BACHELOR OF COMPUTER APPLICATIONS
REGULATIONS

ELIGIBILITY:

A candidate who has passed in Higher Secondary Examination with any Academic stream or Vocational stream as one of the subject under Higher Secondary Board of Examination, Tamil Nadu as per the norms set by the Government of Tamil Nadu or an Examination accepted as equivalent thereto by the Academic Council, subject to such conditions as may be prescribed thereto are permitted to appear and qualify for the **Bachelor of Computer Applications Degree Examination** of this College after a course of study of three academic years.

OBJECTIVE OF THE COURSE

The Curriculum is designed to attain the following learning goals which students shall accomplish by the time of their graduation:

1. The BCA is catering to the needs of the students aspiring to excel in the field of computers.

2. Carrying out the required analysis and synthesis involved in computer systems, information systems and computer applications.

3. Demonstrating professional competence in developing software and in its design and implementation.

4. To Train and equip the students to meet the requirement of the corporate.

5. To stimulate an interest in computing as an academic discipline with a view to encouraging progression to research.

SCHEME OF EXAMINATION

Course	Subject	Hrs of Instruction	Exam Duration (Hrs)	Max Marks			Credit Points
				CA	CE	Total	
First Semester							
Part – I							
16UTL11T/ 15UHL11H/ 15UML11M/ 15UFL11F	Tamil-I/ Hindi-I/ Malayalam-I/ French – I	6	3	25	75	100	4
Part – II							
16UEG12E	English - I	6	3	25	75	100	4
Part – III							
16UCA13A	Core -I: C Programming	4	3	25	75	100	4
16UCA13B	Core -II: Digital Fundamentals and Architecture	4	3	25	75	100	4
16UCA13P	Core Practical – I: C Programming	3	3	40	60	100	4
16UMA1AD	Allied- I: Mathematical Structures for Computer Science	5	3	25	75	100	4
Part – IV							
15UFC1FA	Foundation Course - I : Environmental Studies	2	3	—	50	50	2
		30				650	26
Second Semester							
Part – I							
16UTL21T/ 15UHL21H/ 15UML21M/ 15UFL21F	Tamil-II/ Hindi-II/ Malayalam-II/ French – II	6	3	25	75	100	4
Part – II							
16UEG22E	English - II	6	3	25	75	100	4
Part – III							
16UCA23A	Core -III: C++ Programming	6	3	25	75	100	4
16UCA23P	Core Practical - II : C++ Programming	5	3	40	60	100	4

RoS Chairman/HoD
~rtment of Computer Applications
G. P. Arts and Science College
C.....batore – 641 048

Dr. P.R. MUTHUSWAMY
PRINCIPAL
Dr. NGP Arts and Science College.
Dr. NGP - Kalapatti Road
Coimbatore - 641 048
Tamilnadu, India

	C++ Programming						
16UMA2AD	Allied- II: Computer Based Optimization Techniques	5	3	25	75	100	4
Part – IV							
15UFC2FA	Foundation Course- II : Value Education / Human Rights	2	3	__	50	50	2
		30				**550**	**22**
Third Semester							
Part –III							
16UCA33A	Core- IV: Data Structures and Algorithms	5	3	25	75	100	4
16UCA33B	Core -V: Java Programming	5	3	25	75	100	4
16UCA33P	Core Practical – III: Java Programming	5	3	40	60	100	4
16UCA3AA	Allied - III : Information Security	5	3	20	55	75	3
Part – IV							
16UCA3SA	Skill Based Subject - I : Interactive Web design	3	3	20	55	75	3
16UCA3SP	Skill Based Practical - I: Interactive Web design	3	3	30	45	75	3

3

15UFC3FA/ 15UFC3FB/ 15UFC3FC/ 15UFC3FD/ 15UFC3FE	Basic Tamil# / Advanced Tamil# (OR) Yoga for Human Excellence # / Women's Rights# / Constitution of India#	2	3	-	50	50	2
	NMEC - I	2	3	-	50	50	2
		30				**625**	**25**

Fourth Semester

	Part – III						
16UCA43A	Core- VI: System Software and Operating Systems	5	3	25	75	100	4
16UCA43B	Core -VII: Relational Data Base Management System	5	3	25	75	100	4
16UCA43C	Core -VIII: Software Engineering	5	3	20	55	75	3
16UCA43P	Core Practical – IV: Relational Data Base Management System	5	3	30	45	75	3
16UPA4AA	Allied - IV: Business Accounting	4	3	20	55	75	3
16UPA4AP	Allied Practical - I: TALLY	2	3	20	30	50	2
	Part – IV						
15UFC4FA/ 15UFC4FB/ 15UFC4FC	Basic Tamil # /Advanced Tamil # (OR) General Awareness #	2	3	-	50	50	2
	NMEC - II	2	3	-	50	50	2
		30				**575**	**23**

Fifth Semester

Part – III

4

16UCA53A	Core -IX: Data Communication and Networks	6	3	25	75	100	4
16UCA53B	Core -X: VB .Net Programming	6	3	25	75	100	4
16UCA53P	Core Practical – V: VB.Net Programming	5	3	40	60	100	4
	Elective -I :	5	3	25	75	100	4
Part – IV							
16UCA5SA	Skill Based Subject - II: Case Tools Concepts and Applications	4	3	20	55	75	3
16UCA5SP	Skill Based Practical – II: CASE Tools	4	3	30	45	75	3
16UCA53T	Industrial Training		Grade A To C				
		30				**550**	**22**
Sixth Semester							
Part – III							
16UCA63A	Core- XI: PHP & MySQL	6	3	25	75	100	4
16UCA63P	Core Practical – VI: PHP & MySQL	6	3	40	60	100	4
16UCA63V	Core -XII: Project Work	6	3	40	60	100	4
	Elective -II :	6	3	25	75	100	4
	Elective- III:	6	3	25	75	100	4
Part – V							
16UEX65A	EXTENSION ACTIVITY	-	-	50	-	50	2
		30				**550**	**22**
Grand Total						**3500**	**140**

Dr.N.G.P Arts and Science College (Autonomous)

ELECTIVE – I

(Student shall select any one of the following subject as Elective - I in fifth semester)

S.No	Subject Code	Name of the Subject
1.	16UCA5EA	Linux Administration
2.	16UCA5EB	Management Information System
3.	15UCA5EC	Embedded System

ELECTIVE - II

(Student shall select any one of the following subject as Elective -II in sixth semester)

S.No	Subject Code	Name of the Subject
1.	15UCA6EA	Cloud Computing
2.	16UCA6EB	Software Testing
3.	15UCA6EC	Computer Graphics

ELECTIVE - III

(Student shall select any one of the following subject as Elective –III in sixth semester)

S.No	Subject Code	Name of the Subject
1.	15UCA6ED	Data Mining
2.	15UCA6EE	Mobile Computing
3.	15UCA6EF	Digital Image Processing

NON MAJOR ELECTIVE COURSE

6

- The department offers the following two papers as Non Major Elective Course for other than the computer science students.

S.No	Subject Code	Name of the Subject
1	16UNM34M	Advanced Excel Lab
2	16UNM44M	Basics of Cloud Computing

FOR COURSE COMPLETION

Students shall complete:

- Language papers (Tamil/Malayalam/French/Hindi, English) in I and II semester.

- Environmental Studies, Human Rights, Women's Rights / Yoga and General Awareness   in I, II, III & IV semester respectively.

- Allied papers in I, II, III and IV semesters.

- Non Major Elective Course in III and IV semester.

- Extension activity in VI semester.

- Elective papers in the V and VI semesters.

- An in-house project at the end of VI semester.

- Student has to complete the following –Industrial training: Subject code: 16UCA53T.

Students must undergo Industrial training for 15 – 30 days during IV Semester Summer Vacation. Evaluation of the report will be done by the Internal and external Examiner in the V Semester. Based on their performance a grade will be awarded as A To C.

   A- 75 marks and above
   B- 60-74 marks
   C- 40-59 marks
    Below 40 marks - (Re-Appear)

Total Credit Distribution

Subjects	Credits	Total		Credits	Cumulative
Part I: Tamil	4	2x 100 =	200	08	**16**
Part II: English	4	2x 100 =	200	08	
Part III:					
Core	4	10x 100 =	1000	40	**98**
Core	3	1x75 =	75	3	
Core Lab	4	5 x 100 =	500	20	
Core Lab	3	1 x 75 =	75	3	
Elective	4	3x100=	300	12	
Project	4	1 x100 =	100	04	
Allied Theory	4	2 x 100 =	200	08	
Allied Theory	3	2x75=	150	06	
Allied Lab	2	1x50 =	50	02	
Part IV:					
Skill Based	3	2x75=	150	06	**24**
Skill Based Lab	3	2x75=	150	06	
Value	2	2 x 50 =	100	04	
Environmental	2	1 x 50=	50	02	
General	2	1x50=	50	02	
NMEC	2	2 x 50 =	100	04	
Part V:					
Extension	1	1x50	50	02	**02**
Total			**3500**	**140**	**140**

Earning Extra credits is not mandatory for course completion

Extra credits

Subject	Credit	Total credits
BEC/ Self study courses	1	**1**
Hindi / French/ Other foreign Language approved by certified Institutions	1	**1**
Type Writing / Short Hand Course	1	**1**
Diploma/certificate/CPT/ ACS Inter/ NPTEL Course	1	**1**
Representation – Academic/Sports /Social Activities/ Extra Curricular / Co-Curricular activities at University/ District/ State/ National/ International	1	**1**

Rules:

The students can earn extra credits only if they complete the above during the course period (I to V sem) and based on the following criteria. Proof of Completion must be submitted in the office of the Controller of Examinations before the commencement of the VI Semester. (Earning Extra credits are not mandatory for Course completion)

1. Student can opt BEC course/ Self study course to earn one credit. They have to Enroll and complete any one of the course during their course period before fifth semester (I sem to V sem).

Self study paper offered by the Computer Applications Department

S. No.	Semester	Subject Code	Name of the Subject
1.	Semester III	16UCASS1	Big Data Analytics
2.		16UCASS2	Soft Skills

2. Student can opt Hindi/ French/ Other foreign Language approved by certified Institutions to earn one credit. The certificate(Hindi) must be obtained from **Dakshina Bharat Hindi Prachar Sabha** and He/ she has to enroll and complete during their course period (**first to fifth semester)**

3. Student can opt for Type writing /short hand course to earn one extra credit. He/she has to enroll and complete the course during their course period to obtain certificate through **Tamil Nadu Board of Technical Education**

4. Student can opt for Diploma/certificate/CPT/ACS Inter/ NPTEL Course to earn one extra credit. Student who opt for Diploma/ Certificate course have to enroll any diploma/certificate course offered by Bharathiar University through our Institution. Student who opt for CPT/ ACS/CMA have to enroll and complete the foundation level during the course period. Students who opt for NPTEL course should complete the course certificate through NPTEL.

5. Award Winners in Academic/ Representation in Sports /Social Activities/ Extra Curricular/ Co-Curricular Activities at University/ District/ State/ National/ International level can earn one extra credit.

16UCA13A	CORE -I: C PROGRAMMING	SEMESTER - I

Total Credits: 4
Hours per Week:4

OBJECTIVES:

The subject aims to build the concepts regarding

1. To develop problem-solving strategies, techniques and skills that can be applied to computers and problems in other areas.

2. To help students develop the logic, ability to solve the problems efficiently using C programming.

3. To learn various concepts and techniques for problem solving and will implement those ideas using C programs.

CONTENTS

UNIT – I

Overview of C: History of C – Importance of C – Basic structure of C programs. Constants, variables and data types: Character set – C Tokens – Keywords and identifiers – Constants – Variables – Declaration of storage classes – Assigning values to variables- Defining symbolic constants. Operators and expression: Evaluation of expressions – Precedence of arithmetic operators – Type conversions in expressions – Operator precedence and associativity – Mathematical functions - Managing input and output operations: Reading and writing a character – Formatted input and output.

UNIT – II

Decision making and branching: Simple IF, IF-ELSE, Nesting of IF-ELSE, ELSE-IF ladder, Switch statements – GOTO statement. Decision making and looping: WHILE statement – DO statement – FOR statement – Jumps in loops. Arrays: Definition & Declaration – One dimensional – Two dimensional – Multi dimensional arrays.

11

UNIT – III

Character arrays and strings: Introduction – Declaring and initializing string variables – Reading strings from terminal – Writing strings to screen – String handling functions. User Defined functions: Introduction – Needs & Elements of User Defined function –Definition – Return values and their types – Function calls – Function declaration – Category of functions – Nesting of functions – Recursion – Passing arrays and Strings to functions – The scope, lifetime & Visibility of Variables .

UNIT – IV

Structures and Unions: Introduction – Defining a structure – Declaring structure variables – Accessing structure members – Structure initialization – Array of structures – Array within structures – Structure within structures – Structures and functions – Union – Bit fields. Pointers: Introduction – Understanding pointers – Accessing the address of a variable – Initializing of pointer variables - Pointers and arrays – Pointers and character strings – Pointers as function arguments.

UNIT – V

File Management: Introduction – 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.

TEXT BOOK:

1. *E. Balagurusam,***Programming in ANSI C,** Tata McGraw Hall**,** 5th Edition ,New Delhi.

REFERENCE BOOKS:

1. *Herbert Schildt* .C , **The complete Reference** , Tata Mc Graw Hill,

   4th Edition New Delhi.

2. *B.L.Juneja*, **Programming in C**, Cengage Learning India.

16UCA13B	CORE- II: DIGITAL FUNDAMENTALS AND ARCHITECTURE	SEMESTER – I

Total Credits: 4
Hours per Week:4

OBJECTIVES:

To inculcate the knowledge on the

1. Digital behavior of the computer system
2. Ideas behind the organization of various core component of the computer system

CONTENTS

UNIT - I

Digital Logic Circuits: Digital Computers –Logic Gates – Boolean Algebra - Map Simplification- Combinational Circuits- Flip flops

Digital Components: Integrated Circuits- Decoders – Multiplexers – Registers – Shift Registers

UNIT - II

Data Representation: Data Types – Complements –Fixed Point Representation – Floating Point Representation – Other Binary Codes – Error Detection Codes

UNIT - III

Central Processing Unit: Introduction – General Register Organization – Stack Organization – Instruction Formats – Addressing Modes – Data Transfer and Manipulation – Program Control

UNIT - IV

Dr.N.G.P Arts and Science College (Autonomous)

Input – Output Organization: Peripheral Devices - Input – Output interface- Asynchronous data transfer - Modes of Transfer - Priority Interrupt – Direct Memory Access – Input - Output Processor

UNIT - V

Memory Organization: Memory Hierarchy – Main Memory - Auxiliary Memory - Associative Memory- Cache Memory- Virtual Memory

TEXT BOOK:

1. *M. Morris Mano,* **Computer System Architecture**, Third Edition , PHI, 1993.

REFERENCE BOOKS:

1. *V. K. Puri,* **Digital Electronics Circuits And Systems,** Tata McGraw Hill Publication,2004.
2. *M. Carter* , **Computer Architecture, Schaum's outline series**, Tata McGraw Hill Publication ,2006.

Dr.N.G.P Arts and Science College (Autonomous)

16UCA13P	CORE PRACTICAL- I: C PROGRAMMING	SEMESTER - I

Total Credits: 4

Hours per Week: 3

OBJECTIVES:

The subject aims to build the concepts regarding:

1. To learn / strengthen problem solving techniques using programming language C.

2. To Know the various concepts using Conditional Statements, Looping Statements, Arrays and Pointers

CONTENTS

1. Operators

2. I/O Statements

3. Conditional statements

4. Looping Statements

5. String Handling Functions

6. Arrays

7. Functions

8. Structure

9. Union

10. Pointers

11. Files

12. Command Line Arguments

15

16UMA1AD	**ALLIED -I :MATHEMATICAL STRUCTURES FOR COMPUTER SCIENCE**	**SEMESTER - I**

Total Credits: 4
Hours per Week:5

OBJECTIVES:

1. On successful completion of this subject the students should have Understanding the concepts of mathematics.

2. To know about the applications of statistical and numerical methods for Computer Science.

CONTENTS

UNIT -I

Matrices - Introduction - Determination - Inverse of a matrix - Rank of a Matrix - Eigen Value and Eigen vector Problems - Cayley's Hamilton Theorem.

UNIT -II

System of Simultaneous Linear algebraic Equation: Gauss elimination - Gauss Jacobi Gauss Jordon - Gauss Seidal methods.

UNIT -III

Numerical Differentiations - Newton's forward Difference - Backward Difference -Stirling's formula.

UNIT-IV

Numerical Integration - Trapezoidal Rule & Simpson's rule - Numerical solutions of ordinary differential Equations -Taylor series for first order derivative.

UNIT-V

Measures of central tendency : Mean – Median – Mode - Measures of dispersion :Range – Mean deviation - Quartile deviation - Standard deviation.

TEXT BOOKS:

1. *Navanitham, P.A,* **Business Mathematics & Statistics,** Jai Publishers, Trichy, 2013. (Unit I and V)

2. *Venkataraman , M.K,* **Numerical Methods in science & Engineering** . NPC . Revised Edition ,2004. (Unit II , III &IV)

REFERENCE BOOKS:

1. *Gupta, S.P.* and *Gupta, M.P* , **Business Statistics,** Sultan Chand and Sons, 2002.

2. *Kandasamy,P.*and *Thilagavath.K* , **Numerical Methods ,** S.Chand and Company Ltd., New Delhi,2004.

| 16UCA23A | CORE-III: C++ PROGRAMMING | SEMESTER - II |

Total Credits: 4
Hours per Week:6

OBJECTIVES:

1. To understand Object Oriented Programming Paradigm

2. To inculcate knowledge on Object Oriented Concepts using C++

3. To be familiar with File Streams, Exception Handling and Templates

CONTENTS

UNIT - I

Introduction to C++ - key concepts of Object-Oriented Programming – Advantages – Object Oriented Languages. I/O in C++ : Streams in C++- Predefined Streams-Buffering – Stream Classes- Formatted and Unformatted data- Unformatted Console I/O Operation – Type casting with cout statements- C++ Declarations. Control Structures: - Decision Making and Statements: If.. Else, jump, goto, break, continue, Switch case statements. Loops in C++: For, While, Do.

UNIT - II

Functions in C++: Parts of Function – Passing Arguments - Inline functions –Function overloading. Classes and Objects: Classes in C++- Declaring Objects – Defining Member Functions – Static Member variables and functions – array of objects –friend functions – Overloading member functions. Constructor and Destructor: Constructor and Destructor - Characteristics – Application with constructors - Overloading Constructor – Destructors.

UNIT - III

Operator Overloading: The Keyword Operator- Overloading unary, binary operators – Overloading Friend functions – type conversion. Inheritance: Types of Inheritance – Single, Multilevel, Multiple, Hierarchal, Hybrid, Multipath inheritance – Virtual base Classes – Abstract Classes.

UNIT - IV

Pointers – Declaration – Pointer to Class, Object – this pointer – Pointers to derived classes and base classes. Arrays: Characteristics – Initialization of arrays using functions-Memory models – new and delete operators – dynamic object. Virtual Functions: Rules for Virtual Functions - Pure Virtual Functions.

UNIT V

String – Declaring and Initializing string objects – String Attributes. Files – File stream classes – file modes – Sequential Read / Write operations-Error Handling Functions-Exception Handling.

TEXT BOOK:

1. *Ashok N. Kamthane,* **Object-Oriented Programming With   Ansi And Turbo C++,** Pearson Education Publication.

REFERENCE BOOKS:

1. *E. Balagurusamy,* **Object-Oriented Programming With C++,** Tata Mc-Graw Hill Publication,1998.

2. *Yashvant. P. Kanetkar,* **Let us C++,** BPB, New Delhi,2007.

16UCA23P	CORE PRACTICAL -II: C++ PROGRAMMING	SEMESTER - II

Total Credits: 4
Hours per Week:5

OBJECTIVES:

1. To learn basic concepts of OOPS concepts

2. To solve problems of repetitive nature using loop structures

3. To implement data structure concepts in Object oriented programming

CONTENTS

1. Selection statements

2. Looping constructs

3. Function overloading

4. Constructor and destructor

5. Operator overloading

6. Friend function

7. Inheritance

8. Data structures

9. File

10. Virtual functions

16UMA2AD	ALLIED -II: COMPUTER BASED OPTIMIZATION TECHNIQUES	SEMESTER- II

Total Credits: 4
Hours per Week:5

OBJECTIVES:

1. On successful completion of this subject the students should have: -

   Understanding various mathematical applications in industries.

2. Decision making for real time environment.

CONTENTS

UNIT-I

Linear Programming - Mathematical formulations of linear Programming -Graphical method - Simplex method.

UNIT -II

Transportation problem - Assignment problem - Traveling Salesman Problem.

UNIT-III

Game Theory -Concept of Pure and Mixed Strategies -Solving 2 x 2 matrix with and without saddle point -n x 2 -2 x m games.

UNIT-IV (Derivations not included)

Queuing Theory : Introduction – Queuing system – Characteristics of Queuing system – symbols and Notation – Classifications of queues – Problems in (M/M/1) : (∞/FIFO).

UNIT-V

PERT & CPM -Network representation -Backward pass -Forward pass - Computation -PERT Network -Probability factor .

TEXT BOOK:

1. *Manmohan, Gupta, P.K* and *Kanthiswarup,* **Operations Research,**

    S. Chand & sons, 1997.

REFERENCE BOOKS:

1. *Hamdy A Taha,* **Operations Research.** Pearson Education,   7th edition,2002.

2. *Gupta, P.K. and Hira, D.S,* **Problems In Operations Research,** S. Chand Publication, 2004.

16UCA33A	CORE- IV: DATA STRUCTURES AND ALGORITHMS	SEMESTER - III

Total Credits: 4
Hours per Week:5

OBJECTIVES:

1. To understand and analyze algorithms

2. To learn fundamentals of linear and non-linear Data structures

3. To be familiar with searching and sorting

CONTENTS

UNIT- I

Introduction: Introduction of Algorithms, Performance Analysis. Arrays and structures: Representation of Arrays, Array create, insert and delete of data elements -   Sparse Matrices Stacks and Queues: Stacks - Queues - Circular Queues - Evaluation of Expression -Infix to Postfix Conversion .

UNIT- II

Linked List: Singly Linked List : Insertion – Deletion – reverse the elements - Linked Stacks and Queues - Polynomial Addition – Circular Linked Lists - Doubly Linked List .

UNIT-III

Trees: Basic Terminology and Representation - Binary Trees - Binary Tree Representations - Binary Trees Traversals - Threaded Binary Trees - Binary Search Trees: Search, Insert, Delete.

UNIT-IV

Graphs: Terminology and Representations – Traversals : Depth First Search, Breath First Search – Minimum cost Spanning Trees- Shortest Paths and Transitive Closure

UNIT-V

Searching: Linear and Binary Search Sorting: Bubble sort - Insertion Sort - Quick Sort - Merge Sort - Heap Sort - Hashing Techniques :   Static Hashing : Hash Tables - Hashing Functions.

TEXT BOOK:

1. *Horowitz, Shani, Anderson* **–** Freed, **Fundamentals of Data Structures in C,** Universities Press ,2nd Edition,2008.

REFERENCE BOOKS:

1. *Ellis Horowitz, Sartaj Shani*, **Data and File Structures**, Galgotia Publication,2010.

2. *Malik,D,S.* 1st Edition, **Data structures using C++,** Cengage learning, 2003.

3. *Vaugha H.Patil*, **Data Structures Using C++,** Oxford Higher Education 1st Edition , 2012

Dr.N.G.P Arts and Science College (Autonomous)

16UCA33B	CORE - V: JAVA PROGRAMMMING	SEMESTER - III

Total Credits: 4
Hours per Week:5

OBJECTIVES:

1. To learn Object Oriented Programming using Java

2. To learn applet and AWT

CONTENTS

UNIT - I

Introduction to Object-Oriented Programming – The Java language – Variable Declarations and Arrays – Operators in Java. Control Statements: An Introduction – Selection Constructs – Iteration Constructs – Jump Constructs. Introduction to Classes: Instance variables – Class variables – Instance Methods – Constructors – Class Methods – Declaring Objects.

UNIT - II

Classes and Methods in Detail: Method Overloading – Constructor Overloading – The this Reference – Using Objects in Method – Recursion – Access Modifiers – Inner Classes – Command Line Arguments. Inheritance: Basics of Inheritance – Super Class Variable and Subclass Object – The super reference – Constructor - Chaining – Method Overriding – The final Keyword. Abstract Classes and Interfaces: The abstract Classes and Methods – Defining Interface – Implementing Interfaces – Extending Interface – Interface Reference. Exception Handling: Types of Exceptions-Uncaught Exceptions – Handling Exceptions – User Defined Exceptions.

UNIT - III

Multithreaded Programming: Concept of Threads – Thread Creation – Thread's Life Cycle – Thread Scheduling – Synchronization and Deadlock. Packages and Access Modifiers: Packages – An Introduction – The package Declaration – The import Statement –

Illustration Package – The Java Language Packages. Handling Strings: Creating Strings – Operations on Strings – Character Extractor Methods – String Comparison Methods

UNIT - IV

Input Output Classes: Input and Output Operations – Hierarchy of classes in java.io Package – File class – Input Stream and Output Stream-Random Access File Class.
Applets: Applet Basics – Applet Life Cycle – Running Applets – Methods of the Applet Class

UNIT - V

Abstract Windowing Toolkit : AWT classes – Hierarchy of Classes – Control Fundamentals – Component Class – Basic Component Classes – Various Container Classes – Frame Window in an Applet – Menus. Layout Management and Event Handling: Layout Management Policies – Standard Layout Managers – Handling Events – Hierarchy of Event Classes – Event Delegation Model – Event Classes – Event Listener Interfaces – Adapter Classes

TEXT BOOK:

1. *Instructional Software Research and Development (ISRD) Group*, **Introduction to Object Oriented Programming through Java ,**Tata McGraw-Hill Publishing Company Limited, New Delhi, 2007.

REFERENCE BOOKS:

1. *E.BalaGurusamy,*. Third Edition. **Programming with JAVA – A Primer** , Tata McGraw-Hill Publishing Company Limited, Third Edition, 2007.

2. *John R. Hubbard* **Schaum's Outline of Programming with Java** Tata McGraw- Hill Publishing Company Limited, Second Edition ,2007.

16UCA33P	CORE PRACTICAL- III: JAVA PROGRAMMING	SEMESTER - III

Total Credits: 4

Hours per Week:5

OBJECTIVES:

1. To enrich knowledge on key concepts using Java.

2. To write Java program to implement a solution to a given problem specification.

CONTENTS

1. Program using looping.

2. Array.

3. String handling.

4. Inheritance.

5. Interface.

6. Package.

7. Multithreading.

8. Exception handling.

9. Applet.

10. AWT.

11. File.

12. RMI.

16UCA3AA	Allied -IV : INFORMATION SECURITY	SEMESTER – III

Total Credits : 3
Hours per Week : 5

OBJECTIVES:

1. To understand the basics of Security technologies

2. To   get knowledge on secured software development

CONTENTS

UNIT - I

Introduction: History- What is Information Security- Critical Characteristics of Information- NSTISSC Security Model- Components of an Information System - Securing the Components - Balancing Security and Access- SDLC- Security SDLC.

UNIT -II

Security Investigation: Need for Security- Business Needs- Threats- Attacks- Secure Software Development- Legal, Ethical and Professional Issues.

UNIT - III

Risk Management: Overview-Identification- Assessment- Control Strategies.

UNIT - IV

Planning for Security: Information Security Policy- Standards and Practices- Blueprint for Security- Security Education-Training and Awareness Program- Planning for Continuity.

UNIT - V

Security Technology: Intrusion Detection and Prevention Systems - Scanning and Analysis Tools-Access Control Devices- Cryptography.

TEXT BOOK:

1. *Michael E. Whitman* and *Herbert J. Mattord,* **Principles and Practices of Information Security,** Cengage learning, *India* Edition ,2009.

REFERENCE BOOK:

1. *Mark Merkow and Jim Breithaupt*, **Principles of Information Security,** Pearson Edition.

16UCA3SA	SKILL BASED SUBJECT- I : INTERACTIVE WEB DESIGN	SEMESTER - III

Total Credits: 3

Hours per Week:3

OBJECTIVES:

1. To inculcate knowledge on web designing

2. To understand the concepts and principles of HTML5 and CSS3 standards, to build dynamic websites.

CONTENTS

UNIT - I

Introducing HTML5: A Basic HTML5 Template – doctype - HTML Element - Head Element - Defining Page's Structure - Header Element - Section Element - Article Element - Nav Tag Element - Aside Element - Footer Element.

UNIT - II

HTML5 Semantics: A New Perspective on Types of Content- The Document Online- New Elements in HTML5 - HTML5 Canvas. HTML5 TABLES: Table attributes and Elements.

UNIT - III

HTML5 Forms: HTML5 Attributes- HTML5 Form Input Types- New Form Controls in HTML5 - Changes to Existing Form Controls and Attributes. HTML5 Audio and Video: Video Container Formats - Video codecs - Audio codecs - The Markup Attributes - Creating Custom Controls.

UNIT - IV

Introducing CSS3: CSS3 Selectors - CSS3 Colors- Drop Shadows - Text Shadow CSS3 Gradients: Linear Gradients-Radial Gradients - Repeating Gradients.

UNIT - V

CSS Transforms And Transitions: Transforms - Transitions - Animations - Embedded Fonts -CSS3 Multicolumn Layouts - SVG and Drag and Drop.

TEXT BOOK:

1. *Alexis Goldstein, Louis Lazaris, Estelle Weyl*, **HTML5 & CSS3 for the Real World** , SitePoint Pvt. Ltd., 2011

REFERENCE BOOKS:

1. *Matthew MacDonald*, **HTML5: The Missing Manual,** O'Reilly, 2011.

2. *Kogent Learning Solutions Inc*, **HTML5 Black Book: Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP and Jquery**, Dreamtech Press, 2011.

16UCA3SP	SKILL BASED PRACTICAL-1: INTERACTIVE WEB DESIGN	SEMESTER - III

Total Credits : 3
Hours per Week: 3

CONTENTS

HTML5:

 1. Semantic Elements

2. Page Structure and Navigation

3. Form Input and Validation.

4. Image onto Canvas.

CSS3:

 5. Selectors and Colors

6. Text and Drop Shadows

7. Transition- Rotating Box

8. Linear Gradient and Radial gradient.

9. 2D and 3D Animations

10. SVG, Drag and Drop.

16UCA43A	CORE -VI: SYSTEM SOFTWARE AND OPERATING SYSTEMS	SEMESTER - IV

Total Credits: 4
Hours per Week:5

OBJECTIVES:

1. To instill the concepts of the functionalities of various system software

2. To inculcate the common functionality of operating system

CONTENTS

UNIT - I

Assembler: Elements of assembly Language programming-A simple assembly scheme-Pass structure of assemblers-Design of Two Pass assembler. Macros and macro processor: Macro Definition and call-Micro Expansions-Nested macro calls. Compilers and Interpreters: Aspects of compilation-Memory allocation-Compilation of expressions – Compilation of control structures-Code optimization-Interpreters.

UNIT - II

Evolution of OS Functions: OS Functions-Evolution of OS functions-Batch processing systems-Multiprogramming systems-Time sharing systems-Real time operating systems-OS structure. Processes: Process definition – Process Control- Interacting Processes-Implementation of Interacting Processes-Threads.

UNIT - III

Scheduling: Scheduling policies-Job scheduling-Process Scheduling - Process management in Unix-Scheduling in multiprocessor OS. Deadlocks: Definition-Resource status modeling-Handling deadlocks-Deadlock detection and resolution-deadlock Avoidance-Mixed approach to deadlock handling.

UNIT - IV

Process Synchronization: Implementing control synchronization-Critical sections-Classical process synchronization problems-Evolution of Language features for process synchronization-Semaphores-Critical regions-Conditional critical regions-Monitors. Inter-process Communication: Inter-process messages-Implementation issues-Mailboxes

UNIT - V

Memory Management: Memory allocation preliminaries-Contiguous memory allocation-Non contiguous memory allocation-Virtual memory using paging-Virtual memory using segmentation. File Systems: Directory Structures-File production-Allocation of Disk space-Implementing file access-File sharing-File system reliability- Unix File System.

TEXT BOOK:

1. *D M Dhamdhere*, **Systems Programming And Operating Systems**, Tata McGraw-Hill Publishing, , 2nd Revised Edition, 1999.

REFERENCE BOOKS:

1. *Leland L. Beck,* **System Software-An Introduction to Systems Programming,** Pearson Education Publishers, Third Edition. 2003.

2. *H.M. Deitel,* **Operating Systems, Pearson Education Publication**. Second Edition, 2003

3. *Achyut S. Godbole*, **Operating Systems** , Tata McGraw Hill Publications, 2002.

16UCA43B	**CORE-VII: RELATIONAL DATABASE MANAGEMENT SYSTEM**	**SEMESTER – IV**

Total Credits: 4
Hours per Week: 5

OBJECTIVES:

1. To understand Relational Database Concepts.

2. To inculcate knowledge on RDBMS concepts and Programming

   with Oracle.

CONTENTS

UNIT-I

Database Concepts: A Relational approach: Database – Relationships – DBMS – Relational Data Model – Integrity Rules – Theoretical Relational Languages. Database Design: Data Modeling and Normalization: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams – De -normalization – Another Example of Normalization.

UNIT-II

Oracle9*i*: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus - SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - *i*SQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

UNIT-III

Working with Table: Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from Table – Arithmetic

Operations – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. Functions and Grouping: Built-in functions –Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operations.

UNIT-IV

PL/SQL: A Programming Language: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. Control Structures and Embedded SQL: Control Structures – Nested Blocks – SQ L in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT…FOR UPDATE – WHERE CURRENT OF clause – Exceptions – Types of Exceptions.

UNIT-V

PL/SQL Composite Data Types: Records – Tables – arrays. Named Blocks: Procedures – Functions – Packages –Triggers.

TEXT BOOK:

1. *Nilesh Shah,***Database Systems Using ORACLE** , 2nd edition PHI,2011.

REFERENCE BOOKS:

1. *Arun Majumdar & Pritimoy Bhattacharya.* **Database Management Systems** , TMH, 2007,

2. *Gerald V. Post,* **Database Management Systems** , 3rd edition TMH.

16UCA43C	CORE -VIII: SOFTWARE ENGINEERING	SEMESTER – IV

Total Credits : 3
Hours per Week : 5

OBJECTIVES:

1. To learn about various process models and different types of software designing methods.

2. To study various software testing methods.

3. To learn about quality control and the software configuration management.

CONTENTS

UNIT - I

The Product : Evolving role of software - Characteristics of software - software applications - software- A crisis on the Horizons - Software myths - The Process : Definition of Software engineering- A Layered Technology - Software engineering models: Waterfall, Prototyping, Spiral, RAD and 4GT.

UNIT - II

Project Management Concepts: The Management Spectrum – People, Product, Process and Project. Software Process and Project Metrics: Measures, Metrics and indicators- Software Measurement: Size oriented, Function-oriented metrics – Software Project Planning: Resources - Software Project Estimation - Decomposition technique: LOC based Estimation - Empirical Estimation: COCOMO model.

UNIT - III

Risk Analysis and Management: Software Risk - Risk Identification - Risk Refinement- Risk Mitigation Monitoring and Management. Project Scheduling: Defining a task network - Scheduling: Time line charts- Tracking the Schedule - The Project Plan.

UNIT - IV

Quality Concepts - Software Quality Assurance - Formal Technical review - Software Reliability - Software Configuration Management: Baselines, Software Configuration Items.

Requirement Analysis- Software Prototyping – The SRS - Analysis Modeling: - Data modeling - Functional Modeling: Data flow diagram (DFD) - Data Dictionary

UNIT - V

Design concepts and Principles: The Design process - Design principles - Design concepts - Cohesion and Coupling. Software testing: - Unit testing - Integration testing- System testing - Acceptance testing- Black box and White box testing.

TEXT BOOK:

1. *Roger S Pressman*, **Software Engineering: A Practitioner's Approach,** McGraw –Hill Series in Computer science ,5th Edition,2005.

REFERENCE BOOKS:

1. *Richard Fairley*, **Software Engineering Concepts**, TMH,1997.

2. *Ian Sommerville,* **Software Engineering**, Addison Wesley ,5th Edition , 2001

16UCA43P	CORE PRACTICAL -IV: RELATIONAL DATABASE MANAGEMENT SYSTEM	SEMESTER – IV

Total Credits : 3
Hours per Week : 5

OBJECTIVES:

1. To impart knowledge on RDBMS

2. To understand the data base concepts using Oracle

3. To learn the knowledge on oracle to access both back end applications

CONTENTS

1 DDL

2 Queries using DML.

3 Queries using Union, Intersection, Projection

4 Join Operation

5 Queries Using Sorting and Grouping

6 Nested Queries

7 PL/SQL using LOOP

8 PL/ SQL Cursor

9 Exception

10 Array

11 Procedures

12 Triggers

16UPA4AA	ALLIED-IV : BUSINESS ACCOUNTING	SEMESTER - IV

Total Credits: 3
Hours per Week:4

OBJECTIVES:

1. To understood the Concepts and conventions of Accounting and Basic Accounting framework.

2. Prepare financial statement analysis to evaluate the financial performance of a company.

3. To Impart the Knowledge of Basic cost concepts, element of cost & Preparation of Cost Sheet.

CONTENTS

UNIT – I

Fundamentals of Book Keeping: Definition, objectives, methods of accounting, Branches of accounting, Types of Accounts and Accounting rules – Accounting Concepts and Conventions – double entry system – advantage – difference between double entry and single entry.

UNIT – II

Journal, ledger, and Trial balance, subsidiary books – purchase book, sales books, purchase returns book, sales returns book and cash book with single, double and triple column cash book

UNIT – III

Final accounts – trading and profit and loss A/C and balance sheet with simple adjustments

UNIT – IV

Accounting for consignments and Joint ventures: Consignment Meaning, definition, features, account sales, valuation of unsold stock, goods sent on consignment at cost price various commission to consignee (only Problem). Joint venture: Meaning, features, distinction between joint venture and partnership, joint venture and consignment.(Only Theory).

UNIT – V

Depreciation - Meaning- Features- Methods- Straight Line Method– WDV Method - Annuity Method.

Note: Distribution of Marks between problems and theory shall be 80% and 20% respectively .

TEXT BOOKS:

1. *Vinayakam N., Mani P.L.,* and *Nagarajan K.L,* **Principles of Accountancy** , S.Chand & Company Ltd., New Delhi, 2003.

2. *Jain S P* and *Narang K L,* **Advanced Accountancy**, Kalyani publishers, New Delhi,2000.

REFERENCE BOOKS:

1. *Gupta R.L., Gupta V.K.* and *Shukla M.C.,* **Financial Accounting**, Sultan chand & sons, New Delhi ,2006.

2. *Maheswari S.K.,* and *Reddy T.S.,* **Advanced Accountancy**, Vikas publishers, New Delhi, 2005.

16UPA4AP	ALLIED PRACTICAL -I :TALLY	SEMESTER - IV

Total Credits: 2

Hours per Week:2

OBJECTIVES:

1. To understand Advanced Accounting and Inventory in Tally.

   ERP 9;

2. To learn the basic concepts of creation of company

3. Train to generate Excise Reports as per the prescribed formats.

CONTENTS

1. Company Creation and Alteration.

2. Creating and Displaying Ledger.

3. Voucher Creation.

4. Voucher Alteration and Deletion.

5. Inventory Information – Stock Summary.

6. Day Book.

7. Final accounts.

8. Accounting and Inventory Information

16UCA53A	CORE -IX: DATA COMMUNICATION AND NETWORKS	SEMESTER - V

Total Credits: 4

Hours per Week:6

OBJECTIVES:

1. To instill the knowledge on network communication.

2. To inculcate the knowledge on networking concepts.

CONTENTS

UNIT - I

Introduction to Data Communications and Networking – Information Encoding – Analog and Digital Transmission Methods.

UNIT - II

Modes of Data Transmission and Multiplexing -Transmission Errors: Introduction –Error Classification -Types of error- Error Detection and Correction

Transmission Media: Guided Media, Unguided Media – Network Topologies: Mesh, Star, Tree, Ring, Bus – Switching: Circuit switching, Message switching, Packet switching.

UNIT - III

Routing Algorithms: Routers and Routing – Factors affecting Routing Algorithms – Routing Algorithms-Network Protocols and OSI Model-Integrated Services Digital Network (ISDN).

UNIT - IV

Internetworking Concepts: Introduction – The Problems in Internetworking - Internetworking Devices- Introduction to TCP / IP, IP, ARP, RARP, ICMP

43

UNIT - V

TCP: Features of TCP, Relationship between TCP and IP, Ports and Sockets, TCP connections, What makes TCP Reliable, TCP Packet Format – **User Datagram Protocol (UDP):** UDP Packet, Difference between UDP and TCP – Domain Name System (DNS) – Electronic Mail (Email) – File Transfer Protocol (FTP).

TEXT BOOK:

1. *Achyut S.Godbole,* **Data Communications and Networks**, Tata McGraw Hill Publications, 2007.

REFERENCE BOOK:

1. *Behrouz A. Forouzan*, **Data Communications And Networking –** Second Edition Update, Tata McGraw-Hill Publication, 19th reprint, 2007.
2. *Andrew S. Tanenbaum,* **Computer Networks**, Prentice Hall of India, 3rd Edition, 2000.

16UCA53B	CORE- X: VB. NET PROGRAMMING	SEMESTER - V

Total Credits: 4

Hours per Week:6

OBJECTIVES:

1. To gain knowledge about the methodologies of VB.Net

2. To develop Dot Net based application using ADO.NET and SQL
    Managed Provide-OLEDB Managed Provider.

CONTENTS

UNIT - I

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

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

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

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 .

UNIT - V

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 – – Using data views.

TEXT BOOK:

1. *Steven Holzner*, **Visual Basic .NET Black Book**,2007.

REFERENCE BOOKS:

1. *C. Muthu*, **Visual Basic .Net**, Vijay Nicole Publication, 2007.

2. *Shirish Chavan*,**Visual Basic .Net**, Pearson Education, 2007.

16UCA53P	CORE PRACTICAL -V: VB. NET PROGRAMMING	SEMESTER - V

Total Credits : 4
Hours per Week : 5

OBJECTIVES:

1. To impact knowledge on VB.Net programming.

2.   To develop GUI programs using forms under VB .NET.

3. To improve object-oriented programming skill through practice and insights gained by studying the .NET Framework

CONTENTS

1. Delegates and Events.

2. Controls

3. User defined Exceptions.

4. Constructors and Member functions.

5. Events

6. Menu

7. Data Base opeartions

8. Validation

9. Application using menu editor.

10. Data grid control (purchase database).

11. Validate controls.

12. Web site.

16UCA5EA	ELECTIVE I: LINUX ADMINISTRATION	SEMESTER - V

Total Credits : 4
Hours per Week : 5

OBJECTIVES:

1. To understand the Basics of Linux Operating System

2. To get the knowledge on commands in Red Hat Linux

3. To understand the security issues

CONTENTS

UNIT - I

Linux Introduction and Installation: Linux-Advantages-Red Hat Linux-New Features-Installation procedures and Methods. Using Desktop-GNOME-KDE-Linux Commands Accessing and Running Applications

UNIT - II

Installing Red Hat Linux Applications, Running Window Application, Running Window, DOS and Macintosh Applications –Tools for using Internet and Web.

UNIT - III

Administration: Understanding System Administration: Root login-super user-GUI tools, commands and Log files-Configuring Hardware-File System and Disk Management Monitoring performances.

UNIT - IV

Setting Up and Supporting users: Creating user accounts – Setting user defaults –Creating Desktops-Modifying and Deleting Accounts.

UNIT - V

Security Issues: Hacker versus Cracker-Password Protection- Protection from break-in-Filtering Network Access-Firewalls-Detecting Instructions – Encryption techniques

TEXT BOOK:

1. *Christopher Negus*. **Red Hat Linux 9 Bible**, WILEY- Dreamtech India Pvt.Ltd, New Delhi, First Edition, 2003.

REFERENCE BOOK :

1. *Thomas Schenk*, **Red Hat Linux System Administration**, Techmedia, New Delhi, 2003.

16UCA5EB	ELECTIVE I: MANAGEMENT INFORMATION SYSTEM	SEMESTER - V

Total Credits : 4
Hours per Week : 5

OBJECTIVES:

1. To provide knowledge on information processing for organizational decision making.

2. To understand information revolution and the overall development scenario of Organization.

3. To gain knowledge about IT industry and its strategic importance.

CONTENTS

UNIT - I

Introduction to Information Systems: Why study Information System – Why Business need Information Technology – Fundamentals of Information System – Overview of Information Systems.

UNIT - II

Solving Business Problems with Information Systems: System Approach to Problem Solving – Developing Information System Solution – DataBase Management: Managing Data Resources – Technical foundations of DataBase Management.

UNIT - III

Information Systems for Strategic Advantages – Fundamentals of Strategic Advantage -Strategic Applications and Issues in IT - Managing IT : Enterprise and Global Management

UNIT - IV

Business applications of Information Technology: The Internet and Electronic Commerce – Fundamentals of Electronic Commerce –

Information System for Business Operations: Business Information System – Transaction processing Systems.

UNIT - V

Information systems for Managerial Decision Support : Decision Support Systems - Artificial Intelligence technology in Business – Managing IT – Planning for Business change with IT – Implementing business change with IT – Security & Control Issues in I/S – Ethical and social challenges of Information Technology.

TEXT BOOK:

1. *James A. O,Brien*, **Management Information Systems** , Galgotia publications, 4th edition,1999.

REFERENCE BOOK :

1. *Gordon B. Davis Margrethe H*. Olson, **Management Information Systems**, McGraw Hill, 3rd Reprint,2000.

| 15UCA5EC | ELECTIVE -I : EMBEDDED SYSTEM | SEMESTER - V |

Total Credits : 4
Hours per Week: 5

OBJECTIVES:

1. To provide a clear understanding on the basic concepts of Embedded System

2. To learn the fundamentals of System design with Partitioning

3. To introduce an Embedded Process development Environment

CONTENTS

UNIT-I

Introduction to Embedded System: An Embedded System – Processor in the System – Other Hardware units – Software embedded into a system – Exemplary embedded system – Embedded system on chip and in VLSI circuit. Processor and Memory organization: Structural units in a processor – Processor selection – Memory devices – Memory selection - Allocation of memory – DMA – Interfacing processor, memories and I/O devices

UNIT-II

Devices and buses for device networks: I/O devices – Timer and counting devices – Serial communication – Host system. Device drivers and Interrupts servicing mechanism: Device drivers – Parallel port device drivers – Serial port device drivers – Device drivers for IPTD – Interrupt servicing mechanism – Context and the periods for context-switching, dead-line and interrupt latency

UNIT-III

Programming concepts and embedded programming in C and C++: Software programming in ALP and C – C program elements – Header and source files and processor directives – Macros and functions – Data

types – Data structures – Modifiers – Statements – Loops and pointers – Queues – Stacks – Lists and ordered lists – Embedded programming in C++ - Java – C program compiler and cross compiler – Source code for engineering tools for embedded C / C++ - Optimization of memory needs

UNIT-IV

Program modeling concepts in single and multi processor systems: Modeling process for software analysis before software implementation – Programming models for event controlled or response time constrained real time programs – Modeling of multiprocessor systems. Software engineering practices: Software algorithm complexity – Software development process life cycle and its models – Software analysis – Software design – Implementation – Testing, Validation and debugging – Software maintenance

UNIT-V

Inter-process communication and synchronization of processes, tasks and threads: Multiple processor – Problem of sharing data by multiple tasks and routines – Inter process communication. Real time operating systems: Operating system services – I/O subsystem – Network operating systems – Real time and embedded operating systems – Interrupt routine in RTOS environment – RTOS task scheduling – Performance metric in scheduling

TEXT BOOK:

1. *Raj Kamal,* **Embedded Systems** , TMH 2nd Edition, 2008.

REFERENCE BOOK:

1. *Steven F. Barretl*, **Embedded System**, Pearson 1st Edition, 2008.

16UCA5SA	SKILL BASED SUBJECT -II: CASE TOOLS CONCEPTS AND APPLICATIONS	SEMESTER - V

Total Credits : 3

Hours per Week: 4

OBJECTIVES:

1. To provide automated assistance for software development to the developers

2. The main goal of case technology is the automation of the entire information systems development life cycle process using a set of integrated software tools, such as modeling, methodology and automatic code generation.

CONTENTS

UNIT-I

Data Modeling: Business Growth-Organizational Model-Case Study of student MIS-What is the purpose of such Models-Understanding the business-Types of models-model development approach-the case for structural development-advantages of using a case tool - System analysis and design-what is DFD-General Rules for Drawing DFD-Difference between Logical data flow diagram and Physical data flow diagram-Software verses Information Engineering-How case tools store information.

UNIT-II

Approach used to solve the problem statement: How to deal with a problem statement-Data flow diagram for Payroll System-Presentation Diagram for Payroll System-schematics of the model-Forms-Screens-Menu Screens-Data entry Screens-Report Output Format-Utilities. Installation of Ubridge and Synthesis: How to use the tools in Ubridge Synthesis for case-Installation of Ubridge Synthesis-Computer Aided

Software Engineering- Getting Ubridge to work-Setup-Assign-Housekeep-The Ubridge page.

UNIT-III

Introduction to Ubridge: Introduction - Main flow of the system prototyping your Report- Introducing the Novice Model of the Operation. Introducing Synthesis - Synthesis basic – Synthesis - Menu Drawing the screen-Requirement Definition-Diagram-Data Dictionary-Document-Synthesis Main Administration - Synthesis reference - importing and exporting screen.

UNIT-IV

Diagram definition tool: Introduction-Starting DDT-Drawing your own Icon - Defining the connection rules-Rebuilding your icon. Object oriented methodologies: Rumaugh Et.Al's object modeling techniques-The Booch methodology –The Jacobson Et.Al Methodologies-Pattern-Frame works-The Unified Approach.

UNIT-V

Introduction to UML-UML Diagram-Class Diagram-Use Case Diagram-Interaction Diagram- Sequence Diagram-Collobration Diagram-State Chart Diagram-Activity Diagram- Component Diagram-Deployment Diagram.

TEXT BOOKS:

1. *Ivan N Bayross,* **Case Tools Concepts and Applications,** BPB Publications.

2. *Ali Bahrami***, Object Oriented System Development using the unified modeling language**, Mc GraHill International editions.

REFERENCE BOOK:

1. *Ivan N Bayross,* **CASE Tools Concepts and Applications**, BPB Publications , 1995.

16UCA5SP	SKILL BASED PRACTICAL- II: CASE TOOLS	SEMESTER - V

Total credits:3

Hours per Week: 4

OBJECTIVES:

1. Model helps to visualize a system as it is.

2. Model permits to specify the structure and behavior of a system.

3. Model gives a template to construct a system.

CONTENTS

1. ATM transfer system using UML diagram and to generate VB code.

2. Student mark analysis using UML diagram and to generate VB code.

3. Platform assignment system using UML diagram and to generate VB code.

4. Railway reservation system using UML diagram and to generate VB code.

5. Expert system for medicine field using UML diagram and to generate VB code.

6. Stock maintenance system using UML diagram and to generate VB code.

7. Quizzing system using UML diagram and to generate VB code.

8. Remote computer monitoring system using UML diagram and to generate VB code.

9. Online ticket reservation system using UML diagram and to generate VB code.

10. E-mail client server system using UML diagram and to generate VB code.

11. Library information system using UML diagram and to generate VB code.

12. Banking service system using UML diagram and to generate VB code.

16UCA63A	CORE -XI: PHP & MySQL	SEMESTER – VI

Total Credits : 4
Hours per Week: 6

OBJECTIVES:

1. To implement the web applications using PHP

2. To explore PHP in depth manner.

UNIT - I

Essential PHP: Enter PHP - Creating your development environment- creating and running first PHP-mixing HTML and PHP - printing some text - adding comments to PHP code - working with variables - creating variables - creating constants - internal data types – Operators - Control Structures : Branching and Looping.

UNIT - II

Strings and Arrays**:** The string functions, converting to and from strings - formatting text strings - building yourself some arrays - modifying the data in arrays - deleting array elements - Creating Functions: Creating function in PHP, Passing functions some data - introducing variable scope in PHP - Accessing global data, working with static variables - PHP conditional functions - PHP variable functions - nesting functions - creating include files - returning errors from functions.

UNIT - III

Reading Data in Web Pages - Setting up web pages to communicate with PHP- handling text fields- handling text areas - handling check boxes - handling radio buttons - handling list boxes -handling password controls - handling hidden controls - handling image maps - handling file uploads - handling buttons.

UNIT – IV

PHP Browser : Handling Power – using PHP server variable, using HTTP Headers- getting browser type, redirecting browsers with HTTP headers- Dumpling a form's data all once- Handling form data with custom array- performing data validation- checking the user entered data, requiring numbers- requiring text- persisting user data.

File handling : fopen, feof, fgetc, file_get_contents, reading a file into an array with file, file_exists, filesize, fread, fscanf,, parse_ini_file, getting file info with stat, fseek, copy, unlink, fwrite, reading and writing binary files, fwrite, file_put_contents, locking files.

UNIT – V

Working with databases: What is database, creating a MySql database- creating a new table- putting data into the new database - accessing the database in PHP- updating databases- inserting into database- deleting records- creating new table- creating new database- sorting your data.

TEXT BOOK:

1. *Steven Holzner*, **COMPLETE REFERENCE PHP**, Tata Mc Graw Hill,2008.

REFERENCE BOOKS:

1. *Steve Suehring, Tim Converse, Joyce Park*, **PHP6 MySQL (Bible),**2009.

2. *Vikram Vaswani*, **THE COMPLETE REFERENCE OF MYSQL**, Tata McGraw Hill Publications,2004.

16UCA63P	CORE PRACTICAL- VI: PHP & MySQL	SEMESTER - VI

Total Credits : 4
Hours per week : 6

OBJECTIVES:

1. To learn the practical skills on PHP and MYSQL

2. Gain the PHP programming skills needed to successfully build interactive, data-driven sites

3. PHP Programming & MYSQL for Web Development course the delegate will have a good practical knowledge of how to write successful HTML/PHP code utilizing a MYSQL database

CONTENTS

1. Controls and Functions

2. Message passing mechanism between pages.

3. String function and Arrays.

4. Parsing functions (use Tokenizing)

5. Regular Expression, HTML functions, Hashing functions.

6. Built-in Functions (File , Network Date and time functions).

7. Session

8. Cookie and session

9. User Interface Design to store data in database

10. Queries in Database

11. Report Generation

12. Student personal information system

16UCA63V	CORE XII: PROJECT WORK	SEMESTER - VI

Total Credits : 4
Hours per Week: 6

GUIDELINES FOR PROJECT WORK

- ➢ The aim of the Project work is to acquire practical knowledge on the implementation of the programming concepts studied.

- ➢ Each student should carry out individually one Project Work and it may be a work using the software packages that they have learned or the implementation of Concepts from the papers studied or implementation of any innovative idea.

- ➢ The Project work should be compulsorily done in the college only under the supervision of the Department staff concerned.

- ➢ Comprehensive Exam will be conducted as follows.

- ➢ End Semester Viva-Voce will be conducted at the end of VI semester for 100 marks.

- ➢ Both the Internal (Respective Guides) and External Examiners (50+50) should Conduct the Viva-Voce Examination at the last day of the practical session.

- ➢ Out of 50 marks, 25 for Project Evaluation and 25 for Viva.

- ➢ For awarding a pass, a candidate should have obtained 40% of the Total marks.

15UCA6EA	ELECTIVE -II: CLOUD COMPUTING	SEMESTER - VI

Total Credits : 4
Hours per Week: 6

OBJECTIVES:

1. To Critique the consistency of services deployed from a cloud architecture

2. To manage work and personal schedules, edit digital photos and learn how to use Web-based Applications to collaborate on cloud

3. To Evaluate the deployment of web services from cloud architecture

CONTENTS

UNIT – I

Cloud Computing – History of Cloud Computing – Cloud Architecture – Cloud Storage – Companies in the Cloud Today – Why Cloud Computing Matters – Advantages of Cloud Computing – Disadvantages of Cloud Computing –benefits from Cloud Computing .

UNIT –II

Web-Based Application – Pros and Cons of Cloud Service Development – Types of Cloud Service Development – Software as a Service – Platform as a Service – Web Services – On-Demand Computing – Discovering Cloud Services Development Services and Tools – Amazon EC2– Google App Engine – IBM Clouds.

UNIT- III

Cloud Computing for the Family - Collaborating on Schedules – Collaborating on Group Projects and Events – Cloud Computing for the Corporation.

UNIT – IV

Scheduling   Applications – Exploring Online Planning and Task Management – Collaborating on Event Management – Collaborating on

Contact Management – Collaborating on Project Management – Collaborating on Word Processing - Collaborating on Spread Sheet - Collaborating on Databases – Collaborating on Presentations - Storing and Sharing Files.

UNIT-V

Collaborating via Web-Based Communication Tools – Evaluating Web Mail Services – Evaluating Instant Messaging Services – Evaluating Web Conference Tools – Collaborating via Social Networks and Groupware – Collaborating via Blogs and Wikis.

TEXT BOOK:

1. *Michael Miller*, **Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online**, Que Publishing, 2008.

REFERENCE BOOKS:

1. *Kumar Saurabh*, **Cloud Computing – Insights into New Era Infrastructure,** Wiley Indian Edition, 2011.

2. *Kaittwang Geoffrey C.Fox* and *Jack J Dongrra*, **Distributed and Cloud Computing,** Elsevier, 2012.

3. *Raj Kumar Buyya*, *Christian Vecchiola* and *S.Tanurai Selvi*, **Mastering Cloud Computing ,** TMH, 2013.

| 16UCA6EB | **ELECTIVE -II: SOFTWARE TESTING** | **SEMESTER - VI** |

Total Credits : 4

Hours per Week: 6

OBJECTIVES:

1. To learn the design of test cases.

2. To be familiar with test management and test automation techniques.

3. To expose the test metrics and measurements.

CONTENTS

UNIT - I

Software Development Life Cycle models: Phases of Software project – Quality,Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing – Structural Testing – Challenges in White-Box Testing.

UNIT - II

Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase Testing – Scenario Testing – Defect Bash.

UNIT - III

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing – Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

UNIT - IV

Performance Testing: Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. Regression Testing: What is Regression Testing? – Types of Regression Testing – When to do

Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

UNIT - V

Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. Test Metrics and Measurements: Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.

TEXT BOOK:

1. *Srinivasan Desikan & Gopalswamy Ramesh*, **Software Testing Principles and Practices** , Pearson Education,2006.

REFERENCE BOOK:

1. *Renu Rajani , Pradeep Oak,* **Software Testing - Effective Methods, Tools & Techniques** , Tata McGraw Hill.

15UCA6EC	ELECTIVE -II: COMPUTER GRAPHICS	SEMESTER - VI

Total Credits : 4
Hours per Week: 6

OBJECTIVES:

1. To provide a comprehensive introduction to computer graphics leading to the ability to understand contemporary terminology, progress, issues, and trends.

2. To form Mathematical Knowledge on Graphics and Technical background of 2D and 3D objects

3. To learn computer graphics techniques, focusing on 2D & 3D modeling, image synthesis, and rendering.

CONTENTS

UNIT-I

Output Primitives: Points and Lines – Line-Drawing algorithms – Loading frame Buffer – Line function – Circle-Generating algorithms – Ellipse-generating algorithms. Attributes of Output Primitives: Line Attributes – Curve attributes – Color and Grayscale Levels – Area-fill attributes – Character Attributes.

UNIT-II

2D Geometric Transformations: Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations. 2D Viewing: The Viewing Pipeline – Viewing Co-ordinate Reference Frame – Window-to-Viewport Co-ordinate Transformation - 2D Viewing Functions – Clipping Operations – Point, Line, Polygon, Curve, Text and Exterior clippings.

UNIT-III

3D Concepts: 3D Display Methods – 3D Graphics Packages. 3D Object Representations: Polygon Surfaces – Curved lines and Surfaces – Quadric Surfaces – Super quadrics – Blobby Objects – Spline representations. 3D Geometric Modeling and Transformations: Translation – Rotation – Scaling – Other Transformations – Composite Transformations – 3D Transformation functions.

UNIT-IV

 Visible-Surface Detection Methods: Classification of Visible-Surface algorithms – Back-Face Detection – Depth-Buffer Method – A-Buffer method- Scan-Line Method – Depth- Sorting Method – BSP-Tree Method – Area-Subdivision Method – Octree Methods – Raycasting Methods – Curved surfaces – Wire frame Methods – Visibility-Detection functions.

UNIT-V

Illumination Models: Properties of Light – Standard Primaries ad the Chromaticity Diagram – Intuitive color Concepts – RGB Color Model – YIQ Color Model – CMY Color Model – HSV Color Model – Conversion between HSV and RGB models – Color selection and Applications.

TEXT BOOK:

1. *Donald Hearn& M. Pauline Bake,.* **Computer Graphics**, PHI, 2nd Edition, 2001.

REFERENCE BOOKS:

1. *Willium M. Newman &Robert F. Sproull,.* **Principles Of Interactive Computer Graphics TMH,** 2007.

2. *Krishnamoorthy,N,* **Introduction to Computer Graphics**, TMH ,6th Edition ,2003.

| 15UCA6ED | ELECTIVE -III: DATA MINING | SEMESTER - VI |

Total Credits : 4
Hours per Week: 6

OBJECTIVES:

1. To understand basic concepts, tasks, methods, and techniques in data mining.

2. To provide a comprehensive introduction to techniques in data mining and knowledge discovery.

3. To understanding of the data mining process and issues, learn various techniques for data mining, and apply the techniques in solving data mining problems using data mining tools and systems.

CONTENTS

UNIT-I

Basic Data Mining Tasks – Data Mining Versus Knowledge Discovery in Data Bases – Data Mining Issues – Data Mining Matrices – Social Implications of Data Mining – Data Mining from Data Base Perspective.

UNIT-II

Data Mining Techniques – a Statistical Perspective on data mining – Similarity Measures – Decision Trees – Neural Networks – Genetic Algorithms.

UNIT- III

Classification : Introduction – Statistical – Based Algorithms – Distance Based Algorithms – Decision Tree – Based Algorithms – Neural Network Based Algorithms – Rule Based Algorithms – Combining Techniques.

UNIT-IV

Clustering : Introduction – Similarity and Distance Measures – Outliers – Hierarchical Algorithms . Partitional Algorithms.

UNIT-V

Association Rules: Introduction - Large Item Sets – Basic Algorithms – Parallel & Distributed Algorithms – Comparing Approaches – Incremental Rules – Advanced Association Rules Techniques – Measuring the Quality of Rules.

TEXT BOOK:

1. *Margaret H.Dunbam*, **Data Mining Introductory and Advanced Topics ,***Pearson Education***,** 2003.

REFERENCE BOOK:
1. *Jiawei Han & Micheline Kamber,* **Data Mining Concepts & Techniques,**   Academic Press, 2001.

15UCA6EE	ELECTIVE -III: MOBILE COMPUTING	SEMESTER - VI

Total Credits : 4
Hours per Week: 6

OBJECTIVES:

1. To inculcate knowledge on Mobile Computing.

2. To understanding of mobile technologies and how these technologies are utilized and integrated to meet specific business needs.

3. To understanding of current technologies and architectures that provide the network and communications infrastructure for mobile-enabled enterprise computer systems.

CONTENTS

UNIT-I

Introduction: Mobility of Bits and Bytes –Wireless The Beginning – Mobile Computing – Dialogue Control – Networks – Middleware and Gateways – Application and services- Developing Mobile computer Applications – security in mobile computing – Standards _ Why is it necessary – Standard bodies. MOBILE COMPUTING ARCHITECTURE: History of computers and Internet – Architecture for mobile computing – Three-tier architecture – Design considerations for mobile computing – Mobile computing through Internet – Making exiting applications mobile enabled.

UNIT-II

MOBILE COMPUTING THROUGH TELEPHONY: Evaluation of telephony – Multiple access procedures – Mobile computing through telephone – IVR Application – Voice XML – TAPI.

UNIT-III

EMERGING TECHNOLOGIES: Blue Tooth – RFID – WiMAX – Mobile IP – IPv6 – Java Card. GSM : Global System for mobile communications – GSM Architecture – GSM Entities – Call routing in GSM – PLMN

Interfaces – GSM Addresses and Identifiers – Network Aspects in GSM – GSM Frequency allocations – Authentications and Security-SMS.

UNIT-IV

GPRS – GPRS and packet data network – GPRS network architecture – GPRS network operations – Data services in GPRS – Application for GPRS- Limitations – Billing and Charging. WAP : MMS – GPRS Applications.

UNIT-V

CDMA and 3G: Spread spectrum technology – Is 95 – CDMA vs GSM – Wireless Data – Third generation networks – Applications on 3G WIRELESS LAN: Wireless LAN advantages – IEEE 802.11 standards – Architecture – Mobile in Wireless LAN – Deploying wireless LAN – Mobile adhoc networks and sensor networks – Wireless LAN Security – WiFi vs 3G.

TEXT BOOK:

1. *Asoke K Talukder& Roopa R Yavagal* , **Mobile Computing**, TMH, 2005.

REFERENCE BOOK:

1. *Raj Kamal,* **Mobile Computing Oxford Higher Education**, 2nd Edition, 2007.

15UCA6EF	ELECTIVE -III: DIGITAL IMAGE PROCESSING	SEMESTER - VI

Total Credits : 4

Hours per Week: 6

OBJECTIVES:

1. To study the image fundamentals and mathematical transforms necessary for image processing.
2. To study the image enhancement techniques
3. To study image restoration procedures and image compression procedures.

CONTENTS

UNIT-I

Digital Image Fundamentals:

Introduction – Origins of Digital Image Processing - Fundamental Steps in DIP – Components of an Image Processing System – Elements of Visual Perception - Image Sensing and acquisition – Image Sampling and Quantization- Linear and nonlinear Operations.

UNIT-II

Image enhancement in the Spatial Domain:

Some basic gray level transformations – histogram processing – Enhancement using arithmetic / logic operations – basics of spatial filtering – Smoothing spatial filtering – sharpening spatial filtering – Combining spatial enhancement methods.

UNIT-III
Image restoration:

A model of the image degradation / restoration process – noise models – restoration in the presence of noise only-spatial filtering – periodic noise reduction by frequency domain filtering – linear, position–invariant degradations – estimating the degradation functions – inverse filtering – minimum mean square error(winner) filtering – constrained least square filtering – geometric mean filter – geometric transformations.

UNIT - IV

Image compression:

Fundamentals – image compression models, elements of information theory – error-free compression – lossy compression – image compression standards.

UNIT - V

Image segmentation:

Detection of discontinuities – edge linking and boundary detection – thresholding – region based segmentation – segmentation by morphological watersheds – the use of motion in segmentation.

TEXT BOOK:

1. *Gonzalez, R.C & Woods R.E* ,**Digital Image Processing** , Pearson Education , 2nd Edition. 2002.

REFERENCE BOOKS:
1. *Sid Ahmed*, **Image Processing**, McGraw Hill, New York, 1995.

2. *Milan Sonka & Vaclav Hlavac & Roger Boyle*, **Image processing Analysis and Machine vision**, Thomson Brooks/Cole, Second Edition ,1999.

16UNM34M	NMEC I : ADVANCED EXCEL LAB	SEMESTER - III

Total Credits : 2

No.of hours/Week : 2

CONTENTS

1. Understanding Basic Excel
2. Formatting
3. Working with formulas
4. Working with Functions
5. Data Sorting
6. Advanced Filters
7. Conditional Formatting
8. Managing Windows
9. Data Forms
10. Pivot Tables and Charts

16UNM44M	NMEC II : BASICS OF CLOUD COMPUTING	SEMESTER -IV

Total Credits : 2

No.of hours/Week : 2

OBJECTIVES:

1. To create awareness on Cloud environment

2. To Provide the in depth thinking on Cloud Services

CONTENTS

UNIT – I

Cloud Computing – History of Cloud Computing – Cloud Architecture – Cloud Storage – Companies in the Cloud Today – Why Cloud Computing Matters.

UNIT –II

Advantages of Cloud Computing – Disadvantages of Cloud Computing – Who benefits from Cloud Computing . Web-Based Application – Pros and Cons of Cloud Service Development

UNIT- III

Types of Cloud Service Development – Software as a Service – Platform as a Service – Web Services – On-Demand Computing – Discovering Cloud Services Development Services and Tools – Amazon Ec2 – Google App Engine – IBM Clouds.

UNIT – IV

Scheduling Applications – Exploring Online Planning and Task Management – Collaborating on Event Management - Collaborating on Word Processing - Collaborating on Spread Sheet - Collaborating on Databases – Collaborating on Presentations - Storing and Sharing Files.

UNIT-V

Collaborating via Web-Based Communication Tools – Evaluating Web Mail Services – Evaluating Instant Messaging Services – Evaluating Web

Conference Tools.

TEXT BOOK:

1. *Michael Miller*, **Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online**, Que Publishing, 2008.

REFERENCE BOOKS:

1. *Kumar Saurabh*, **Cloud Computing – Insights into New Era Infrastructure,** Wiley Indian Edition**,** 2011.

2. *Kaittwang Geoffrey C.Fox* and *Jack J Dongrra*, **Distributed and Cloud Computing,** Elsevier ,2012.

3. *Raj Kumar Buyya**,** Christian Vecchiola* and *S.Tanurai Selvi*, **Mastering Cloud Computing** , TMH, 2013.

16UCASS1	SELF STUDY PAPER I: BIG DATA ANALYTICS	SEMESTER III

Total Credit : 1

OBJECTIVES:

1. To explore the fundamental concepts of big data analytics

2. Learn to analyze the big data using intelligent techniques.

3. To understand the applications using Hadoop, Map Reduce Concepts.

CONTENTS

UNIT- I

Introduction to Big Data Platform – Challenges of Conventional Systems - Intelligent data analysis – Nature of Data - Analytic Processes and Tools - Analysis vs. Reporting - Modern Data Analytic Tools - Statistical Concepts: Sampling Distributions - Re-Sampling - Statistical Inference - Prediction Error.

UNIT –II

History of Hadoop- The Hadoop Distributed File System – Components of Hadoop- Analyzing the Data with Hadoop- Scaling Out

UNIT – III

Hadoop Streaming- Design of HDFS-Java interfaces to HDFS- Basics-Developing a Map Reduce Application-How Map Reduce Works

UNIT – IV

Hadoop Environment - Setting up a Hadoop Cluster - Cluster specification - Cluster Setup and Installation - Hadoop Configuration-Security in Hadoop.

UNIT – V

Applications on Big Data Using Pig and Hive – Data processing operators in Pig – Hive services – HiveQL – Querying Data in Hive - fundamentals of HBase and ZooKeeper.

TEXT BOOK:

1. *Michael Berthold, David J. Hand,* **Intelligent Data Analysis**, Springer, 2007.

2. *Tom White,* **Hadoop: The Definitive Guide**, Third Edition, O'reilly Media, 2012.

REFERENCE BOOKS:

1. *Chris Eaton, Dirk DeRoos, Tom Deutsch, George Lapis, Paul Zikopoulo*, **Understanding Big Data: Analytics for Enterprise Class Hadoop and Streaming Data**, McGrawHill Publishing, 2012.

2. *Bill Franks,* **Taming the Big Data Tidal Wave: Finding Opportunities in Huge Data Streams with Advanced Analytics,** John Wiley & Sons, 2012.

16UCASS2	**SELF STUDY PAPER II : SOFT SKILLS**	**SEMESTER III**

Total Credit : 1

OBJECTIVES:

1. To develop effective communication skills.

2. To develop effective presentation skills.

3. To become self-confident individuals by mastering inter-personal skills, team management skills, and leadership skills.

UNIT - I

Nature of technical communication : Stages of communication – Channels of communication – Nature of technical communication – Importance and need for technical communication –Technical communication skills.

UNIT - II

The Listening process : Types of listening – Listening with a purpose – Barriers to listening – The speech process – Conversion and oral skills – Body language.

UNIT - III

Job interviews : Pre –interview preparation techniques – Interview questions – Answering strategies – Frequently asked interview questions – Projecting a positive image – Alternative interview Formats.

UNIT - IV

Group Discussion : Nature of group discussion – Characteristics of successful group discussions – Selection group discussion – Group

Dr.N.G.P Arts and Science College (Autonomous)

discussion strategies – Techniques for individual contribution Group interaction strategies.

UNIT - V

Presentation Skills : Planning the presentation – Preparing the Presentation – Organizing your presentation – Rehearsing the presentation – Improving delivery

TEXT BOOK:

1. *M. Ashraf Rizvi,* **Effective Technical Communication**, Tata McGraw Hill Publishing Company Limited, New Delhi.

Dr.N.G.P Arts and Science College (Autonomous)