J.J. COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS), PUDUKKOTTAI.
DEPARTMENT OF COMPUTER SCIENCE

B.Sc. Computer Science
Proposed Course Structure Under Choice Based Credit System
(Applicable for the Candidates Admitted from Academic Year 2019-2020 onwards)

Sem	Part	Course Code	Course Title	Hrs/ Week	Credit	Exam Hrs	Marks		Total
							Int	Ext	
I	I	U1R1TL1/HL1/	Language Course-I*	6	3	3	25	75	100
	II	U1R1EL1	English Language Course-I**	6	3	3	25	75	100
	III	U1R1CSCC1	Core Course - I Programming in C	8	6	3	25	75	100
		U1R1CSCC2P	Core Course - II Programming in C Practical	3	2	3	40	60	100
		U1R1MCSAC1	Allied Course (First) – I Algebra and Calculus	7	4	3	25	75	100
Total				**30**	**18**				**500**
II	I	U2R1TL2/HL2/ FL2/SL2/ ABL2	Language Course-II*	5	3	3	25	75	100
	II	U2R1EL2	English Language Course-II**	5	3	3	25	75	100
	III	U2R1CSCC3	Core Course - III C++ and Data Structures	6	6	3	25	75	100
		U2R1CSCC4P	Core Course – IV C++ and Data Structures Practical	3	2	3	40	60	100
		U2R1CSORAC2	Allied Course (First) - II Operations Research	4	4	3	25	75	100
		U2R1CSNMAC3	Allied Course (First) - III Numerical Methods and Statistics	5	4	3	25	75	100
	IV	U2R1ES	Environmental Studies	2	2	3	25	75	100
Total				**30**	**24**				**700**
III	I	U3R1TL3/HL3/ FL3/SL3/ABL3	Language Course-III*	5	3	3	25	75	100
	II	U3R1EL3	English Language Course-III**	5	3	3	25	75	100
	III	U3R1CSCC5	Core Course - V Java Programming	6	6	3	25	75	100
		U3R1CSCC6P	Core Course – VI Java Programming Practical	3	2	3	40	60	100
		U3R1APHAC1	Allied Course (Second) - IV Applied Physics – I	6	4	3	25	75	100
		#	Allied Course (Second) –V Applied Physics –II- Practical	3	#	#	#	#	#
		U3R1VE	Value Education	2	2	3	25	75	100
Total				**30**	**20**				**600**

IV	I	U4R1TL4/HL4/ FL4/SL4/ ABL4	Language Course-IV*	5	3	3	25	75	100
	II	U4R1EL4	English Language Course-IV**	5	3	3	25	75	100
	III	U4R1CSCC7	Core course – VII DataBase System Concepts	6	6	3	25	75	100
		U4R1CSCC8P	Core Course -VIII RDBMS Practical	3	2	3	40	60	100
		U4R1APHAC2P	Second Allied Course – V Applied Physics - II Practical	3	4	3	40	60	100
		U4R1APHAC3	Second Applied Course – VI Applied Physics - III	5	4	3	25	75	100
	IV	U4R1CSSBE1	Skill Based Elective – I Any one from List	3	2	3	25	75	100
Total				**30**	**24**				**700**
V	III	U5R1CSCC9	Core course – IX DotNet	6	6	3	25	75	100
		U5R1CSCC10P	Core course – X DotNet Practical	3	2	3	40	60	100
		U5R1CSCC11	Core Course – XI Data Communication and Networks	6	6	3	25	75	100
		U5R1CSCC12	Core Course XII Operating System	6	7	3	25	75	100
		U5R1CSMBE1	Major Based Elective – I Any one from List	5	5	3	25	75	100
	IV	U5R1CSSBE2	Skill Based Elective – II Any one from List	2	2	3	25	75	100
		U5R1CSIDC1	Inter Disciplinary Course – I	2	2	3	25	75	100
Total				**30**	**30**				**700**
VI	III	U6R1CSCC13	Core Course - XIII Microprocessor and its Applications	6	6	3	25	75	100
		U6R1CSCC14P	Core Course – XIV Microprocessor Practical	3	2	3	25	75	100
		U6R1CSMBE2	Major Based Elective – II Any one from the List	6	5	3	25	75	100
		U6R1CSMBE3	Major Based Elective – III Any one from the List	6	5	3	25	75	100
		U6R1CSSBE3	Skill Based Elective – III Any one from the List	4	2	3	25	75	100
	IV	U6R1CSIDC2	Inter Disciplinary Course – II	3	2	3	25	75	100
		U6R1GS	Gender Studies	2	1	3	25	75	100
	V		Extension Activity	-	1	-	-	-	-
Total				**30**	**24**	**-**	**-**	**-**	**700**
Grand Total					**140**	**-**	**-**	**-**	**3900**

MAJOR BASED ELECTIVE COURSES OFFERED

1 Software Engineering
2 Computer Graphics and Multimedia
3 Computer Organization and Architecture
4 E-Commerce
5 Software Project Management
6 Software Application Practical

SKILL BASED ELECTIVE COURSES OFFERED

1 Visual Programming
2 J2EE
3 HTML and Web Design
4 Soft Skills
5 Hardware Trouble Shooting
6 PHP Scripting Language

INTER DISCIPLINARY COURSES OFFERED

1 Introduction to Internet Concepts
2 HTML and Web Design
3 Fundamentals of Multimedia

Add on Courses Offered by the Department:

1. PC Hardware and Web Graphics
2. PC Hardware and Web Graphics Practical

Core Course I – Programming in C

Semester: I **CIA : 25**
Credits : 6 **EXT : 75**
Course Code: U1R1CSCC1 **Total : 100**
Instruction Hours: 96

Objectives:

- To provide knowledge about usage of data and operators
- To give understanding about control structures
- To impart knowledge to handle arrays and strings
- To provide a comprehensive use of functions, structures and unions
- To learn and acquire art of pointers and file operations
- To know how to solve problems in C

Unit – I Introduction to C (20 Hours)

Evolution and Application of C – Structure of a C program – Character set – C tokens – constants – variables – Data types – Declaration – Operators – Expression – Type conversion – Data input and output – reading a character – writing a character – formatted input - formatted output.

Unit – II Control statements and Looping (19 Hours)

Decision Making and Branching: Decision making with if statement – the if else statement – nesting of if else statement – the else if ladder – the switch statement – the conditional operator – the goto statement – Decision making and looping: the while statement – the do statement – the for statement – jumps in loops.

Unit – III Arrays and Strings (19 Hours)

Arrays: Declaration and initialization of one dimensional arrays – two dimensional arrays – Multidimensional arrays – dynamic array – **Strings:** Declaring and initializing string variables – reading and writing strings - String handling functions.

Unit – IV User defined functions ,Structure and Union (19 Hours)

Functions: elements – Definition of function - function declaration – function call – category of function – Recursive functions – Storage classes - **Structures:** definition – declaration – accessing members – **Union**: size of structure.

Unit – V Pointers and File Management (19 Hours)

Pointers: Pointer declaration – initialization, accessing – pointer expression, **sequential files:** Defining and opening, closing a file – I/O operations on files.

Unit – VI Latest Learnings (for CIA only)

Latest development related to the course during the semester concern

Text Book:

1. Balagurusamy E, Programming in ANSI C , 4th edition, Tata McGraw-Hill, 2006

[Unit-1 (Chapters – 1.1, 1.2, 1.8, 2.2 – 2.8, 3.1 – 3.14, 4.1 – 4.5) ; Unit-2 (Chapters – 5, 6) ; Unit-3 (Chapters – 7,8.1 – 8.8) ; Unit-4 (Chapters – 9.1,9.4 – 9.9, 9.16,9.19, 10.1-10.4, 10.12, 10.13); Unit-5 (Chapters – 11.1 -11.6 ,11.8, 12.1 - 12.4)]

Reference Books:

1. Byron S Gottfried,"Programming with C", Schaum"s Outline Series – Tata McGraw Hill Publications, New Delhi.
2. Reema Thareja, "Programming in C " Second Edition, Feb 2016, ISBN-10: 9780199456147, ISBN-13: 978-0199456147, ASIN: 0199456143
3. Deepali Srivastava , S. K. Srivastava , "C in Depth", June 2009, BPB Publication
4. Brian W. Kernighan, Dennis M. Ritchie," C Programming Language" 2nd Edition, Pearson Publisher, ISBN: 9789332549449, 9332549443
5. Yashavant Kanetkar, "Let Us C Authentic Guide to C Programming Language", 16th Edition , Jan 2017, BPB Pblications, ISBN-10: 9789387284494, ISBN-13: 978-9387284494, ASIN: 9387284492

Course Outcomes:

On successful completion of this course, the student would be able to

- Understand input and output routines
- Use control structures efficiently
- Understand and use the common data structures typically found in C programs — namely arrays, and strings.
- Write and use functions, how stack is used to implement function calls
- Efficiently handle pointes, structures and files
- Implement, test, debug, and document programs in C.

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Core Course II – Programming in C Practical

Semester : I	**CIA : 40**
Credits: 2	**EXT : 60**
Course Code: U1R1CSCC2P	**Total : 100**

Objectives:

- To encourage the students to work on I/O operations
- To train the students to use control structures and loops in real time problems
- To make the students handle and analyze arrays and strings
- To enumerate knowledge about the function handling
- To implement structures and file operations

Develop C program

1. **To use different I/O operations with different formats:** Get numbers (all types int, long int, short int, float, double), character and string values. Print them in different formats (int, octal, hexadecimal, long and short integers, float, double, char and string).

2. **To use control structure:**
   i. Find maximum and minimum numbers from 3 numbers.
   ii. To check the number as odd, even, positive, negative or zero.
   iii. Read student name, register number and 3 subject marks and find total, average and grade based on the following condition

Average	Grade
>= 90	A
>= 80 but < 90	B
>=60 but < 80	C
>= 40 but < 60	D
Below 40	F

3. **To use looping structure:**
   i. Find sum of first n natural numbers
   ii. Find sum of the series $1 - x^2 + x^4 – x^6 +$…….
   iii. Find sum of two matrices A and B

4. **To create and use Arrays:**
   i. Arrange numbers in ascending and descending order using Arrays.
   ii. Sorting of names in Alphabetical order
   iii. Find largest number from n numbers.

5. **To handle strings:**
   i. a) Read two strings and compare whether they are equal or not.
      b) Read a string and check whether it is a palindrome or not
   ii. Read a sentence and count the occurrences of a particular word
   iii. Read a passage of text and count no of characters, words, and lines

6. **To create and use user-defined function:**
   i. Finding factorials using recursive functions and find the sum
   $X^1 / 1! + X^2 / 2! + \ldots\ldots X^n / n!$
   ii. Generating Fibonacci Numbers for n times

7. **To create and use structure:**
   i. Create an employee details using structure and prepare a pay slip.
   ii. Create a electrical bill details using structure and prepare a bill amount

8. **To create and use files:**
   i. Creation and processing of Sequential files for Mark list preparation.
   ii. Creation of 'n' numbers in a file and copy all odd numbers and even numbers in a separate files.

Course Outcomes:

On completion of this course the students would be able to

- Compile and trace the execution of programs in C language.
- Use control structures and loops.
- Analyze and implement arrays and strings.
- Implement user defined functions.
- Identify the usage of structures and file operations.

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Core Course III – C++ and Data Structures

Semester: II **CIA : 25**
Credits : 6 **EXT : 75**
Course Code: U2R1CSCC3 **Total : 100**
Instruction Hours: 72

Objectives:

- To learn how to design C++ classes for code reuse
- To learn how to implement copy constructors and class member functions.
- To understand the abstract properties of various data structures such as stacks, queues, lists, trees and graphs.
- To understand various sorting algorithms
- To understand and apply algorithmic problems including tree traversals, graph traversals and shortest path.

Unit – I Classes and Objects (15 Hours)

Classes and Objects: Introduction - Specifying a Class -Defining Member Function - C++ Program with Class - Making an Outside Function Inline - Nesting of Member Functions - Arrays within a Class - Memory Allocation for Objects - Static Data Members - Static Member Functions - Arrays of Objects - Objects as Function Arguments - Friendly Functions - Returning Objects.

Constructors and Destructors: Introduction - Constructors - Parameterized Constructors - Multiple Constructors in Class - Constructors with Default Arguments - Dynamic Initialization of Objects - Copy Constructor - Dynamic Constructors - Constructing Two Dimensional Arrays - Destructors.

Unit – II Inheritance and Polymorphism (15 Hours)

Inheritance: Introduction – Defining Derived Classes – Single Inheritance – Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Virtual Base classes – Abstract Classes – Constructors in Derived Classes – Member Classes: Nesting of Classes.

Pointers Virtual Functions and Polymorphism: Introduction – Pointers to Objects – this Pointer – Pointers to Derived Classes – Virtual Functions - Pure Virtual Functions. Managing Console I/O Operations – C++ Streams – C++ Stream Classes – Unformatted I/O Operations, Formatted Console I/O Operations – Managing Output with Manipulators.

Unit – III Linear Data Structures (14 Hours)

Overview – Arrays – ordered list – Stacks and Queues: Evaluation of Expressions – Linked Lists: Singly Linked Lists – Linked Stacks and queues – The storage pool – Polynomial addition.

Unit – IV Non-Linear Data Structures - Trees (14 Hours)

Trees: Basic Terminology– Binary Trees - Binary tree representations –Binary Tree Traversal – Threaded Binary Trees – Binary Tree Representation of Trees – Application of Trees – counting binary trees.

Unit – V Non-Linear Data Structures - Graphs (14 Hours)

Terminology and representations- Traversals, Connected Components and Spanning Trees – Shortest Paths and Transitive closure – Activity Networks – Topological Sort and Critical Paths.

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Text Books:

1. E.Balagurusamy, Object Oriented Programming with C++, Tata McGraw Hill, New Delhi, Sixth Edition, 2013.
2. Fundamentals of Data Structures – Ellis Horowitz, Sartaj Sahni
   [Unit –III: (Chapter 1: 1.1, Chapter 2: 2,2 , Chapter 3: 3.3, Chapter 4: 4.1 – 4.4), Unit — IV: (chapter 5), Unit –V: (Chapter 6 : 6.1 – 6.4)]

Reference Books:

1. Data Structures – LIPSCHUTA, Tata Mcgraw Hill, Schaum's Outline Series.
2. Object Oriented Program in C++ – Nabajyoti Barkakati, A prentice Hall of India Private Limited, New Delhi 1997.
3. Mastering C++ – K R Venugopal, T. Ravishankar, RajKumar, Tata Mc Graw-Hill Publishing Company Limited, New Delhi, 2006.
4. Teach Yourself C++, Herbert Schildt, Third Edition ISBN: 0-07-463870-X, McGraw Hill Publishing Company Ltd.
5. Reema Thareja ,"Object Oriented Programming With C++", Oxford University Press, 2015, ISBN: 9780199459636
6. Deepak Gupta, "Data Structures", S.K. Kataria & Sons publications, 2012 edition, ISBN-13: 978-9380027951

Course Outcomes:

On successful completion of the course students would be able to

- Design C++ classes for code reuse.
- Implement copy constructors and class member functions.
- Understand various data structures such as stacks, queues, lists, trees and graphs.
- Understand various sorting algorithms.
- Understand and apply algorithmic problems including tree traversals, graph traversals and shortest path.

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Core Course IV – C++ and Data Structures Practical

Semester: II	**CIA**	**: 40**
Credits: 2	**EXT**	**: 60**
Course Code: U2R1CSCC4P	**Total**	**: 100**

Objectives:

- To develop the knowledge of programming skills in C++
- To give improved learning of the classes and objects
- To inculcate a practical learning of data structures
- To train the students each and every OOP concepts of C++
- To analyze the concepts of data structures for better understanding

Develop C++ Program

1. To use basic programming concepts to
   a. Find the simple and compound interest.
   b. Check whether the given number is Armstrong or not.
   c. Find factorial using recursion.

2. To use class and object to
   a. Print student details using constructor and destructor
   b. Display the employee details with using array of object.

3. To use inline functions to
   a. Find the square or cube of a number.
   b. Find sum of two numbers

4. To use friend functions to
   a. Find the mean value of the given two numbers
   b. Addition of members of two different classes

5. To use Inheritance to
   a. Find out the payroll system using single inheritance.
   b. Find out the student details using multiple inheritances.

6. To use function overloading to
   a. Calculate the area of circle, rectangle and triangle.
   b. Find sum of two real numbers, complex numbers or matrices

7. To create and implement
   a. Stack and its operations.
   b. Queue and its operations.
   c. Singly Linked list and its operations.

Course Outcomes:

After completing this course the students would be able to

- Use the characteristics of OOP language in a program.
- Use the basic Object Oriented design principles in computer problem solving.
- Understand basic data structures such as arrays, linked lists, stacks and queues.
- Solve problems involving graphs, trees and heaps.
- Apply algorithms for solving problems like sorting, searching.

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Core Course V – Java Programming

Semester: III **CIA : 25**
Credits : 6 **EXT : 75**
Course Code: U3R1CSCC5 **Total : 100**
Instruction Hours : 72

Objectives:

- To provide an introduction to object oriented programming (OOP) using the Java programming language
- To be able to program in JAVA classes and methods.
- To understand and construct simple applets.
- To design and develop GUI applications using Abstract Windowing Toolkit (AWT)
- To know the basics of JDBC concepts

Unit – I Oops and Java (15 Hours)

Introduction to Object Oriented Programming – Character set – tokens – constants – variables – operators and expressions – library methods – strings – I/O statements - control statements – if , switch, while, do, for statements- Arrays and Methods: One dimensional Array – two dimensional array – methods – method overloading – recursion.

Unit – II Classes, Objects and Exception handling (15 Hours)

Classes and Objects – general form of a Class – Objects – Constructors – constructors overloading – this keyword – finalize() method - Static methods - Inheritance and polymorphism: Inheriting the variables and methods in a class – Exception handling: Default, user- defined exception – try, catch, throw statements.

Unit – III Interface and Package and Multithreading (14 Hours)

Interfaces and Packages: structure, implementation of an interface - Packages – placing the classes in a package - import statement- the java.lang package : the System, Object, Class, Math, and String classes and their methods– **Multithreading:** Life cycle of a thread-creating and running threads - methods in the thread class.

Unit – IV Applets and AWT (14 Hours)

Applets: Lifecycle - The Applet class - Development and execution - Abstract Windowing Toolkit: events – Listeners – Labels, Button, Checkbox, Radio button, Choice controls – Layouts: FlowLayout, GridLayout and BorderLayout.

Unit – V IO streams and Database connectivity (14 Hours)

IO Streams: InputStream and OutputStream classes - Reader and Writer classes - DataInputStream, DataOutputStreams - Database Connectivity: Establishing a connection-creating, entering, updating data into the tables.

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Text Book:

1. C.Muthu , “Programming with java” , Second Edition, Tata Mcgraw Hill Education Private Limited, 9788182091993

   Unit-1 (Chapters - 1, 2,3,4); Unit-2 (Chapters – 5,6,12); Unit-3 (Chapters – 7,13,16); Unit-4 (Chapters – 8,9); Unit-5 (Chapters – 14,18)

Reference Books:

1. "Internet Programming", Kris James Ph.D., and Ken Cope, Galgotia Publication, Reprint 2000
2. "Complete Reference", 'Patrick Naughton and Herbert Schildt, 3rd Edition,Tata McGraw Hill Publishing Company Ltd., 1999.
3. “Java Fundamentals – A Comprehensive Introduction” – Herbert Schildt , Dale Skrien, McGraw Hill Education; 1st edition (1 July 2017), ISBN-13: 978-1259006593

Course Outcomes:

On successful completion of the course students would be able to

- Program JAVA classes and methods.
- Use and manipulate several core data structures.
- Construct simple JAVA user interfaces.
- Understand and construct simple applets.
- Design and develop GUI applications using Abstract Windowing Toolkit (AWT)

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Core Course VI – Java Programming Practical

Semester: III	**CIA**	**: 40**
Credits: 2	**EXT**	**: 60**
Course Code: U3R1CSCC6P	**Total**	**: 100**

Objectives:

- To impart an improved learning of JAVA through programming
- To invoke the knowledge classes and objects by practice and understanding
- To make the students better understand the OOP concepts
- To improve understanding of threads
- To inculcate practical experience of applets.

Develop Java Program to

1. Sort the given numbers using arrays.
2. Implement the FIND and REPLACE operations in the given multiple text.
3. Implement a calculator to perform basic arithmetic Operations.
4. Find the area of a rectangle using constructor
5. Find the student's percentage and grade using command line arguments.
6. Draw circle or triangle or square using polymorphism and inheritance.
7. Implement multiple inheritance concepts in java using interface, you can choose your own example of a company or education institution or a general concept which requires the use of interface to solve a particular problems.
8. Create threads and assign priorities to them
9. An applet to play multiple audio clips using multithreading.
10. Create a window with three check boxes called red, green and blue. The applet should change the colors according to the selection.

Course Outcomes:

On successful completion of the course students would be able to

- Knowledge achievement through JAVA programming
- Analysis and understanding of classes and objects by practice
- Understanding the oop concepts
- Practice and analysis of threads
- Knowledge about applets through practice

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Course VII – DATABASE SYSTEM CONCEPTS

Semester: IV **CIA : 25**
Credits: 6 **EXT : 75**
Course Code: U4R1CSCC7 **Total : 100**
Instructional Hours: 72

Objectives:

- To analyze the difference between traditional file system and DBMS
- To enable learning about Relational database model
- Able to handle with different database languages
- Able to write queries mathematically
- To design database and normalize data

Unit – I Introduction (15 Hours)

Database-System Applications- Purpose of Database Systems - View of Data - Database Languages - Relational Databases - Database Design -Object-Based and Semi structured Databases - Data Storage and Querying Transaction Management -Data Mining and Analysis - Database Architecture - Database Users and Administrators - History of Database Systems.

Unit – II Relational Model (15 Hours)

Structure of Relational Databases - Fundamental Relational-Algebra Operations Additional Relational-Algebra Operations- Extended Relational-Algebra Operations - Null Values - Modification of the Database.

Unit – III SQL (14 Hours)

Data Definition - Basic Structure of SQL Queries - Set Operations - Aggregate Functions - Null Values - Nested Sub queries – Complex Queries - Views - Modification of the Database - Joined Relations.

Unit – IV Relational Languages (14 Hours)

The Tuple Relational Calculus - The Domain Relational Calculus - Query-by-Example. Database Design and the E-R Model: Overview of the Design Process - The Entity-Relationship Model - Constraints - Entity-Relationship Diagrams - Weak Entity Sets - Database Design for Banking Enterprise

Unit – V Relational Database Design (14 Hours)

Features of Good Relational Designs - Atomic Domains and First Normal Form - Decomposition Using Functional Dependencies - Functional- Dependency Theory –– Decomposition Using Multivalued Dependencies-More Normal Forms - Database-Design Process.

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Text Book:

1. Database System Concepts, Fifth edition, Abraham Silberschatz , Henry F. Korth, S.Sudarshan, McGraw-Hill-2005.
   [Unit-1 (Chapters - 1); Unit-2 (Chapters – 2); Unit-3 (Chapters – 3); Unit-4 (Chapters – 5, 6.1 – 6.4, 6.6, 6.8); Unit-5 (Chapters – 7)]

Reference Books:

1. "An introduction to database systems", Bipin C. Desai, Galgotia Publications Pvt Ltd,1991.
2. "An Introduction to Database Systems", C.J.Date, Third Edition Addison Wesley 1983.
3. Michael Kifer, Arthur Bernstein, and Philip M. Lewis, "Database Systems: An Application Oriented Approach", Complete Version (2nd Edition), Addison-Wesley Longman Publishing Co., 2005 ,ISBN:0321268458
4. " Database System Implementation ",Hector Garcia Molina, Jeffrey D Ullman and Jennifer Widom. Chennai: Person Publications, 2008, ISBN: 81-317-0413-0Singh, S K," Database System Concepts, Design and Applications", Delhi: Pearson Education, 2006. ISBN: 81-7758-567-3

Course Outcomes:

On successful completion of the course students would be able to

- Understanding difference between traditional file system and DBMS.
- Knowledge on Relational database model
- A better understanding of different database languages
- Ability to write queries mathematically
- Design and Analyze database and normalize data

Core Course VIII - RDBMS Practical

Semester: IV	**CIA**	**: 40**
Credits: 2	**EXT**	**: 60**
Course Code: U4R1CSCC8P	**Total**	**: 100**

Objectives:

- To inculcate knowledge on RDBMS concepts and Programming with Oracle.
- To learn to use DDL commands
- To learn to use DML commands
- To learn to use SQL queries
- To learn to define and use cursors and procedures

[Front-end tool – Visual Basic]

1. Data Definition Language commands.
2. Data Manipulation commands
3. Sub Queries and JOIN
4. High level language extensions – PL/SQL
5. PL/SQL Packages
6. Use of Cursors
7. Procedures and Functions.
8. Oracle or SQL Server Triggers – Block Level – Form Level Triggers
9. Database Connectivity.
10. Working with Forms, Menus and Report Writers for an application project in any domain.

Course Outcomes:

On successful completion of the course students would be able to

- Achieve knowledge on RDBMS concepts and Programming with Oracle.
- Work on DDL and DML commands.
- Use queries and aggregate functions hands on.
- Analyze and use cursors, procedures and functions though programs.
- Connect databases with queries

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Core Course IX – Dot Net

Semester: V **CIA : 25**
Credits: 6 **EXT : 75**
Course Code: U5R1CSCC9 **Total : 100**
Instructional Hours: 72

Objectives:

- To gain knowledge on .net platform
- To understand the programming basics of VB and C# in .Net
- To train the concepts of distributed application development.
- To analyze and use validation controls of .Net
- To give understanding about Web Service development and .**NET** remoting

Unit – I .Net platform (15 Hours)

What is ASP.Net? – Writing the first ASP.Net page - ASP.Net basics: ASP.Net page structure – View state – Working with directives - ASP.Net languages.

Unit – II VB and C# programming basics (15 Hours)

Programming basics: Control events and subroutines – Page events – Variables and variable declaration – Arrays – Functions – Operators – Conditional logic – Loops – Object oriented programming concepts: Objects and classes - Properties – Methods – Classes – Constructors – Scope – Events – Inheritance – Objects in .Net – Namespace – Using code behind files.

Unit – III Constructing ASP.Net web pages (14 Hours)

Web forms – Html server controls – Web server controls – Web user controls –Master pages - Cascading Style Sheets.

Unit – IV Building web Applications and Validation Controls (14 Hours)

Visual web developer – Core web application features – Debugging and Error handling. Using the Validation controls: RequiredFieldValidator –CompareValidator – RangeValidator-ValidationSummary – RegularExpressionValidator – CustomValidator.

Unit – V ADO.Net ,DataList and GridView (14 Hours)

Introducing ADO.Net – ADO.net and DataList - ADO.net and GridView - ADO.net and DetailsView.

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Textbook:

1. Build your own ASP.Net website using VB and C# by Cristian Darie ,Wyatt Barnett and Tim Posey, 4th Edition.
   [Unit –1: chapters -1,2; Unit –2: chapter – 3; Unit –3: chapters – 4; Unit –4: chapters – 5,6; Unit –5: chapters – 9,10,11;]

Reference books:

1. Programming with C#.Net by J.G.R.Sathiaseelan and N. Sasikala Devi, PHI, 2009.
2. The Complete Reference ASP.Net by Matthew MacDonald, McGraw Hill Education Pvt. Ltd. ,Indian Edition,2002
3. ASP.Net Bible by Mridula Parihar et al.,WILEY dreamtech India Pvt. Ltd., Reprint 2002.

Course Outcomes:

On successful completion of the course students would be able to

- Gaining of knowledge about .net platform
- Build interactive and data-driven websites successfully.
- Handling exceptions, and perform validation of data.
- Better understanding of the programming basics of VB and C# in .Net
- To train the concepts of distributed application development.

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Core Course X – Dot Net Practical

Semester: V	**CIA**	**: 40**
Credits: 2	**EXT**	**: 60**
Course Code: U5R1CSCC10P	**Total**	**: 100**

Objectives:

- To gain knowledge on .net platform
- To understand the programming basics of VB and C# in .Net
- To train the concepts of distributed application development.
- To analyze and use validation controls of .Net
- To give understanding about Web Service development and .NET remoting

1. Create a VB .Net program for Employee details to read and display the data using constructors and member functions.
2. Create a VB.Net program to handle user defined Exceptions.
3. Create an application in VB .Net for File Menu with Menu items New, Open, Save, Print and Exit & Edit Menu with Menu items Cut, Copy, Paste, Find and Undo.
4. Design a website using web form to show the current date and time when a user clicks the button.
5. Create a dot net application that validates the entries in the e mail registration form.
6. Develop a Dot net program that connects the Ms access database list view.
7. Create an application in VB .Net for student information database and perform the following operations: i. Addition ii. Deletion iii. Updation iv.Viewing
8. Develop a Company portal using Dot net
9. Develop a Job portal using Dot net
10. Design a website for your college and its department details.

Course Outcomes:

On successful completion of the course students would be able to

- Achieve knowledge on RDBMS concepts and Programming with Oracle.
- Work on DDL and DML commands.
- Use queries and aggregate functions hands on.
- Analyze and use cursors, procedures and functions though programs.
- Connect databases with queries

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Core Course XI – DATA COMMUNICATION AND NETWORKS

Semester: V **CIA : 25**
Credits: 6 **EXT : 75**
Course Code: U5R1CSCC11 **Total : 100**
Instructional Hours: 72

Objectives:

- To explain the importance of data communication and the internet
- To explain how communication works in data networks through OSI Model.
- To explain the role of protocols in networking
- To understand the Transmission media
- To learn about Switching and internetworking

Unit — I Introduction (15 Hours)

Need to study data communications –Data communications - Networks – Protocols and Standards – Standards organizations - Line configuration Topology – Transmission Mode – Categories of networks – Internet works.

Unit — II The OSI Model (14 Hours)

The Model – Functions of the layers – TCP/IP Protocol suite – Signals : Analog and Digital – Periodic and Aperiodic Signals – Analog Signals – Time and Frequency Domains – Composite signals - Digital Signals.

Unit — III Transmission media **(15 Hours)**

Guided Media – Unguided Media – Transmission Impairment – Multiplexing : Many to One / One to many - FDM – TDM - WDM. Error Detection and Correction – Types of errors – Detection – Vertical Redundancy Check(VRC) – Longitudinal Redundancy Check (LRC) – Cyclic Redundancy Check (CRC) Check sum – Error Correction.

Unit — IV Switching (14 Hours)

Switching – Circuit Switching: Space division switches – Time division switches – TDM Bus – Space and Time Division switching combinations - PSTN – Packet Switching – Message Switching-X.25 Layers: Physical Layer – Frame Layer – Packet Layer – PLP Packets.

Unit — V Networking and internetworking Devices (14 Hours)

Repeaters – Bridges: Types of Bridges – Bridges Connecting different LANs – Routers– Gateways - Routing Algorithms: – Distance Vector Routing: Sharing Information – Routing table– Link State Routing: Information Sharing – the Dijkstra Algorithm.

Unit — VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Text Book:

1. "Data Communications and Networking" – Behrouz A.Forouzan Second Edition, Tata McGraw Hill Edition, 2003
   [Unit-1(Chapters – 1,2); Unit-2(Chapters – 3,4); Unit-3(Chapters – 7:7.1,7.2,7.3,chapter 8:8.1,8.2,8.3,8.4,8.5.chapter 9) ;Unit –- 4(Chapter 14,Chapter 17 :17.1); Unit-5 (Chapter - 21)]

Reference Books:

1. "Introduction to Data communication and Networking" – Wayne Tomasi – first edition – 2017, Pearson Publication, ISBN-13: 978-8131709306
2. "Introduction to Data Communication Networks" – Sanjay Sharma, S.K. Kataria & Sons publications; Reprint 2013 edition, ISBN-13: 978-9350142103

Course Outcomes:

On successful completion of the course, the students would be able to

- Describe the components of a data communication system.
- Identify key considerations in selecting various transmission media in networks.
- Describe the various error detection and correction schemes.
- Analyze the features and functions of multiplexing and modulation
- Identify role of networking devices.

Core Course XII - OPERATING SYSTEM

Semester: V **CIA : 25**
Credits: 6 **EXT : 75**
Course Code: U5R1CSCC12 **Total : 100**
Instructional Hours: 84

Objectives:

- To understand the underlying principles, techniques and approaches which constitute a coherent body of knowledge in operating system
- To understand the design issues associated with operating system
- To acquire the knowledge of various memory management techniques.
- To master various process management concepts including scheduling, synchronization and deadlocks.
- To learn different types of operating systems along with concept of file systems.

Unit – I Introduction to operating systems (18 Hours)

Evolution of operating systems - Functions – Different views of OS – Batch processing, Multiprocessing, Time sharing OS – I / O programming concepts – Interrupt Structure & processing

Unit – II Memory Management (18 Hours)

Memory Management – Single Contiguous Allocation- Partitioned Allocation – Relocatable Partitions allocations – Paged and Demand paged Memory Management – Segmented Memory Management – Segmented and Demand paged Memory Management – overlay Techniques - Swapping

Unit – III Processor Management (16 Hours)

Processor Management – Job Scheduling – Process Scheduling – Functions and Policies – Evolution of Round Robin Multiprogramming Performance – Process Synchronization – Wait and Signal mechanisms – Semaphores P & V Operations – Deadlock – Banker's Algorithm.

Unit – IV Device Management (16 Hours)

Device Management – Techniques for Device Management – I/O Traffic Controller, I/O Scheduler, I/O Device Handlers – Spooling.

Unit – V File Management (16 Hours)

Simple File System, General Model of a File System, Physical and Logical File System. Case Studies: MSDOS, UNIX.

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Text Book:

1. Operating Systems – E. Madnick& John J.Donavan, Tata McGraw Hill Publishing Co., Limited.
   [Unit-1 (Chapters – 1, 2); Unit-2 (Chapters – 3); Unit-3 (Chapters – 4); Unit-4 (Chapters – 5); Unit-5 (Chapters – 6)]

Reference Books:

1. System Programming and Operating Systems – D.M. Dhamdhere, Tata McGraw Hill Publishing Co., Limited.
2. Singh, Neetu," Operating System",New Delhi: Global Vision Publishing House, 2012. ISBN: 978-81-8220-362-4
3. Mohan, Cgandra I," Operating System",New Delhi: PHI Learning Private Limited, 2013. ISBN: 978-81-203-4726-7
4. Sridhar, V,"Operating System", Chennai: Vijay Nicole Imprints Pvt Ltd, 2014. ISBN: 978-81-8209-378-2
5. Josuttis, Nicolai M," SOA in Practice the Art of Distributed System Design. Mumbai: Shroff Publishers & Distributors, 2010. ISBN: 978-81-7366-369-3

Course Outcomes:

After completion of this course, the students would be able to

- Learn different types of operating systems along with concept of file systems and CPU scheduling algorithms used in operating system.
- Provide students knowledge of memory management and deadlock handling algorithms.
- Implement various algorithms required for management, scheduling, allocation and communication used in operating system.
- Understand the design issues associated with operating system
- To learn different types of operating systems along with concept of file systems.

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Core Course XIII – MICROPROCESSOR AND ITS APPLICATIONS

Semester: VI **CIA : 25**
Credits: 6 **EXT : 75**
Course Code: U6R1CSCC13 **Total : 100**
Instructional Hours: 72

Objectives:

- To understand the architecture of 8 bit microprocessor
- To understand the techniques for faster execution of instructions and improve the speed of operations
- To apply programming techniques in designing simple assembly language programs
- To know about peripheral and interfacing devices.
- To know about the applications of microprocessor

Unit – I Introduction to Microprocessors (15 Hours)

Evaluation of Microprocessors – Single Chip Microcomputer Microprocessor Applications – Programming Digital Computers – Memory – Buses – Memory addressing capacity and CPU – Microcomputers – Processor Architecture – Intel 8085 –Instruction Cycle – Timing diagram.

Unit – II Intel 8085 (15 Hours)

Instruction set of Intel 8085 – Instruction and Data Formats – Addressing Modes – Status flags – Intel 8085 Instructions – Programming of Microprocessors – Assembly language – Assemblers – Stacks and Subroutines – MACRO – Microprogramming.

Unit – III Examples of Assembly Language Programs (14 Hours)

Assembly language Programming – Simple examples – Addition and Subtraction of Binary and Decimal Numbers – Complements – Shift – Masking – Finding the largest and smallest numbers in an Array – Arranging a series of numbers – Sum of a series of Numbers – Multiplication – Division – Multibyte Addition and Subtraction.

Unit – IV Peripheral Devices and their Interfacing (14 Hours)

Peripheral Devices and Interfacing – Address Space Partitioning – Memory and I/O Interfacing – Data transfer schemes – Interrupts of Intel 8085 – Interfacing memory and I/O devices – I/O ports – Programmable peripheral Interface – Programmable Counter / Interval Timer – A/D Converter and D/A Converter.

Unit – V Microprocessor Applications (14 Hours)

Microprocessor Applications – Delay Subroutines – Interfacing of 7 Segment Displays – Frequency measurement – Temperature measurement and Control – Water Level Indicator – Microprocessor based Traffic Control.

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Text Book:

1. Fundamentals of Microprocessors and Microcomputers – Badri Ram – Fourth Revised and Enlarged Edition – Dhanpat Rai and Sons – 1993.
   [Unit-1 (Chapters - 1, 3); Unit-2 (Chapters – 4, 5); Unit-3 (Chapters – 6); Unit-4 (Chapters – 7); Unit-5 (Chapters – 8)]

Reference Books:

1. "Microprocessor 8085 and Its Interfacing" – Mathur, Prentice Hall India Learning Private Limited; 2 edition (2011), ISBN-13: 978-8120343900
2. "Microprocessor Architecture, Programming and Applications with the 8085" – Romesh S.Gaonkar – Penram International Publishing, Sixth Edition – 2013, ISBN-13: 978-8187972884
3. "Microprocessors: Theory and Applications" – Rafiquzzaman, Pearson Education India; First edition 2016, ISBN-13: 978-9332577497

Course Outcomes:

After successful completion of the course, students would be able

- Have knowledge on the architecture of 8085.
- Analyze instruction set and addressing modes of 8085.
- Gain hands on experience in doing experiments on microprocessor(8085).
- Illustrate how the different peripherals are interfaced with microprocessor.
- Apply various types of microprocessors for real time problems.

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Core Course XIV – MICROPROCESSOR PRACTICAL

Semester: IV	**CIA**	**: 40**
Credits: 2	**EXT**	**: 60**
Course Code: U4R1CSCC8P	**Total**	**: 100**

Objectives:

- To provide hands on experience with assembly language programming
- To develop the simple programs by making use of 8085 instruction set
- To familiarize the students with interfacing of various peripheral devices with 8085
- To execute programs using subroutines on 8085 microprocessor
- To understand the applications of microprocessor

1. Execute simple programs in assembly language using Intel 8085 microprocessor kit :
   i) 8-bit addition,
   ii) Separating out a hexadecimal digit,
   iii) Disassembly of a word,
   iv) Sum of series of data,
   v) Data transfer

2. Execute programs for display and for solving problems using subroutines on 8085 processor:
   i) Display of names,
   ii) Table of squares,
   iii) Length of a string,
   iv) Converting ASCII to decimal,
   v) ASCII to decimal using subroutines,

3. Applications of Microprocessor:
   i) Matrix display using 8255.
   ii) D/A & A/D converters using discrete component modules.
   iii) Traffic signal.

Course Outcomes:

After completing the course the students would be able to

- Expertise assembly language programming.
- Write programs to run on 8085 microprocessor based systems.
- Program on the peripheral devices with 8085.
- Execute programs using subroutines on 8085 microprocessor.
- Use applications of microprocessor for real time situations.

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MAJOR BASED ELECTIVE COURSE – I

Software Engineering

Credits: 5

CIA : 25
EXT : 75
Total : 100
Instructional Hours: 60

Objectives:

- To define software engineering and explain its importance.
- To discuss the concepts of software products and software processes.
- To solve specific problems alone or in teams.
- To manage a project from beginning to end.
- To work independently as well as in teams.

Unit – I Introduction to Software Engineering (12 Hours)

Introduction to Software Engineering: Definitions - Size factors – Quality and Productivity Factors – Managerial Issues. The Product: The evolving role of software – Software – characteristics - applications. The Process: Software engineering: A Layered Technology – The software process – Evolutionary software process models: Spiral model.

Unit –II Software Planning (12 Hours)

Planning a Software Project: Defining the problem – Developing a solution Strategy – Planning the development Process – Planning an organizational structure – Other Planning Activities.

Unit –III Software Cost Estimation and Requirements Definition (12 Hours)

Software Cost Estimation: Software Cost Factors – Software Cost Estimation Techniques – Staffing Level Estimation. Software Requirements Definition: The Software Requirements Specification – Formal Specification Techniques.

Unit – IV Design and Implementation Issues (12 Hours)

Software Design: Fundamental Design Concepts – Modules and Modularization Criteria – Design Notation – Design techniques – Design Guidelines. Implementation Issues: Structured coding techniques – coding style – Documentation guidelines.

Unit – V Verification and Validation Techniques (12 Hours)

Verification and Validation Techniques: Quality Assurance – Walkthroughs and inspections – Static analysis –Unit –testing and debugging – System testing – Formal verification.

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Text Book:

1. Richard E. Fairely – "Software Engineering Concepts", Tata McGraw Hill Publication, 1997 edition. [Unit-1 (Chapters - 1); Unit-2 (Chapters – 2); Unit-3 (Chapters – 3,4); Unit-4 (Chapters – 5, 6); Unit-5 (Chapters – 8)]

Reference book:

1. Roger S.Pressman – "Software Engineering A Practitioner‟s Approach", 5th edition, McGraw Hill, 2001.

Course Outcomes:

After finishing the course, the students would be able to

- Define software engineering and explain its importance.
- Solve specific problems alone or in teams.
- Handle the concepts of software products.
- Manage a project from beginning to end.
- Handle verification and validation techniques efficiently.

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MAJOR BASED ELECTIVE COURSE – II

Computer Graphics and Multimedia

Credits: 5

CIA : 25
EXT : 75
Total : 100
Instructional Hours: 60

Objectives:

- To understand about graphics system
- To learn about output primitives
- To learn to write programs using geometrical transformations.
- To create interactive graphics applications.
- To know about the multimedia tools

Unit – I Overview of graphics systems (12 Hours)

Overview of graphics systems: Video display devices – Raster-scan systems – Random-scan systems – Graphics monitors and workstation – Input devices – Hard-copy devices – Graphics software.

Unit – II Output primitives (12 Hours)

Output primitives: Points and lines – Line-drawing algorithms – DDA algorithm Bresenham‟s line algorithm – Attributes of output primitives: Line attributes – Area-fill attributes – Character attributes – Bundled attributes.

Unit – III Two-dimensional Geometric transformations (12 Hours)

Two-dimensional Geometric transformations: Basic transformations – Matrix representations – Composite transformations – Other transformations.

Unit – IV Multimedia in Use (12 Hours)

Multimedia in Use : Introducing Multimedia for Today and Tomorrow – What is Multimedia –using Multimedia: Applications, Benefits and Problems – Technology : System Components –Multimedia Platforms.

Unit – V Technology (12 Hours)

Technology: Development Tools – Image – Audio – Video.

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Text Books:

1. Computer Graphics C Version Second Edition, Donald Hearn and M.Pauline Baker, Pearson Education, 2006.
2. Multimedia in Practice : Technology and Practice. Judith Jeffcoate, Pearson Education, 2007.

Reference Books:

1. William M. Neuman, Robert R. Sprout, “Principles of interactive Computer Graphics”, McGraw Hill International Edition.
2. Buford J. F Koegel, Multimedia Systems, Twelfth Indian Reprint, Pearson Education

Course Outcomes:

After finishing the course, the students would be able to

- Handle the number system efficiently
- Understand and design digital circuits.
- Have knowledge about sequential and combinational circuits
- Analyze and use Boolean algebra
- Better identify the types of addressing modes

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MAJOR BASED ELECTIVE COURSE – III

Computer Organization and Architecture

Credits: 5

CIA : 25
EXT : 75
Total : 100
Instructional Hours: 60

Objectives:

- To know the basic concepts of Various Number Systems
- To understand the logic gates and their operations
- To analyze design, develop, debug and document combinational and sequential digital circuits.
- To learn and understand about Boolean algebra
- To understand the basics of DMA

Unit – I Number systems (12 Hours)

Number systems – Decimal Number system, Binary number system, Octal & Hexa-decimal number system,1's & 2's complement, Binary Fixed- Point Representation, Arithmetic operation on Binary numbers, Overflow & underflow.

Unit – II Representation of Codes and Logic gates (12 Hours)

Floating Point Representation, Codes, ASCII, EBCDIC codes, Gray code, Excess-3 & BCD, Error detection & correcting codes, Logic Gates, AND, OR, NOT GATES and their Truth tables, NOR, NAND & XOR gates.

Unit – III Flip-flops (12 Hours)

Flip flops - RS, D, JK & T Flip-flops, Registers, Shift Registers, Multiplexer, De-multiplexer, Encoder, Decoder, Counters.

Unit – IV Boolean Algebra (12 Hours)

Boolean Algebra: Basic Operations and Boolean Law's, De-Morgan's theorem, K -Map, Sum of Product & Product of Sum. Combinational & Sequential circuits, Half Adder & Full Adder, Adder & Subtractor.

Unit – V DMA (12 Hours)

DMA- control signals for DMA transfers, Block diagram of DMA controller, DMA transfer in a microcomputer system. Instruction Sets – Characteristics and Functions, Types of Operations Addressing modes and formats, Processor Organization, Instruction Cycle, and Register Organization.

Unit –VI Latest Learning (for CIA only)

Latest development related to the course during the semester concern

Text Books:

1. "Computer Fundamentals" – B. Ram – New Age International Publishers, fourth edition, ISBN: 9788122420432

Reference Books:

1. William Stallings, "Computer Organization & Architecture", Pearson.
2. BARTEE, "Digital Computer Fundamentals " TMH Publication
3. MORRIS MANO, "Computer System Architecture " PHI, Pearson Publications, Revised Third Edition, ISBN: 9789332585607
4. Computer Fundamentals , 6th Edition, Pradeep Sinha, and Priti Sinha, BPB Publications, ISBN: 9788176567527, 2003
5. Computer Organization & Architecture 10th Edition - Designing for Performance, Pearson publication, ISBN: 9789332570405

Course Outcomes:

After finishing the course, the students would be able to

- Know number system conversions.
- Understand and analyze digital circuits.
- Identify the function of flip flops.
- Understand the theorems and laws of Boolean Algebra.
- Analyze design, develop, debug and document combinational and sequential digital circuits

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MAJOR BASED ELECTIVE COURSE – IV

E-Commerce

Credits: 5

CIA : 25
EXT : 75
Total : 100
Instructional Hours: 60

Objectives:

- To provide conceptual and theoretical knowledge of E-Commerce.
- To understand the mechanisms involved in E-Commerce.
- To understand the issues related to security
- Understand selling and marketing on web.
- Be familiarized with E-business and E-business models.

Unit – I Introduction (12 Hours)

E-commerce-Electronic Commerce – E-Commerce types – E-Commerce and world at the large-E-Commerce Case studies : Intel , Amazon.

Unit – II E-Mail (12 Hours)

Electronic Mail – The X.400 Message handling system –Internet Addresses – Multipurpose Internet Mail Extension – X.500 Directory Services – E-mail user agent.

Unit – III Electronic Data Interchange (12 Hours)

EDI- Costs and benefits – Components of EDI Systems – EDI implementation issues – EDIFACT – EDIFACT Message Structure.

Unit – IV Security (12 Hours)

Cyber Security – Cyber Attacks – Hacking- SSL - Authentication and assurance of data integrity – Cryptographic based solutions – Digital Signatures – VPN.

Unit – V Electronic Payment Systems Internet Banking (12 Hours)

Electronic Payment Systems – payment gateway – internet banking – the SET Protocol – E-cash – E-Cheque –Elements of electronic payments

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Textbook:

1. ”E-Commerce the Cutting Edge of Business ”Kamlesh K Bajaj and Debjani Nag. -- 2nd ed. New York: Tata Mcgraw-Hill, 2010. ISBN: 978-0-07-058556-0
   [Unit-1 (Chapters - 2); Unit-2 (Chapters – 4); Unit-3 (Chapters – 7, 8);Unit-4 (Chapters – 14); Unit-5 (Chapters – 18)]

Reference Books:

1. “Frontiers of E-commerce by “Ravi Kalakota and Andrew B.Whinston” –Pearson Education.
2. ” E-Commerce “, Puja Walia Mann and Nidhi. New Delhi: Mjp, 2011,ISBN: 978-81-8094-071-2
3. Whiteley, David,” E-Commerce Strategy, Technologies and Applications”, New York: Tata Mcgraw-Hill, 2009. ISBN: 978-0-07-044532-1

Course Outcomes:

After finishing the course, the students would be able to

- Understand the mechanisms involved in E-Commerce
- Define and differentiate various types of E-Commerce
- Use of e-mail and its different services in business
- Understand the electronic data interchange
- Know internet Banking and electronic payment system and describe the process of selling and marketing on web with security using various e-business strategies.

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MAJOR BASED ELECTIVE COURSE – V

Software Project Management

Credits: 5

CIA : 25
EXT : 75
Total : 100
Instructional Hours: 60

Objectives:

- Build a performing organization and project team
- Develop Work Breakdown Structures (WBS)
- Establish project estimates and project schedules
- Create project plans
- To gain knowledge about the risk management of a project

Unit –I Software Management Renaissance (12 Hours)

Software Management Renaissance: Conventional Software Management – Evolution of Software Economics – Improving Software Economics – The Old Way and the new.

Unit –II A Software Management Process Framework (12 Hours)

A Software Management Process Framework: Live-Cycle Phases –Artifacts of the Process – Model-Based Software Architectures – Work Flows of the Process – Check Points of the Process.

Unit –III Software Management Disciplines – I (12 Hours)

Software Management Disciplines – I: Iterative Process Planning –Project Organizations and Responsibilities – Process Automation.

Unit –IV Software Management Disciplines – II (12 Hours)

Software Management Disciplines – II: Project Control and Process Instrumentation – Tailoring the Process

Unit –V Risk Management (12 Hours)

Risk Management: Introduction – Risk – Categories of risk – A framework for dealing with risk – Risk Identification – Risk assessment – Risk Planning – Risk Management – valuating risks to schedule – Applying the PERT Technique – Monte Carlo Simulation – Critical Chain Concepts

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Text Books:

1. "Software Project Management" - Walker Royce - Pearson Education
2. "Software Project Management" - Bob Hughes & Mike Cotterell - Fourth Edition - 2008 - ISBN: 978 - 0 - 07 - 061985-2

Course Outcomes:

After finishing the course, the students would be able to

- Analyze the given problem
- Design, develop, debug and document software project.
- Know the risk management
- Establish project estimates and project schedules
- Work on Breakdown Structures (WBS)

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SKILL BASED ELECTIVE – I

Visual Programming

CIA : 25
EXT : 75
Credits: 2 **Total : 100**
Instructional Hours: 36

Objectives:

- To inculcate knowledge on Programming and Project Development using Visual Basic.
- To learn the fundamentals of VB such as data types and control structures
- To improve knowledge about standard controls of VB
- To learn about the advanced controls of VB
- To inculcate knowledge about the Data controls of VB

Unit – I Introduction to Visual Basic (8 Hours)

Introduction – VB editor – Features of VB – Integrated Development Environment (IDE) features - customizing the IDE - Anatomy of a form - Working with form properties - setting form's properties - Introducing form events & form methods.

Unit – II Variables, Data types and Arrays (7 Hours)

Variables in Visual Basic: Declaring variables - Data types - Null value, Error value, Empty value - The scope of a variable - Module level variables - constants - Creating your own constants - scope of a constant - converting data types - arrays -declaring arrays - fixed size arrays - dynamic arrays -preserve keyword -REDIM

Unit – III Control Structures (7 Hours)

Writing code in Visual Basic: The anatomy of a procedure - subroutine and functions - language constructs: for, next, the while loop, select case, Exit statement, with structure.

Unit – IV Standard Controls (7 Hours)

Selecting & Using controls: Introducing to standard controls - label control - Text box – Command buttons - option buttons - check boxes - frame controls - list boxes - combo boxes - Image objects - picture boxes -Timer - scroll bars.

Unit – V Advanced controls and Data Control (7 Hours)

Advanced controls: File system controls - Rich textbox control - Menu Editor – Introduction to Data bases – Working with Data Controls

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Text Book:

1. Mohammed. Azam, Programming with Visual Basic 6.0- VlKAS publishing House Pvt. Ltd., ISBN: 9788125909323, 812590932X

Reference Books:

1. McGrath, Mike," Visual Basic in Easy Steps",3rd ed, New York: Tata Mcgraw-Hill, 2011. ISBN: 978-0-07-107718-7
2. Halvorson, Michael," Microsoft Visual Basic 2008 Step By Step, New Delhi: PHI Learning Private Limited, 2008. ISBN: 978-81-203-3458-8.
3. Krishnan.N," Visual Basic 6.0 in 30 Days ",N Krishnan and N Saravanan. Chennai: Scitech Publication Pvt Ltd, 2006.
4. Steven Holzner,"Visual Basic 6 Programming Black Book", Dreamtech Press; 1 edition (2000), ISBN-13: 978-8177220537
5. Bryan Newsome , "Beginning Visual Basic" 2015 1st Edition, Kindle Edition, ISBN: 1119092116.

Course Outcomes:

After finishing the course, the students would be able to

- Have knowledge on Programming and Project Development using Visual Basic and Interpret and report obtaining results
- Know about features and properties of VB
- Efficiently handle data types and control structures
- Achieve knowledge about standard controls of VB and distinguish and compose events and methods.
- Handle the advanced controls and Data controls of VB

SKILL BASED ELECTIVE – II

J2EE

Credits: 2

CIA : 25
EXT : 75
Total : 100
Instructional Hours: 36

Objectives:

- To learn the evolution of the J2EE architecture from two – tier to multi tier.
- To explore J2EE standard common services.
- To understand about java beans
- To gain a good understanding about Bluetooth technology
- To understand J2EE design patterns and best practices.

Unit – I The Java 2 Platform Enterprise Edition (8 Hours)

An introduction to J2EE : J2EE Architecture - J2EE applications - J2EE technologies - J2EE SDK Tools - J2EE security

Unit – II Creating and Deploying an Enterprise Bean (7 Hours)

An introduction to enterprise beans: the advantages of EJB – the architecture of EJB – creating an EJB – deploying an EJB – coding the client – executing the client .

Unit – III XML (7 Hours)

An introduction to XML: the advantages of XML – creating an XML document – document type definition – XML name spaces – XML schemas.

Unit – IV Types of Enterprise Beans (7 Hours)

Enterprise Beans - the life cycle of a session bean – the modes of managing the states of session beans – comparing two stateful beans – coding the home interface – coding the remote interface – coding the helper classes – entity beans – the transaction.

Unit – V An introduction to the Bluetooth technology (7 Hours)

An Introduction to Bluetooth – the Bluetooth SIG – the Bluetooth architecture – the L2CAP – the RFCOMM protocol - the SDP – security in Bluetooth – establishing a connection – Bluetooth and other technologies.

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Text Book:

1. Pallavi Jain and Shadab Siddiqui with NIIT "J2EE Professional projects"
   [Unit-1 (Chapters – 7); Unit-2 (Chapters – 8); Unit-3 (Chapters – 9); Unit-4 (Chapters – 10); Unit-5 (Chapters – 35)]

Reference Book:

1. Michael C.Daconta, Kevin T.Smith, Donald Avondolio, W.Clay Richardson,"More Java / J2EE Pitfalls ", Wiley dreamlech India Pvt.Ltd.

Course Outcomes:

After finishing the course, the students will be able to

- To provide a sound foundation to the students on the concepts
- Understand J2EE design patterns and best practices.
- To provide a sound foundation to the students on the concepts, precepts and practices, in a field that is of immense concern to the industry and business.
- Work on EJB
- Implementing J2EE Applications, Database connection using JDBC API, Servlets, Java Server Pages.

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SKILL BASED ELECTIVE – III

HTML and Web Design

Credits: 2

CIA : 25
EXT : 75
Total : 100
Instructional Hours: 36

Objectives:

- To know about internet
- To develop an ability to design and implement static and dynamic websites
- To understand HTML and design webpages using it
- To learn about HTML Frames
- To design web pager through coding using HTML and DHTML.

Unit – I Introduction to Internet (8 Hours)

Computers in Business – Networking – E-Mail – Resource Sharing – WWW – Usenet – Telnet – Bulleting Board Service – Wide Area Information Service. Internet Technologies: Modem – Internet addressing – Physical Connections – Telephone Lines. Internet Browsers: Internet Explorer – Netscape Navigator.

Unit – II Introduction to HTML (7 Hours)

Designing a home page – History of HTML – HTML generations – HTML document – Anchor Tag – Hyper Links – Sample HTML documents. Head and Body Sections: Header section – Title – Prologue – Links – Colorful web Page – Comment lines.

Unit – III Designing the Body Section (7 Hours)

Header printing – Aligning the heading – Horizontal rule – Paragraph – Tab Settings – Images and Pictures – Embedding PNG format images. Ordered and Unordered Lists: Lists – Unordered Lists – Heading in a list – Ordered Lists – Nested Lists. Table Handing: Table creation in HTML – Width of the Table and cells – Cells – Spanning Multiple Rows / Columns – Coloring cells – Column specification.

Unit – IV DHTML and Style Sheets (7 Hours)

Designing Styles – Elements of Styles – Linking a style sheet to an HTML Document – Inline Styles – External Style Sheets – Internal Style Sheets – Multiple Styles.

Unit – V Frames (7 Hours)

Frame definition – Frameset definition – Nested Framesets. Web Page designing and forms.

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Textbook:

1. "World Wide Web Design with HTML", C Xavier, TMH, 2000.
   [Unit-1 (Chapters - 1, 2, 3); Unit-2 (Chapters – 4, 5); Unit-3 (Chapters – 6, 7, 8); Unit-4 (Chapters – 9); Unit-5 (Chapters – 10, 11)]

Reference Books:

1. Web Design in a Nutshell" – Jennifer Niederst – O'Reilly first Edition – Shroff Publishers and Distributors Pvt. Ltd.

Course Outcomes:

After completing this course, the students would be able to

- Understand the basics of internet
- Know HTML and DHTM as scripting languages
- Design web applications using HTML and DHTML.
- Efficiently handle HTML frames.
- Have a good grounding of web applications, internet tools and other web services.

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SKILL BASED ELECTIVE – IV

Soft Skills

Credits: 2

CIA : 25
EXT : 75
Total : 100
Instructional Hours: 36

Objectives:

- To educate the core values of soft skills
- To improve the communicative skill of the students
- To enhance the students' leadership qualities
- To sharpen their presentation skills
- To make them ready to face interviews

Unit – I ATTITUDE AND TIME MANAGEMENT (8 Hours)

Attitude and altitude – Lateral thinking – Time is Money

Unit – II LEADERSHIP AND TEAM SPIRT (7 Hours)

Leadership – Team building – Group dynamics

Unit – III COMMUNICATION (7 Hours)

Inter personal skills – Business communication in English – Business correspondence

Unit – IV PRESENTATION (7 Hours)

Presentation skills

Unit – V INTERVIEWS AND INTERNET (7 Hours)

Interviews – Internet for job seekers

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Text Book:

1. Success through soft skills by Prof.G.Ravindran ,Dr.S.P.B.Elango and Dr.L.Arockiam **[Unit–I : Chapters 1,2,3; Unit –II: Chapters 4,5,11; Unit –III: Chapters 6,7,9; Unit –IV: Chapters 8; Unit –V: Chapters 10,12]**

Reference Books:

1. "Soft skills and personality development – A hand book of employability skills" by K.Anthonysamy, Joseph Chandra,Vijay Nicole Imprints Pvt.Ltd.,Chennai,2012
2. 'Soft skills for success" by GRK Murthy,Viva books Pvt.Ltd.,Newdelhi,2016
3. "Soft skills-Know yourself and know the world" by Dr.K.Alex, S Chand&Company Ltd.,2010.

Course Outcomes:

After studying this course the students would be able to

- Gain good inter personal skills which improves their personality
- Present them well in groups
- Have enhanced leadership qualities
- Achieve appreciable presentation skills
- Ready to face interviews

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SKILL BASED ELECTIVE – V

Hardware Troubleshooting

Credits: 2

CIA : 25
EXT : 75
Total : 100
Instructional Hours: 36

Objectives:

- To describe the fundamentals of computer system.
- To acquire knowledge about the peripherals and storage devices of a computer.
- To provide an understanding of the networking concepts.
- To gain understanding storage devices of a computer.
- To achieve an understanding about usage of peripherals and storage devices
- To impart understanding about basic networking concepts using PC

Unit – I Introduction (8 Hours)

Fundamentals of PC technology: Fundamental Building Blocks of the PC-Principles of CPU operations-CPU family and operations.

Unit – II Mother boards (7 Hours)

Mother boards: Motherboard controllers and System Resources-The I/O system Bus-Onboard I/O devices Power Supply, cooling, and Protection: The Power Supply-Ventilation and Cooling Protection – Power production and Back up.

Unit – III Storage Devices (7 Hours)

Magnetic Storage – Hard Disk Drives – optical storage Devices: Optical storage media-CD-ROM Devices – DVD – ROM drives – I/O Ports and Devices: Serial ports- Parallel Ports-Universal Serial Bus.

Unit – IV I/O Devices and Networking (7 Hours)

Keyboards and Pointing Devices: Keyboards – Pointing Devices Modems and Communications: Modems – ISDN, CATV network Modems - DSL Networking: Networking Fundamentals- Network Hardware – Network Protocols.

Unit – V Printers (7 Hours)

Printers: Types – Printer Attributes – Printer Maintenance – Troubleshooting Tools and Techniques: Tools of the Trade – Basic PC Handling Techniques

Text Book:

1. PC Hardware: The Complete reference 23rd march 200 by Craig Zacker and John Rourke.

Reference Books:

1. Govindarajulu. B, IBM PC and clones: Hardware, Trouble shooting and Maintenance. Second edition, Tata – McGraw Hill,(ISBN 0-07-048286-1).
2. Rosch. Winn L.,Hardware bible, Sixth edition , Que/Techmedia publishers, 2003 (ISBN 81-7635-696-4)

Course Outcomes:

After completing this course, the students would be able to

- Understand fundamentals of PC
- Know various I/O devices
- Understand storage devices.
- To achieve an understanding about usage of peripherals and storage devices
- To impart understanding about basic networking concepts using PC

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SKILL BASED ELECTIVE – VI

PHP Scripting Language

Credits: 2

CIA : 25
EXT : 75
Total : 100
Instructional Hours: 36

Objectives:

- To understand the Concepts of PHP and Ajax.
- To successfully build interactive, data-driven sites.
- To Impart Practical Training in PHP Programming Language
- To work with regular expressions, handle exceptions, and validate data.
- To learn the features of OOP and advanced OOP in PHP

Unit –I Essentials of PHP (8 Hours)

Essentials of PHP - Operators and Flow Control - Strings and Arrays.

Unit –II Functions (7 Hours)

Creating Functions - Reading Data in Web Pages - PHP Browser - Handling Power.

Unit –III Object-Oriented Programming (7 Hours)

Object-Oriented Programming –Advanced Object-Oriented Programming .

Unit –IV Files and Database (7 Hours)

File Handling –Working with Databases

Unit –V Sessions and Ajax (7 Hours)

Sessions, Cookies, and FTP - Ajax – Advanced Ajax .

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Text Book:

1. The PHP Complete Reference, Steven Holzner, McGrawHillEducation, 2007

Reference Book:

1. PHP: A Beginner's Guide, Vikram Vaswani, McGraw Hill Education, 2008

Course Outcomes:

After completing the course, the students would be able to

- Clearly use fundamental Concepts of PHP
- Use functions , arrays and control structures in PHP
- Create interactive, data-driven sites
- Analyze features of OOP and advanced OOP in PHP
- Use Database connectivity of PHP.

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INTER DISCIPLINARY COURSE – I

Introduction to Internet Concepts

Credits: 2

CIA : 25
EXT : 75
Total : 100
Instructional Hours: 24

Objectives:

- To describe the fundamentals of computer system.
- To acquire knowledge about the peripherals and storage devices of a computer.
- To provide an understanding of the networking concepts like e-mail and e-marketing
- To inculcate knowledge on the basics of browsers
- To achieve knowledge about HTML.

Unit – I Introduction to Computers (4 Hours)

Introduction to Computers Programming Language types History of Internet Personal Computers History of World Wide Web- Micro software .NET Java-Web resources.

Unit – II Browsers (5 Hours)

Web Browsers - Internet Explorer- connecting to Internet Features of Internet explorer6 Searching the Internet- online help and tutorials- File Transmission Protocol (FTP) Browser settings.

Unit – III E-Mail (5 Hours)

Attaching a file, Electronic mail Creating an E-mail id Sending and Receiving mails-attaching a file- Instance messaging - other web browsers

Unit – IV HTML (5 Hours)

Introduction to HTML headers - Linking- Images-special characters and line breaks- unordered lists- simple HTML programs.

Unit – V E-Marketing (5 Hours)

E-marketing consumer tracking Electronic advertising search engine-CRM- credit card payments Digital cash and e-wallets micro payments-smart card

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Textbook:

1. Internet and World Wide Web Third edition H.M.Deital, P.J. Deital and A.B.Goldberg-PHI

Reference Books:

1. The Internet- Complete Reference Harley hahn, Tata McGraw hill

Course Outcomes:

After completing this course, the students would be able to

- Understand fundamentals of internet.
- Describe the internet infrastructures and internet issues.
- Have knowledge of using online services.
- Gain understanding of the networking concepts like e-mail and e-marketing
- Get knowledge on the basics of browsers
- Work hands on using HTML

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INTER DISCIPLINARY COURSE – II

HTML and Web Design

Credits: 2

CIA : 25
EXT : 75
Total : 100
Instructional Hours: 24

Objectives:

- To develop an ability to design and implement websites.
- To understand HTML and design webpages using it.
- To design web pager through coding using HTML.
- To understand about Frame Layouts
- To gain knowledge and use hyperlinks

Unit – I Introduction (4 Hours)

Intermediate HTML: Introduction – unordered list – nested and ordered list – Basic HTML Tables – Intermediate HTML table and Formatting – basic HTML Forms and Formatting

Unit – II HTML Forms (5 Hours)

More Complex HTML Forms – Frameset Element – Nested Frameset. Style Sheets and Graphics: Introduction to Style sheets – Formatting Text by Using Style Sheets – Formatting Paragraphs by Using Style Sheets

Unit – III Graphics (5 Hours)

Graphics: Selecting a Graphics Format – Preparing Graphics for Web Use – Inserting Graphics – Arranging Elements on the Page – Controlling Image Size and Padding –

Unit – IV Hyperlinks (5 Hours)

Hyperlinking from Graphics – Utilizing Thumbnail Graphics – Including Alternate Text for Graphics. Navigation: Creating Navigational Aids – Creating Tables – Formatting Tables Layouts: Creating Division-Based Layouts

Unit – V Frames and Layouts (5 Hours)

Creating User Forms – Using Frames for Layout – Incorporating Audio and Video Dynamic HTML: Introduction

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Text Book:

1. Microsoft Step by Step – HTML and XH, Faithe Wempen, Prentice Hall of India Private Limited, New Delhi, 2006

Reference Books:

1. Eric Ladd, Jim O' Donnel, "Using HTML 4, XML and JAVA", Prentice Hall of India – QUE, 1999.
2. "Web Designing", Hirdesh Bhardwaj, Pothi.com; 1 edition (2016), ISBN-13: 978-1945919060.
3. "Web Designing and Development: Training Guide", by Satish Jain, BPB Publication; First edition (2015)

Course Outcomes:

After completing this course, the students would be able to

- Describe the functions of HTML in web applications
- Create dynamic websites.
- Have a good grounding of web applications tools.
- Design and implement websites
- Use HTML hand on and create web pages.
- Move a step further and handle Frame Layouts and hyperlinks

INTER DISCIPLINARY COURSE – III

Fundamentals of Multimedia

CIA : 25
EXT : 75
Total : 100

Credit: 2 **Instructional Hours: 24**

Objectives:

- To develop an ability to design and implement multimedia
- To identify and use the tools of multimedia.
- To have knowledge of compression techniques
- To enhance knowledge on multimedia files
- To gain knowledge about applications of multimedia

Unit – I Introduction (4 Hours)

Definition-Taxonomy-Multimedia Information Representation-Text-Images-Audio-VideoMultimedia Architecture-Multimedia Applications-Challenges of Multimedia Systems.

Unit – II Compression Techniques (5 Hours)

Compression Principles-Need for Compression-Redundancy and Visibility-Text Compression-Binary Image Compression-Color, Gray Scale and Still-Video Image Compression-Audio Compression-Video Compression.

Unit – III Data and File Formats (5 Hours)

RTF, TIFF, RIFF, MIDI, JPEG, AVI Video File Formats - MPEG standards TWAIN Architecture-Digital Audio and Video as Multimedia I/O Technology-Animation.

Unit – IV Applications (5 Hours)

Multimedia Application Design-Virtual Reality-Organizing Multimedia Databases Application Workflow Design Issues-Distributed Application Design Issues.

Unit – V Multimedia Presentation (5 Hours)

Multimedia Presentation and Authoring-Hypermedia Messaging-Multimedia in Future: High Definition Television and Desktop Computing-Knowledge Based Multimedia Systems.

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

Text Books:

1. Prabhat K. Andleigh and Kiran Thakrar, Multimedia System Design, Pearson Education.
2. Ralf Steinmetz and Klara Nahrstedt, Multimedia Computing, Communications and Applications, Pearson Education.
3. Fred Halsall, Multimedia Communications: Applications, Networks, Protocols and Standards, Pearson Education.
4. John F Koegel Buford, Multimedia Systems, Pearson Education.
5. Judith Jeffcoate, Multimedia in Practice – Technology and Applications, Prentice Hall of India, 2001.
6. Pakhira,"Computer Graphics, Multimedia and Animation, 2nd ed., PHI.

Course Outcomes:

After completing this course, the students would be able to

- Demonstrate the phases of the production cycle and how it relates each area of multimedia.
- Be aware of the rapid change of technologies in the multimedia environment.
- Have a good grounding of compression techniques in multimedia.
- Identify and use the tools of multimedia.
- Handle the applications of multimedia

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COMPUTER APPLICATIONS IN BUSINESS

Allied Course offered to the UG Programme - Department of Management

CIA : 25
EXT : 75
Credits : 4 **Total : 100**
Instructional Hours : 48

Objectives:

- To inculcate the knowledge of MS-Office Package
- To induce critical thinking to independently design and create Spread sheets
- To help the student creating Word documents
- To impart knowledge about Tally
- To teach to create, import and manipulate on Accounting

Unit – I Introduction to Computers (8 Hours)

Meaning of Computer – Characteristics of Computer – Areas of application – I – P – O cycle – Component of Computer – Memory and control Unit — Input and Output device – Hardware and Software Operation Systems – Introduction to Windows 98 Logging on Desktop & Taskbar Icons on desktop – Start menu options Creation of files and folders. Windows explorer. Find options Shortcuts – Briefcase Running applications and customization.

Unit – II Introduction to Word 2000 (10 Hours)

Starting word 2000- Creating short cut for word 2000 – creating word documents – creating business letters using wizards – editing word documents – inserting objects formatting documents – spelling and grammar check – word count – thesaurus auto correct working with tables – saving, opening and closing documents – mail merge.

Unit – III Spread Sheets (10 Hours)

Introduction to spread sheets – spread sheet programmes and applications - - Ms Excel and its features - Building work sheets – entering data in work sheets, editing and formatting work sheets – creating and formatting different types of charts – application of financial and statistical function – creating a – Analyzing and organizing data using Automatic rule total saving, opening and closing work books.

Unit – IV Tally (10 Hours)

Fundamentals of Computerized accounting – Computerized accounting vs manual accounts. Architecture and customization of tally – Features of tally – Configuration of Tally screens and menus – Creation of company – Creating of groups – Editing and deleting groups

- Caution of ledgers - Editing and deleting ledgers – Introduction to vouchers – Vouchers entry payment voucher – Receipt voucher - Sales vouchers – Purchase vouchers – contra voucher - Journal vouchers – Editing and deleting vouchers.

Unit – V Accounting (10 Hours)

Introduction to Inventories – Creation of stock categories – Creation of Stock groups – Creation of Stock items – Configuration and features of stock item – Editing and deleting stocks – Usage of stocks in Vouchers entry. Purchase orders – stock vouchers – Sales orders – stock vouchers – Introduction to cost – Creation of cost category – Creation cost centres - Editing and deleting cost centres & categories – Usage of cost category and cost centres in vouchers entry - Budgetary controls – Creation of budgets – Editing and deleting budgets – Generating and printing reports in detailed and condensed format. Day books – Balanced sheets – Trial balance – Profit and Loss Account – Ratio analysis Cash flow statement – Found flow statement - Cost centre report – Inventory report Bank reconciliation statement conclusion.

Unit – VI Latest learning (For CIA only)

Latest development related to the course during the semester concerned

References:

1. Microsoft office for Windows 95 Bible Author Ed. Jones and Derek Sulton Publications Comdex Computer Publication TIAL Smart Accountant Book SMW Deva Publication, AVC Deva Publication Computerized Accounting under Tally Publication, Deva Publication Implementing Tally 5-4 Author K.K. Nadhani Publication BPB Publication.

Course Outcome:

After completion of this course, the students would be able to

- To handle MS-Office Package efficiently
- Prepare letters, e mails for official communication of their own
- Independently design and create Spread sheets
- Possess required skill and can be employed as tally data entry operator.
- Apply and manipulate text and graphics to create attractive, appealing and effect documents

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COMPUTER APPLICATIONS IN BUSINESS PRACTICAL

Allied Course offered to the UG Programme - Department of Management

	CIA	**: 40**
	EXT	**: 60**
Credits : 2	**Total**	**: 100**

Objectives:

- To learn MSWord so as to prepare letters, e mails for official communication
- To gain practical experience in excel work sheets and its operations
- To study Scaling of worksheets in excel
- To learn and use accounting pakag
- To practice preparing power point presentation

1. MS word (Unit –II)

a. Creating Business Letters

b. Creating an application for the job with Bio-data

c. Creating circular letter with Mail Merge options

d. Creating a Table by using the split and merge options

2. MS – Excel (Unit –III)

a. Creating a work sheet like Mark Sheet, Pay Slip, PF Contribution list etc.

b. Creating Charts

c. Creating a list for the enclosures

d. Filtering the date using Auto filter custom filters using comparison operations.

3. Accounting Package (Unit –IV & V)

a. Preparing voucher entries for the given transactions

b. Preparing final accounts from the Trial Balance given with any ten adjustments

Course Outcomes:

After completing this course the students would be able to

- Prepare letters, e mails for official communication of their own
- Work efficiently on worksheets in excel and can independently design and create Spread sheets
- Create company profile and ledger entries and other transactions in accounting package.
- Prepare accounting reports for the requirement
- Possess required skill and can be employed as tally data entry operator.

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