B.Sc. (Computer Science)
Restructured CBCS curriculum with
Effective from June, 2016

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16UCS1MC01 WEB DESIGNING LAB

Semester: I
Category: MC
Credits: 5
No. of Hrs/week: 5

Objectives:
1. To impart knowledge in designing web pages with text and images.
2. To validate and perform actions on web pages through scripting languages.
3. To learn and implement XML Concepts.

UNIT I
[7 Hrs]

UNIT II
[7 Hrs]

UNIT III
[5 Hrs]
JavaScript: Introduction to scripting —operators: logical-Increment and decrement operators —Control structures-Arrays: Declaring arrays -sorting arrays-object: Math object-string Object-Date object-Boolean object and Number object.

UNIT IV
[6 Hrs]
XML Overview-Working with basics of XML--HTML XML-Processing instructions-Applications of

**UNIT V**

[5 Hrs]

Extensible Style Language Transformations (XSL)-Defining Document Type Definition Entities (DTD)-Working with attributes-Document object model (DOM) -DOM methods-SAX parser.

**TEXT BOOKS:**

**REFERENCE BOOKS:**

**Exercises:**
1. To design Biodata using basic HTML tags.
2. Create application form using various text formats.
3. Linking documents.
4. Creation of hyperlinks and images as hyperlinks in HTML.
5. Creation of Lists in HTML.
6. Create Time Table preparation using table in HTML.
7. Create LOYOLA COLLEGE website using HTML.
8. Targeting the named frame in HTML.
9. Internal CSS with the style elements.
10. Inline CSS with style elements
11. External CSS with style elements.
12. Create Calculator format using Java script.
13. Create Login format using arrays in Java Script.
14. Functions in JavaScript.
15. Dialog boxes using Java script.
17. To validate websites, interactive forms through JavaScript.
18. Create Employee details using schemas.
19. Create our department details using CSS
20. Create Internal and External DTD which contains student information using XML.
21. Create Payroll system using XSL.
22. Food Menu with CSS
23. CD Catalogue with XSL.

**16UCS1MC02 COMPUTER ORGANISATION AND ARCHITECTURE**

Semester: I  
Category: MC  
Credits: 4  
No. of Hrs/week: 4Hrs

**Objectives:**
1. To understand the basic concepts of Logic Gates.
2. To learn the salient features basic computer Organization.
3. To understand the concept of Central Processor Organization.

~ 5 ~
UNIT I: [10 hrs]

UNIT II: [7 hrs]
Digital Components - Decoders - Encoders - Multiplexers - Registers with Parallel Load - Shift Registers - Bi-directional Shift Registers with Parallel Load - Binary Counters with Parallel Load

UNIT III: [10 hrs]
Basic Computer Organization: Instruction codes - Operation codes - Stored Program Organization - Indirect Address - Effective Address - Computer Registers - Common Bus System - Computer Instructions - Instruction Formats – Control Unit

UNIT IV: [8 hrs]
Complete Computer Description – Instruction cycle-Register-Reference Instruction-Memory Reference Instructions-I/O Instructions-Interrupt Cycle-Flowchart for computer operation.

UNIT V [13 hrs]
Central Processor Organization: General Register Organization - Instruction Formats - Three, Two, One, Zero instruction formats- Addressing Modes - Data Transfer and Manipulation: Set of Basic Operations - Data Transfer Instructions - Data Manipulation Instructions - Arithmetic Instructions - Logical and Bit Manipulation Instructions - Shift Instructions –status bit conditions.
TEXT BOOKS:

REFERENCE BOOKS:

16UCA1AL01 MATHEMATICS FOR COMPUTER SCIENCE

Semester: I  Credits: 3
Category: AL  No. of Hrs/week: 6

Objectives:
1. To know the basic mathematics
2. To apply this techniques in computation
3. To implement some techniques using programming languages.

UNIT I  18 Hrs
UNIT II 18Hrs

UNIT III 18Hrs

UNIT IV 18Hrs
Trees: Definition, characteristics & simple properties – Eulerian graph – Hamilton graph – Planar - Non planar graph.

UNIT V 18Hrs

TEXT BOOKS:
16UCS2MC01 PROGRAMMING IN C

Semester: II  Credits: 5
Category: MC  No. of Hrs/week: 5

Objectives:
1. To understand the basic concepts of programming using C language.
2. To learn the salient features of C programming and apply it for problem solving.
3. To understand the usage of files.

UNIT I  16 hrs

UNIT II  14hrs
Arrays: One dimensional, two dimensional arrays and multidimensional arrays - Initialization and Processing of arrays.
Strings: Declaration - Initialization – Reading and Writing on Strings - Standard string functions

UNIT III  18hrs
UNIT IV  12hrs
Structures: Declaring the structures – Initialization -
Structure within a structure – Array of Structures – Pointer to
Structures – Pointers within Structures - Union - Bit fields -
Enumerated data types.

UNIT V  15hrs
Files: Introduction – File handling functions – File types -
Opening and closing a data file – Reading and writing
Operations on files - Command Line Arguments.

TEXT BOOK:

REFERENCE BOOKS:
1. Ashok N. Kamthane, Programming with ANSI and Turbo
C , Seventh Impression, 2009.
2. E. Balagurusamy, Programming in Ansi C, IV Edition -

16UCS2MC02 PROGRAMMING IN C LAB

Semester: II  Credits: 4
Category: MC  No. of Hrs/week: 4

Objectives:
1. To practice the Features of C programming.
2. To Solve problems through C language.
3. To solve problems using pointers and other data
structures.
1. Arithmetic Expressions  
2. Formatted Input/Output  
3. Library functions (Mathematical, String)  
4. Different types of Operators  
5. Decision Making  
6. Loop statements.  
7. Enumerated data type.  
8. Arrays (1-D, 2-D)  
9. Operations on Strings  
10. Pointers  
11. User Defined Functions- Single and Multiple parameters.  
12. Structures  
13. Array of structures  
14. Pointers to structures  
15. Reading and writing with files

**16UCA2AL01 MICROPROCESSOR 8085**

**Semester: II**  
**Credits: 3**  
**Category: AR**  
**No. of Hrs/Week: 6**

**Objectives:**
To make the students to:

1. Identify the basic element and functions of 8085 microprocessor.  
2. Describe the architecture of 8085 microprocessor.  
3. Apply the programming techniques in developing the assembly language program.

**UNIT I**  
**12Hrs**  
Introduction, Advances in semiconductor technology, Organization of microprocessor based system, 8085 microprocessor and Architecture.
UNIT II 12Hrs
8085 Bus organization, Demultiplexing the bus AD7-AD0, Generating control signals. ALU, Timing and control unit, Instruction register and decoder, Register array, Decoding and executing an instruction.

UNIT III 12Hrs
Opcode fetch machine cycle, Memory read machine cycle, Memory write machine cycle, IO read machine cycle, IO Write machine cycle, Execution time of the instruction cycle.

UNIT IV 12Hrs
Instructions, Data format and storage, Addressing modes, Instruction classification - Data transfer instructions, Arithmetic instructions, Logical instructions, Branching instructions, Machine control instructions, Assembly language programs Addition/Subtraction of 8 bit data, Interchanging a block of data, Largest of N numbers, Number of 1 's& 0's in a 8-bit data, Look-up table.

UNITV 12Hrs
Counters and time delays, Time delay using single register and register pair, Stack and subroutines, Call and return instructions, Advanced subroutine concept. Assembly language program

Hexadecimal counter ,Sum of odd and even numbers , Hex to BCD conversion.

TEXT BOOK
REFERENCE BOOKS


MICROPROCESSOR PRACTICAL –LAB  [30Hrs]

Write an ALP for the following.
Program to add two 8-bit numbers.
Program to subtract two 8-bit numbers.
Program to add two multi byte binary number.
Program to add N one byte numbers.
Program to add two BCD numbers.

1. Program to implement multiplication by successive addition method.
2. Program to find square of decimal number using Look-up table.
3. Program to move data block with and without overlap.
4. Program to find the smallest of N numbers.
5. Program to perform linear search over a set of N numbers. Display FF and its position if found otherwise 00.
6. Program to check the 4\textsuperscript{th} bit a number is 0 or 1. Display FF if 1 otherwise display 00.
7. Program to find number of 1 's and 0's in 8-bit number.
8. Program to find sum of ODD and EVEN numbers.
9. Program to sort an array.
10. Program to implement BINARY to BCD conversion using subroutine.
11. Program to implement decimal up counter.
12. Program to implement real time clock.

16UCS3MC01 DATA STRUCTURES

Semester: III  
Category: MC  
Credits: 4  
No. of Hrs/week: 4

Objectives:
1. To demonstrate a familiarity with major algorithms and data structures.
2. To apply important algorithmic design paradigms and methods.
3. To synthesize efficient algorithms in problem solving situations.
4. 

UNIT I  
10 Hrs
Introduction & Overview: Concept of data Structures, Data structure operations, Control Structures, Variables, Data types, String Processing, Arrays-Linear arrays, Representation of Linear arrays in Memory, Traversing Linear Arrays, Inserting and Deleting, Multidimensional Arrays, Pointers, Pointer Arrays, Records- Record Structures

UNIT II  
10 Hrs
Stacks- Array Representation of Stacks, Operations on stack, Insert, Delete, update, Arithmetic Expressions: Polish
Notation- Reverse Polish notation, Evaluation of a postfix expression, Transforming infix expression into postfix, Recursion, Towers of Hanoi, Queues- Representation of Queues- operations on queues, Insert , Delete, update

UNIT III 14 Hrs
Linked List- Representation of Linked list in memory, Traversing a linked list, Searching, Insertion into a linked list, Insertion Algorithm, Deletion from a Linked List, Deletion Algorithms- Doubly Linked List, Insertion, Deletion.

UNIT IV 14 Hrs
Trees, Binary Trees, Representation of binary trees in memory, Traversing Binary Trees- Preorder, In order, Post order, Graphs, Multi graphs, Directed graphs, Sequential Representation of graphs, Adjacency matrix, path matrix, Traversing a graph, Breadth first search, Depth first search.

UNIT V 12 Hrs
Sorting – sorting Techniques- Insertion sort, Selection sort, Bubble sort, merge sort
Searching- searching Techniques- Linear search, Binary search.

TEXT BOOK:
REFERENCE BOOKS:

16UCS3MC02 OBJECT ORIENTED PROGRAMMING USING C++

Semester: III Credits: 4
Category: MC No. of Hrs/week: 4

Objectives:
1. To introduce the fundamentalsof Data Structures, Abstract concepts and how these concepts are used in problem solving.
2. To create and use new, simple and complex data types within C++ programs.
3. To write small/medium scale C++ programs with simple graphical user interface

UNIT I
Principles of Object Oriented Programming: Procedure Oriented Programming – OOP Paradigm- Basic conceptsof OOP-

UNIT II
Function overloading-friend and virtual functions. Classes and Objects. Specifying class, Defining member
functions, outside functions inside, Nesting of member functions, Private member functions, Arrays with in a class, static data members, static member functions, Arrays of objects, object as function arguments, Friendly functions, Returning objects, CONST member function, Pointers to members.

UNIT III
Constructors and Destructors. Constructors-Parameterized constructors,„Multiple Constructors-dynamic constructors-copy destructors, Dynamic constructors. Operator overloading and Type Conversions, Defining operator overloading, overloading Unary operators, overloading Binary operators, rules for overloading operators.

UNIT IV
Inheritance: Extending classes, single, multilevel, multiple, hierarchical and Hybrid inheritance- Pointers– pointers to objects, this pointer, pointers to derived classes, virtual functions and polymorphism.

UNIT V

TEXT BOOKS:
1. E. Balagurusamy, Object-Oriented Programming with

REFERENCE BOOKS:

16UCS3MC03 OBJECT ORIENTED PROGRAMMING USING C++-LAB
Semester: III Credits: 4
Category: MC No. of Hrs/week: 4

Objectives:
1. To acquire skills in C++ programming with object oriented concepts
2. To understand the data structures and implement through C++ programming language

Develop C++ programs to perform the following:
1. C++ Program to find an element in an array using function
2. C++ Program to arrange the given set of numbers in Ascending and Descending order using function
3. C++ Program to illustrate enumerated data type
4. C++ Program to illustrate reference variables
5. To implement call by reference and return by reference
6. To implement the concept Function overloading
7. To develop and use virtual and inline functions
8. C++ Program to perform nesting of member functions

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9. C++ Program to implement private member functions
10. C++ Program to implement static member functions
11. To find the sum and average of n numbers using friend function.
12. To read two matrices of size m x n and perform addition/subtraction.
13. To read two matrices and perform multiplication if the order satisfies the criteria.
14. To find the sum of two complex number using constructor.
15. To generate Fibonacci series using class.
16. To read and display the "Employee information" using class.
17. To prepare payroll for ‘n’ employees.
18. To create a String type class and implement the string operations
19. C++ Program to illustrate the parameterized constructor
20. C++ Program to overload an unary operator
21. C++ Program to implement Single Inheritance
22. C++ Program to implement Multiple Inheritance
23. C++ Program to implement Multilevel Inheritance
24. C++ Program to implement Hierarchical Inheritance
25. C++ Program to implement Hybrid Inheritance
26. C++ Program to implement I/O console functions
27. C++ Program to perform file operations.
16UBU3AL02 HUMAN RESOURCE MANAGEMENT

SEMESTER: V CREDITS: 6
CATEGORY: MC NO. OF HOURS/WEEK: 6

COURSE OBJECTIVES:
1. To highlight the importance of HRM in an organization.
2. To familiarize the students with the processes and mechanism of managing human resources.
3. To develop a competitive advantage by using its human resource.

UNIT 1 : INTRODUCTION
Nature of HRM - Scope - Objectives - Importance - System Approach to HRM - Functions of HRM - HRM & Competitive Advantage - Skills & Roles of HR Manager - Meaning of Strategic HRM - Personnel Management Definition

UNIT 2 : JOB ANALYSIS & HRP

UNIT 3 : RECRUITMENT & SELECTION
Recruitment - Meaning & Definition - Constraints & Challenges - Sources of Recruitment - Methods of Recruitment - Selection - Definition - Purpose - Selection Process - Application Blank - Curriculum Vitae - Testing - Employment Interview - Interview Process - Medical Screening - Appointment Order
UNIT 4 : TRAINING & PERFORMANCE APPRAISAL

UNIT 5 : EMPLOYEE GRIEVANCES, DISCIPLINE & STRESS MANAGEMENT

COURSE TEXT:

COURSE REFERENCES:
Objectives:
1. To inculcate the basics of relational database systems.
2. To master the different query constructs and utilize the features of Oracle.
3. To gain knowledge in PLSQL Programming.

UNIT I [8 Hrs]
Introduction to databases - three levels of database architecture - Client Server Architecture - Relational algebra - Relational Calculus - Tuple Calculus - Domain Calculus - Integrity and views - Keys.

UNIT II [8 Hrs]
Functional dependencies - Basic definitions - First, Second and Third Normal forms - Boyce Codd normal form - E/R Model - E/R Diagrams - Database design with the E/R Model.

UNIT III [8 Hrs]
Transaction Management - Transactions - transaction recovery - system recovery - Two phase commit - Savepoint - Concurrency - Locking.

UNIT IV [11 Hrs]
Creating - dropping and altering tables - simple queries - creating - dropping and altering views - creating indexes. Character functions - number functions - date functions - conversion functions - Group functions - Sub queries - Adding and removing constraints to tables - Database objects - views - synonyms - sequences - indexes - clusters.
UNIT V [10 Hrs]

TEXT BOOKS

REFERENCE BOOKS

16UCS4MC02 RELATIONAL DATABASE MANAGEMENT SYSTEM - LAB

Semester: IV Credits:  3
Category: MC No. of Hrs/week: 3

Objectives:
1. To acquire skills in SQL statements with various constructs
2. To acquire skills in PL/SQL Programming
3. To practice database Objects

Exercises:
1. Creating, modifying and dropping Tables.
2. Inserting, modifying and deleting records of a table.
3. Creating tables with Adding, Dropping, disabling/enabling constraints.
4. Retrieving rows with Character functions.
5. Retrieving rows with Number and Date functions.
6. Retrieving rows with Group functions and HAVING.
7. Retrieving rows with Sub Queries.
8. PL/SQL programs with control structures.
9. PL/SQL programs with Cursors.
10. PL/SQL programs with Exception Handling.
11. Creating and Calling Procedures.
12. Creating and Calling Functions.
13. Working with Sequences, synonyms, views, index and clusters

16UCS4ES01 DATA COMMUNICATION AND NETWORKS

Semester: IV  
Category: ES  
Credits: 4  
No. of Hrs/week: 6Hrs

Objectives:
1. To have a depth knowledge about data communication and networks.
2. To describe various transmissions and multiplexing methods.
3. To understand the utilities and security.

UNIT I  
[11 Hrs]
UNIT II  [12 Hrs]

UNIT III  [15 Hrs]

UNIT IV  [18 Hrs]

UNIT V  [15 Hrs]

TEXT BOOK:

REFERENCE BOOKS:

16UCS4ES02 CLOUD COMPUTING

Semester: IV Credits: 4
Category: ES No. of Hrs/week: 6

OBJECTIVES:
1. To learn the different types of cloud computing services.
2. To make a cloud computing application unique, managing and working with cloud security.
3. To introduce the broad perceptive of cloud architecture and model.

UNIT I [14 Hrs]

UNIT II [20 Hrs]

UNIT III [20 Hrs]
Cloud Computing at Work: Software as a service – Overview– Driving Forces – Company offerings – Industries
– Software plus Services–Overview-Mobile Device Integration –Providers – Microsoft Online.

UNIT IV [18 Hrs]

UNIT V [18 Hrs]
Migrating to the Cloud: Cloud Services for Individuals – Cloud services aimed at the mid-market – Enterprise-Class Cloud Offerings – Migration.

TEXT BOOKS:

REFERENCE BOOKS:

WEB RESOURCES:

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OBJECTIVES:
1. To familiarize the students with the behavioral patterns of human beings at individual and group levels in the context of an Organization.
2. To enable the students to understand the prediction and control of human behavior in an Organization.

UNIT 1: INTRODUCTION TO OB
Definition of Organization - Characteristics of Organization - Importance of Organization - Theories of Organization - Classical Theory - Neo Classical Theory - Elements & Criticism - Organizational Behaviour - Scope of OB - Elements of OB - Approaches to OB - Disciplines that contribute to OB Field - Challenges & Opportunities for OB - OB Model (Autocratic, Custodial) - Biographical Characteristics

UNIT 2: ATTITUDES & VALUES
Attitude Definition - Characteristics of Attitude - Importance - Source of Attitude - Components of Attitude - Attitude Measurement - Developing Positive Attitude - Job Satisfaction - Values - Importance - Types of Values

UNIT 3: PERSONALITY
Personality Definition - Factors Influencing Personality - Theories of Personality- Frudian Theory, Jungian Personality Type, Neo Frudian Personality Theory, Myers-Briggs Type Indicator - The Big Five Force Personality Model - Personality Traits
UNIT 4 : PERCEPTION & MOTIVATION
Perception Definition - Importance - Types of Perception - Uses of Perception - Factors that influence perception - Making Judgment about others - Perceptual Errors - Definition of Motivation - Importance of Motivation - Relevance of Motivation to OB

UNIT 5 : GROUP DYNAMICS

COURSE TEXTS:
2.

COURSE REFERENCES:
1. Luthans Fred, Organizational Behavior, Tata McGraw Hill, 2010

16UCS5MC01 OPEN SOURCE TECHNOLOGY
Semester: V Credits: 5
Category: MC No. of Hrs/week: 5

Objectives:
1. To understand about the basics of open source technology
2. To understand and develop skills in open source programming language.

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3. To understand and develop applications using open source technology.

UNITI : INTRODUCTION  Hrs:15
Introduction to Open sources—Need of OpenSources—Advantages of Open Sources—Application of Open Sources.

UNITII: OPENSOURCEDATABASE  Hrs:15

UNITIII: OPENSOURCEPROGRAMMING LANGUAGES  Hrs:15

UNITIV: PYTHON  Hrs:15
Syntax and Style—Python Objects—Numbers—Sequences—Strings—Lists and Tuples—Dictionaries—Conditionals and Loops—Files—Input and Output—Errors and
Exceptions—Functions—Modules—Classes and OOP
Execution Environment.

**UNITV PERL**

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**TEXT BOOKS:**


**REFERENCE BOOKS:**

OPEN SOURCE TECHNOLOGY - LAB

1. Installation of Linux
2. Generating random number using shell script.
3. Changing file permissions using shell script
4. Executing basing commands using Linux
5. Executing text editing commands in Linux.
7. Designing a web page using PHP
8. Designing application using session and cookies
9. Designing application using session and cookies
10. Working with different types of array using PHP
11. Working with PHP forms
12. Executing DML and DDL commands using MySQL
13. Retrieving data from table using PHP
14. Inserting data into table using PHP
15. Create a feedback form using PHP and MySQL
16. Create an application for ONLINE TEST using PHP and MySQL
17. Designing an application using PYTHON
18. Designing an application using PERL
16UCS5MC02 VISUAL PROGRAMMING
Semester: V  Credits:  4
Category: MC  No. of Hrs/week: 4

Objectives:
1. To understand the goals and objectives of the .NET framework.
2. A working knowledge of the VB.NET programming language.
3. To apply VB.NET programming techniques to various real world problems.

UNIT I  [7 Hrs]

UNIT II  [11 Hrs]

UNIT III  [10 Hrs]
UNIT IV                        [7 Hrs]
ADO.NET – Overview – Database Connections –
Commands – Data Reader – Data Adapter -Data Sets –
Binding Controls to Databases.

UNIT V                        [10 Hrs]
Web Forms: Introduction to ASP.NET -Working with Web
Forms – Web form controls –Web forms and HTML – Web
form to manipulate XML files-Creating a Web application.

TEXT BOOKS:

REFERENCE BOOKS:
2. Matthew MacDonald, “Beginning ASP.NET in VB.NET”,

16UCS5MC03 VISUAL PROGRAMMING LAB
Semester: V                     Credits: 4
Category: MC                    No. of Hrs/week: 4

Objectives:
1. To provide basic programming constructs of
VB.NET programming language.
2. To provide skills to create a Console and windows
application.
3. To design Web application using ASP.NET
Exercises:
1. Console Application – Determine Simple interest.
2. Console Application – Solution to quadratic equation.
3. Console Application – Determine standard deviation for a set of numbers.
4. Console Application – Determine row sum and column sum of M x N matrix.
5. Console Application - Find factorial of a number using recursion.
6. Console Application - Simple Class for student data with Constructor & Destructor.
7. Console Application - Simple class for Complex data with function & operator overloading.
9. Console Application – Exception handling mechanism.
11. Windows Application – Program to display dates in different formats.
13. Windows Application – Creation of simple menu driven application.
16UCS5MC04 SOFTWARE ENGINEERING
Semester: V  Credits:  5
Category: MC  No. of Hrs/week:  5

Objectives:
1. To understand the fundamentals of software engineering
2. To understand the different phases of software development life cycle.
3. To express the flow of any Software Project.

UNIT I  13 Hrs
Introduction: Definition of software and software engineering – Software myths – Software Engineering paradigms: Linear Sequential Model & Prototyping Model

UNIT II  12 Hrs

UNIT III  10 Hrs
Structured Analysis: Introduction – the elements of the analysis model – data objects, attributes and relationships – Cardinality and Modality – ERD – DFD – Classical Analysis Methods : DSSD, JSD, SADT.

UNIT IV  13 Hrs
Software Design: Software Design and Software Engineering – Design and Software Quality – Evolution of

**UNIT V ** 12 Hrs

**TEXT BOOKS:**

**REFERENCE BOOKS:**

16UCS5ES01 DATA MINING
Semester: V Credits: 4
Category: ES2 No. of Hrs/Week: 6

**Objectives:**
1. To reveal the principles of data retrieval from large databases through data mining
2. To acquire knowledge in different mining principles
3. To acquire knowledge in prediction and classification

**UNIT I** (18 Hrs)
Introduction to Data mining: Motivation - On what kind of data - Data Mining Functionalities - Classification of Data Mining systems - Major Issues in Data Mining systems. Data Preprocessing – Data cleaning - Data Integration and
Transformation - Data Reduction - Discretization and concept Hierarchy Generation.

UNIT II (18 Hrs)
Mining Association Rules in Large Databases: Association Rule Mining - Mining Single Dimensional Boolean Association rules from Transactional Databases - Mining Multilevel Association Rules – Mining Multidimensional Association Rules - From Association Mining to Correlation Analysis - Constraint- Based Association Mining.

UNIT III (18 Hrs)
Classification and Prediction: What is Classification and Prediction - Issues regarding Classification and Prediction - Classification by Decision Tree Induction - Bayesian Classification - Classification by Back propagation - Other Classification Methods - Prediction - Classifier Accuracy.

UNIT IV (18 Hrs)

UNIT V (18 Hrs)
Applications and Trends in Data Mining: Data Mining Applications - Data Mining System Products and Research Prototypes - Additional Themes on Data Mining - Social Impacts of Data Mining - Trends in Data Mining.
TEXT BOOK

REFERENCE BOOKS
2. Dunham H. Margaret, "Data Mining- Introductory and advanced topics", Pearson Education, 2011

16UCS5ES02 SOFT COMPUTING
Semester: V Credits: 4
Category: ES2 No. of Hrs/Week: 6

Objectives:
1. To introduce the key aspects of soft computing
2. To get familiarity with Genetic algorithm
3. To understand the features of neural network
4. To introduce to fuzzy logic components

UNIT I
10Hrs
Introduction: Neural Networks – Fuzzy Logic – Genetic Algorithm – Soft Computing

UNIT II
10Hrs
Artificial Neural Network – Fundamental Concept – Evolution of Neural Networks - Basic Models – Terminologies – Supervised Learning – Unsupervised Learning
UNIT III 10Hrs
Classical Sets and Fuzzy Sets – Classical Relation and Fuzzy Relations – Membership Functions – Defuzzification – Fuzzy Decision Making - Fuzzy Logic Control System

UNIT IV 12Hrs
Genetic Algorithm – Basic Operators and Terminologies – Traditional vs Genetic Algorithms - Classification of GA - Application of GA

UNIT V 18Hrs

TEXT BOOK

REFERENCE BOOKS
16UCS5ES03 SYSTEMS PROGRAMMING

Semester: V  Credits: 4
Category: ES  No. of Hrs/Week: 6

Objectives:
1. To provide basic knowledge of various system software to get deeper understanding of actual working of a computer system.
2. To know the advantages of using macros.
3. To know the functionalities of Loaders and Linkers.
4. To illustrate various phases of compilers.

UNIT I

UNIT II  Hours- 16
Assembler: General design procedure, Design of Assembler- Statement of Problems, Data structures, Format of Databases, Algorithm (2 –pass assembler) with flow chart.

UNIT III  Hours- 18
Macro Language and the Macro Processor: Macro instructions, Features of Macro facility, Macro instruction argument, Conditional Macro expansions, Macro call within Macro, Implementation.

UNIT IV  Hours- 16
Loaders and Linkers: - Loader Schemes - Compile and Go Loader, General Loader scheme, Absolute Loaders,
Subroutine Linkages, Relocating Loaders, Direct-Linking Loaders Binders, Linking loaders, Overlays, Dynamic Binders, Design of an Absolute Loader, Design of direct linking loader

UNIT V
Compilers:
Statement of problems- Recognizing basic elements-
Recognizing syntactic units and interpreting meaning,
Intermediate form- storage allocation - code generation,
General model of compiler, General model of compiler.
Phases of Compilers - Different phases- Lexical Phase,
Syntax Phase, Interpretation Phase, Optimization Phase,
Storage Assignment Phase, Code Generation Phase and
Assembly phase- Passes of a Compiler with flow chart.

TEXT BOOK
1. John J Donovan,“Systems Programming”, Tata

REFERENCE BOOKS
1. D.M.Dhamdere,“Introduction to System Software” ,

WEB RESOURCES
3. https://drive.google.com/file/d/0B7doMTp4mbo3QWgzQzVSbnNCb1k/view?pref=2&pli=1
16UCS5ES04 COMPUTER GRAPHICS
Semester: V  Credits: 4
Category: ES2  No. of Hrs/week: 6 Hrs

Objectives:
1. This subject deals with Graphics Concepts and Multimedia methodologies.
3. To inculcate knowledge on Graphics & Multimedia concepts.

UNIT I  15Hrs
Survey of computer graphics, Overview of graphics systems – Video display devices, Raster scan systems, Random scan systems, Graphics monitors and Workstations, Input devices, Hard copy Devices, Graphics Software; Output primitives – points and lines, line drawing algorithms, loading the frame buffer, line function; circle and ellipse generating algorithms; Pixel addressing and object geometry, filled area primitives

UNIT II  15Hrs
Two dimensional geometric transformations – Matrix representations and homogeneous coordinates, composite transformations; Two dimensional viewing – viewing pipeline, viewing coordinate reference frame; widow-to-viewport coordinate transformation, Two dimensional viewing functions; clipping operations – point, line, and polygon clipping algorithms.
UNIT III  15Hrs
Three dimensional concepts; Three dimensional object representations – Polygon surfaces- Polygon tables- Plane equations – Polygon meshes; Curved Lines and surfaces, Quadratic surfaces; Blobby objects; Spline representations – Bezier curves and surfaces -B-Spline curves and surfaces. TRANSFORMATION AND VIEWING: Three dimensional geometric and modeling transformations – Translation, Rotation, Scaling, composite transformations; Three dimensional viewing – viewing pipeline, viewing coordinates, Projections, Clipping; Visible surface detection methods.

UNIT IV  12Hrs

UNIT V  15Hrs
TEXTBOOKS:

(UNIT I, II, III)
Ranjan Parekh “Principles Of Multimedia”, TMH, 2012,

(UNIT- III: UNIT- IV: 5.1-5.4, 5.6-5.9, 5.12-5.14, 5.17; 6.3-6.4, 6.10-6.12, UNIT-V: chapter 7 &8 )

REFERENCE BOOKS:
16UCS5SK01 NETWORK ADMINISTRATION
Semester: V                  Credits: 6
Category: SK                No. of Hrs/week: 6

Objectives:
1. To understand the different types of network and directory services.
2. To design a network, configure the networking resources.
3. To administrate and manage networks in an organization.

UNIT I [6 Hrs]

UNIT II [6 Hrs]

UNIT III [6 Hrs]
Network connection hardware - Router, switch, Hub, NIC, Repeaters. Transmission Control Protocol (TCP) – Segment header, Connection Establishment, connection release- User Datagram Protocol (UDP) – Segment header

UNIT IV [6 Hrs]
Routing algorithm – Shortest path routing, DVR Routing, Flooding. DataCenters- Location, access, security, Racks, wiring, labels.
UNIT V [6 Hrs]

TEXT BOOKS:

REFERENCE BOOKS:

NETWORK ADMINISTRATION LAB
- Learn Basic Network administration commands.
  a) PING  b) TRACERT  c) PATHPING  d) NETSTAT  
  e) AT  f) NET  g) ROUTE  h) ARP  i) IPCONFIG  j) NETSH
- Setting up simple LAN network.
- Practice installation of windows 2003 server
• Practice configuring server/client setting in windows 2003 server
• Assigning IP Address to remote user.
• Practice configuring windows 2003 server to use Domain Name System(DNS)
• Practice on configuring windows 2003 as a DHCP client
• Practice on configuring windows 2003 as a DHCP server
• Practice adding new user/new group in windows 2003 server.
• Practice sharing printer in network
• Configuring the system to connect internet.

16UCS5SK02 RUBY ON RAILS
Semester: V
Category: SK
Credits: 4
No. of Hrs/Week: 6

Objectives:
1. To provide the programming constructs available in Ruby.
2. To give object oriented programming in Ruby
3. Provide basics of Rail and implementing Ruby applications on Rail.

UNIT I
UNIT II 16Hrs
Conditionals, Loops, Methods and Blocks: It’s All about Making choices: the if Statement-Using the case Statement-Using Loops-Creating and Calling a Method.

UNIT III 18Hrs
Classes and Objects: All about Encapsulation-Creating a Class-Creating an Object- Basing one Class on Another-Understanding Ruby's Object Access- Overriding Methods-Creating Class Variables-Creating Class Methods.

UNIT IV 18Hrs
Welcome to Rails: Putting Ruby on Rails-Introducing Model View Controller Architecture-Giving the view Something to do-Mixing Ruby Code and HTML inside the View-Passing Data from an Action to a View-Escaping Sensitive Text-Adding a Second Action.

UNIT V 18Hrs
Connecting to Databases: Creating a Data-Aware Rails Application-Creating a Database-Running the store Application-Adding Another Record-Beautifying a Display-Working with Databases: Displaying items to the customer-Creating a Shopping Cart.

TEXT BOOK

REFERENCE BOOKS

WEB RESOURCES
2. www.railstutorial.org/book

16UCS6MC01 WIRELESS COMMUNICATION NETWORKS

Semester: VI Credits: 5
Category: MC No. of Hrs/week: 5

Objectives:
1. To obtain the knowledge about the Wireless network topology.
2. To understand different wireless technologies.
3. To understand mobile IP and mobile TCP.

UNIT I 12 Hrs

UNIT II 12 Hrs
GSM & TDMA technology: Introduction – GSM - Mechanisms to support a mobile environment - communication in the infrastructure. CDMA technology – What is CDMA?- The IS-95CDMA forward channel-The IS95 CDMA Reverse channel.

UNIT III 12 Hrs
Mobile data networks: Introduction - the data oriented CDPD networks - GPRS and higher data rates - Short messaging service in GSM - Mobile application protocols.

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UNIT IV  12 Hrs

UNIT V  12 Hrs

TEXT BOOKS:

REFERENCE BOOKS:

WEB RESOURCES:

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16UCS6MC02 PROGRAMMING IN JAVA-LAB

Semester: VI  
Credits: 4  
Category: MC  
No. of Hrs/week: 4

Objectives
1. To implement the basic programming constructs of Java Language.
2. To acquire knowledge for developing windows application.
3. To implement the Java concept in developing the software.

Exercises:
1. Write a Java Program using classes and objects.
2. Write a Java Program with method over loading.
3. Write a java program to handle strings.
4. Write a Java Program with Abstract classes.
5. Write a Java Program with Interfaces.
6. Create and import a package in Java.
7. Write a Java Program to handle Built-in and user defined Exceptions.
8. Write a Java Program to implement the concept of Multithreading.
9. Write a Java Applet that creates some text fields and text areas to demonstrate features of each.
10. File Read/Write operation using java.
11. Write java program to perform Java database connectivity
Objectives:
1. The goal of this paper is to provide an introduction to the internal operation of the modern Operating Systems.
2. To have a basic knowledge of processes, Scheduling concepts, DeadLock and the memory management of the operating system.
3. To have a better understanding in Input and Output device structures and File system of the operating system.

UNITI 12 Hrs

UNITII 12 Hrs

UNITIII 12 Hrs

UNIT IV 12 Hrs
Virtual Memory: Demand Paging - Page Replacement - Page Replacement Algorithms - Thrashing. File System:

UNITV 12 Hrs

TEXT BOOK:

REFERENCE BOOKS:

E-BOOK:

16UCS6MS01 MOBILE COMPUTING
Semester: VI Credits: 4
Category: MC No. of Hrs/Week: 4

Objectives:
To learn the basics of mobile computing and the types of communications used.
To know the protocols and the security mechanisms used in Mobile Computing.

UNIT I Hours 18
(Introduction-2, Content Handling-12, Revision-4)

UNIT II Hours 18
(Introduction-2, Content Handling-12,Revision-4)

UNIT III Hours 18
(Introduction-2, Content Handling-12,Revision-4)

UNIT IV Hours 18
(Introduction-2, Content Handling-12,Revision-4)

UNIT V

Hours 18

(Introduction-2, Content Handling-12, Revision-4)


TEXT BOOK


REFERENCE BOOKS


WEB REFERENCES

16UCS6MS02 SECURITY IN INFORMATION TECHNOLOGY

Semester: IV  Credits: 4
Category: MS  No. of Hrs/week: 6

Objectives
1. To explore the fundamental concepts information security
2. To learn various issues related to information security

UNIT I  18Hrs

UNIT II  18Hrs
Business Needs, Threats, Attacks, Secure Software Development, Legal, Professional and Ethical Issues

UNIT III  18Hrs
Risk Identification, Risk Assessment, Risk Control Strategies, Selecting Risk Control Strategies, Quantitative versus Qualitative Risk Control Strategies, Risk Management Discussion Points

UNIT IV  18Hrs

UNIT V  18Hrs
Security Technology, Intrusion Detection and Prevention Systems, Scanning and Analysis Tools, Biometric Access
Control, Cryptographic Methods, Algorithms, Tools, Protocols for Secure Communications, Attacks on Cryptosystems

TEXT BOOK

REFERENCE BOOKS
COMPUTER SCIENCE ALLIED OFFERED TO OTHER DEPARTMENTS

16UCS2AL01 OPERATIONS RESEARCH

Semester: I  Credits: 3
Category: AL  No. of Hrs/week: 6 Hrs

Objectives:
1. To design and control complex systems and to solve hard problems.
2. To learn optimization in management problems.
3. To learn decision making in real time problems.

UNIT-I  18Hrs
Introduction to Operations research: Basic definition, Scope, objectives, Phases, models and limitations of Operations research Linear Programming: Formulation of LPP – Graphical solution of LPP and simplex method.

UNIT-II  18Hrs

UNIT-III  18Hr
Sequencing and scheduling problems: Job sequencing-n-jobs through two machines, N- jobs through three machines, two jobs through m machines. Maintenance and replacement problems: Models for routine maintenance and preventive
maintenance decision – Replacement models that deteriorate with time and those fail completely.

UNIT-IV 18Hrs
PERT and CPM techniques – Network-activity, node-dummy activity-Fulkerson rule-Constructing the network - Critical path analysis – Three time estimates for PERT.

UNIT-V 18Hrs
Inventory problems: Deterministic model – costs – decision variables – Economic order quality – Instantaneous receipt of goods with and without shortage – Inventory systems – Safety stock – Reorder – Level (ROL), Reorder point (ROP)

TEXT BOOK:

REFERENCE BOOKS:
16UCS2AL01 ENTERPRISE RESOURCE PLANNING

Semester: I  
Category: AL  
Credits: 3  
No. of Hrs/week: 6 Hrs

Objectives:
In this course students shall learn various components of application software that helps to computerize functioning of an enterprise.

UNIT - I:  
15hrs

UNIT- II:  
18hrs
Benefits of ERP: Reduction of Lead Time – Reduction of Cycle Time – Improved Resource Utilization – Reduced Quality Costs – Increased Flexibility – Improved Information accuracy and Decision making capability

UNIT- III:  
15hrs

UNIT- IV:  
12hrs
Supply chains as Systems - Modeling the Supply Chain – Supply Chain Software -Meeting Demand – Maintaining
Supply – Measuring Performance

UNIT - V: 12hrs

TEXT BOOK:
2. Taylor David,A supply chains(A manager guide),Pearson education, (Unit 3:Chapters 4, 5, 6, 7, 8, 9) (unit 4: Chapters 10, 11, 12, 13)

REFERENCE BOOKS:
2. Vinodkumargarg and N.K.Venkitakrishnan , ” Enterprisewide Resource Prentice Hall of India Pvt Ltd
3. Dr.SubodhKesharwani , “ ERP systems – Application, Experiences &Upsurg “, Pragatiprakathanpublication – Meerut Balasubramanian, Enterprise Resource Planning

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Objective:

1. To impart the students with the basic principles and concepts of accounting.
2. To provide Knowledge on the use and application of computer in accounting.
3. To implement all the concepts in using packages.

UNIT I


UNIT II


UNIT III


UNIT IV

18Hrs FINANCIAL ACCOUNTING : Basic Settings- Overview of Organizational Elements in Accounting - Organizational Units- Define and Assign Organizational Units for Finance - Variant Principle - Fiscal Year and Posting Periods - Field Status Variants - Document types and Number Ranges - Posting Keys - Define Tolerance for GL Accounts and Employees - Global Parameters

UNIT V

18Hrs FI Master Data Overview - Chart of Accounts - Types of Chart of Accounts - Define and Assign Chart of Accounts - Define Account

TEXT BOOK:
1. Enterprise Resource planning (ERP): Text and case studies by Murthy, C S V, HPH Teach yourself SAP in 24 hours by George Anderson; Danielle Larocca - Pearson Education
2. SAP business 1.0 Software www.sap.com/confactsap 3.4 to 3.7

REFERENCE BOOKS: