internal Marks : 40**
Credit   : 2   **External Marks: 60**

Objective:s

To understand the fundamental concepts of Internet and its Applications

UNIT I   **6 hours**

Internet – Introduction – Internet Access/Dial-up connection – Internet Services Features – Getting Connected: TCP/IP accounts vs Shell accounts – Configuring TCP/IP Account – Configuring the shell account.

UNIT II   **6 hours**

World Wide Web: Web Page – HTML – HTML Tags – Net Surfing – Web Browsing: Internet Explorers – Netscape Navigator.

UNIT III   **6 hours**

Internet Addressing – IP address – Domain Name – #Electronic Mail# – URL.

UNIT IV   **6 hours**

Internet Protocol: TCP/IP - #File Transfer Protocol# – Hyper Text Transfer Protocol –Telnet – Gopher – #WAIS#.

UNIT V   **6 hours**

Searching the Web: Web Index – Web Search Engine – Web Meta – Searcher – Search Functions – Simple Search using Alta Vista – #Advanced Searches#.

 # .... # self-study portion.

Text Book
 1. Alexis Leon and Mathews Leon, *Internet For Every One*, Leon Press, 1999.
  UNIT I   : Chapters 1,2
  UNIT II : Chapter 3,4
  UNIT III: Chapter 5
  UNIT IV: Chapter 6
  UNIT V : Chapter 7

Books for Reference
1. Deitel and Deitel, *Internet and World Wide Web - How to Program*, PHI, Fourth Edition, 2008.

2. Christian Cramlish, *The Internet*, BPB, Second Edition, 2004.

SEMESTER - II
ENVIRONMENTAL STUDIES

Course Code : 14UCN2ES   **Max. Marks   : 100**
Hours/Week : 2   **Internal Marks : 40**
Credit   : 2   **External Marks: 60**

Objective::

To implement environmental studies in order to bring about awareness among the students.

UNIT – I Environmental Studies   **6 hours**

The multidisciplinary nature of environmental studies – Definition – Scope – Importance – Awareness.

UNIT – II Natural Resources   **6 hours**

Forest Resources – Water Resources – Mineral Resources – Food Resources – Energy Resources – Land Resources.

UNIT – III Eco-Systems   **6 hours**

Concepts – Types - Structure and Function – Producers. Consumers and Decomposers – Energy Flow – Ecological Succession – Food Chains, Food Webs and Ecological Pyramids.

UNIT – IV Biodiversity and its Conservation   **6 hours**

Introduction – Definition – Conservation value – Biodiversity Levels – Hotspots – Threats – Endangered and Endemic Species of India – Conservation.

UNIT – V Environmental Pollution   **6 hours**

Definition – Causes, Effects and Control measures of Air pollution – Water pollution – Soil pollution – Marine pollution – Noise pollution – Thermal pollution – Nuclear Hazards.

UNIT – VI Social Issues and Environment   **6 hours**

Unsustainable to Sustainable Development – Water Conservation – Urban Problems related to energy – Resettlement and Rehabilitation of People – Environmental Ethics.

UNIT – VII Human Population and Environment   **6 hours**

Population growth – Explosion – Family Welfare Programme – Human Health – Human Rights – Value Education – HIV and AIDS – Women and Child Welfare – Role of IT.

UNIT – VIII Field Work   **6 hours**

Visit to local area – Polluted Site – Study of Common Plants, Insects, Birds – Ecosystem – Visit   to Sanctuaries.

SEMESTER - III : CORE- III
DATABASE MANAGEMENT SYSTEMS

Course Code : 14UCS3C3   **Max. Marks   : 100**
Hours/Week : 4   **Internal Marks : 40**
Credit   : 4   **External Marks: 60**

Objective:
　　　To provide the basic concepts of the database systems including data models, storage structure, normalization and SQL.

UNIT I   **12 hours**
　　　Introduction: Flat File – Database System – Database – Actionable for DBA – The Entity – Relationship Model: The Entity Relationship Model – Data Models: Relational Approach – The Hierarchical Approach –#The Network Approach#.

UNIT II   **12 hours**
　　　Storage Structure: File Organization and Addressing Schemes – Sequential Organization – Indexed Sequential Organization – Direct Organization of File – Interface Indexing – Hashing Scheme of File Organization – Dynamic Hashing Technique – Insertion Scheme in Dynamic Hashing – B-Trees – Indexing Methods – Relational Data Structure: Introduction – Relations – Domains.

UNIT III   **12 hours**
　　　Normalization : Purpose of Normalization – Definition of Functional Dependence (FD) – Normal Forms – First Normal Form – #Second Normal Form# – Third Normal Form – Boyce Codd Normal Form (BCNF).

UNIT IV   **12 hours**
　　　Structured Query Language: Features of SQL – Select SQL Operations – Grouping the Output of the Query – Querying form Multiple Tables – Retrieval Using Set Operators – Nested Queries – T-SQL – Triggers and Dynamic Execution: Transact-SQL.

UNIT V   **12 hours**
　　　Procedural Language-SQL: PL/SQL Block Structure – PL/SQL Tables – Cursor Management and Advanced PL/SQL: Opening and Closing a Cursor – Processing Explicit Cursor – Implicit Cursor – Exception Handlers – Sub Programs in PL/SQL – #Functions# – Precaution While Using PL/SQL Functions – Stored Packages – Dropping Procedure, Function and Package – Triggers – Object-Oriented Technology.

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

Text Book

1. Rajesh Narang, *Database Management Systems,* PHI Learning Private Limited, New Delhi, Fourth Printing, 2009
UNIT I   : Chapters 1,2 & 3
UNIT II : Chapters 4 & 5
UNIT III : Chapter 7
UNIT IV : Chapters 8 & 9
UNIT V : Chapters 10 & 11

Books for Reference
1. Alexis Leon and Mathews Leon, *Essentials of Database Management Systems*, Vijay Nicole Imprints Private Limited, 2006.

Course Code : 14UCS3M3P   **Max. Marks   : 100**
Hours/Week : 3   **Internal Marks : 40**
Credit   : 3   **External Marks: 60**

1. SQL - Data Definition Language
   i) Table Creation
      Create table with Primary Key, Candidate key,
   ii) Table Altering
      Alter table with three options:
      Add a column, key constraints,
      Modify existing field like (size, data type, column name)
      Drop column
   iii) Drop table

2. SQL - Data Manipulation Language
   i)   Data Insertion
   ii)   Updation
   iii)   Deletion
   iv)   Rename operation
   v)   Pattern Matching
   vi)   Build-in Function
   vii)   Aggregate function with grouping
   viii)   Set operations
   ix)   Join Operation
   x)   Nested Subqueries
   xi)   Views

3. PL/SQL Procedure
   i)   Reverse the given string
   ii) Find the factorial of a number using recursive function
   iii) Student Mark sheet preparation

Course Code : 14UCS3N2   **Max. Marks   : 100**
Hours/Week : 2   **Internal Marks : 40**
Credit   : 2   **External Marks: 60**

Objective:
        To present the fundamental concepts of Internet, Internet Technologies and to give the knowledge on HTML.

UNIT I   **6 hours**
        Introduction to the Internet - Computers in Business, Networking, Internet, E-mail, Resource Sharing, Gopher, World Wide Web, Usenet, Telnet, Bulletin Board Service, Wide Area Information Service.

UNIT II   **6 hours**
        Internet Technologies - Modem, Internet Addressing, Physical Connections, Telephone Lines - Internet Browsers - #Internet Explorer, Netscape Navigator #.

UNIT III   **6 hours**
        Introduction to HTML - History of HTML, HTML Documents, Anchor Tag, Hyper Links - Head and Body Sections - Header Section - Title, Prologue, Links, Colorful Web Page, Comment Lines.

UNIT IV   **6 hours**
        Designing the Body Section - Heading Printing, Aligning the Headings, Horizontal Rule, Paragraph, Tab Settings, Lists, Unordered Lists, Ordered Lists.

UNIT V   **6 hours**
        Table Handling – Tables, Tables Creation in HTML - #Frames# – Frameset Definition, Frame Definition, Nested Framesets.
 # .... # self-study portion

Text Book
1. C. Xavier, *World Wide Web Design with HTML*, TMH, 19ᵗʰ Reprint, 2008.
UNIT I   : Chapter 1   Sections 1.1 - 1.11
UNIT II : Chapters 2   Sections 2.1 – 2.4, 3.1, 3.2
UNIT III : Chapters 4   Sections 4.1 – 4.6, 5.1 – 5.6
UNIT IV : Chapters 6   Sections 6.1 – 6.5, 7.1 – 7.4
UNIT V : Chapters 8   Sections 8.1 – 8.3, 10.1 – 10.3

Books for Reference
1. Thomas A. Powell, *HTML& XHTML,* TMH, Fourth Edition, Thirteenth Reprint, 2007.
2. N.P. Gopalan and J. Akilandeswari, *Web Technology A Developer's Perspective*, PHI, Second Printing, July 2008.

SEMESTER - III : SKILL BASED ELECTIVE – I
SOFT SKILLS

Course Code : 14UCN3S1	**Max. Marks : 100**
Hours/Week : 2	**Internal Marks : 40**
Credit : 2	**External Marks: 60**

Objective:
1. To make the students understand soft skills.
2. To help them understand and practice communication skills in every day life.
3. To enable the students to develop their personality.

UNIT I **6 hours**

Importance of positive attitude - steps to build positive attitude – Goal setting.

UNIT- II **6 hours**

Communication skills - Listening, Speaking, Reading and Writing. Vocabulary Enrichment - Oral Presentation - Techniques and Tests.

UNIT- III **6 hours**

Resume writing – covering Letter – Letter to the editors on matters of General interests.

UNIT- IV **6 hours**

Group Discussion – Interview Skills – Qualities expected from participants – Body Language.

UNIT- V **6 hours**

Time management – procrastination – Causes and Effects – Effective Time Management – Leadership - Qualities of a successful leader.

Recommended Text book:
1. Soft Skills, Jamal Mohamed College Publication.

Books for References:
1. Shiv Kera, You can Win, Macarillan, India Pvt. Ltd.,
2. Dr. Alex, Soft Skills, S.Chand, New Delhi.
3. Dr. Ravichandran and others, Success through Soft Skills.
4. Buhari S.A.W , Soft skills competencies for success-Sanjay Book House, Trichy
5. Buhari S.A.W, How to win a Job, Sanjay Book House, Trichy.
6. Andrews, How to succeed in Interviews", Tata McGraw Hill, New Delhi.

Course Code : 14UCS4C4	**Max. Marks : 100**
Hours/Week : 4	**Internal Marks : 40**
Credit : 4	**External Marks: 60**

Objective:
To understand the concepts of data structures and algorithms.

UNIT I   **12 hours**
Introduction and Preliminaries : Basic terminology, Elementary data organization, Data structures –   Data structure operations, Algorithms : complexity, time-space Tradeoff – Mathematical Notations and Functions – Control Structures – Complexity of Algorithms.

UNIT II   **12 hours**
Arrays and Stacks : Arrays – Introduction – Linear Array, Representation of Linear Array in Memory, Traversing Linear Arrays, Inserting and Deleting, Multidimensional Arrays – Stacks – Array Representation of Stack, Arithmetic Expressions: Polish Notation – #Recursion#.

UNIT III   **12 hours**
Queues and Linked Lists : Queues – Deques – Array Representation Queues – Insertion and Deletion – Linked List, Representation of Linked Lists in memory, Traversing a Linked List, Insertion into a Linked List, Deletion from a Linked List, #Two-Way Linked Lists#.

UNIT IV   **12 hours**
Trees and Graphs : Binary Trees, Representing Binary Trees in Memory, Traversing binary tree – threads, Binary Search Tree, Searching and Inserting in Binary Search Tree, Deleting in Binary Search tree – Graph Theory – Terminology, Sequential Representation of Graph: Adjacency Matrix, Path Matrix.

UNIT V   **12 hours**
Sorting and Searching : Sorting- Bubble Sort, Insertion Sort, Selection Sort, #Merge Sort#, Quick sort,   Heap Sort - Searching; Liner Search, Binary Search.

 # .... # self-study portion

Text Book
1. Seymour Lipschutz and G.A. Vijayalakshmi Pai (Schaum's Series), *Data Structures*, Tata McGraw Hill Publishing Company Ltd., New Delhi, Indian Adopted Edition, 2006.

UNIT I   : Chapter I   Sections 1.1 to 1.5 , Chapter II Sections 2. 2 , 2 .4 , 2 . 5
UNIT II : Chapter IV Sections 4.1 - 4.5 , 4.9, Chapter VI Sections 6.1 to 6.3 , 6.5 , 6.7
UNIT III : Chapter VI Sections 6.1.0 – 6.1.2 , Chapter V Sections 5.1 to 5.4 , 5.7 to 5.8 , 5.1.0.
UNIT IV : Chapter VI Sections 7.1 to 7.9 , Chapter VII Sections 8.1 to 8.3
UNIT V   : Chapter IX Sections 9.1 to 9.6, 4.6 to 4.8 , 6.6 , 7.17.

Books for Reference

1. Ashok N. Kamthane, *Introduction to Data Structures in C*, Pearson Edition, 2007.

SEMESTER - IV : CORE - V(A)
WEB DESIGN

Course Code : 14UCS4C5   **Max. Marks   : 50**
Hours/Week : 2   **Internal Marks : 20**
Credit   : 2   **External Marks: 30**

Objective:
    To present the fundamental concepts of Internet, Internet Technologies and to give the knowledge on HTML.

UNIT I   **6 hours**
    Fundamentals : A Brief Introduction to the Internet – The World Wide Web – Web Browser – Web Servers – Uniform Resource Locators – Multiple Internet Mail Extensions - The Hypertext Transfer Protocol – The Web Programmers Tool Box.

UNIT II   **6 hours**
    Introduction to HTML: Designing a Home Page – HTML Document – Anchor Tag – Hyperlinks – Head and Body Sections – Header Section – Title – Prologue – Links – Colorful Pages – Comments – Body Section – Heading – Horizontal Ruler – Paragraph – #Tabs# – Images and Pictures – Lists and their Types – Nested Lists – Table Handling.

UNIT III   **6 hours**
    Frames: Frameset Definition – #Frame Definition# – Nested Framesets – Forms: Method Attribute, Enctype attribute, Drop down list.

UNIT IV   **6 hours**
    DHTML and Style Sheets – Defining Styles – Elements of Styles – Linking a Style Sheet to a HTML Document – Inline Styles – External Style Sheets – Internal Style Sheets – Multiple Styles.

UNIT V   **6 hours**
    Introduction to XML : Introduction – The Syntax of XML – XML Document Structure – Document Type Definitions – Namespaces – #XML Schemas# – Displaying Raw XML Documents – Displaying XML Documents with CSS – #XML Processors#.

 # .... # self-study portion.

Text Books

1. Robert. W. Sebesta, *Programming the World Wide Web*, Pearson Education, Third Edition, 2007.
       UNIT I : Chapter 1 Sections 1.1 to 1.9
       UNIT V : Chapter 7 Sections 7.1 to 7.10
2. C.Xavier, *World Wide Web Designing*, Tata McGraw Hill, 2000.
       UNIT II : Chapters 4, 5, 6, 7, 8 Sections 4.1,4.4,4.5,4.6, Sections 5.1 to 5.6
                    Sections 6.1 to 6.6   Sections 7.1-7.5,8.1-8.6
       UNIT III: Chapters 10, 12 Sections 10.1 to 10.3   Sections 12.1 to 12.4
       UNIT IV: Chapter 9   Sections 9.1 to 9.7

Books for Reference
1. Wendy Willard, *Web Design – A Beginners Guide*, Tata McGraw Hill, 2007.

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SEMESTER - IV : CORE - V(B)
DATA STRUCTURES LAB

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Course Code : 14UCS4C5P	**Max. Marks : 50**
Hours/Week : 2	**Internal Marks : 20**
Credit : 2	**External Marks: 30**

1. Merging two arrays into a single array.

2. To find the following in a matrix:

    i. Row Sum

    ii. Column Sum

    iii. Trace Sum (Sum of Diagonal Elements)

    iv. Sum of all the elements

3. Matrix Addition and Multiplication operations

4. To find an element using Sequential and binary search.

5. Perform the following types of Sorting:

    i. Bubble sort

    ii. Insertion sort

    iii. Selection sort

6. To find the Factorial of a number using Recursion

7. To PUSH and POP an element from STACK

8. To Insert and Delete an element from QUEUE.

9. To insert and delete a node in a linked list.

10. Program to traverse a binary tree.

Course Code : 14UCS4S2   **Max. Marks   : 100**
Hours/Week : 2   **Internal Marks : 40**
Credit   : 2   **External Marks: 60**

UNIT I   **6 hours**
    Numbers – HCF and LCM of Numbers – Decimal Fractions – Simplification

UNIT II   **6 hours**
    Square Roots and Cube Roots – Average – Problems on Numbers

UNIT III   **6 hours**
    Problems on Ages – Surds and Indices – Percentage

UNIT IV   **6 hours**
    Series Completion – Blood Relations

UNIT V   **6 hours**
    Puzzle Test – Direction Sense Test

 # .... # self-study portion.

Text Book

1. Dr. R.S. AGGARWAL, *Quantitative Aptitude (Fully Solved)*, S.Chand Publications, 2010.
    UNIT I   :   Chapter 1, 2, 3, 4
    UNIT II   :   Chapter 5, 6, 7
    UNIT III   :   Chapter 8, 9, 10

2. Dr. R.S. AGGARWAL, *Verbal and Non Verbal Reasoning(Revised Edition),* S.Chand Publications, 2010.
    UNIT IV   :   Chapter 1, 5
    UNIT V   :   Chapter 6, 8

E-COMMERCE

Course Code : 14UCS4EC1

Hours/Week : -	**Max. Marks : 100***
Credit : 4*	**Internal Marks : -**
	External Marks: 100*

Objective:

    To acquire the knowledge in Electronic Commerce, Electronic Payment Systems, security systems, online advertising and marketing.

UNIT I

    Welcome to Electronic Commerce: Electronic Commerce framework - Electronic Commerce and media convergence - The anatomy of E-Commerce applications - Electronic Commerce consumer applications.

UNIT II

    Electronic Commerce organization applications - The network infrastructure for electronic Commerce: Components of I-Way - #Network Access Equipment# - Global Information Distribution Networks.

UNIT III

    The Internet As Network Infrastructure: The Internet Terminology - NSFNET architecture and components - National Research And Education Network - The Business of Internet Commercialization: Telco/Cable/On-line Companies - National Independent ISPs - Regional Level of ISPs - Local Level of ISPs - #Internet Connectivity Options#

UNIT IV

    Electronic Commerce And The World Wide Web: Architectural Framework For Electronic Commerce - World Wide Web As The Architecture - Technology Behind the Web - Security and the Web Consumer – Oriented Electronic Commerce: Consumer - Oriented Applications -Mercantile Process Models.

UNIT V

    Electronic Payment Systems: Types of Electronic Payment Systems-Digital Tokens-Based Electronic Payment Systems - Smart Cards And Electronic Payment Systems - Credit Card Electronic Payment Systems - Risk And Electronic Payment Systems - Designing Electronic Payment Systems

 # .... # self-study portion.

Text Book:
1. Ravikalakota & Andrew Whinston, *Frontiers of Electronic Commerce*, Addison Wesley, 2000.
      UNIT I   Chapter-1 Section (1.1 – 1.4)
      UNIT II   Chapter-1 Section (1.5) Chapter-2 Section(2.2, 2.3, 2.5)
      UNIT III Chapter-3 Section (3.1, 3.3, 3.4) Chapter-4 Section (4.1-4.4, 4.7)
      UNIT IV   Chapter-6 Section (6.1, 6.2, 6.4, 6.5) Chapter-7 Section (7.1, 7.2)
      UNIT V   Chapter-8 Section (8.1 – 8.6)

Books for Reference
1. S. Jaiswal, E-Commerce, Galgotia publications private limited, Revised Edition, 2009.

Course Code : 14UCS4EC2	**Max. Marks : 100***
Hours/Week : -	**Internal Marks : -**
Credit : 4*	**External Marks: 100***

Objective:
To understand the basic concept of data mining process, association rule mining, classification, cluster analysis and web data mining.

UNIT I
Introduction – What is data mining? – Why data mining now? – The data mining process – Data mining applications – Data mining techniques – Some data mining case studies – The future of data mining – Guidelines for successful data mining – #Data mining software#.

UNIT II
Association Rules Mining – Basics – The task and a Naïve Algorithm – The Apriori Algorithm – Improving the efficiency of the Apriori Algorithm – Apriori-Tid – Direct hashing and pruning – Dynamic itemset counting – Mining frequent patterns without candidate generation – Performance evaluation of algorithms – Software for association rule mining.

UNIT III
Classification – Decision tree – Building a decision tree – The tree induction algorithm – Split algorithm based on information theory – Split algorithm based on the Gini index – Overfitting and pruning – Decision tree rules – Naïve Bayes Method – Estimating predictive accuracy of classification methods – Improving accuracy of classification methods – Other evaluation criteria for classification methods – Classification software.

UNIT IV
Cluster analysis – What is cluster analysis? – Desired features of cluster analysis – Types of data – Computing distance – Types of cluster analysis methods – Partitional methods – Hierarchical methods – Density-based methods – #Dealing with large databases# – Quality and validity of cluster analysis methods – Cluster analysis software.

UNIT V
Web Data Mining – Web terminology and characteristics – Locality and hierarchy in the Web – Web content mining – Web usage mining – Web structure mining – Web mining software.

 # .... # self-study portion.

Text Book
1. G.K. Gupta, *Introduction to Data Mining with Case Studies*, PHI, Second Printing, 2008
       UNIT I : Chapter 1 Section 1.1-1.8
       UNIT II : Chapter 2 Section 2.2-2.11
       UNIT III : Chapter 3 Section 3.2-3.13
       UNIT IV : Chapter 4 Section 4.1-4.11
       UNIT V : Chapter 5 Section 5.2-5.7

Books for Reference
1. Arun K. Pujari, *Data Mining Techniques*, Universities Press, Ninth Impression, 2006

Course Code : 14UCS5C6P1	**Max. Marks : 50**
Hours/Week : 3	**Internal Marks : 20**
Credit : 2	**External Marks: 30**

1. Write simple programs to demonstrate

    a)   Various ways of input in Java

    b)   Operators and expressions

    c)   Control statements

2. Write a Java Program to define a class, describe its constructor, and instantiate its Object

3. Write a Java Program to demonstrate method overloading

4. Write a Java Program to demonstrate   single and two Dimensional arrays.

5. Write a Java program to demonstrate various methods in the String and StringBuffer class.

6. Write a Java Program to demonstrate methods in the Vector class.

7. Write a Java Program to implement single inheritance

8. Write a Java Program to implement multiple inheritance

9. Write a Java program to implement the concept of importing classes from user defined

    package and creating packages.

10. Write a Java program to implement the concept of threading by using Thread class and Runnable interface.

11. Write a Java program to implement the concept of Exception Handling.

12. Write a Java program using Applet

    a) to display a message.

    b) for passing parameters.

13. Write a Java programs for using Graphics class to display basic shapes and fill them and set background and foreground colors.

14. Write a Java program to demonstrate use of I/O streams.

Course Code : 14UCS5C6P2   **Max. Marks   : 50**
Hours/Week : 2   **Internal Marks : 20**
Credit   : 2   **External Marks: 30**

1. Develop a HTML document, which displays your name as <h1> heading and displays any four of your friends. Each of your friend's names must appear as hot text. When you click your friend's name, it must open another HTML document, which tells about your friend.

2. Write names of several countries in a paragraph and store it as an HTML document, world.html. Each country name must be a hot text. When you click India (for example), it must open india.html and it should provide a brief introduction about India.

3. Design a HTML document describing you. Assign a suitable background design and background color and a text color.

4. Develop a Complete Web Page using Frames and Framesets which gives the Information about a Hospital using HTML.

5. Develop complete set of web pages to describe you skills in various areas using HTML.

6. Develop a web site to publish your family and the details of each member-using HTML.

7. Develop a HTML document to display a Registration Form for an intercollegiate function.

8. Develop a HTML document to design Alumni Registration form of your college.

9. Create a HTML table with rows and columns and split them using Rowspan and Colspan.

10. Create a web page in the format of front page of a news paper using Text links. Align the text with colors.

Course Code : 14UCS5C7   **Max. Marks   : 100**
Hours/Week : 4   **Internal Marks : 40**
Credit   : 4   **External Marks: 60**

Objective:
  To understand the basic concepts of Scripting Languages and to give the knowledge on designing interactive web pages using DHTML, VBScript, JavaScript, JSP and ASP technologies.

UNIT I   **12 hours**
  Introduction to Scripting Languages – Language Elements of JavaScript: Identifiers, Expressions, Keywords, Operators, Statements, Functions and Arrays-Objects in JavaScript: Window, Document, Form object elements -#Other Objects : Date, Math, String objects# – Examples.

UNIT II   **12 hours**
  Introduction to VBScript –Embedding VBScript code in HTML – Language Elements of VBScript: Variables, Array variables, Operators and Procedures – Conditional Statements- Looping Constructs – #Objects in VBScript# – Cookies: Cookie variables, Creating a Cookie, Reading Cookie value.

UNIT III   **12 hours**
  Introduction to DHTML- Cascading Style Sheets: Coding CSS, Properties of Tags, Property values, In-line Style Sheets, Embedded Style Sheets, External Style Sheets, Grouping , Inheritance, Class as Selector, ID as Selector, Contextual Selectors-Pseudo classes and elements and Positioning - #DHTML Document Object Model and Collections# – Event Handling-Filters-Data Binding.

UNIT IV   **12 hours**
  Introduction to Java Server Pages- Advantages of JSP – Components of JSP: Directives, Declaratives, Scriptlets, Expressions Standard Actions and Custom Tags- Reading Request Information- Retrieving the data posted from HTML file- #JSP Sessions and Cookies#

UNIT V   **12 hours**
  Introduction to Active Server Pages-Advantages-Processing ASP scripts with Forms-Variables and Constants – Subroutines- ASP Objects: Response, Request, Application, Session, Server and ASPError Objects.

 # .... # self-study portion.

Text Book
1. N.P. Gopalan and J. Akilandeswari, *Web Technology- A Developer's Perspective*, PHI Pvt. Ltd, 2011.

UNIT I   **:** Chapter 5.1 - 5.6
UNIT II   **:** Chapter 6.1 - 6.10
UNIT III **:** Chapter 7.1 - 7.6
UNIT IV **:** Chapter 11.1 - 11.8
UNIT V   **:** Chapter 12.1, 12.2, 12.4 - 12.6 and 12.9

Books for Reference
1. Ivan Bayross, *HTML, DHTML, JavaScript, Perl, CGI*, BPB, Third Revised Edition, 2006.

Course Code : 14UCS5C8   Max. Marks   : 100
Hours/Week : 4   **Internal Marks : 40**
Credit   : 4   **External Marks: 60**

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

UNIT I   **12 hours**

Fundamentals of Object Oriented Programming – Java Evolution – Overview of Java Language – Constants, Variables and Data types – Operators and Expressions – Branching and Looping Statements.

UNIT II   **12 hours**
Classes, Objects and Methods – Defining a class-Creating Objects – Constructors -Method Overloading – Static Members – Inheritance: Extending a Class – Overriding Methods – Final Classes – Abstract Methods and Classes – Visibility Control – Arrays, Strings and Vectors: One-dimensional Arrays – Creating an Array – Two-dimensional Arrays – Strings – Vectors – Wrapper Classes – #Enumerated Types#.

UNIT III   **12 hours**
Interfaces: Multiple Inheritance : Defining Interfaces – Extending Interfaces – Implementing Interfaces – Accessing Interface Variables – Packages : Java API Package – Creating and Accessing Packages – Hiding Classes – Multithreaded Programming: Creating Threads – Extending the Thread Class – Stopping and Blocking a Thread – Life Cycle of a Thread – Using Thread Methods – #Thread Exceptions# – Thread Priority.

UNIT IV   **12 hours**
Managing Errors and Exceptions: Types of Errors – Exceptions – Syntax of Exception Handling Code – Multiple Catch Statements – Using Finally Statement – Throwing our own Exceptions – Managing Input/Output Files in Java - Stream Classes – Character Stream, Byte Stream – Using Streams – #Using the File Classes# – Input/Output Exceptions – Creation of Files – Reading/Writing Characters – Reading/Writing Bytes – Handling Primitive Data Types – Random Access Files.

UNIT V   **12 hours**
Applet Programming: How Applets differ from Applications – Building Applet Code – Applet Life Cycle – Creating an executable Applet – Applet Tag – Adding Applet to HTML File – Running the Applet – Passing Parameters to Applets – Displaying Numerical Values – Getting Input from the User – Graphics Programming – The Graphics Class.

 # .... # self-study portion.

Text Book
 1. E. Balagurusamy, *Programming With Java a Primer*, TMH, Fourth Edition, 2010.
UNIT I   : Chapter 1 to 7
UNIT II : Chapter 8 Sections 8.1 to 8.16
UNIT III : Chapter 9 Sections 9.1 to 9.8 , Chapter 10 , Chapter 11   Sections 11.1 to 11.9
           Chapter 12 Sections 12.1 to 12.8
UNIT IV : Chapter 13 Sections 13.1 to 13.7 , Chapter 16 Sections 16.1 to 16.5
UNIT V   : Chapter 14 Sections 14.1 to 14.16 , Chapter 15 Sections 15.1 to 15.9

Books for Reference
1. P. Radha Krishna, *Object Oriented Programming through Java*, University Press (India)
    Private Ltd., 2007.

COMPUTER ORGANIZATION AND ARCHITECTURE

Course Code : 14UCS5C9		**Max. Marks : 100**
Hours/Week : 4		**Internal Marks : 40**
Credit : 4		**External Marks: 60**

Objective:

      To understand the principles of digital logic circuits & their design. To understand the working of a central processing unit architecture of a computer.

UNIT I   **12 hours**

      Number Systems – Decimal, Binary, Octal and Hexadecimal Systems – Conversion from one system to another – Addition, Subtraction, Multiplication and Division of Binary, Octal and Hexadecimal Numbers – Binary Codes – 8421, 2421, Excess-3, Gray – Weighted and Non-weighted codes, Reflected Code, Self-complementary Codes – #BCD Codes# – Alphanumeric Codes.

UNIT II   **12 hours**

      Basic Logic Gates – Universal Logic – Boolean Laws and Theorems – Boolean Expressions – Sum of Products – Product of Sums – Simplification of Boolean Expressions – Karnaugh Map Method (up to 4 Variables) – Implementation of Boolean Expressions using Gate Networks.

UNIT III   **12 hours**

      Combinational Circuits – Multiplexers – Demultiplexers – Decoders – Encoders – Arithmetic Building Blocks – Half and Full Adders – Half and Full Subtractors – Parallel adder – 2's Complement Adder-Subtractor.

UNIT IV   **12 hours**

      Sequential Circuits – Flip Flops – RS, Clocked RS, D, JK, T and Master-Slave Flip Flops – Shift Register – #Counters# – Asynchronous and Synchronous counters – Mod n Counter – Ring Counter.

UNIT V   **12 hours**

      Register Transfer and Micro Operations: Register Transfer Language – Register Transfer – Arithmetic Micro operations – #Logic Micro operations# – Arithmetic Logic Unit – Central Processing Unit: General Register Organization – #Stack Organization# – Instruction Formats – Addressing Modes – Data Transfer and Manipulation.

 # .... # self-study portion.

Text Books :

1. Donald P. Leach and Albert Paul Malvino, Goutam Saha, *Digital Principles and Applications*, TMH, Sixth Edition, 2006.

      UNIT I : Chapter-5 Section (5.1-5.8)
      UNIT II : Chapter-2 Section (2.1, 2.2), Chapter-3 Section (3.1, 3.2, 3.5, 3.7)
      UNIT III: Chapter-4 Section (4.1-4.3, 4.6) Chapter-6 Section (6.7, 6.8)

2. Morris Mano M, *Computer System Architecture*, PHI, Third Edition, 2008.

      UNIT IV: Chapter-3 Section (3.5)
      UNIT V : Chapter-4 Section (4.1, 4.2, 4.4, 4.5, 4.7) Chapter-8 Section (8.2-8.6)

Books for Reference

1. Thomas C. Bartee, *Digital Computer Fundamentals*, Tata McGraw Hill, 6th Edition, 25th Reprint, 2006.

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SEMESTER - V : CORE - X
OPERATING SYSTEMS

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Course Code : 14UCS5C10   **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**
 Evolution of Operating System – Basic Concepts & Terminology – Operating System as Resource Manager – Views of Operating System – Types of Operating System – I/O Programming – Interrupt Structure & Processing: – #Interrupt Types# – Interrupt Mechanism – Interrupt Handler Processing.

UNIT II   **12 hours**
 Single Contiguous Allocation – Example of Multiprogramming – Partitioned Memory Management – #Paged Memory Management# – Demand-Paged Memory Management –Segmented Memory Management – Segmented and Demand Paged Memory Management – Swapping and Overlays.

UNIT III   **12 hours**

 Job Scheduling – Process Scheduling: Functions – Policies – Multiprocessor Systems – Process Synchronization – Deadlock – Avoidance – Prevention – Detection and Recovery – Banker's Algorithm – Mutual Exclusion – Semaphore Mechanism.

UNIT IV   **12 hours**
 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**
 Simple File System – General Model of a File System – Logical File System – Physical File System – Security Threats and Goals – Security Policies and Mechanisms – Case Studies: MS-DOS & UNIX (Commands & System Calls).

 # .... # self-study portion.

Text Books
 1.Stuart E. Madnick & John J. Donovan, *Operating Systems*, TMH, Seventh Reprint, 2008.
   UNIT I   : Chapter 1, 2
   UNIT II : Chapter 3
   UNIT III : Chapter 4
   UNIT IV : Chapter 5
   UNIT V : Chapter 6
  2. H.M. Deitel, *An Introduction to Operating Systems*, Addison Wesley Publishing Company, Second Edition, 1990.
    UNIT III : Chapter 7, 5, 19, 20

Books for Reference
1. William Stallings, *Operating Systems*, PHI, Second Edition, 2001

SOFTWARE ENGINEERING

Course Code : 14UCS5C11   **Max. Marks   : 100**
Hours/Week : 4   **Internal Marks : 40**
Credit   : 4   **External Marks: 60**

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

UNIT I   **13 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   **12 hours**
      Systems engineering hierarchy – Requirement engineering tasks – Requirements analysis – Analysis modeling approaches – #Data modeling concepts#– Flow-oriented modeling.

UNIT III   **12 hours**
      Design process and design quality – Design concepts – #Data design# – Architectural design –The art of debugging.

UNIT IV   **12 hours**
      Software testing fundamentals – White-box testing – Basis-path testing – Control structure testing – Black-box testing – Validation testing – System testing.

UNIT V   **12 hours**
      Quality Concepts – Software quality assurance – Software reviews – Formal technical reviews –Software measurement – Metrics for software quality.

 # .... # self-study portion.

Text Book
 1. Roger S Pressman, "Software Engineering-A Practitioner's Approach", McGraw Hill
   International Edition, USA, 2008.
         UNIT I   : Chapters 1 Section (1.1, 1.3, 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

Books for Reference
1. Shari Lawrence Fleeger," Software Engineering: Theory and Practice", Pearson Education
   Asia, New Delhi, 2007.
2. Ian Sommerville, "Software Engineering", Pearson Education Asia, New Delhi, 2008.

VB. NET

Course Code : 14UCS5M4   **Max. Marks : 100**
Hours/Week : 3   **Internal Marks : 40**
Credit   : 3   **External Marks: 60**

Objective:
To provide fundamental concepts of .Net Framework.

UNIT I   **9 hours**
Creating a windows application – Creating a web application – Creating a console application – What's new in VB.Net – The .Net framework and the Common Language Runtime – The System NameSpaces – Building VB.Net Applications – The Visual Basic IDE – The Visual Basic Keywords – Visual Basic Statements – Statement syntax – Overview – Understanding Attributes – #The option and Imports statements#.

UNIT II   **9 hours**
Declaring constants – Declaring variables – Data types – Converting between data types – Declaring arrays and dynamic arrays – Handling strings – Using Visual Basic operators – Commenting our code – Decisions with if..else statements – Using select case – Selections with switch and choose – Using the do loop – For loop – For Each..Next loop – While loop – With statement – #Sub procedures and functions# – Creating sub procedures – Creating functions.

UNIT III   **9 hours**
Windows forms – Windows MDI forms – Adding controls to forms – Handling events – Windows form in code – Using the Msgbox function – Using the InputBox function – Working with multiple forms – Handling mouse and keyboard events – The control class – Text boxes – Creating multiline, word wrap text boxes – Accessing text, adding scrollbars, aligning text in text boxes - Rich Text boxes – #Labels#.

UNIT IV   **9 hours**
Command Button – Checkboxes – Radio buttons – List boxes – Combo boxes – Picture boxes – Scroll bars – Splitters – Timers – Menus – Built in dialog boxes – Image lists – Tree views – List views – Toolbars – Status bars – Progress bars – Tab controls – Validation controls – Required field validators – Comparison validators – Range validators – Regular expression validators – Calendars – AdRotators.

UNIT V   **9 hours**
What are Databases? – Accessing data with the server explorer – Accessing data with data adaptors and datasets – Working with ADO.NET – Creating a new data connection – Creating a dataset – Populating a dataset – Displaying data in a data grid – Selecting a data provider – Data access using data adaptor controls – Connecting to an MS Jet Database – Using relational databases – #Adding multiple tables to a dataset# – Using data views.
 # .... # self-study portion.

Text Book
1. Steven Holzner, Visual Basic .NET Black Book, 2007.
        UNIT I   **:** Chapters 1 & 2
        UNIT II **:** Chapters 2 & 3
        UNIT III : Chapters 4 & 5
        UNIT IV: Chapters 6 to 10 &19
        UNIT V **:** Chapter 21

Books for Reference
1. C. Muthu, Visual Basic .Net, Vijay Nicole Publication, 2007.
2. Shirish Chavan, Visual Basic .Net, Pearson Education, 2007.

Course Code : 14UCS5S3	**Max. Marks : 100**
Hours/Week : 2	**Internal Marks : 40**
Credit : 2	**External Marks: 60**

Objective:
To provide fundamental concepts of Multimedia

UNIT I 6 hours
Definition – Where to use Multimedia – Multimedia in Business – Multimedia in Schools – Multimedia at Home – Virtual Reality – Delivering Multimedia – CD-ROM, DVD, Flash Drives – The broadband Internet – Fonts and Faces – Cases – Serif vs. Sans Serif – Using text in Multimedia – Designing with Text – #Fields for Reading# – HTML documents.

UNIT II 6 hours
Computer and Text – Character sets and Alphabets – Mapping text across platforms – Font editing and design tools – Fontlab – Making pretty text – Hypermedia and Hypertext – The power of Hypertext – Using Hypertext – Hypermedia structures – Hypertext tools – Making still images – Bitmaps – Vector Drawing – #3D Drawing and rendering# – Color – Color Palettes – Image file formats.

UNIT III 6 hours
Digital Audio – Making digital audio files – MIDI Audio – MIDI vs. Digital Audio – Multimedia system sounds – Audio File formats – Audio recording – Keeping tract of our sounds – Audio CDs – Sound for mobile – Sound for Internet – The Power of motion – Principles of Animation – Animation by Computer – #Animation techniques# – Animation File formats.

UNIT IV 6 hours
Using Video – How video works and is displayed – Analog video – Digital video – Displays – Digital video containers – Video format converters – Shooting and editing video – The stages of a multimedia project – Hardware – Windows vs. Macintosh – Connections – Memory and storage devices – Input devices – Output devices.

UNIT V 6 hours
Software – Text editing and word processing tools – OCR software – painting and drawing tools – 3D modeling and animation tools – Image editing tools – Sound editing tools – Animation, video, and digital movie tools – The team – Project manager – Multimedia designer – Interface designer – Writer – Video Specialist – Audio Specialist – Multimedia Programmer.
 # .... # self-study portion.
Text Book
1. Tay Vaughan, Multimedia: Making it Work, Tata McGraw Hill, Eighth Edition, 2011.

UNIT I	:	Chapters 1, 2
UNIT II	:	Chapters 2, 3
UNIT III	:	Chapters 4, 5
UNIT IV	:	Chapters 6, 7
UNIT V	:	Chapters 7, 8

Books for Reference
1. John F. Koegel Buferd, *Multimedia Systems*, Published by Addison Wesley Longman, 3rd Edition 2000.
2. David Hillman, Multimedia Technology and Applications, Galgotia Publications Pvt. Ltd. 1998.

SEMESTER - V : EXTRA CREDIT – III
SOFTWARE TESTING

Course Code : 14UCS5EC3   **Max. Marks   : 100***
Hours/Week : -   **Internal Marks : -**
Credit   : 4*   **External Marks: 100***

Objective:
The course looks at the role of developers in areas such as test planning, implementation, and defect tracking. It explains how to review and manage test requirements and how to incorporate testing into the software development life cycle.

UNIT I
Context of Testing in Producing Software – Dijkstra's Doctrine – A test in Time – Test the Tests First – The Pesticide Paradox – Phases of Software Project – Quality, Quality Assurance and Quality Control – Testing Verification and Validation – Process Model to Represent Different Phases – #Life Cycle Models#

UNIT II
What is White Box Testing? – Static Testing – Structural Testing – What is Black Box Testing? – Why Black Box Testing? – When to do Black Box Testing? – How to do Black Box Testing?

UNIT III
Integration Testing – What is Integration Testing? – Integration Testing as a Type of Testing – System Testing Overview – Why is System Testing Done? – Functional System Testing – Acceptance Testing – Methodology for Performance Testing – Collecting Requirements – Writing Test Cases – Automating Performance Test Cases – Executing Performance Test Cases – Types of Regression Testing – When to do Regression Testing – How to Regression Testing.

UNIT IV
Organization Structures for Testing Teams – #Test Planning, Management, Execution, and Reporting#.

UNIT V
Software Testing Automation – Test Metrics and Measurements.

 # .... # self-study portion

Text Book
1. Srinivasan Desikan and Gopalaswamy Ramesh, *Software Testing Principles and Practices*, Pearson, Seventeenth Impression, 2013.
UNIT I : Chapter 1,2   Sections 1.1,1.4-1.6,   Sections 2.2-2.5
UNIT II : Chapter 3,4   Sections 3.1-3.3   Sections 4.1-4.4
UNIT III : Chapter 5,6,7,8 Sections 5.1,5.2, 6.1-6.6, 7.3 7.3.1-7.3.4   Sections 8.1-8.4
UNIT IV : Chapter 14,15   Sections 14.1-14.6,   Sections 15.1-15.6
UNIT V : Chapter 16,17   Sections 16.1-16.10, Sections17.1-17.7

Books for Reference
1. M.G. Limaye, *Software Testing Principles, Techniques and Tools*, Tata McGraw Hill Education Private Ltd., Second Reprint, 2010.

SEMESTER - VI : CORE - XII
COMPUTER GRAPHICS

Course Code : 14UCS6C12	**Max. Marks : 100**
Hours/Week : 5	**Internal Marks : 40**
Credit : 4	**External Marks: 60**

Objective:

To present concepts on basic graphical techniques, raster graphics, two dimensional and three dimensional graphics.

UNIT I **15 hours**

Introduction: The origins of Computer Graphics – New Display Devices – General Purpose Graphics Software – The User Interface – The Display of Solid Objects – Point – Plotting Techniques : Coordinate Systems – Incremental Methods – Line drawing Algorithms – Circle Generators – Line Drawing Displays : Display Devices and Controllers – Display Devices – The CRT – #Inherent Memory Devices#

UNIT II **15 hours**

Two-Dimensional Transformation: Transformation Principles – Concatenation – Matrix Representations – Clipping and Windowing : A Line Clipping Algorithm – Midpoint Subdivision Clipping – Other Graphic Entities – #Polygon Clipping# – Viewing Transformations – The Windowing Transformation.

UNIT III **15 hours**

Simple Graphics Package: Ground Rules for Graphics Software Design – Functional Domains – Graphic Primitives – Windowing Functions – Miscellaneous Functions – Segmented Display Files : Segments – Functions for Segmenting the Display File – Posting and Unposting a Segment – Segment Naming Schemes – Default Error Conditions – Appending to Segments.

UNIT IV **15 hours**

Graphical Input Devices : Pointing and Positioning Devices – The Mouse – Tablets – The Light Pen – Three-Dimensional Input Devices – Comparators – Graphical Input Techniques : Introduction – Positioning Techniques – Pointing and Selection – Inking and Painting – On-Line Character Recognition – Event Handling : Interrupts – #Polling# – Interrupts – The Event Queue – Functions for Handling Events.

UNIT V **15 hours**

Three-Dimensional Graphics : Three-Dimensional Transformations and Perspective : Transformations – Transformations in Modeling – Transformations in Viewing – The Perspective Transformation – Hidden-Surface Elimination : the Depth Buffer Algorithms – Scan-Line Coherence Algorithms – #Area Coherence Algorithms# – Priority Algorithms.

 # .... # self-study portion.

Text Book

1. William M. Newman and Robert F. Sproull, *Principles of Interactive Computer Graphics*, Tata McGraw Hill, Second Edition, Reprint, 2010.

UNIT I	:	Chapters 1, 2 & 3
UNIT II	:	Chapters 4 & 5
UNIT III	**:**	Chapters 6, 7 & 8
UNIT IV	:	Chapter 11, 12 & 13
UNIT V	:	Chapters 22 & 23

Books for Reference

1. Donald Hearn and M. Pauline Baker, *Computer Graphics*, Prentice Hall of India, Second Edition, Reprint, 2007.
2. Steven Harrington, *Computer Graphics – A Programming Approach*, Tata McGraw-Hill International Edition, Second Edition, 1987.

COMPUTER NETWORKS

Course Code : 14UCS6C13　　　　　　　　　　　　**Max. Marks   : 100**
Hours/Week : 5　　　　　　　　　　　　　　　　**Internal Marks : 40**
Credit   : 4　　　　　　　　　　　　　　　　**External Marks: 60**

Objective:
　　　　To understand the design and organization of computer networks

UNIT I　　　　　　　　　　　　　　　　　　　　　　　　**15 hours**
　　　　Introduction – Uses of Computer Networks – Network Hardware – Network Software: Protocol Hierarchies – #Design Issues for the Layers# – Connection Oriented and Connectionless Services – Service Primitives Reference models: The OSI Reference Model – TCP/IP Reference Model.

UNIT II　　　　　　　　　　　　　　　　　　　　　　　**15 hours**
　　　　The Physical Layer: Guided Transmission Media – Public Switched Telephone Network – Structure of Telephone System – Trunks and Multiplexing – Switching - The Data link Layer: Data link layer Design Issues – #Error Detection and Correction# – Stop and Wait Protocol – Sliding Window Protocols.

UNIT III　　　　　　　　　　　　　　　　　　　　　　**15 hours**
　　　　The Network Layer: The Network Layer Design Issues – Routing Algorithms: The Optimality Principle – Shortest Path Routing – Flooding – Distance Vector Routing – Link State Routing – Hierarchical Routing – Broadcast Routing – Congestion Control Algorithms: General Principles of Congestion Control – Congestion Prevention Policies – Congestion Control in Virtual-Circuit Subnets and Datagram Subnets – Network Layer in the Internet: IP Protocol – IP addresses.

UNIT IV　　　　　　　　　　　　　　　　　　　　　　**15 hours**
　　　　The Transport Layer: The Transport Service – Elements of Transport Protocols – Internet Transport Protocols: Introduction to UDP – RPC – TCP: TCP Service Model – TCP Protocol – TCP Segment Header.

UNIT V　　　　　　　　　　　　　　　　　　　　　　　**15 hours**
　　　　The Application Layer: The DNS Name Space – E-mail: Architecture and Services – Message Formats – Network Security: Cryptography – DES – #RSA# – Communication Security : Firewalls – #Virtual Private Networks#.
 # .... # self-study portion.

Text Book
1. Andrew S. Tanenbaum, *Computer Networks*, Pearson Prentice Hall, Fourth Edition, 2003.
UNIT I　　　　　**:** Chapter I   : Section 1.1-1.2,1.3.1,1.3.3,1.4.1,1.3.4,1.4.2
UNIT II　　　　**:** Chapter II : Section 2.2,2.5.1,2.5.4,2.5.5
　　　　　　　　　 Chapter III : Section 3.1,3.3.2,3.4
UNIT III　　　　**:** Chapter V : Section 5.1,5.2.1,5.2.2-5.2.7
　　　　　　　　　 : Chapter V : Section 5.3.1-5.3.4 ,Section 5.6.1,5.6.2
UNIT IV　　　　**:** Chapter VI : Section 6.1,6.2,6.4.1,6.4.2,6.5.2,6.5.3,6.5.4
UNIT V　　　　 **:** Chapter VII : Section 7.1,7.2.1,7.2.4
　　　　　　　　　 :Chapter VII : Section 8.1,8.6.2
Books for Reference
1. Behrouz A. Forouzan, *Data Communications and Networking*, Tata McGraw-Hill, Second Edition, 2003.
2. William Stallings, *Data and Computer Communication*, PHI, Fifth Edition, 2008.

Course Code : 14UCS6C14P1	**Max. Marks : 50**
Hours/Week : 3	**Internal Marks : 20**
Credit : 2	**External Marks: 30**

A. Digital Experiments

1. Study of Universal IC Gates (NAND and NOR) – Construction of AND, OR, NOT and EXOR gates using Universal Gates.

2. Half Adder and Full Adder using AND, OR, NOT & EXOR only.

3. Half Subtractor and Full Subtractor using AND, OR, NOT & EXOR only.

4. Karnaugh Map Reduction of Boolean Expressions (Three variable expressions only)

5. Study of ADC

6. Study of DAC

7. Study of Counter

B. Microprocessor Experiments

1. 8-bit Addition, Subtraction, Multiplication and Division

2. Multibyte Addition and Subtraction

3. Sum of a Series

4. Block Data Transfer

5. Assembly and Disassembly of a byte

6. Smallest and Biggest Number in an Array

7. Sorting of (Ascending and Descending order)

Course Code : 14UCS6C14P2	**Max. Marks : 50**
Hours/Week : 2	**Internal Marks : 20**
Credit : 2	**External Marks: 30**

1. Write a shell program to find the details of a user session.

2. Write a shell program to change the extension of a given file.

3. Write a server side PHP program that displays marks, total, grade of a student in tabular format by accepting user inputs for name, number and marks from a HTML form.

4. Write a PHP program that adds products that are selected from a web page to a shopping cart.

5. Write a PHP program to access the data stored in a mysql table.

6. Write a PHP program interface to create a database and to insert a table into it.

7. Write a PHP program using classes to create a table.

8. Write a PHP program to create a directory, and to read contents from the directory

SEMESTER - VI : CORE - XV
MICROPROCESSOR FUNDAMENTALS

Course Code : 14UCS6C15   **Max. Marks   : 100**
Hours/Week : 4   **Internal Marks : 40**
Credit   : 4   **External Marks: 60**

Objective:
To understand the basic principles of microprocessor architecture & its pin configuration. To write simple assembly language programs. To understand the concepts of memory and I/O interfacing.

UNIT I   **12 hours**
Word Length of a Microprocessor – Evolution of Microprocessors – Single Chip Microcontrollers – Embedded Microprocessors – Hardware, Software and Firmware – Central Processing Unit – Memory – Buses – Processing Speed of a Computer – Classification of Computers – Von Neumann Architecture – Harvard Architecture – Data Flow Architecture – Types of Microprocessors – Microprocessor Applications.

UNIT II   **12 hours**
Intel 8085 Microprocessor Architecture – Register – Status Flags – Pin Configuration – Opcode and Operands –#Instruction Formats# – Instruction Cycle – Fetch Operation – Execute Operation – Addressing Modes.

UNIT III   **12 hours**
Instruction Set of 8085 – Data Transfer Instructions – Arithmetic Instructions – Logical Instructions – Shift and Rotate Instructions – Branch Instructions – Jump, Call and Return – Stack Instructions – I/O, Machine Control and other Instructions – Assembly Language – #Assemblers – Stacks – Subroutines – Macros#.

UNIT IV   **12 hours**
Assembly Language Programs – Addition, Subtraction, Multiplication and Division of 8-bit numbers – Decimal Addition and Subtraction – Multibyte Addition and Subtraction – 1's and 2's Complements – Assembly and Disassembly of a Byte – Sum of a Series – Block Data Transfer – Finding the Smallest and the Biggest Number in an Array – Arranging a Series of Numbers in Descending and Ascending Order.

UNIT V   **12 hours**
Peripheral Devices and Interfacing – Address Space Partitioning – Memory and I/O Interfacing – Data Transfer Schemes – Interrupts of Intel 8085 – Interfacing Devices and I/O Devices – I/O Ports – Programmable Peripheral Interface – #Delay Subroutines# – Seven-Segment Displays – Types of Seven-Segment Displays – Interfacing Seven-segment Displays.

 # .... # self-study portion.

Text Book
1. Badri Ram, *Fundamentals of Microprocessors and Microcomputers*, Dhanpat Rai Publications, Sixth Revised and Enlarged Edition, 2010.
   UNIT I Chapter-1 Section (1.1, 1.2, 1.5-1.15, 1.24, 1.29)
   UNIT II Chapter-3 Section (3.1.3, 3.1.5, 3.1.7) Chapter-4 Section (4.3, 4.4)
   UNIT III Chapter-4 Section (4.6) Chapter-5 Section (5.2, 5.5, 5.6, 5.14)
   UNIT IV Chapter-6 Section (6.2-6.18, 6.20-6.37)
   UNIT V Chapter-7 Section (7.1-7.6, 7.7.1) Chapter-9 Section (9.2, 9.3)

Books for Reference:
1. Ramesh Gaonkar, Microprocessor Architecture, Programming and Applications with 8085, Prentice Hall of India, Fifth Edition, 2002.

Course Code : 14UCS6C16P1   **Max. Marks   : 50**
Hours/Week : 2   **Internal Marks : 20**
Credit   : 2   **External Marks: 30**

1. Design ASP.Net web form using Html Server Controls to enter job seeker's details.

2. Create an ASP.Net web form using Web control to enter E-Mail registration form.

3. Apply appropriate validation techniques in E-Mail registration form using validation controls.

4. Write an ASP.Net application to retrieve form data and display it the client browser in a table format.

5. Create a web application using ADO.Net that uses which performs basic data manipulations:

   (i). Insertion (ii) Updating (iii) Deletion (iv) Selection

   Hint: Do operations using Ms-Access and SQL-Server

6. Create an application using Data grid control to access information's from table in SQL server.

7. Create an application using Data list control to access information's from table in SQL server and display the result in neat format.

   Case Studies (Must Include basic database operations such as Insertion, Deletion, Modication, Selection and Searching)

9. Job Search Portal.

10. College Portal.

11. Company Portal.

MULTIMEDIA LAB

Course Code : 14UCS6C16P2   **Max. Marks   : 50**
Hours/Week : 2   **Internal Marks : 20**
Credit   : 2   **External Marks: 30**

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 real life images

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

3. Creation of a single image from selected portions of many

4. Developing a commercial brochure with background tints

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

6. Applying masks and filtering on images.

Flash:

Develop an image(s) and do the following.

1. Basic Drawing and Painting.

2. Working with Strokes and Fills

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

4. Creating and Managing Multiple Layers

5. Converting Text into Shapes

6. Animate using motion, shape, Tweening, and actions.

Course Code : 14UCS6C17	**Max. Marks : 100**
Hours/Week : 4	**Internal Marks : 40**
Credit : 4	**External Marks: 60**

Objective:
    To provide the fundamental concept of Open source technology and PHP

UNIT I   **12 hours**
        Introduction: Open Source – Open Source vs. Commercial Software – What is Linux? - Free Software – Where I can use Linux? Linux Kernel – Linux Distributions. Introduction: Linux Essential Commands – #File System Concept# – Standard Files – The Linux Security Model – Vi Editor – Partitions creation – String Processing – Investigating and Managing Processes – Network Clients – Installing Application.

UNIT II   **12 hours**
        Getting PHP – Creating our development environment – Creating a first PHP page – Running our first PHP page – Command line PHP – Adding comments to PHP – Working with variables – #Creating constants# – Operators and Flow Control: Operators in PHP – The else, elseif statement – The ternary operator – The switch statement – Using for loops, while loops, do..while loops, for each loop.

UNIT III   **12 hours**
        The string functions – converting to and from strings – The PHP array functions – Sorting Arrays – Using PHP's Array operators – Handling multidimensional arrays – splitting and merging arrays – Creating Functions: Functions in PHP – Passing arrays to functions – Passing by Reference – Using default arguments – Returning data from functions – Returning references – #Variable scope in PHP# – Conditional functions – Variable functions.

UNIT IV   **12 hours**
        Setting up web pages to communicate with PHP - Handling text fields – Text areas – Check boxes – Radio buttons – List boxes – Password controls – Image maps – File uploads – Buttons – Browser Handling power: Using PHP's server variables – Using HTTP headers – Getting the user's browser type – Redirecting browsers with HTTP headers – Performing data validation – Client side data validation.

UNIT V   **12 hours**
        What is a database? – Essential SQL – Creating a MySQL database – Creating a new table – Putting data into the new database – Connecting to the database server – Connecting to the database – Reading the table – #Displaying the table data# – Closing the connection – Updating databases – Inserting new data items into a database – Deleing Records.

 # .... # 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 1 & 2   Sections 1.1 Sections 2.1 , 2.2
2. Steven Holzner, *The Complete Reference PHP,* Tata McGraw-Hill Edition, 2008.
    UNIT II : Chapters 1 & 2
    UNIT III : Chapters 3 & 4
    UNIT IV : Chapters 5 & 6
    UNIT V   : Chapter 10

Books for Reference
1. Steven Holzer, *Spring into PHP5*, Tata McGraw Hill Edition, 2011.

PC HARDWARE & TROUBLESHOOTING

Course Code : 14UCS6S4   **Max. Marks   : 100**
Hours/Week : 2   **Internal Marks : 40**
Credit   : 2   **External Marks: 60**

UNIT I   **6 hours**
Introduction to Computer Hardware – Main System Unit - The Motherboard - Motherboard Components – #The Motherboard# – Architecture - Chipsets- Connectors on the Motherboard – The Processor/CPU –   Architecture - Modern Microprocessors - Printer- Printer types - Hard Disk Drive- Floppy Disk Drive - CD-ROM Drive - DVD-Drive – Monitor – Monitor types – MODEM - Scanner.

UNIT II   **6 hours**
Memory : Memory – Primary Memory – Secondary Memory – Bits & Byte – RAM – ROM – Parity – ECC Memory – Physical Memory Organization – Memory Speed – Motherboard Memory Capacity – Extended Memory – BIOS - Keyboard – Keyboard Switch – Keyboard Organization – Keyboard Type – Mouse – Mouse Type – #Connecting Mouse# – Mouse Resolution – Add on cards and its types.

UNIT III   **6 hours**
Backup Troubleshooting - BIOS Upgrade Troubleshooting - Troubleshooting CD Drives - CMOS Maintenance and Troubleshooting - Troubleshooting CPU Problems -Troubleshooting a Drive Adapter - Troubleshooting DVD Drives - Troubleshooting Cooling Problems - Floppy Drive and HDD Troubleshooting.

UNIT IV   **6 hours**
Keyboard Maintenance and Troubleshooting - Memory Troubleshooting - Troubleshooting Pointing Devices - Motherboard Troubleshooting - #Parallel Port Troubleshooting# - Plug-and-Play Configuration and Troubleshooting.
UNIT V   **6 hours**
Troubleshooting Power Protection Devices - Troubleshooting Power Supplies and Power Management - #Troubleshooting the SCSI System# - Troubleshooting Sound Boards and Video Adapters. 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)
Books for Reference
        1. David Groth-Sybex, *A+ Complete Study Guide*, Third Edition, 1999.

Course Code : 14UCN6GS   **Max. Marks   : 100**
Hours/Week : 1   **Internal Marks : 40**
Credit   : 1   **External Marks: 60**

UNIT-I   **3 hours**

      Concepts of Gender: Sex-Gender-Biological Determinism-Patriarchy-Feminism – Gender Discrimination -Gender Division of Labour - Gender Stereotyping-Gender Sensitivity - Gender Equity -Equality-Gender Mainstreaming -Empowerment.

UNIT-II   **3 hours**

      Women's Studies Vs Gender Studies: UGC's Guidelines - VII to XI - Plans- Gender Studies: Beijing Conference and CEDAW-Exclusiveness and Inclusiveness.

UNIT – III   **3 hours**

      Areas of Gender Discrimination: Family - Sex Ratio- Literacy - Health -Governance - Religion Work Vs Employment - Market - Media - Politics - Law - Domestic Violence. - Sexual Harassment - State Policies and Planning.

UNIT-IV   **3 hours**

      Women Development and Gender Empowerment: Initiatives - International Women's Decade - International Women's Year - National Policy for Empowerment of Women - Women Empowerment Year 2001- Main streaming Global Policies.

UNIT-V   **3 hours**

      Women's Movements and Safeguarding Mechanism:- In India National / State Commission for Women (NCW) - All Women Police Station - Family Court - Domestic Violence Act - Prevention of Sexual Harassment at Work Place-Supreme Court Guidelines - Maternity Benefit Act - PNDI Act - Hindu Succession Act 2000 - Eve Teasing Prevention Act - Self Help Groups - 73rd and 74th Amendment for PRIS.

Books for Reference:

1. Bhasin Kamala, Understanding Gender: Gender Basics, New Delhi: Women Unlimited, 2004.

2. Bhasin Kamala, Exploring Masculinity: Gender Basics, New Delhi: Women Unlimited, 2004.

NETWORK SECURITY

Course Code : 14UCS6EC4	**Max. Marks : 100***
Hours/Week : -	**Internal Marks : -**
Credit : 4*	**External Marks: 100***

Objective:
 To impart the knowledge in network security approaches, applications, and issues.

UNIT I
 Introduction: Security Trends – The OSI Security Architecture – Security Attacks – Security Services – Security Mechanisms – A Model for Internetwork Security.
Symmetric Encryption and Message Confidentially: Symmetric Encryption Principles – Symmetric Block Encryption Algorithms – Stream Ciphers and RC4 – Cipher Block Modes of Operation – #Location of Encrypted Devices# – Key Distribution.

UNIT II
 Public-Key Cryptography and Message Authentication: Approaches to Message Authentication – Secure Hash Functions and HAMC – Public-Key Cryptography and Algorithms – Digital Signature – Key Management.

UNIT III
 Electronic Mail Security: Pretty Good Privacy – Notation – Operational Description – Cryptographic Keys and Key Rings – Public Key Management. S/MIME: RFC32 – Multipurpose Internet Mail Extensions – S/MIME Functionality – S/MIME Message – S/MIME Certificate Processing – Enhanced Security Services.

UNIT IV
 IP security: IP Security Overview – IP Security Architecture – Authentication Header – Encapsulating Security Payload – #Combining Security Associations# – Key Management.

UNIT V
 Web Security: Web Security Considerations – Secure Socket Layer (SSL) and Transport Layer Security (TLS) – Secure Electronic Transaction (SET). Network Management Security: #Basic Concepts of SNMP# – SNMPv1 community facility – #SNMPv3#.

 # .... # self-study portion.

Text Book

1. William Stallings, *Network Security Essentials Applications and Standards*, Third Edition, Pearson Education Inc., Fifth Impression, 2011.

UNIT I : Chapters 1 Sections 1.1 - 1.6, Chapter 2 2.1 - 2.6
UNIT II : Chapter 3 Sections 3.1 - 3.6
UNIT III : Chapter 5 Sections 5.1,5.2
UNIT IV : Chapter 6 Sections 6.1 - 6.6
UNIT V : Chapters7 Sections 7.1 - 7.3, Chapter 8 Sections 8.1- 8.3

Books for Reference
1. William Stallings, Cryptography and Network Security Principles & Practices, Fourth Edition, 2006.
2. Periman, Speciner, Network Security, PHI, 2011.