



Shiv Chhatrapati Shikshan Sanstha's

Rajarshi Shahu Mahavidyalaya, Latur

(Autonomous)

Curriculum

2023-2024

B.Sc. C.S.

(CC/AECC/SEC/GE)

UG Second Year Semester III & IV

Under CBCS

Three Year Degree Programme in B.Sc.C.S.

(Six Semester Course)

Syllabi approved by the Board of Studies in

B.Sc.C.S. with effect from June, 2023

**Syllabus outline of B.Sc.C.S. Second Year
Under CBCS Pattern
Effective from Academic Year (2018-2019)**

Semester	Course Code	Course Name	Credits / Marks				Total	
			Internal		End Semester		Credit	Marks
			Credit	Marks	Credit	Marks		
Semester – III	1. Ability Enhancement Courses (AEC) (Compulsory Course)							
	U-COE-301	Communicative English- III	--	20	--	30	2	50
	2. Core Course (CC) (Compulsory Course)							
	U-DBM-382	Database Management System	--	20	--	30	3	50
	U-COJ-383	Core Java	--	20	--	30	3	50
	U-CON-384	Computer Networks	--	20	--	30	3	50
	U-OPS-385	Operating System	--	20	--	30	3	50
	3. Skill Enhancement Course							
	U-ADC-334-A	Android O.S.	--	20	--	30	2	50
	4. Practical / Lab Course							
	U-LAC-386	Lab-Course-IX (DBMS)	--	20	--	30	2	50
	U-LAC-387	Lab-Course-X(Java)	--	20	--	30	2	50
	U-LAC-388	Lab-Course -XI(CN)	--	20	--	30	2	50
U-LAC-389	Lab-Course-XII (OS)	--	20	--	30	2	50	
Total (III)							24	500
Semester	Course Code	Course Name	Credits / Marks				Total	
			Internal		End Semester		Credit	Marks
			Credit	Marks	Credit	Marks		
Semester – IV	1. Ability Enhancement Courses (AEC) (Compulsory Course)							
	U-COE-401	Communicative English- IV	--	20	--	30	2	50
	2. Core Course (CC) (Compulsory Course)							
	U-SOE-481	Software Engineering	--	20	--	30	3	50
	U-ADJ-482	Advance Java	--	20	--	30	3	50
	U-CNT-483	C#.Net	--	20	--	30	3	50
	U-MYF-484	Multimedia Using Flash	--	20	--	30	3	50
	3. Skill Enhancement Course							
	U-ADC-434-A	Mobile Application Development	--	20	--	30	2	50
	4. Practical / Lab Course							
	U-LAC-485	Lab Course-XIII (SE)	--	20	--	30	2	50
	U-LAC-486	Lab Course -XIV (Java)	--	20	--	30	2	50
	U-LAC-487	Lab Course -XV (C#.Net)	--	20	--	30	2	50
U-LAC-488	Lab-Course-XVI(Flash)	--	20	--	30	2	50	
Total (IV)							24	500
Total (III + IV)							48	1000

Semester – III

Course Title – Communicative English -III
Course Code- U-COE-301

Max. Marks: 50

Credits: 02

Learning Objectives:

- i) To enhance learner's communication skills by giving adequate exposure in reading, writing skills and the related sub-skills.
- ii) To create learner's confidence in written and interpersonal communication by reinforcing the basics of reading and writing.
- iii) To help learners to recognize and make use of sentence structures in English in written communication.

Course Outcomes:

- i) By giving adequate exposure in reading and writing skills and the related sub-skills the students enhanced the communication skills.
- ii) The learners increased their confidence in written and interpersonal communication.
- iii) The learners recognized and used the sentence structures in English in written communication.

Syllabus

UNIT-I Reading Skill-1

A. features of Reading:

1. Introduction.
2. Qualities of a good Reader.
3. Bad habits of Reading.
4. Sub skills of Reading.
5. Types of Reading.

B. Reading Techniques:

1. Surveying the Reading Matters and identifying the text.
2. Skimming the Text for identifying the general theme.
3. Scanning the Text to locate specific details.
4. Understanding meaning of words, phrases and sentences.

UNIT -II Writing Skill-I

A. Features of Writing

1. Features of Writing
2. Paragraph Writing

B. Writing Techniques

Note Making and Note Taking.

C. Writing Comprehension

1. Description
2. My Favourite Hero in History
3. A Picnic I Enjoyed
4. My Best Friend.

UNIT III READING STORIES-I

1. Who is cultured? – Munshi Premchand
2. Work of Art - Anton Chekhov
3. Three Dancing Goats – (a folk-tale)
4. The Doll’s House - Katherine Mansfield
5. Bhaut Kuch Hota Hai- Sudha Murthy
6. Honesty Comes from the Heart- Sudha Murthy

UNIT –IV WRITTEN COMMUNICATION-I

- A. Letter Writing.
- B. Email Letter.
- C. Job Application with CV.
- D. What are Bio-data, Resume and CV?

Reference Books

1. Patil Z N. 2003. English for Practical Purposes. Chennai: Macmillan
2. Dwivedi R K & Kumar A, 2002. Macmillan Foundation English. Chennai: Macmillan
3. Edt Jadhav B S. 2009 Radiance Communication Skills Prose and Poetry. Mombai Orient Blackswan
4. Vanikar Ranu. 1995. Corridors to Communication. Bomby. Orient Longman
5. Krishna Mohan & Meera Banerji. 2006 Developing Communication Skills. New Delhi. Macmillan
6. Thorat A R, 2000.Enrichinhg Your Competence in English Bomby. Chennai. Orient Longman
7. Narayanswami V R. 1993. Strengthen Your Writing. Madras. Orient Longman

Course Title: Database Management System

Course Code: U-DBM-382

Total Lectures: 50

Total Marks: 50

Credits: 3

Learning Objectives

- To understand basic of DBMS and its structure
- To design and implement the tables in DBMS
- To write queries to get optimized outputs
- To store, retrieve and view the table contents
- To generate report based on customized need

Course Outcomes

Upon successful completion of the course, students will be able to:

- Identify the information needed to design a database management system for business problem
 - Create conceptual and logical database designs for a business information problem.
 - Construct a database management system that satisfies relational theory
 - Explain how to work with business queries, business forms, and business reports
 - Analyze the core terms, concepts, and tools of relational database management systems
 - Demonstrate skills to work in teams and utilize effective group techniques to manage a complex project.
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SYLLABUS

UNIT I: Overview of Database

1. Introduction to Database

- 1.1. Definition of DBMS, File processing Vs DBMS
- 1.2. Advantages and disadvantages of DBMS
- 1.3. Users of DBMS
- 1.4. DBMS Structure
- 1.5. Terms: Entity, Entity set, attributes
- 1.6. Keys: Primary, secondary, foreign, composite

UNIT II: Data Models and Relational Algebra

2. Data Models

- 2.1. Object based logical model,
- 2.2. Record based logical model (RDB, NDB, HDB)
- 2.3. E-R model, E-R diagram

3. Relational Algebra

- 3.1. Introduction
- 3.2. Relation, Schemes, Domain, Tuples
- 3.3. Cardinality degree
- 3.4. Algebraic operation
- 3.5. Fundamental operation: Select, product, union
- 3.6. Set difference: Natural join, Cartesian product, rename

UNIT III: Relational Database Design and SQL

4. Relational Database Design

4.1 Normalization: 1NF, 2NF, 3NF, BCNF

4.2 E-R tables

4.3 Functional dependency

5. SQL

5.1. Data types

5.2. Table Creation, Modify

5.3. Selecting, Deleting records

5.4. Oracle constraints

UNIT IV: SQL Operators, Functions and Joins

6. SQL Operators

6.1 Comparison operators: Between, In, Not in, Like, Null

6.2 Logical operators: AND, OR, NOT

7. Functions and Joins

7.1. SQL functions

7.2. Views

7.3. Joins

7.4. Sub-queries

Reference Books:

1. Database System Concepts by Abraham Silberschatz, Henry Korth, and S. Sudarshan
2. Database Management Systems by Raghu Ramakrishnan

Course Title: Core Java
Course Code: U-COJ-383

Total Lectures: 53

Total Marks: 50
Credits: 3

Learning Objective:

This course enables the students to:

- Learn and understand basics of Core Java
- Develop dynamic web applications
- Create final year projects
- Get job for the position of Java developer as well as android application developer

Course Outcomes:

- Implement Object Oriented Programming Concepts
 - Use and create packages and interfaces in a Java program
 - Create final year project with database connectivity
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SYLLABUS

Unit I: Basics of Java Programming

1. Introduction to Java:

A Short History of Java, Features of Java, Comparison of Java and C++, Java virtual machine, Java program structure, Creating and Running Java Programs, Command Line Arguments

2. Programming Construct: Decision making statements, switch statement, looping statements

Unit II: Object Oriented concepts in java programming

3. Classes and Objects:

Introduction, Defining a class, Adding variables, Adding Methods, Creating Objects, Accessing Class Members, Constructors. Method Overloading, Static Members

4. Inheritance:

Extending a class, Overriding Method, using super, Final variable and Methods, this keyword

Unit III: Arrays, Packages and Interface

5. Arrays and Strings:

Introduction, One-dimensional and Two-dimensional Arrays, String Arrays, String Method.

6. Packages and Interface:

Java API package, Using system packages, Creating Packages & Using a Package, Interface Introduction, creating and using interfaces

Unit IV: Multithreading and applet

7. Multithreaded Programming:

Introduction, Life Cycle of a Thread, Creating Threads, Extending the Thread Class, Stopping and Blocking a Thread, Thread Priorities

8. Applets:

Life cycle of Applet, Creation and Execution of Java Applets, Applet tag, Parameter Passing to applet

Reference Books

- 1) "Complete Reference Java" by Herbert Schildt(5th edition)
- 2) Programming with Java , By E. Balagurusamy A Primer, Fourth edition

Websites links

- <http://tutorialpoint.com>
- <https://www.w3schools.in/java-tutorial>

Course Title: Computer Network
Course Code: U-CON-384

Total Lectures: 55

Total Marks: 50
Credit: 3

Learning Objectives:

- Build an understanding of the fundamental concepts of computer networking.
- Familiarize the student with the basic taxonomy and terminology of the computer networking area.
 - Introduce the student to advanced networking concepts, preparing the student for entry Advanced courses in computer networking.
- Allow the student to gain expertise in some specific areas of networking such as the design and maintenance of individual networks.

Course Outcomes:

At the end of the course, the students will be able to:

- Independently understand basic computer network technology
 - Understand and explain Data Communications System and its components
 - Identify different types of network topologies and protocols
 - Enumerate the functions of layers of the OSI and TCP/IP model
 - Identify the different types of network devices and their functions within a network
 - Understand and build the skills of subnetting and routing mechanisms.
 - Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation.
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SYLLABUS

UNIT-I: Networking Fundamentals and Network Components

1) Networking Fundamentals

Terminologies Client, Server, Topology, Types of Network, Hierarchical Central Computer, Peer to Peer Network, Client Server Network, Types of Network Topologies, Types of Network Technologies, Types of data passing schemes 12

2) Network Components

Types of Cabling- Coaxial, UTP, STP, FOC, Types of Connectors- RJ-45, Terminator, T-Connector, BNC, HUB, Switch, Router

UNIT-II: Network Devices, Protocols and Services

3) Network Devices

Hub, Unmanageable Switch, Manageable Switch, Router, Modem, Wi-Fi, Access Point, PCI Wireless Card, USB Wireless Device, Print Server, USB Network Sharer, Backup Device, Server Hardware etc. Network Interface Card, Crimping tools and Color standards for straight crimping and Cross crimping, Repeaters, Hub, Switches, Routers, Bridges.

4) Protocols and Services

HTTP, FTP and other Different types of protocols, Media Access Method, DNS services, DHCP services, WINS services and RAS services, Web services, Proxy Services etc.

UNIT-III: Device Installation, Diagnostic Tools and PC Maintenance

5) Device Installation

Graphics Card, Sound Card, LAN Card, Wireless LAN Card, SCSI Card, External Drive, Flash Cards, Web Camera, CCTV Camera, Mobile Devices, Pen Drive, Firewire Cards, Modem, Plotter, Wireless LAN, Access Point etc.

6) Diagnostic Tools and PC Maintenance

Introduction, Virus and its types, Effect of Virus for Computer System, Scanning and Antivirus remover tools, Antivirus Utilities for Diagnostic, Safety and Preventive Maintenance Tools, Data Recovery, 13 Concept of Fax and E-mail, PC care and Maintenance, Electrical Power Issues, Troubleshooting PC Hardware: O/S Troubleshooting issues in computer System.

UNIT-IV: Network Operating System and Network Administration

7) Network Operating System Introduction and Installation

Introduction About Network, Installing Network Operating System Windows 2003 Server and Windows 2008 Server, Cable Crimping, Network Sharing and user Permission, Internet Connection.

8) Network Administration

Installing and Configuring Wire & Wireless Network, Network Troubleshooting, Installing Manageable Switches, Routers, Wi-Fi Device.

Reference Books

1. Computer Networking: A Top-Down Approach, James F. Kurose & Keith W. Ross, 6th edition, Pearson / Addison Wesley 2013.
2. Computer Networking, Andrew S. Tanenbaum by PHI
3. Data and Computer Communications, William Stalling

Course Title: Operating System
Course Code: U-OPS-385

Total Lectures: 55

Total Marks: 50
Credit: 3

Learning Objectives:

The student will enable to

1. Understand the basic concepts of operating system, its functions and services.
2. Familiarize the various management policies adopted by O.S. as pertaining with processes, Deadlock , memory , File and I/O operations.
3. Understand the knowledge of basic concepts towards process synchronization and related issues.

Course Outcomes:

After the completion of this course student will be able to:

1. Understand functions, structures and history of operating systems
 2. Understand process management concepts including scheduling, synchronization, deadlocks
 3. Understand and implement multithreading concept
 4. Analyze concepts of memory management including virtual memory
 5. Design the protection and security mechanisms
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SYLLABUS

UNIT –I

1. Introduction to Operating System

- 1.1 Definition of Operating System
- 1.2 Functions of Operating System
- 1.3 Types of Operating System
- 1.4 Operating System as resource manager
- 1.5 Hierarchical structure of Operating System

UNIT -II

2. Memory Management

- 2.1 Single contiguous allocation
- 2.2 Partitioned allocation
- 2.3 Paged memory management
- 2.4 Introduction to demand paged & segmented memory management

UNIT -III

3. Process Management

- 3.1 What is process?
- 3.2 Process Control Block

3.3 Process states

3.4 Job Scheduling & Process Scheduling

3.5 Process Synchronization

3.6 Race Condition

3.7 Introduction to Deadlocks

UNIT -IV

4. Device Management

4.1 Techniques of Device Management

4.2 Dedicated, Shared, Virtual Devices

4.3 Device Characteristics

4.4 Channels & Control Units

5. File Systems

5.1 A Simple file system

5.2 General Model of file system

5.3 Symbolic file system

Reference Books

1. "Operating System" by Stuart. E. Madnick & John. J. Donovan
2. "Operating System Concepts" by Abraham Silberschatz, Peter B. Galvin, Greg Gagne
3. "Operating Systems" by Achyut S. Godbole
4. "Operating System" by Milan Milenkovic (IBM CORPORATION)

Course Title:- Android Operating System
Course Code:-U-ADC-334-A

Total Lectures: 53

Total Marks: 50

Credit: 2

Learning Objective:- Learn Basic of Android operating system, Learn basic of XML , and learn basic concepts of java programming like Classes, Packages, Thread, Exception Handling etc.

Course Outcome:- Student should write xml code to design android controls , students also able to write java programs with object oriented features, they should create their own packages and able to access created packages.

Syllabus

Unit –I :- Android History and Scope

Chapter 1. Introduction to Android

- 1.1 Need of Mobile Application
- 1.2 Introduction to Android
- 1.3 Types of Mobile Applications
- 1.4 Android Versions

Chapter 2. Android Architecture

- 2.1 Android Architecture
- 2.2 Linux Kernel
- 2.3 Dalvik Virtual Machine

UNIT –II:-IDE's and Java Basic

Chapter 3. Android IDE's & Components

- 3.1 Various IDE for Android
- 3.2 Installation of Android
- 3.3 Android Virtual Device
- 3.4 Android Components

Chapter 4. Introduction To Java

- 4.1 Introduction & History of Java
- 4.2 Java Applications
- 4.3 Java Architecture

Unit – III:- Java Programming

Chapter 5. Programming Basics

- 5.1 Variable, Constants
- 5.2 Hello World Program
- 5.3 Classes&Inheritance
- 5.4 Interface

Unit –IV:- Packages & UI Designing

Chapter 6. Java Packages & Threads

- 6.1 Packages
- 6.2 Thread
- 6.3 Exception Handling
- 6.4 Method Overloading

Chapter 7. XML & Json

- 7.1 Tag, Attribute
- 7.2 XML
- 7.3 Json

Reference Books:-

1. The Complete Reference Java2 By Herbert Schildt
2. Java CookBook By Ian Darwin, Publisher O'Reilly

Course Title: Lab Course-IX (DBMS)

Course code: U-LAC-386

Total Marks: 50

Credits: 2

Learning Objectives

- To implement the design of the tables in DBMS
- To write queries to get optimized outputs
- To store, retrieve and view the contents
- To generate report based on customized need

Course Outcomes

Upon successful completion of the course, students would be able to:

- Identify the information that is needed to design a database management system for a business information problem.
 - Create conceptual and logical database designs for a business information problem.
 - Construct a database management system that satisfies relational theory and provides users with business queries, business forms, and business reports.
 - Analyze the core terms, concepts, and tools of relational database management systems.
 - Demonstrate skills to work in teams in teams and utilize effective group techniques to manage a complex project.
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Proposed Practical List:

1. Study of Data Definition Language (DDL) commands
2. Study of Data Manipulation Language (DML) commands
3. Study of Data Control Language (DCL) commands
3. Study of data constraints
6. Study of numeric and character functions
7. Study of logical, relational and arithmetic operators
8. Study of views
9. Study of Join and its types
10. Study of subquery
11. Database design using E-R model and Normalization
12. Design and implementation of Payroll Processing System
13. Design and implementation of Banking System
14. Design and implementation of Library Information System

Learning Objective:

Syllabus helps to learn basic knowledge of Core Java. Develop dynamic web applications. Create final year project. Students can get job of Java developer as well as android application developer in IT industries.

Course outcomes:

- Implement Object Oriented Programming Concepts.
 - Use and create packages and interfaces in a Java program.
 - Create final year project with database connectivity.
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Proposed practical list

1. Program to demonstrate simple java program
2. Program to demonstrate class and object
3. Program to demonstrate Static member function
4. Program to demonstrate method overloading
5. Program to demonstrate this and super keyword
6. Program to demonstrate method overriding.
7. Program to demonstrate use of String functions
8. Program to demonstrate creating and using packages
9. Program to demonstrate simple applet program
10. Program to demonstrate reading data from keyboard
11. Program to demonstrate applet
12. Program to demonstrate simple multithreading application
13. Program to demonstrate Inheritance using interface

Course Title: Lab Course-XI (Computer Network)

Course code: U-LAC-388

Total Marks: 50

Credit:2

Learning Objectives:

At the end of the course, the students will be able to:

- Build an understanding of the fundamental concepts of computer networking.
- Familiarize the student with the basic taxonomy and terminology of the computer networking area.
- Introduce the student to advanced networking concepts, preparing the student for entry Advanced courses in computer networking.
- Allow the student to gain expertise in some specific areas of networking such as the design and maintenance of individual networks.

Course Outcomes:

After completing this course the student must demonstrate the knowledge and ability to:

- Independently understand basic computer network technology.
 - Understand and explain Data Communications System and its components.
- Identify the different types of network topologies and protocols.
- Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer.
 - Identify the different types of network devices and their functions within a network
- Understand and building the skills of subnetting and routing mechanisms.
- Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation.

Proposed Practical List:

1. Study of various network devices
2. Study of basic network and network configuration commands.
3. Study of installation of LAN card and LAN cabling.
4. Test TCP/IP Setup and create user accounts and user group.
5. Study of network IP6.
6. Study about installation of network and file sharing.
7. Study about installation and configuration of printers.
8. Connect the computers in Local Area Network.
9. Interfacing with the network card (Ethernet).

Learning Objectives:

The student will enable to

1. Understand the basic concepts of operating system, its functions and services.
2. Study the various management policies adopted by O.S. as pertaining with processes, Deadlock , memory , File and I/O operations.
3. Understand the knowledge of basic concepts towards process synchronization and related issues.

Course Outcomes:

After the completion of this course student will be able to:

1. Understand functions, structures and history of operating systems
 2. Familiarize of process management concepts including scheduling, synchronization, deadlocks
 3. Understand and implement multithreading concept
 4. Analyze concepts of memory management including virtual memory
 5. Design the protection and security mechanisms
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Proposed Practical List:

1. Comparative study of various operating systems
2. Study of DOS internal commands
3. Study of DOS external commands
4. Installation of Windows 7 O.S.
5. Working with Windows Desktop and utilities
6. Installation of Ubuntu Linux O.S.
7. Working with Linux Desktop and utilities
8. Study of Libre Office (Writer, Calc, Impress) in Linux
9. Study of Vi editor
10. Introduction to shell programming
11. Programs on process scheduling algorithms

Semester-IV

Course Title – Communicative English -IV

Course Code- U-COE -401

Max. Marks: 50

Credits: 02

Objectives:

- i) To enhance learner's communication skills by giving adequate exposure in reading and writing skills and the related sub-skills.
- ii) To create learner's confidence in written and interpersonal communication by reinforcing the basics of reading and writing.
- iii) To help learners to recognize and make use of sentence structures in English in written communication.

Outcomes:

- iv) By giving adequate exposure in reading and writing skills and the related sub-skills the students enhanced the communication skills.
 - v) The learners increased their confidence in written and interpersonal communication.
 - vi) The learners recognized and used the sentence structures in English in written communication.
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Syllabus

Unit I Written Communication

- A. Review Writing
 - 1. Book Review
 - 2. Serial Review
 - 3. Film Review

Unit II Applied Writing Skills 1

- Essay Writing
- Newspaper Report Writing

Unit III Reading Skills

- A. Applied Reading Skills
- B. Applied Reading Comprehension
 - 1. The Gift of the Magi 2. The Dying Detective 3. Who is a Great Man?

Unit IV Written Stories

1. The Testament of a Walker
2. A Letter to Mahatma
3. Kishorganj

Reference Books

1. Patil Z N. 2003. English for Practical Purposes. Chennai: Macmillan
2. Dwivedi R K & Kumar A, 2002. Macmillan Foundation English . Chennai: Macmillan
3. Edt Jadhav B S. 2009 Radiance Communication Skills Prose and Poetry . Mumbai Orient Blackswan
4. Vanikar Ranu. 1995. Corridors to Communication. Bombay. Orient Longman
5. Krishna Mohan & Meera Banerji. 2006, Developing Communication Skills. New Delhi. Macmillan
6. Thorat A R, 2000. Enriching Your Competence in English Bombay. Chennai. Orient Longman
7. Narayanswami V R. 1993. Strengthen Your Writing. Madras. Orient Longman

Course Title: Software Engineering
Course code: U-SOE-481

Total Lectures: 53

Total Marks: 50

Credits: 3

Learning Objective:

The basic objective of software engineering is to develop methods and procedures for software development that can scale up for large systems and that can be used consistently to produce high-quality software at low cost and with a small cycle of time. In software engineering you develop your skills for developing new and useful software's.

Main objectives are:

- Understanding user conceptual manual and develop better specifications.
- Improvement in design languages. Reusable codes. Interactive debugging. Mockup to conform specifications.
- Be employed in industry, government, or entrepreneurial endeavors to demonstrate professional advancement through significant technical achievements and expanded leadership responsibility;
- Demonstrate the ability to work effectively as a team member and/or leader in an ever-changing professional environment.
- Progress through advanced degree or certificate programs in computing, science, engineering, business, and other professionally related fields.

Course Outcome:

- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
 - An ability to function on multi-disciplinary teams.
 - An ability to identify, formulate, and solve engineering problems.
 - An understanding of professional and ethical responsibility.
 - An ability to communicate effectively.
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SYLLABUS

UNIT I: ROLE OF SOFTWARE

1. INTRODUCTION TO SOFTWARE ENGINEERING:

The evolving role of software, changing nature of software, Software myths. The software problem: Cost, Schedule and quality, scale and change.

2. SOFTWARE PROCESS:

Process and project, component software process, Software development process models- waterfall model, prototyping , iterative development , relational unified process, time boxing model, Extreme programming and agile process, using process models in a project, project management process.

UNIT II: REQUIREMENT ANALYSIS

3. SOFTWARE REQUIREMENT ANALYSIS AND SPECIFICATION:

Value of good SRS, requirement process, requirement specification, functional specifications with use-cases, other approaches for analysis, validation.

4. PLANNING A SOFTWARE PROJECT:

Effort estimation, project schedule and staffing, quality planning, risk management plans, project monitoring plan, detailed scheduling.

UNIT III: ARCHITECTURE

5. SOFTWARE ARCHITECTURE:

Role of software architecture, architecture view, components and connector view, Architecture styles for C and C view, documenting architecture design, evaluating architectures.

6. DESIGN:

Design concepts, function-oriented design, object oriented design, detailed design, verification, and metrics.

UNIT IV: TESTINGS

7. CODING AND UNIT TESTING:

Programming principles and guidelines, incrementally developing code, managing evolving code, unit testing ,code inspection and metrics, Testing: Testing concepts, testing process, black-box testing, white-box testing and metrics.

REFERENCE BOOKS:

1. R.PRESSMAN: Software Engineering- Mc Graw -Hill
2. R.K. Agrawal and Y. Sing: Software Engineering- New Age International.
3. P. Jalote: Software Project Management in practice- Pearson.

Course Title: Advance Java

Course Code: U-ADJ-482

Total Lectures: 55

Total Marks: 50

Credit: 3

Learning Objectives:

- Learn the basic concepts of Object Oriented Programming.
- Covers techniques for better class construction
- Understand exception handling mechanism in detail
- Get acquainted with database access and details for managing information using the JDBC
- Examines the use of Object Serialization
- Learn how to use Servlet and JSP and XML with JSP

Course Outcome: After Completion of this course students are able to:

- Use the methods of the Applet and Component classes required for a basic applet
 - Describe the classes in the AWT package that relate to the Applet class
 - Explain controls and how to apply them in the container
 - Develop programs using Event class and Event Listener Interface
 - Create database oriented applications
 - Develop programs using JDBC to query a database
 - Describe life cycle of servlet and use javax.servlet package
 - Explain JSP Architecture and its life cycle
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Syllabus

Unit I

1. Introduction to AWT: Working with windows, Graphics Text

1.1 AWT Classes

1.2 Windows Fundamentals

1.3 Working with Frame window

1.4 Working with Graphics

1.5 Working with Colors & Fonts

2. Swing Components

2.1 Icons & Labels Button & Label, TextField & Buttons

2.2 CheckBoxes, Radio buttons

2.3 Combo Box & Lists

2.4 Scroll panes

2.5 Trees

2.6 Tables

2.7 Menu Bars & Menus

Unit-II

3. Networking

- 3.1 The java.net package
- 3.2 Connection oriented transmission – Stream Socket Class
- 3.3 Creating a Socket to a remote host on a port (creating TCP client and server)
- 3.4 Simple Socket Program Example
- 3.5 Programs on chatting

4. JDBC

- 4.1 The design of JDBC
- 4.2 Basic JDBC Concept
- 4.3 Drivers
- 4.4 Making the Connection, Statement
- 4.5 Executing SQL commands
- 4.6 Executing queries
- 4.7 Scrollable and updatable result sets
- 4.8 Metadata, transactions

Unit-III

5. Servlet

- 5.1 Introduction
- 5.2 Life cycle of Servlet
- 5.3 Handling HTTP Get Request
- 5.4 Handling HTTP Post Request

6. Introduction to JSP

- 6.1 Getting Familiar with JSP Server
- 6.2 First JSP
- 6.3 Adding Dynamic contents via expressions
- 6.4 Scriptlets, Mixing Scriptlets and HTML
- 6.5 Directives, Declaration, Tags and Session

Unit-IV

7. Introduction to Java Beans & Hibernate

- 7.1 What is bean
- 7.2 Advantages
- 7.3 The bean-writing process
- 7.4 Introduction to jar and manifest files
- 7.5 The java beans API
- 7.6 Overview Of hibernate
- 7.7 Hibernate Architecture

Reference Books:

- 1) Complete reference Java by Herbert Schildt(5th edition)
- 2) Java 2 programming black books, Steven Horlzner
- 3) Programming with Java, A primer, Fourth edition, by E. Balagurusamy
- 4) Java Servlet Programming by Jason Hunter, O'Reilly
- 5) Core Java Volume-II-Fundamentals, Eighth Edition, Cay S. Horstmann, Gary Cornell, Prentice Hall, Sun Microsystems Press.

Course Title: C#.Net
Course code: U-CNT-483

Total Lectures: 55

Total Marks: 50
Credits: 3

Learning Objectives:

- To understand the .Net framework and C# language features
- To develop object oriented programs in C#.Net
- To learn ADO.Net Technology for developing database oriented applications
- To develop windows based applications on .NET framework
- To apply for the developer job position in IT industry

Course Outcome:

After the successful completion of the course students will be able to:

- Describe overview of .NET framework
 - Develop programs in C# using object oriented features like polymorphism, delegates, events and exception handling
 - Explain Common Language Runtime (CLR) as a platform for managed code
 - Develop windows based applications & services on .NET framework
 - Interpret data access and develop windows applications
 - Use of ADO.NET technology for developing database oriented applications
 - Understand the professional responsibility and get job as .Net developer in IT industry
-

SYLLABUS

UNIT I: Introduction to .net, Arrays and operators

What is .Net? .Net Framework, CLR, Visual Studio.Net & .Net Languages, Integrated Development Environment, Project types, C#.Net History & design Goals, How c# differs from C++, Characteristics of c#.net, I/O Statement with C#.net, Boxing & Unboxing, Short Circuiting Operators, Array & ArrayList class, Jagged Array, String Class

UNIT II: Properties, Events, Delegates and C# namespaces

Properties & its type, Event, Delegate & Multicast Delegate, Creating & Starting thread, Exception handling, using keyword, creating and using namespaces, interface, Method overloading & method overriding, Partial Class

UNIT III: Windows Application

Event Driven Programming, Building windows application with visual studio, TextBox, Label & Button Control, ComboBox, ListBox, CheckBox & GroupBox Control, DateTimePicker, Timer control, Building Menu. MDI Form, PictureBox, ProgressBar Control, Common Dialog boxes, Introduction to WPF

UNIT IV: Ado.Net and Database Oriented Applications

How Ado.net differs from ADO, Advantages of Ado.net, Connected & Disconnected Architecture, DataSet, DataReader & DataAdapter, Managed Data Providers, DataGridView Control, Developing Ado.net Based Application, Insert, Update & Delete operation on table, Filling the DataSet

Reference books:

1. Programming in C# A Primer - Second Edition By - E Balagurusamy
2. C#.Net Programming Wrox Publication
3. .Net 4.0 programming black book by KOGENT LEARNINGSOLUTIONS INC.
4. C# 2010 programming black book by KOGENT LEARNINGSOLUTIONS INC.

Course Title: Multimedia Using Flash

Course Code: U-MUF-484

Total Lectures: 55

Total Marks: 50

Credits: 3

LEARNING OBJECTIVES:

- To learn the basic concepts of animation as an art.
- To understand the basic animation techniques and concepts covered in the films and projects viewed in class.
- To produce exercises as well as a final project in animation using Flash.

COURSE OUTCOMES:

- Develop an understanding of the tools used for creating two dimensional (2D) Graphics and animation.
 - Design 2D Graphics, 2D character modeling and animation.
 - Create a CBT presentation.
-

SYLLABUS

UNIT – I

1. Exploring The Flash Interface

- 1.1. The Flash stage
- 1.2. Stage Settings
- 1.3. Creating a new Flash file
- 1.4. The various import formats
- 1.5. Timeline- Play head/Frames/Key Frames/ Blank frames
- 1.6. Menus, Toolbox and Properties
- 1.7. Color Swatches and Color Mixer
- 1.8. Rulers, Guides, Grids and Snappings

UNIT - II

2. Introduction

- 2.1. CDROM and Multimedia Highway
- 2.2. Applications of Multimedia
- 2.3. Stages of Multimedia Project

3. Macintosh and Windows Productions Platforms

- 3.1. Macintosh Platform
- 3.2. Windows Platform
- 3.3. Connections- SCSI and IDE
- 3.4. Memory and Storage devices
- 3.5. Input and Output Devices

UNIT - III

4. Basic Software Tools

- 4.1. Text editing and word Processing tools
- 4.2. Painting and drawing tools
- 4.3. Image Editing Tools
- 4.4. Sound Editing Tools
- 4.5. Font Editing and designing tools
- 4.6. Hypermedia and Hypertext

- 4.7. Making Still Images: BITMAPS, Vector Drawing
- 4.8. Colors, Image file formats

Unit - IV

5. Animation and Video

- 5.1. Principal of Animation
- 5.2. Making animation that work: Rolling Ball, Bouncing ball
- 5.3. Using Video
- 5.4. Broadcast Video Standards
- 5.5. Recording Formats

References Books:

- 1. Macromedia Flash MX 2004: The Complete Reference by Brian Underdahl
- 2. Action Script for Flash MX: The Definitive Guide, 2nd Edition by Colin Moock
- 3. Macromedia Flash MX 2004 Bible by Robert Reinhardt and Snow Dowd
- 4. Multimedia: Making it work (5th Editions) By Tay Vaughan (Tataamc)
- 5. Multimedia: Computing Communications and Applications by Ralf Steinmetz, Klara Nahrstedt

Recommended Web sites:

- 1. <http://www.webdevelopersnotes.com/tutorials/flash/>
- 2. <http://www.adobe.com/devnet/flash/>
- 3. http://www.adobe.com/support/flash/tutorial_index.html
- 4. <http://www.thefreecountry.com/webmaster/flash.shtml>

Course Title: Mobile Application Development Using Android

Course Code:- U-ADC-434-A

Total Lectures: 55

Total Marks:50

Credits: 2

Learning Objective :-Learn Designing of android application, writing java code, joining xml with java, testing application on real mobile device or virtual device, database connectivity etc.

Course Outcome:- Student will be able to design xml controls, join xml controls with java object, run app on real mobile device, create services, works with different java android classes like LocationManager, SensorManager, SQLiteOpenHelper etc.

Students can get job of Android developer or xml-android app UI designer.

SYLLABUS

Unit-I :- Android Basic

Chap1. Android Basic

- 1.1 What is Android?
- 1.2 Activity Life Cycle
- 1.3 Call Back Methods
- 1.4 Logcat usage

Chap2. Android Application Structure

- 2.1 Android Application Structure
- 2.2 AndroidManifest.xml, <Uses-permission>, <uses-sdk>
- 2.3 First Sample Android Application
- 2.4 Activity Registration
- 2.5 Activity & Intent

Unit-II :- Android Widgets

Chap3. UI Widget – I

- 3.1 LinearLayout, RelativeLayout
- 3.2 Button, EditText, TextView
- 3.3 Event Handling
- 3.4 RadioButton , CheckBox
- 3.5 ImageView

Chap 4. UI Widget – II

- 4.1 SeekBar, ProgressBar
- 4.2 Switch
- 4.3 Analog Clock, Digital Clock
- 4.4 ListView
- 4.5 WebView

Unit-III:- Android Menus & Database Connectivity

Chap 5. Menus & Notifications

- 5.1 Alert Dialog
- 5.2 Prompt Dialog
- 5.3 Android Menus
- 5.4 Toast Notification
- 5.5 Custom Toast

Chap 6. Services & SQLite

- 6.1 Android Services
- 6.2 SQL Commands
- 6.3 SQLiteOpenHelper Class
- 6.4 SQLite Based Application

Unit- IV: - Telephony & Mini Projects

Chap7. Telephony & Sensor API

- 7.1 Telephony Manager
- 7.2 Phone Call
- 7.3 Send SMS
- 7.4 Sensor Manager

Chap 8. Mini Projects

- 8.1 Torch App
- 8.2 Media Player
- 8.3 Voice to Text Conversion

Reference Books:-

- 3. Learning Android, OREILLY by Marko Gargenta
- 4. Android Black Book

Course Title: Lab Course- XIII (Software Engineering)

Course code: U-LAC-485

Total Marks: 50

Credits: 2

Learning Objective:

The basic objective of software engineering is to develop methods and procedures for software development that can scale up for large systems and that can be used consistently to produce high-quality software at low cost and with a small cycle of time. In software engineering you develop your skills for developing new and useful software's.

Main objectives are:

- Understanding user conceptual manual and develop better specifications.
- Improvement in design languages. Reusable codes. Interactive debugging. Mockup to conform specifications.
- Be employed in industry, government, or entrepreneurial endeavors to demonstrate professional advancement through significant technical achievements and expanded leadership responsibility;
- Demonstrate the ability to work effectively as a team member and/or leader in an ever-changing professional environment.
- Progress through advanced degree or certificate programs in computing, science, engineering, business, and other professionally related fields.

Course Outcome:

- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
 - An ability to function on multi-disciplinary teams.
 - An ability to identify, formulate, and solve engineering problems.
 - An understanding of professional and ethical responsibility.
 - An ability to communicate effectively.
-

Proposed Practical List:

1. Perform the practical on Requirement gathering
2. Perform the practical on Requirement Specification
3. Perform the practical on Requirement Analysis
4. Study of UML diagrams
4. Practical on designing the software
5. Creating the Login form.
6. Testing of all forms
7. Practical on designing the Tables
8. Testing all the tables
9. Perform the practical on Database connectivity
10. Perform the practical on Testing's

Course Title: Lab Course-XIV (Advance Java)
Course code: U-LAC-486

Total Marks: 50

Credits: 2

Learning Objectives:

- Learn the basic concepts of Object-Oriented and how they are handled in Java
- Covers techniques for better class construction
- Understand Exceptions. How and when they should be handled
- An overview of database access and details for managing information using the JDBC API
- Examines the use of Object Serialization
- Learn how to use Servlet and JSP and XML with JSP
- Be able to create and use custom JSP tags
- A presentation of Enterprise JavaBeans and how to use it

Course Outcome: After Completion of this course students are able to :

- Write programs based upon java concepts.
 - Create animation & events based upon advanced java concepts.
 - Connect an application with database.
 - Develop programs using java collection API as well as java Standard Library.
 - Write, debug & document well-structured java application
-

Proposed Practical List:

1. Write a program to demonstrate life cycle of applet and display Hello world on applet UI.
2. Write a program to create a frame window.
3. Write a program to make use various methods of graphics class object.
4. Write a program to display buttons, labels, and Image icons using swing.
5. Write a program to display check boxes and radio buttons using swing.
6. Write a program to display combo box and scroll pane using swing.
7. Write a program to display a tree using swing.
8. Write a program to display a table using swing.
9. Write a program to display Menu bar and menus using swing.
10. Write a program to demonstrate socket programming. E.g. send hello world to server from client.
11. Write a program to chat between client and server.
12. Write a program to connect to db and to execute the queries.
13. Write a Servlet code to demonstrate GET & POST methods.
14. Write a program to demonstrate JSP use.

Course Title: Lab Course-XV (C#.Net)

Course code: U-LAC-487

Total Marks: 50

Credits: 2

Learning Objectives:

- To understand the .Net framework and C# language features
- To develop object oriented programs in C#.Net
- To learn ADO.Net Technology for developing database oriented applications
- To develop windows based applications on .NET framework
- To apply for the developer job position in IT industry

Course Outcome:

After the successful completion of the course students will be able to:

- Describe overview of .NET framework
 - Develop programs in C# using object oriented features like polymorphism, delegates, events and exception handling
 - Explain Common Language Runtime (CLR) as a platform for managed code
 - Develop windows based applications & services on .NET framework
 - Interpret data access and develop windows applications
 - Use of ADO.NET technology for developing database oriented applications
 - Understand the professional responsibility and get job as .Net developer in IT industry
-

Proposed Practical List

1. Program to demonstrate jagged array
2. Program to demonstrate String class and its methods
3. Program to demonstrate properties concept
4. Program to demonstrate delegate concept
5. Program to demonstrate creation of C# namespaces
6. Program to demonstrate interface concept
7. Program to demonstrate common windows controls
8. Program to demonstrate advance windows controls
9. Program to demonstrate simple database connectivity application
10. Program to perform insert, update and delete operation on database

Course Title: Lab Course XVI (Flash)
Course code: U-LAC-488

Total Marks: 50

Credit: 2

LEARNING OBJECTIVES:

- To learn the basic concepts of animation as an art.
- To understand the basic animation techniques and concepts covered in the films and projects viewed in class.
- To produce exercises as well as a final project in animation using Flash.

COURSE OUTCOMES:

- Develop an understanding of the tools used for creating two dimensional (2D) Graphics and animation.
 - Design 2D Graphics, 2D character modeling and animation.
 - Create a CBT presentation.
-

Proposed Practical List:

1. Study of Flash environment.
2. Working with shape tween by designing A to Z character's animation.
3. Working with shape motion by designing A to Z character's animation.
4. Designing Bouncing Ball animation.
5. Creating a commercial Advertisement.
6. Creating a Jumping Man animation.
7. Creating a Flying Bird animation.
8. Creating a Walking Man animation.
9. Creating a Riding Bike animation.
10. Creating a Flying Honey Bee animation.
11. Creating a growing Plant animation.
12. Working with shape tween with blending options.