ETHIRAJ COLLEGE FOR WOMEN[AUTONOMOUS]
CHENNAI – 600 008

BACHELOR OF COMPUTER APPLICATIONS
(Self-Supporting)

Syllabus to be effective from 2015-2016

ETHIRAJ COLLEGE FOR WOMEN
(AUTONOMOUS)
BACHELOR DEGREE COURSE –UNDER THE FACULTY OF COMPUTER APPLICATIONS
CHOICE BASED CREDIT BASED [CBCS]
(Effective from the academic year 2015 – 2016)

INTRODUCTION

Ethiraj College for Women has introduced choice based credit system of education. Each academic year is divided into two semesters. Each semester will have a minimum of 90 working days and each day will have five working hours.Teaching is organized into modular pattern of credit courses. Credit is normally related to the number of hours a teacher teaches a particular subject. It is also related to the number of hours a student spends learning a subject or carrying out an activity.

PREAMBLE

The objectives of the Programme shall be to provide sound academic base from which an advanced career in Computer Application can be developed. Conceptual grounding in computer usage as well as its practical business application will be provided

REGULATIONS

ELIGIBILITY OF ADMISSION

Candidates for admission for the first year of the degree of Bachelor of Computer Applications course, shall be required to have passed the Higher Secondary Examinations(Academic or Vocational stream) conducted by the Govt. of Tamil Nadu or an Examination accepted as equivalent thereto by the Syndicate of the University of Madras. The Candidate should have Mathematics/Business Mathematics as one of the subjects with or without Computer Science in Higher Secondary Examinations.

ELIGIBILITY FOR THE AWARD OF THE DEGREE

A candidate shall be eligible for the award of the Degree only if she has undergone the prescribed course of study in the College for a period of not less than three academic years, passed the Examination of all the six semesters prescribed.

COURSE OF STUDY

The main subject for the Bachelor Degree shall consist of the following:

PART I	: Foundation Course - Languages
PART II	: Foundation Course – English
PART III	: Major and Allied Subjects
PART IV	: Skill Based Subjects and Non-Major Electives

Duration

Each academic year is divided into two semesters. The first academic year shall comprise the first and second semesters, the second academic year the third and fourth semesters and the third academic year the fifth and sixth semesters respectively. The odd semesters shall consist of the period from June to November of each year and the even semesters from December to April of each year. There shall not be less than 450 hours / 90 days for each semester and each day will have five working hours.

Medium of Instruction

The Medium of Instruction and Examination (Written and Viva) shall be in English

PASSING MINIMUM

A candidate shall be declared to have passed in each paper/practical of the main subject of study wherever prescribed, if she secured NOT LESS than 40/100 in the Examination. She shall be declared to have passed the whole examination, if she passes in all papers and practical wherever prescribed as per scheme of examination.

CLASSIFICATION OF SUCCESSFUL CANDIDATES

I Class, II Class, III Class.

COURSE PROFILE

COURSE CODE	**COURSE TITLE Language/ English/ Allied/ Skill based/ NME**	**CR**	**L**	**T**	**P**	**MARKS**		
						CA	**End Semester**	**TOT**
	SEMESTER – I							
Part I	Language	3	2	3	-	40	60	100
Part II	English	3	2	3	-	40	60	100
CA15/1C/PIC	Part III: Programming in C	5	4	3	-	40	60	100
MA15/1A/SNM	Allied : Statistics	5	5	1	-	40	60	100
CA15/1C/PR1	Practical I : C Laboratory	2	-	-	3	40	60	100
Part IV	1a/1b/1c	2	-	-	2	-	50	50
	Soft skill	3	2	-	-	-	50	50
	SEMESTER – II							
Part I	Language	3	2	3	-	40	60	100
Part II	English	3	2	3	-	40	60	100
CA15/2C/DLM	Part III : Digital logic fundamentals and Microprocessor	5	4	3	-	40	60	100
MA15/2A/ORT	Allied : Operations Research	5	5	1	-	40	60	100
CA15/2C/PR2	Practical II : Microprocessor Laboratory	2	-	-	3	40	60	100
Part IV	1a/1b/1c	2	-	-	2	-	50	50
	Soft Skill	3	2	-	-	-	50	50
	SEMESTER – III							
CA15/3C/DSA	Data structures and Algorithms	3	3	1	-	40	60	100
CA15/3C/PCP	Programming in C++	3	3	1	-	40	60	100
CA15/3C/CGS	Computer Graphics	3	3	1	-	40	60	100
CA15/3A/CFA	Allied : Financial Accounting	5	5	1	-	40	60	100
CA15/3C/PR3	Practical III : C++ Laboratory	3	-	-	5	40	60	100
CA15/3C/PR4	Practical IV : Computer graphics using ‘C’	2	-	-	3	40	60	100
Part IV	Soft skill	3	2	-	-	-	50	50
	Environmental Studies	2	2	-	-	-	50	50

	SEMESTER – IV							
CA15/4C/ROP	RDBMS &ORACLE Programming	3	3	1	-	40	60	100
CA15/4C/PJP	Programming in Java	3	3	1	-	40	60	100
CA15/4C/COS	Operating System	3	3	1	-	40	60	100
CA15/4A/CMA	Allied : Management Accounting	5	5	1	-	40	60	100
CA15/4C/PR5	Practical V : Java Laboratory	2	-	-	3	40	60	100
CA15/4C/PR6	Practical VI : ORACLE Laboratory	3	-	-	5	40	60	100
Part IV	Soft Skill	3	2	-	-	-	50	50
	Value Based Education	2	2	-	-	-	50	50
	SEMESTER – V							
CA15/5C/DNT	DotNet Technologies	4	3	2	-	40	60	100
CA15/5C/SFE	Software Engineering	4	3	2	-	40	60	100
CA15/5C/WEB	Web Technology	4	3	2	-	40	60	100
CA15/5C/CDM	Data mining	4	3	2	-	40	60	100
CA15/5C/PO1	Term Paper and Seminar	4	-	-	5	40	60	100
CA15/5C/PR7	Practical VII : Web and .Net laboratory	4	-	-	5	40	60	100
	SEMESTER – VI							
CA15/6C/DCN	Data Communication and networks	4	3	2	-	40	60	100
CA15/6C/CTS	Computing Technologies	4	3	2	-	40	60	100
CA15/6C/CSS	System Software	4	3	2	-			
CA15/6C/MMC	Multimedia	4	3	2	-	40	60	100
CA15/6C/PO2	Mini Project	4	-	-	5	40	60	100
CA15/6C/PR8	Practical VIII : Multimedia Lab	4	-	-	5	40	60	100
Part V	NCC/NSS/Yoga/Sports/RRC/ROC/CSS/CC	----------				------	------	-------
	TOTAL	140						

TEMPLATE FOR EVALUATION PATTERN

Theory

Continuous Assessment				
Test I (2hrs)	Test II (2hrs)	Quiz	Participatory Learning	Total
10	10	10	10	40

Practical

Continuous Assessment				
Test I (2hrs)	Test II (2hrs)	Record work	Participatory Learning	Total
10	10	10	10	40

RUBRICS FOR CONTINUOUS EVALUATION

Quiz Understanding Concept/ Logical Sequence/ Answer

Record work Preliminary work/ Content/ Neatness

NON-MAJOR ELECTIVE SUBJECTS (NME 1c)

SEM	COURSE CODE	COURSE TITLE	HRS/WK L T P	CREDITS	END SEM MARKS	PAGE NO.
I	CA15/1S/COA	Office Automation	2 [0-0-2]	2	50	
II	CA15/2S/WWH	World Wide Web design with HTML	2 [0-0-2]	2	50	

SYLLABUS

SEMESTER I

Subject : Core – Programming in C

Subject code : CA15/1C/PIC

Teaching hours : 105 hrs. **Credits: 5 L T P : 4-3-0**

Objective :

- To make the students gain knowledge about a programming language.
- To make the student develop their own applications.

Course Outline :

Unit I :

Introduction: Programming Languages: Overview - Requisites of a good programming language – Good programming practices – Efficiency of programming – Basic coding structures – Constituents of programming language – Classification of Languages. Flowcharting Techniques: Introduction to algorithms and flowchart – definition of flowchart – Examples. (20 hrs)

Unit - II :

C fundamentals- Character set – identifier and key-words – data types – constants variables – declarations – Expressions- statements – Arithmetic, unary, relational and logical, assignment, bitwise, comma and conditional operators – library functions. Data input/output functions – simple C programs. (20 hrs)

Unit III :

Control structures – flow of control – conditional branching – if, if.. else , while , for, do.. while, switch , break , continue, unconditional branching – go to statement. Functions – defining , accessing functions – functions prototypes – passing arguments – recursions – storage classes – multi file programs. (20 hrs)

Unit - IV :

Arrays – defining and processing – passing arrays to functions – multi dimensional arrays – arrays and string – structures – passing structures to functions – self-referential structures – unions. (20 hrs)

Unit - V :

Pointers – declarations – passing pointers to functions – operations in pointers – pointer and arrays – arrays of pointers – structures and pointers . Files : creating , processing , opening and closing. (25 hrs)

Books Recommended:

1. Ananathi Sheshasaayee & Sheshaasaayee, Computer Applications in Businesss and Management, Margham Publications, 7th edition 2009.

2. E.Balaguruswamy, Programming in ANSI C , 5th edition 2010, Tata Mcgraw hill publications

Books for Reference :

1.Yashavant Kanetkar, Pointers in C, BPB Pub., Fourth edition 2009,New delhi.

2. Gottfried B.S., Programming with C, Second edition, TMH Pub. Co. Ltd., New Delhi,1996.

Online Sources:

1. www.techbooksforfree.com
2. www.publications.gbdirect.co.uk

QUESTION PAPER TEMPLATE

Time	: 3 Hours	
Maximum Marks	: 100	
SECTION A (10 X 2 = 20)	:	Answer ALL 10 questions. [at least two from each unit]
SECTION B (5 X 8 = 40)	:	Answer any 5 questions out of 7 questions [at least one from each unit]
SECTION C (2 X 20 = 40)	:	Answer any 2 questions out of 4 questions [Not more than one from each unit]

SEMESTER : I

Subject : Practical 2 – 'C' laboratory

Subject code : CA15/1C/PR1

Teaching hours : 45 hrs. **Credits: 2 L T P : 0-0-3**

1. Control statements
2. Functions
3. Arrays and structures
4. Pointers
5. File handling

[Two to three problems under each heading]

PRACTICAL QUESTION PAPER PATTERN :

Time : 3 Hours
Maximum Marks : 60
The External Examiner will prepare the questions on the spot with the help of the question bank.

SEMESTER : II

Subject : Core – DIGITAL LOGIC FUNDAMENTALS AND MICROPROCESSOR

Subject code : CA15/2C/DLM

Teaching hours : 105 hrs. **Credits: 5 L T P : 4-3-0**

Objective:

- **To make the students gain knowledge about hardware components**
- **To make the student develop microprocessor applications**
- **To make the student understand about various digital circuits.**

Course Outline :

Unit – I

Digital Systems and Binary Numbers: Binary Numbers – Number – base Conversions- Octal and Hexadecimal Numbers – Complements – Binary Codes. Boolean Algebra and Logic Gates : Basic Definitions-Axioms – Basic Theorems and Properties of Boolean Algebra- Canonical and Standard Forms –Map Method (upto 4 variable map) – Don't Care Condition.

(20 hrs)

Unit – II

Combinational Circuits: Binary Adder/Subtractor–Decoders- Encoders – Multiplexers –Demultiplexers- Sequential Circuits: Flip Flops –RS, JK, D,T flip flops-Shift Registers-Ripple Counters-Memory and Programmable Logic : Programmable Logic Array (PLA) – Programmable Array Logic (PAL)

(20 hrs)

Unit – III

Microprocessor Architecture and its Operations-The 8085 MPU –Introduction to 8085 Instructions: Data Transfer Operations – Arithmetic Operations – Logic Operations – Branch Operations –Programming Techniques : Looping, Counting and Indexing- Additional Data transfer, Arithmetic and Logic Operations – Dynamic Debugging.

(20 hrs)

Unit – IV

Counters and Time delays –Hexadecimal Counter - Modulo Ten Counter – Debugging counter and Time-delay programs –Stack-Restart, Conditional Call and Return Instructions.

(20 hrs)

Unit –V

Assembly language programs: BCD to Binary Conversion – Binary to BCD Conversion – BCD to Seven Segment LED Code Conversion – Binary to ASCII and ASCII to Binary Code Conversion – BCD Addition – BCD Subtraction – Multiplication – Subtraction with carry. The 8085 Interrupt – DMA

(25 hrs)

Books Recommended:

1. Digital Design – Fourth Edition, By M.Morris Mano and Michael D.Ciletti, Pearson Publications,2006.

2. Microprocessor Architecture, Programming, and Applications with the 8085,Fifth Edition

   by Ramesh Gaonkar, Penram International Publishing (India) Private Limited,2010.

Books for Reference:

1. A. Mathur, 'Introduction to Microprocessor', Third Edition, Tata McGraw-Hill Publishing Co. Ltd., 1993.
2. T.C.Bartee, Digital Computer Fundamentals, 6th edition Tata Mc Graw Hill,1985.
3. John .M Yarbrough, Digital Logic Applications and Design, Thomson-
   Vikas publishing house, New Delhi, 2002.

Online Sources:

1. www.asic-world.com
2. www.electronics-tutorials.ws
3. www.piclist.com

QUESTION PAPER TEMPLATE

Time	: 3 Hours	
Maximum Marks	: 100	
SECTION A (10 X 2 = 20)	:	Answer ALL 10 questions [at least two from each unit]
SECTION B (5 X 8 = 40)	:	Answer 5 questions out of 7 questions [at least one from each unit]
SECTION C (2 X 20 = 40)	:	Answer any 2 questions out 4 of questions [Not more than one from each unit]

SEMESTER : II

Subject : Practical II : Microprocessor laboratory

Subject code : CA15/2C/PR2

Teaching hours : 45 hrs. **Credits: 2 L T P : 0-0-3**

I: Addition and Subtraction

1. 8-bit addition.
2. 16 - bit addition.
3. 8 - bit subtraction.
4. BCD subtraction.

II: Multiplication and Division

1. 8 - bit multiplication.
2. BCD multiplication.
3. 8-bit division.

III: Sorting and Searching

1. Searching for an element in an array.
2. Sorting in Ascending order.
3. Finding largest and smallest elements from an array.
4. Reversing array elements.
5. Block move.
6. Sorting in descending order.

IV: Code Conversion

1. Binary to ASCII and ASCII to binary.
2. ASCII to BCD and BCD to ASCII.

V : Subroutines

1. Factorial of a given 8 bit number
2. Square of a given 8 bit number

PRACTICAL QUESTION PAPER TEMPLATE:

Time : 3 Hours
Maximum Marks : 60
The External Examiner will prepare the questions on the spot with the help of the question bank.

SEMESTER: III

Subject: Data Structures and Algorithms

Subject code: CA15/3C/DSA

Teaching Hours: 60 hrs. **Credits: 3 LTP: 3-1-0**

Objective:

The objective of the course is to familiarize students with basic data structures and their use in fundamental algorithms

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Course Outline:

UNIT I:

Definition of a Data structure - primitive and composite Data Types. Arrays: Linear array, Representation of linear array in memory-Traversing linear array-Insertion and Deletion. (10 hrs).

Unit II:

Linked Lists: Representation of Linked lists in memory-Traversing a Linked List-Searching a Linked List -Insertion into a Linked List-Deletion from a Linked List-Application: Polynomial Addition. Doubly Linked List: Insertion and Deletion. (10hrs)

Unit III:

Stacks: Representation of Stacks Using Array –Push and Pop Operations-Applications: Infix to Postfix Conversion, Evaluation of Postfix expression, Recursion. Queues: Representation of Queues-Enqueue and Dequeue Operation. (10 hrs)

Unit IV:

Trees: Introduction-Binary Trees-Representing Binary Trees in Memory-Traversing Binary Tree. Graph: Representations of Graph- Traversing: BFS and DFS-Shortest Path Algorithm: Dijkstra's Algorithm. (15 hrs)

Unit V:

Algorithms-Introduction-performance analysis-time complexity-space complexity-Asymptotic notation technique of algorithms-Linear Search-divide and conquer-Binary Search-greedy method-knapsack problem-dynamic programming-Travelling salesman problem-back tracking algorithms-eight queens problem-branch and bound-quick sort (15 hrs)

Recommended Text book :

1. Seymour Lipschutz,Data Structures- Mc Graw Hill Edition.
2. Sartaj Sahni(2005) Data Structures,Algorithms and Applications in Java University Press

Books for Reference :

1. E.Horowitz and S.Shani Fundamentals of Data structures in C++,Galgotia Pub 1999.
2. Horowitz S.Shani, and S.Rajasekaran, Computer Alogrithms, Galgotia Pub.Pvt.Ltd.
3. A CHITRA and P T RAJAN,Data Structures,Vijay Nicoles Pvt Ltd.
4. Jean-Paul Tremblay, Paul G. Sorenson (2000) An introduction to Data Structures with applications TMH

Websites and E-learning Sources :

www.tutorialspoint.com/data_structures_algorithms/index.htm
http://www.elearningsites.net/
http://elearning.vtu.ac.in/

QUESTION PAPER TEMPLATE:

Time : 3 Hours
Maximum Marks : 100

SECTION A (10 X 2 = 20): Answer all 10 questions
[At least two from each unit]

SECTION B (5 X 8 = 40): Answer 5 questions out of 7 questions
[At least one from each unit]

SECTION C (2 X 20 = 40): Answer any 2 questions out of 4 questions
[Not more than one from each unit]

SEMESTER : III

Subject : Core – Programming in C++

Subject code : CA15/3C/PCP

Teaching hours : 60 hrs. **Credits: 3** **L T P : 3-1-0**

Objective:

To inculcate knowledge on Object-oriented programming concepts using C++.

Course Outline:

Unit - I

Principles of Object Oriented Programming (OOP) - Software Evaluation - OOP Paradigm - Basic Concepts of OOP - Benefits of OOP - Application of OOP. (10 hrs.)

Unit - II

Introduction to C++ - Tokens - Keywords - Identifiers - Variables - Operators - Manipulators - Expressions and Control Structures - Pointers - Functions - Function Prototyping- Parameters Passing in Functions - Values Return by Functions - Inline Functions - Friend and Virtual Functions. (15 hrs.)

Unit - III

Classes and Objects - Constructors and Destructors - Operator overloading - Type Conversions - Type of Constructors - Function Overloading. (15 hrs.)

Unit - IV

Inheritance - Types of Inheritance - Virtual Functions and Polymorphism Constructors in inheritance - Mapping Console I/O operations. (10 hrs.)

Unit - V

Files - File Streams - File operations - File pointer - Error Handling during file operations - Command line arguments. (10 hrs.)

Books Recommended :

1. E. Balagurusamy - Object Oriented Programming with C++ - TMH.

Books for Reference :

1. Robert Lafore - Object Oriented Programming in Microsoft C++ - Galgotia.

Online Sources :

1. www.cplusplus.com
2. www.learncpp.com
3. www.cs.wustl.edu
4. www.codersource.net

QUESTION PAPER TEMPLATE:

Time : 3 Hours
Maximum Marks : 100
SECTION A (10 X 2 = 20): Answer all 10 questions
[At least two from each unit]
SECTION B (5 X 8 = 40) : Answer 5 questions out of 7 questions
[At least one from each unit]
SECTION C (2 X 20 = 40) : Answer any 2 questions out of 4 questions
[Not more than one from each unit]

SEMESTER: III

Subject: Core – Computer Graphics

Subject code: CA15/3C/CGS

Teaching hours: 60 hrs. **Credits: 3 L T P: 3-1-0**

Objectives:

• To study the graphics techniques and algorithms.
• To enable the students To develop their creativity

Course Outline:

Unit - I:

Introduction to computer Graphics - Video display devices- Raster scan Systems -Random Scan Systems - Interactive input devices - Hard copy devices - Graphics software - Output primitives - line drawing algorithms - initializing lines - line function - circle Generating algorithms. [10 hrs]

Unit - II

Attributes of output Primitives - line attributes - Color and Grayscale style - Area filling algorithms - Character attributes inquiry functions - Two dimensional transformation - Basic transformation - Composite transformation - Matrix representation - other transformations. [15 hrs]

Unit - III

Two - dimensional viewing - window- to view port co-ordinate transformation - clipping algorithms - Interactive input methods - Physical input devices - logical classification of input devices - interactive picture construction methods. [10 hrs]

Unit - IV

Three - dimensional concepts - Three dimensional display methods - parallel Projection - Perspective Projection - Depth Cueing - Visible line and surface identification - Three dimensional transformation.

[15 hrs]

Unit - V

Three dimensional viewing - Projection - Viewing transformation - implementation of viewing operations - Hidden surface and Hidden line removal - backface removals. [10 hrs]

Books Recommended:

1. D.Hearn and M.P.Baker - Computer Graphics - Prentice Hall of India - 1997.

Books for Reference :

1. W.M. Newman and RF.Sproull - Principles of Interactive Computer Graphics - McGraw Hill International Edition - 1979.

ONLINE SOURCES:

1. http://www.tutorialspoint.com/computer_graphics/
2. http://www.ddegjust.ac.in/
3. www.rw-designer.com

QUESTION PAPER TEMPLATE:

Time : 3 Hours
Maximum Marks : 100
SECTION A (10 X 2 = 20): Answer all 10 questions
[At least two from each unit]
SECTION B (5 X 8 = 40) : Answer 5 questions out of 7 questions
[At least one from each unit]
SECTION C (2 X 20 = 40) : Answer any 2 questions out of 4 questions
[Not more than one from each unit]

SEMESTER : III

Subject : Allied – Financial Accounting

Subject code : CA15/3A/CFA

Teaching hours : 90 hrs. **Credits: 5 L T P : 5-1-0**

Objective:

To inculcate basic accounting knowledge.

Major Topics covered in the course :

Unit - I:

Introduction to Accounting: Definition - Attributes and Steps of Accounting -Objectives, Advantages and Limitations - Groups interested in Accounting Information - Branches of Accounting - Methods of Accounting - Types of Accounts-Accounting Rules. Basic Accounting Concepts and Conventions - Accounting Equation. [15 hours]

Unit - II:

Journal – Transaction analysis for Journal Entries – Ledger – Account – Posting of Journal to Ledger – Balancing of Ledger Accounts – Cash Book – Simple Cash book – Two column cash book with cash and discount columns – Two column cash book with bank and discount columns – Three column cash book. [15 hours]

Unit - III :

Trial balance – Rectification of Errors – Suspense Account – Bank Reconciliation Statement. [20 hours]

Unit IV:

Final Accounts: Trading Account – Profit and Loss Account – Balance Sheet – Adjustments. [20 hours]

Unit - V:

Depreciation Accounting: Meaning – Characteristics – Causes – Methods of recording Depreciation – Methods of providing depreciation – Fixed percentage on original cost – Fixed percentage on diminishing balance (including change in the method of depreciation). [20 hours]

Books Recommended:

1. T.S. Reddy, A. Murthy Financial Accounting, Margham Publications.

Books for Reference :

1. Gupta R.L. Advanced Accountancy, S.Chand, Delhi.
2. Agarwala A. N. Higher Science of Accountancy, Kitab Mahal,Allahabad.
3. S.P. Jain, and K.L. Narang, Financial Accounting.
4. MC.Shukla and T.S.Grawel, Adavnced Accounts(VoL I).
5. Gillespie Accounting system, Procedure & methods, Prentice Hall India Ltd.,

Online Sources :

1. www.middlecity.com
2. www.almaris.com
3. www.dwmbeancountes.com

QUESTION PAPER TEMPLATE

Time	: 3 Hours	
Maximum Marks	: 100	
SECTION A (10 X 2 = 20)	:	Answer ALL 10 questions. [at least two from each unit]
SECTION B (5 X 8 = 40)	:	Answer any 5 questions out of 7 questions [at least one from each unit]
SECTION C (2 X 20 = 40)	:	Answer any 2 questions out of 4 questions [Not more than one from each unit]

SEMESTER : III

Subject : Practical III – C++ Laboratory

Subject code : CA15/3C/PR3

Teaching hours : 75 hrs. **Credits: 3 L T P : 0-0-5**

1.Objects, classes.

2. Inheritance, Polymorphism.

3. Operator overloading.

4. Data type conversion.

5. Constructors, Pointers.

6. Virtual functions.

7. Friend Functions.

8. STACK implementation

9. QUEUE implementation

10. SINGLY LINKED LIST implementation

11. DOUBLY LINKED LIST implementation

12. TREE TRAVERSAL implementation

PRACTICAL QUESTION PAPER PATTERN :

Time : 3 Hours

Maximum Marks :60

The External Examiner will prepare the questions on the spot with the help of the question bank.

SEMESTER: III

SUBJECT: Practical IV

Computer Graphics using 'C'

SUBJECT CODE : CA15/3C/PR4

Teaching Hours: 45 hrs. **Credits: 2 L T P: 0-0-3**

1. Implementation of Bresenhams Algorithm – Line, Circle.
2. Two Dimensional transformations - Translation, Rotation, Scaling, Reflection
3. Composite 2D Transformations
4. Cohen Sutherland 2D line clipping.
5. Three dimensional transformations - Translation, Rotation, Scaling
6. Composite 3D transformations
7. Drawing an Image using Geometric Function.

PRACTICAL QUESTION PAPER TEMPLATE:

Time : 3 Hours
Maximum Marks : 60
The External Examiner will prepare the questions on the spot with the help of the question bank.

SEMESTER : IV

Subject : Core – RDBMS & ORACLE Programming

Subject code : CA15/4C/ROP

Teaching hours : 60 hrs. **Credits: 3 L T P : 3-1-0**

Objective:

To inculcate knowledge on RDBMS concepts and ORACLE.

Course outline :

Unit I:

Database Concepts: A Relational approach: Database – Relationships – DBMS – Relational Data Model – Integrity Rules. **Database Design: Data Modeling and Normalization**: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams (10 hrs.)

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 - 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. (15 hrs.)

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. (15 hrs.)

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 – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions. (10 hrs.)

Unit-V:

PL/SQL Composite Data Types: Records – Tables – arrays. **Named Blocks**: Procedures – Functions – Packages –Triggers –Data Dictionary Views. (10 hrs.)

Books Recommended:

1. **Database Systems Using ORACLE – Nilesh Shah,** 2nd edition, PHI.
2. **Database Management systems – Arun Majumdar & Pritimoy Bhattacharya**, 2007, TMH.

Book for Reference :

1. **Database Managememt System – Gerald V. Post,** 3rd edition, TMH

Online Sources:

1. www.smart-soft.co.uk
2. www.more-database.blogspot.com
3. www.oracle-dba-online.com

QUESTION PAPER TEMPLATE

Time	: 3 Hours	
Maximum Marks	: 100	
SECTION A (10 X 2 = 20)	:	Answer ALL 10 questions [at least two from each unit]
SECTION B (5 X 8 = 40)	:	Answer 5 questions out of 7 questions [at least one from each unit]
SECTION C (2 X 20 = 40)	:	Answer any 2 questions out 4 of questions [Not more than one from each unit]

SEMESTER: IV

Subject : Core – Programming in Java

Subject code : CA15/4C/PJP

Teaching hours : 60 hrs. **Credits: 3 L T P : 3-1-0**

Objective:

To inculcate knowledge on Java Programming concepts.

Course Outline:

Unit-I:

Introduction - Role of JAVA in Internet - Features - Overview of Java - Data Types, Variables, Arrays

[10 Hrs]

Unit-II:

Operators - Control statements – Classes, Methods – Inheritance – Packages and Interfaces

[10 Hrs]

Unit-III:

Exception Handling - Multithreaded Programming - String Handling – Wrapper Classes

[10 Hrs]

Unit-IV:

I/O Basics - Stream Classes – Byte Stream – Character Stream – Reading Console Input – Writing Console Output – PrintWriter Class – Reading and writing Files

[15 Hrs]

Unit-V:

The Applet Class – Event Handling - Java Beans – Advantages – Bean Developer Kit – JAR Files – Developing Simple Bean – JAVA Swing

[15 Hrs]

Books Recommended:

1. The Complete Reference JAVA 2 - Hebert Schildt, 5th Edition, TMH

Books for Reference :

1. Programming with JAVA – A Primer - E. Balagurusamy, 3rd Edition, TMH.
2. Programming With JAVA – John R. Hubbard, 2nd Edition, TMH.

ONLINE SOURCES :

1. www.freejavaguide.com
2. www.java2s.com
3. www.javaprepare.com

QUESTION PAPER TEMPLATE:

Time	:	3 Hours
Maximum Marks	:	100
SECTION A (10 X 2 = 20)	:	Answer 10 questions out of 12 questions [at least two from each unit]
SECTION B (5 X 8 = 40)	:	Answer 5 questions out of 7 questions [at least one from each unit]
SECTION C (2 X 20 = 40)	:	Answer any 2 questions out of 4 questions [Not more than one from each unit]

SEMESTER : IV

Subject : Core – OPERATING SYSTEM

Subject code : CA15/4C/COS

Teaching Hours : 60 Hrs **Credits : 3 L T P : 3 - 1 - 0**

Unit I

Introduction: Views- Goals - Types of System- OS Structure - Components – Services. Process Concept – Process Scheduling – Operation on Processes – Cooperating Processes – Inter process Communication – Basic Concepts of CPU Scheduling – Scheduling Criteria – Scheduling Algorithms. (15 hrs)

Unit II

Process Synchronization – The Critical Section Problem – Synchronization Hardware – Semaphores – Classic Problems of Synchronization – Deadlock Characterization – Methods for handling deadlocks- Deadlock Prevention – Deadlock Avoidance –Deadlock Detection – Recovery from deadlock (15 hrs)

Unit III

Memory Management: Address Binding – Dynamic Loading and Linking – Overlays –Logical and Physical Address Space – Contiguous Allocation - Internal and External Fragmentation. Non –Contiguous Allocation: Paging and Segmentation Schemes – Implementation –Hardware –Protection – Sharing – Fragmentation. (15 hrs)

Unit IV

Introduction to Virtual Memory – Demand Paging – Process Creation – Page Replacement – Allocation of Frames – Thrashing. (15 hrs)

Unit V

File-System Structure – File-System Implementation – Directory Implementation – Allocation Methods – Free-Space Management – Efficiency and Performance – Recovery – Log-Structured File System - Disk Structure – Disk Scheduling –Disk Management – Swap- space Management (15 hrs)

Books Recommended:

1. Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, O*perating System Concepts*, Sixth Edition, John Wiley and Sons, 2002. (Chapters 1-14)

Books for Reference:

1. Stallings , Operating system , Pearson education , edition 4 ,2001
2. Godbole Kahate , Operating system , Tata Mc Graw hill , 2004

Online sources:

1. www.techbooksforfree.com
2. www.tutorialspoint.com

QUESTION PAPER TEMPLATE

Time	: 3 Hours	
Maximum Marks	: 100	
SECTION A (10 X 2 = 20)	:	Answer ALL 10 questions. [at least two from each unit]
SECTION B (5 X 8 = 40)	:	Answer any 5 questions out of 7 questions [at least one from each unit]
SECTION C (2 X 20 = 40)	:	Answer any 2 questions out of 4 questions [Not more than one from each unit]

SEMESTER : IV

Subject : Allied – Management Accounting

Subject code : CA15/4A/CMA

Teaching hours : 90 hrs. **Credits: 5 L T P : 5-1-0**

Objective:

To impart education to students about the principles and practices followed in the field of management accounting. To familiarize students with tools and skills of decision making in management accounts for efficient management

Major Topics covered in the course :

Unit I :

Management accounting – Meaning, Scope, Importance and Limitations – Management accounting Vs Cost accounting – Management accounting vs. Financial accounting. [15 hours]

Unit II :

Funds flow and Cash flow statements as per AS3. [20 hours]

Unit III :

Ratio analysis – Advantages and Disadvantages - Classification of ratios: Profitability, Turnover, Coverage and Financial –DU PONT Control Chart (Theory). [20 hours]

Unit IV :

Budgets and budgetary control – Meaning – Advantages – Limitations – Installation of Budgetary control system – Classification of Budgets based in time, functions and flexibility-Sales budget, Production budget, Cost of Production budget, Cash budget and Flexible budget. (Simple problems only) [20 hours]

Unit V :

Standard costing and Variance analysis – meaning of Standard cost – significance of variance analysis – analysis of cost variances – material , labour variances. [15 hours]

Books Recommended:

1. Dr.S.N.Maheswari , Management accounting , Sultan Chand & Sons, New Delhi,2005

Books for Reference :

2. Sumit Jain , Management accounting, Taxman publications , New Delhi,2008
3. Reddy,Murthy,Management accounting , Margam publications,Chennai,2005
4. Robert Anthony: Management Accounting: Text and cases.

Online Sources :

1. www.acccountinglearner.com
2. www.managementhelp.org
3. www.wannalear.com

QUESTION PAPER TEMPLATE

Time	: 3 Hours	
Maximum Marks	: 100	
SECTION A (10 X 2 = 20)	:	Answer ALL 10 questions. [at least two from each unit]
SECTION B (5 X 8 = 40)	:	Answer any 5 questions out of 7 questions [at least one from each unit]
SECTION C (2 X 20 = 40)	:	Answer any 2 questions out of 4 questions [Not more than one from each unit]

SEMESTER : IV

Subject : Practical V – Java Laboratory.

Subject code : CA15/4C/PR5

Teaching hours : 45 hrs. **Credits: 2 L T P : 0-0-3**

1. Classes and objects
2. Arrays
3. Vectors
4. Thread
5. Exception handling
6. Inheritance
7. Interfaces
8. Packages
9. Applet Program
10. Event Handling
11. File Handling
12. Java Beans Components
13. Swing Components

PRACTICAL QUESTION PAPER TEMPLATE :

Time : 3 Hours
Maximum Marks : 60
The External Examiner will prepare the questions on the spot with the help of the question bank supplied by the Controller's Office.

SEMESTER : IV

Subject : Practical VI– ORACLE Laboratory

Subject code : CA15/4C/PR6

Teaching hours : 75 hrs. **Credits: 3 L T P : 0-0-5**

SQL Queries

1. Implementation of queries for student database
2. Implementation of queries for employee database
3. Implementation of queries for route database
4. Implementation of queries for employee and department database
5. Implementation of procedure and functions
6. Report creation

PL/SQL

1. Factorial of number
2. Checking whether a number is prime or not
3. Fibonacci series
4. Reversing the string
5. Swapping of two numbers
6. Odd or even number
7. Duplication of records

PRACTICAL QUESTION PAPER TEMPLATE :

Time : 3 Hours
Maximum Marks :60
The External Examiner will prepare the questions on the spot with the help of the question bank.

SEMESTER : V

Subject : Core – Dot Net Technologies

Subject code : CA15/5C/DNT

Teaching hours : 75 hrs. **Credits: 4. L T P : 3-2-0**

Objective:

To inculcate knowledge on Dot Net Programming concepts.

Course Outline:

Unit - I

The Visual Basic .NET Development Environment – Elements of VB.NET – Lexical Elements – Preprocessing Directives – General Concepts – Option, Imports, Namespace Directives – Types – Type Members – Statements and Blocks – Expressions – VB.NET Operators – Conditional Structures and Control flow [15 Hrs]

Unit - II

Interfacing with End User – Windows Forms – MDI Applications – Components and Controls – Menus and Toolbars – Responding to User Input – Collecting User Input – Presentation and Informational Controls – Drag and Drop [15 Hrs]

Unit - III

ASP.NET Language Structure – HTML Server Controls – Basic Web Server Controls – Data List Web Server Controls – Other Web Server Controls [15 Hrs]

Unit - IV

IE Web Controls – TreeView Control – Toolbar Control – Tabstrip and Multipage Controls –Request and Response Objects – OLEDBConnection Class - OLEDBCommand Class - OLEDBTransaction Class – OLEDBDataAdapterClass – DataSet Class – Sample Applications

[15 Hrs]

Unit – V

Advanced Issues – E-Mail – Application Issues – Working with IIS and Page Directives –Error Handling –Security [15 Hrs]

Books Recommended

1. Jeffrey R.Shapiro , The Complete Reference Visual Basic.NET - Tata McGraw Hill
2. Greg Buczek, ASP.NET Developer's Guide - Tata McGraw Hill

Book for Reference :

1. Wiley - Visual Basic .NET Programming Bible
2. Matthew MacDonald - The Complete Reference ASP.NET – Osborne
3. William Penberthy – Beginning ASP.NET for Visual Studio 2015

ONLINE SOURCES :

1. www.techrepublic.com/article/whats-new-in-vbnet
2. www.w3schools.com/aspnet
3. www.tutorialspoint.com/asp.net
4. www.asp.net-tutorials.com

QUESTION PAPER TEMPLATE:

Time	: 3 Hours	
Maximum Marks	: 100	
SECTION A (10 X 2 = 20)	:	Answer All 10 questions [at least two from each unit]
SECTION B (5 X 8 = 40)	:	Answer 5 questions out of 7 questions [at least one from each unit]
SECTION C (2 X 20 = 40)	:	Answer any 2 questions out of 4 questions [Not more than one from each unit]

SEMESTER: V

SUBJECT: CORE-SOFTWARE ENGINEERING

SUBJECT CODE: CA15/5C/SFE

Teaching hours: 75 hrs. **Credits: 4** **L T P : 3-2-0**

Objective:

The subject is extremely useful for development of software application, it cover systematically approach from analysis phase, designing phase, software development phase and implementing phase. After completion of the course students will acquire knowledge regarding the development. Case study will be carrying out during the course.

Course Outline:

Unit I:

Introduction: Software Crisis-What is software Engineering-Terminologies-Role of Management in Software Development. Software Life Cycle Models : SDLC Models-The Waterfall Model, Prototyping Model, Iterative Enhancement Model, Evolutionary Development Model, Spiral Model, The Rapid Application Development Model, Selection of a life cycle model. [15 hrs]

Unit II:

Software Requirements Analysis and Specifications: Requirement Engineering-Requirements Elicitation-Requirement Analysis-Requirements Documentation. Software Project Planning: Size Estimation-Cost Estimation-The COnstructive COst MOdel(COCOMO)-Software Risk Management. [15 hrs]

Unit III:

Software Design: Design-Modularity-Strategy of Design-Function Oriented Design-Object Oriented Design. Software Metrics: Software Metrics: Software Metrics-Information flow Metrics-Metrics Analysis. [15 hrs]

Unit IV:

Software Reliablilty: Basic Concepts-Capability Maturity Model. Software Testing-Testing Process-Terminologies-Functional Testing-Structural Testing-Levels of Testing-Debugging-Testing Tools. [15 hrs]

Unit V:

Software Maintenance: What is software Maintenance-The Maintenance Process-Maintenance Models-Regression Testing-Reverse Engineering-Software Reengineering-Documentation.[15 hrs]

Books Recommended:

1. K.K AGGARWAL AND YOGESH SINGH – SOFTWARE ENGINEERING NEW AGE INTERNATIONAL PUBLISHERS

Books for Reference:

1. Software Engineering, A practioner's Approach – Roger S.Pressman, 6th Edition, McGrawHill international Edition.
2. Software Engineering – Sommerville, 7th Edition, Pearson Education.
3. Software Engineering, an Engineering Approach – James F.Peters, Witold Pedrycz, John Wiely.
4. Software Engineering principles and practice – Waman S Jawadekar, The McGraw Hill Companies

Online Sources:

1. www.tutorialspoint.com/software_engineering
2. www.wiziq.com/tutorials/software-engineering
3. http://www.rspa.com/

QUESTION PAPER TEMPLATE:

Time : 3 Hours

Maximum Marks : 100

SECTION A (10 X 2 = 20): Answer all 10 questions

[At least two from each unit]

SECTION B (5 X 8 = 40): Answer 5 questions out of 7 questions

[At least one from each unit]

SECTION C (2 X 20 = 40): Answer any 2 questions out of 4 questions

[Not more than one from each unit]

SEMESTER : V

Subject : Core – Web Technology

Subject Code : CA15/5C/WEB

Teaching Hours : 75 Hrs **Credits:4 L T P : 3-2-0**

Objective:

To inculcate knowledge on designing webpage using HTML, DHTML, JavaScript and PHP

Course Outline:

Unit - I

Internet Basic - Introduction to HTML – Adding Graphics to HTML Doc - List - Creating Table - Linking document - Frames –**Dynamic HTML:** Cascading Style sheets - Style sheet basic - Add style to document – Font Attributes, Color and Background Attributes, Text Attributes, Border Attributes, Class, External Style sheets,<DIV>....</DIV> Tag.

Unit - II

Introduction to JavaScript: Advantage of JavaScript - JavaScript Syntax – Data types - Variable - Array - Operator and Expression – Conditional Checking- Looping Constructor - Function – User defined functions-Dialog box.

Unit - III

JavaScript document object model - Introduction - Object in HTML –Browser Objects - Event Handling - Form Object - Built in Object - User defined object - Cookies.

Unit – IV

PHP : Basics of PHP Scripts-Flow Control Functions-Working with Functions –Working with Strings,Dates and Time.

Unit –V

Working with Forms , Cookies and Sessions – PHP and MySQL Integration: Learning Basic SQL Commands-Interacting with MySQL Using PHP.

Recommended Text Books:

1. Ivan Bayross, Web Enable Commercial Application Development Using HTML,Javascript, DHTML and PHP,4th Revised Edition 2010
2. Julie C.Meloni, Sams Teach Yourself,PHP,MySQL and Apache,5th Edition,Pearson

References :

1. J. Jaworski, Mastering Javascript, BPB Publications, 1999
2. T. A. Powell, Complete Reference HTML (Third Edition),TMH, 2002
3.Web Technology & Design,C.Xavier,New Age International Publishers,2012

Websites and E-learning Sources :

1.www.w3schools.com
2.www.tutorials.com/javascript
3. www.tutorialspoint.com/php/

QUESTION PAPER PATTERN

Time	: 3 Hours
Maximum Marks	: 100
SECTION-A (10 x 2 = 20)	: Answer 10 questions out of 12 questions [at least two from each unit]
SECTION-B (5 x 8 = 40)	: Answer 5 questions out of 7 questions [at least one from each unit]
SECTION-C (2x20=40)	: Answer any 2 questions out of 4 questions [Not more than one from each unit]

SEMESTER : V

Subject : Core – Data Mining

Subject code : CA15/5C/CDM

Teaching hours : 75 hrs. **Credits: 4 L T P : 3-2-0**

Objective:

• To introduce the concept of data mining with in detail coverage of basic tasks, metrics, issues, and implication. Core topics like classification, clustering and association rules are dealt with.
• To introduce the concept of data warehousing with special emphasis on architecture and design.

Course Outline:

Unit – I

Introduction - Data Mining applications – Data Mining techniques – Data Mining case studies- The future of data mining – Data Mining software - Association rule mining - Introduction- basics- The task and a naive algorithm- Apriori algorithm – Improving the efficiency of the Apriori algorithm – FP-Growth [15 Hrs]

Unit – II

Classification - Introduction – Decision Tree – The Tree Induction Algorithm - Over fitting and pruning - DT rules - Estimating predictive accuracy - Other evaluation criteria – Classification software [15 Hrs]

Unit – III

Cluster analysis - Features – Types of data – Computing distances - Types of cluster analysis methods - partitioned methods – hierarchical methods – density based methods – dealing with large databases – quality and validity – cluster analysis software. [15 Hrs]

Unit – IV

Web data mining – Introduction - Web terminology and characteristics - locality and hierarchy in the web - web content mining - web usage mining - web structure mining – web mining software [15 Hrs]

Unit – V

Search engines - Search engines functionality- Search engines architecture – Ranking of web pages - Introduction to Data Warehouses – Data Warehouse Design – Guidelines for Data Warehouse implementation - Data Warehouse Metadata [15 Hrs]

Books Recommended:

1. "Introduction to Data mining with case studies", G.K. Gupta, PHI Private limited, New Delhi, 2008.

Book for Reference :

1. Kargupta, Data mining, Prentice hall of India, 2004
2. Jiawei Han and Micheline Kamber ,Data Mining Concepts and Techniques,Second Edition, Elsevier

Online Sources :

1. www.tutorialpoint.com
2. www.threarling.com
3. msdn.microsoft.com

QUESTION PAPER TEMPLATE:

Time	: 3 Hours	
Maximum Marks	: 100	
SECTION A (10 X 2 = 20)	:	Answer 10 questions out of 12 questions [at least two from each unit]
SECTION B (5 X 8 = 40)	:	Answer 5 questions out of 7 questions [at least one from each unit]
SECTION C (2 X 20 = 40)	:	Answer any 2 questions out of 4 questions [Not more than one from each unit]

SEMESTER : V

Subject: Core – Web and .NET Laboratory

Subject Code: Practical VII: CA15/5C/PR7

Teaching Hours: 75 Hrs **Credits: 4 L T P: 0-0-5**

Web Technologies

Creation of web pages using:

1. HTML with CSS
2. Javascript
3. PHP
4. PHP and MySQL

Visual Basic .NET

1. Working with basic controls
2. Menu Creation
3. Working with ListView and Treeview

ASP.NET

1. Working with Server Controls
2. Working with Web Controls
3. Working with Database Connectivity

PRACTICAL QUESTION PAPER PATTERN:

Time : 3 Hrs

Maximum Marks : 60

The External Examiner will prepare the questions on the spot with the help of the question bank.

SEMESTER : VI

Subject : Core – Data Communications and Networking

Subject code : CA15/6C/DCN

Teaching hours : 75 hrs. **Credits: 4 L T P : 3-2-0**

Objective:

To inculcate knowledge on Networking concepts and technologies like wireless, broadband and Bluetooth.

Course Outline :

Unit - I

Introduction to Data Communication, Network Protocols & standards and - Line Configuration - Topology - Transmission mode - Classification of Network ; OSI Model : Layers of OS1 Model.

(15 hrs.)

Unit - II

Digital data transmission - DTE/DCE interface - Modems - 56K modem ; Transmission media : Guided Media - Unguided Media – Transmission impairment - Performance - Error Detection - Error Corrections : types of errors – detection – VRC – LRC – CRC – checksum – error correction.

(15 hrs.)

Unit - III

Multiplexing –FDM – WDM – TDM ; LAN : Ethernet - Token Bus - Token Ring - FDDI - SWITCHING : Circuit Switching - Packet Switching - Message switching.

(15 hrs.)

Unit - IV

ISDN : History – Subscriber Access to ISDN - ISDN Layers - Broadband ISDN - Packet Layer Protocol – ATM: Design goals - ATM Architecture – Switching - ATM layers.

(15 hrs.)

Unit - V

Networking and internetworking devices : Repeaters - Bridges - Routers - Gateway - Routing algorithms - TCP/IP : overview – Network layer –addressing – sub netting – other protocols in the network layer – transport layer – Domain name system – TELNET- FTP – TFTP – SMTP - SNMP – HTTP - World Wide Web.

(15 hrs.)

Books Recommended:

1. Behrouz and Forouzan - Introduction to Data Communication and Networking - 2nd Edition - TMH-2001

Books for Reference :

1. Jean Wairand - Communication Networks (A first Course) - Second Edition - WCB/McGraw Hill - 1998.

Online Sources :

1. **www.networktutorials.info**
2. **www.intelligentedu.com**
3. **www.webopedia.com**

QUESTION PAPER PATTERN

Time	: 3 Hours	
Maximum Marks	: 100	
SECTION A (10 X 2 = 20)	:	Answer all 10 questions. [at least two from each unit]
SECTION B (5 X 8 = 40)	:	Answer 5 questions out of 7 questions [at least one from each unit]
SECTION C (2 X 20 = 40)	:	Answer any 2 questions out of 4questions [Not more than one from each unit]

SEMESTER – VI

Subject : Core – Computing Technologies.

Subject code : CA15/6C/CTS

Teaching hours :75 hrs **Credits : 4 L T P : 3 – 2 – 0**

Objectives :

- To make the students to know about the significant effect on the world of computing
- To make the students to gain an overview of the future of computing technology.

Course Outline :

Unit I:

Cloud computing: Definition - History – Cloud Types – Deployment Models – Service Models – Reference model - characteristics – benefits – open standards Architecture - Companies in the Cloud – Communication Protocols – connecting to the cloud

(15 Hrs)

Unit II:

Cloud Services and Applications – Infrastructure as a Service – Platform as a Service - Software as a Service – Identity as a Service – Compliance as a Service – web services

(15 Hrs)

Unit – III

Introduction – Wireless transmission – frequencies for radio transmission – Signals – Antennas – Signal Propagation – Multiplexing – Modulations – Spread spectrum – Cellular systems - MAC – SDMA – FDMA – TDMA – CDMA. (15 hrs)

Unit – IV

Telecommunications systems - GSM – DECT – TETRA – INITS and IMT – 2000 – Satellite systems – History – applications – Basics – Routing – Localization - Handover

(15 hrs)

Unit – V

Wireless LAN – IEEE 802.11 - Architecture – services – MAC – Physical layer – IEEE 802.11a - 802.11b standards – HIPERLAN – Blue Tooth. (15 hrs)

Books Recommended :

1. BARRIE SOSINSKY(2012), Cloud Computing Bible, Wiley India
2. JOCHEN SCHILLER (2003) Mobile Communications, Pearson Education Second Edition

Books for Reference :

1. MICHAEL MILLER (2008) Cloud Computing : Web-Based Applications That Change the Way You Work and Collaborate Online Pearson
2. UWE HANSMANN, LOTHAR MERK, MARTIN S. NICKLONS and THOMAS STOBER (2004) Principles of Mobile Computing Springer Second Edition

Online Sources

1. http://www.mastertheboss.com/cloud-computing/in-the-cloud-computing-a-beginners-tutorial
2. http://www.exforsys.com/tutorials/cloud-computing/cloud-computing-basics.html

QUESTION PAPER TEMPLATE

Time	: 3 Hours	
Maximum Marks	: 100	
SECTION A (10 X 2 = 20)	:	Answer ALL 10 questions. [at least two from each unit]
SECTION B (5 X 8 = 40)	:	Answer any 5 questions out of 7 questions [at least one from each unit]
SECTION C (2 X 20 = 40)	:	Answer any 2 questions out of 4 questions [Not more than one from each unit]

SEMESTER : VI

Subject : Core – System Software

Subject Code : CA15/6C/CSS

Teaching hours : 75 Hrs **Credits : 4 L T P : 3-2-0**

Objective :

- To understand the relationship between system software and machine architecture.
- To know the design and implementation of assemblers
- To know the design and implementation of linkers and loaders.
- To have an understanding of microprocessor.

Course Outline :

Unit – I :

Language processors – Language Processing Activities and fundamentals –Language Specification – Development Tools – Data Structure for Language processing – Scanners and Parsers. (15 hrs)

Unit – II :

Assemblers: Elements of Assembly language programming – Overview of the Assembly process – Design of two pass assembler. (15 hrs)

Unit –III:

Macros and Macro processors-Macro definition, call and expansion – Nested macro calls – Advanced macro facilities (15 hrs)

Unit-IV:

Compilers and Interpreters: Aspects of Compilation – Memory Allocation-Compilation of expressions and control structures – Code optimization – Interpreters. (15 hrs)

Unit – V

Linkers : Linking and Relocation Concepts – Design of a linker – Self Relocating programs – Linking for over-lays-loaders. (15 hrs)

Books Recommended:

1.D M Dhamdhere, Systems Programming and Operating Systems, Second Revised Edition, Tata McGraw Hill Publications.

Books for Reference :

System Software – An Introduction to Systems Programming, Leland L. Beck, D.Manjula, Pearson, Third Edition

QUESTION PAPER TEMPLATE:

Time	: 3 Hours
Maximum Marks	: 100
SECTION-A (10 x 2 = 20)	: Answer all 10 questions [at least two from each unit]
SECTION-B (5 x 8 = 40)	: Answer 5 questions out of 7 questions [at least one from each unit]
SECTION-C (2x20=40)	: Answer any 2 questions out of 4 questions [Not more than one from each unit]

SEMESTER : VI

Subject : Core – Multimedia

Subject code : CA15/6C/MMC

Teaching hours : 75 hrs. **Credits: 4 L T P : 3-2-0**

Objective:

The subject will be helpful in understanding basic characteristics of various media's like audio and video etc. It will extensively cover all aspect of Multimedia Application development like audio/video compression, animation and user interface development. Also the various tools for image manipulation and creating animation will be covered.

Course Outline :

Unit – I:
PhotoShop : Photoshop's Environment - Raster and Vector Graphics – File Formats -Various pros, cons, and uses of common file formats - How to open and close files -Pasting images – Basic photo editing tasks: Zooming, Cropping and Straightening, file size reduction, Removing a background and Changing the contrast on part of a picture Sizing images – Working in different Color Modes – Choosing Colors. [15 hours]

Unit – II:
Image Manipulation in Photoshop : Selecting Image Areas: using Quick selection tool, Magic Wand tool, Shape tools and Lasso tools. – Working with Layers – The Layer Menu and the Layers Panel Menu - Merging and Flattening layers - The Clone Stamp Tool - Modifying Selections Blending and Compositing - Painting Tools · Brightness/Contrast - Red-eye removal and fixing - Hue/Saturation. [15 hours]

Unit – III:
Flash Basics: The Tools Panel, The Document Window and The Timeline Window - Saving & Uploading Files – Working with Symbols. [15 hours]

Unit – IV:
Basic Drawing Tools – Shape Tools – Pen Tool – Selection Tools - Paint Bucket Tool: fills enclosed areas with colors or gradients – Working with Special Layer Types: Guides and Masks. [15 hours]

Unit - V:
Animation with Flash and Publishing: Basic methods of Flash Animation - Introduction to scripting: Actions and Event Handlers - Publishing your Flash Movies - Publish settings – Publish preview and Publish commands. [15 hours]

Books Recommended:

1. Flash 5 Bible Robert Reinhardt and Jon Warren Lentz, IDG Books India (p) Ltd.

Books for Reference:

1. Adobe flash catalyst cs5 bible, Huddleston
2. Adobe flash cs4 Professional how to 100 essential techniques
3. Adobe Photoshop 6.0 classroom in a book , Adobe
4. Adobe Photoshop cs4 bible , Cates and Abrams Moughamiam
5. Adobe Photoshop cs5 bible , Dayly
6. Adobe Photoshop cs4 how to 100 essential techniques , Orwing

Online Sources :

1. **www.khulsey.com**
2. **www.w3schools.com**
3. **www.tutorialized.com**

QUESTION PAPER TEMPLATE

Time	: 3 Hours	
Maximum Marks	: 100	
SECTION A (10 X 2 = 20)	:	Answer ALL 10 questions. [at least two from each unit]
SECTION B (5 X 8 = 40)	:	Answer any 5 questions out of 7 questions [at least one from each unit]
SECTION C (2 X 20 = 40)	:	Answer any 2 questions out of 4 questions [Not more than one from each unit]

SEMESTER : VI

Subject : Core – Mini Project

Subject code : CA15/6C/PO2

Teaching hours : 75 hrs. **Credits: 4 L T P : 0-0-5**

Objective:

To provide the students with experience in analyzing, designing, implementing and evaluating information systems. Students are assigned one or more system development projects. The project Development involves part or all of the system development life cycle. Hardware Maintenance and Computer Networking based projects can also be undertaken.

Major Topics covered in the course :

Each student will develop and implement individually application software based on any emerging latest technologies.

PRACTICAL QUESTION PAPER TEMPLATE :

Time : 3 Hours
Maximum Marks : 60

The External Examiner will prepare the questions on the spot with the help of the question bank.

SEMESTER : VI

Subject : Practical VIII – Multimedia Lab.

Subject code : CA15/6C/PR8

Teaching hours : 75 hrs. **Credits: 4 L T P : 0-0-5**

Photoshop :

1. Create CD cover.
2. Create text and display in various format.(Shadow , Emboss effects)
3. Convert a color picture to black & white image.
4. Modify a picture using selection tools.
5. Given a picture of a flower with a background. Extract the flower and organize on a different background.
6. Given a picture. Adjust the brightness and contrast of the picture to give a better look.
7. Display the given picture through your name using mask.

Flash :

8. Create a motion tween and shape tween.
9. Create an animation to represent a growing moon using frame by frame animation
10. Create an animation to bounce a ball on steps.
11. Simulate movement of a cloud.
12. Draw the blades of a fan and make it work by giving proper animate.
13. Create a guided motion tween.
14. Create a spinning oval.
15. Create a flash application to scroll text with in a text box.
16. Create a fade in , fade out object using flash.
17. Create a zoom animation and ripple effect.
18. Mask a photo
19. Create a button using flash.
20. Create an Action script to execute for a event in a Flash application.

PRACTICAL QUESTION PAPER TEMPLATE :

Time : 3 Hours
Maximum Marks : 60

The External Examiner will prepare the questions on the spot with the help of the question bank.

SEMESTER : I

Subject : NME– Office Automation

Subject code : CA15/1S/COA

Teaching hours : 30 hrs. **Credits: 2** **L T P : 0-0-2**

Objectives :

- To make the students gain typing knowledge
- To make the students create and print letters and documents.
- To make the student develop power point presentations.

Course Outline:

Unit – I :
Ms-Word :
Introduction - File menu – Cut, Copy and Moving text – Find and Replace - Formatting the document (Font, Paragraph, Bullets & Numbering) - Inserting Page breaks – Page Numbers – Pictures – Header & Footer - Creating Tables. **(10 hrs)**

Unit – II
Ms-Excel :
Introduction – Managing Workbooks –Editing data - Formatting Cells – Insert Row, Column
Creating a table for Payroll program using formulas – Conditional Formatting - Aligning text & Numbers - Simple Charting - Chart Wizard – Sort Records – Filter. **(10 hrs)**

Unit-III :
Ms-PowerPoint :
Introduction - Create a new presentation using Blank presentation, using Templates, using Auto Content Wizard – Apply Custom animation, Slide Transition - apply Rehearse Timing –Setup Show
Ms-Access : Introduction – Creating a new table – Creating tables by using wizard – Data types – Field names – Defining Primary key. **(10 hrs)**

Books Recommended:

1. Computer Applications in Business and Management by Ananthi Sheshasaayee and Sheshasaayee – Margham Publications,7th Edition 2009.

Online Sources:

1. http://www.laynetworks.com/cs01.htm
2. http://computerfundamentals.org/

QUESTION PAPER TEMPLATE

Practical test for two hours for 50 marks will be conducted at the end of the semester.

SEMESTER : II

Subject : NME – World Wide Web design with HTML

Subject code : CA15/2S/WWH

Teaching hours : 30 hrs. **Credits: 2 L T P : 0-0-2**

Objective:

To inculcate knowledge about web designing.

Course Outline:

Unit I :

Introduction to the internet – internet technologies - internet browsers- Introduction to HTML – Head and body sections – Designing the body section. (10 hrs)

Unit II :

Ordered and Unordered lists – table handling – DHTML and style sheets. (10 hrs)

Unit III:

Frames – A web page design Project – Forms. (10 hrs)

Books Recommended:

1. World Wide Web Design with HTML, C. Xavier., Tata McGraw Hill, 23rd reprint 2010.
2. A complete guide to internet and web programming, Deven. N. Shah, Dreamtech Press, Edition 2009.

Online Sources:

1. www.w3schools.com
2. www.how-to-build-websites.com
3. www.echoecho.com
4. www.hyperguil.com

QUESTION PAPER TEMPLATE

Practical test for two hours for 50 marks will be conducted at the end of the semester