Semester	Course Code	Title of the Course	Hours	Credit
V	21UCS53CC09	CORE – 9: JAVA PROGRAMMING	4	2

CO No.	CO-Statements On successful completion of this course, students will be able to	Cognitive Levels (K- Levels)
CO-1	remember the basic programming skills in java	K1
CO-2	understand the use of inheritance concepts in java programs	K2
CO-3	apply and build simple packages and to handle Exceptions	K3
CO-4	analyse and interpret the use of Multithreading, storage of data in files	K4
CO-5	examine and classify programs using GUI environment	K4

Unit-I **(12 hours)**

The Java Language: How Java Impacted the Internet. Java Buzz Words-An Overview of Java: The Three OOP Principles-A first Simple Program-The Java Keywords-The Java Class Libraries.-Operators-Control Statements.

Unit-II **(12 hours)**

Introducing Classes: Class Fundamentals-Declaring Objects-Introducing Methods-Constructors-The 'this' Keyword. Overloading Methods-Overloading Constructors-Using Nested and Inner Class-Recursion-Arrays Revisited-Using Command Line Arguments. **Inheritance:** Inheritance Basics- Using Super- Creating a Multilevel Hierarchy- Method Overriding- Using Abstract Class- Using final with Inheritance.

Unit-III **(12 hours)**

Packages and Interfaces**:** Packages-Defining a Package-Packages and member Access-Importing Packages**-** Interface: Defining an Interface-Implementing Interfaces-Nested Interfaces-Exception Handling- Exception Handling Fundamentals-Exception Types-Using Try and Catch-Uncaught Exceptions-Multiple catch Statements-throw-finally-Using Exceptions.

Unit-IV **(12 hours)**

Multithreading: The Java Thread Model-The Mail Thread-Creating a Thread-Creating Multiple Threads-Using is Alive() and Join()-Thread Priorities-Synchronization-Thread Priorities-Suspending, Resuming and Stopping Threads using Multithreading. Input/Output**:** File-The Stream Classes-The Byte Streams-The Character Streams.

Unit-V **(12 hours)**

Event Handling**:** Two Event Handling Mechanisms-The Delegation Event Model-Event Classes-The Key Event Classes-Event Listener Interfaces-Introducing the AWT: AWT Classes-Window Fundamentals-Introducing Graphics-Working with Color: Color Methods-Using AWT Controls**,** Layouts Managers: Labels-Using Buttons-Applying Check Boxes-Checkbox Group-Choice Controls-Handling Choice-Handling Lists-Managing Scroll Bars-Using a Text Field-Using a Text Area-Understanding Layout Managers-Dialog Boxes.

Book for Study

1. Schildt Herbert, Java: *"The Complete Reference"*, New York: McGraw-Hill Education *Tenth Edition*, 2017.

Unit I

Chapter 1 (Sec: 1.3, 1.8, 2.1.3, 2.2, 2.7), Chapter 4, Chapter 5

Unit II

Chapter 6 (Sec: 6.1, 6.2, 6.4- 6.6), Chapter 7 (Sec 7.1, 7.10, 7.12) Chapter 8(8.1-8.3, 8.5, 8.7, 8.8)

Unit III

Chapter 1 (Sec: 9.1.1, 9.2, 9.3, 9.4.1 - 9.4.3), Chapter 10(Sec 10.1-10.5, 10.7, 10.9, 10.14)

Unit IV

Chapter 11 (Sec: 11.1- 11.7, 11.9, 11.12), Chapter 21(Sec: 21.2, 21.6 - 21.8)

Unit V

Chapter 24 (Sec: 24.1-24.4, 24.6), Chapter 26(Sec 26.2-26.11, 26.13)

Books for Reference

1. E. Balagurusamy, *"Programming with JAVA"*, Tata McGraw Hill, New Delhi, 2019.
2. C. Muthu, *"Programming with JAVA"*, Vijay Nicole Imprints Private Limited, Chennai, Second Edition, 2011.
3. Bruce Eckel, Chuck Allison, *"Thinking in Java"*, Prentice Hall Publications, 2006

Semester	Course Code	Title of the Course	Hours	Credit
V	21UCS53CP05	Software Lab 5: JAVA PROGRAMMING	3	2

CO No.	CO-Statements	Cognitive Levels (K- Levels)
	On successful completion of this course, students will be able to	
CO-1	Remember the concepts of java classes and objects	K1
CO-2	understand the OOP concepts in java	K2
CO-3	develop simple programs with multiple threads	K3
CO-4	analyze and classify programs using AWT	K4
CO-5	compare and examine java programs using GUI environment	K4

List of Exercises

1. Classes and Objects
2. Constructors
3. Inheritance
4. Method Overloading
5. Method Overriding
6. Interfaces
7. Packages
8. Multithreading
9. Input / Output streams
10. AWT Controls

Semester	Course Code	Title of the Course					Hours				Credit
V	21UCS53CP05	Software Lab 5: JAVA PROGRAMMING					3				2
Course Outcomes ↓	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Scores of Cos
	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5	
CO-1	3	2	2	2	1	3	3	2	2	3	2.3
CO-2	2	3	3	2	2	3	3	3	2	3	2.6
CO-3	2	2	3	3	3	3	3	3	3	2	2.7
CO-4	2	2	2	3	1	2	3	3	2	3	2.3
CO-5	2	3	2	3	3	1	3	3	3	3	2.6
Mean Overall Score											2.5 (High)

Semester	Course Code	Title of the Course	Hours	Credits
V	21UCS53CC10	CORE – 10: DISTRIBUTED TECHNOLOGY	4	2

CO No.	CO-Statements	Cognitive Levels (K- Levels)
	On successful completion of this course, students will be able to	
CO -1	define the elements of distributed systems.	K1
CO-2	understand the ASP.NET development environment.	K2
CO-3	apply various server and client-side controls to create web applications.	K3
CO-4	examine and use the different components in ASP.NET applications.	K3
CO-5	analyze and evaluate the development of web applications with disconnected data access technologies.	K4,K5

Unit-I: (12 hours)

Client server computing: clients - server- networks - Distributed Systems: Distributed applications-Distributed Processing –web technology - Understanding the .NET Framework: Benefits of the .NET Framework- Elements of the .NET Framework- ASP.NET.

Unit-II: (12 hours)

Getting Started with ASP.NET: Introducing the .NET Framework - Introducing ASP.NET- Setting up the Development Environment- Creating an ASP.NET Application- Deploying an ASP.NET Web Application.

Unit-III: (12 hours)

Building Forms with Web Controls: Introducing ASP.NET Web Forms- Creating Web Forms Application Projects- Using Web Controls- Working with Events.

Unit-IV : (12 hours)

Using Rich Web Controls: Using the Ad Rotator Control- Using the Calendar Control- Using the Tree View Control- Validating User Input - Understanding Validation Controls- Introduction to Custom Controls- Basic Structure of Web Forms Controls- Creating Custom Controls- Creating a user control

Unit-V : (12 hours)

ASP.NET Database Programming: Introducing ADO.NET- ADO.NET Basics- ADO.NET Object Model- Managed Providers- DataSet class.

Books for Study

1. Rajesh, Eswara Kumar, Balasubramanian, "Computer Networks, Fundamentals and Applications", Vikas Publishing House Pvt. Ltd., 2002.
   Unit-I Chapter 10 (Sec:10.1, 10.2, 10.3), Chapter 11 (Sec:11.1, 11.2,)

2. Mridula Parihar, "ASP.NET Bible", Hungry Minds © 2002, Inc. 909 Third Avenue New York, NY 10022.
   Unit- I Chapter 1
   Unit-II Chapter 2
   Unit-III Chapter 3
   Unit -IV Chapter 4, Chapter 5
   Unit -V Chapter 8

Books for Reference

1. Bill Evjenet, "Professional ASP.NET 2.0 Special Edition", Published by Wrox Press 2006.
2. Stephen Walther, "ASP.NET 2.0 Unleashed", Sams Publications, 2006.
3. Matthew Macdonald and Mario Szpuszta, "ProASP.NET 3.5 in C# 2008", second edition,Apress, 2007.

Semester	Course Code	Title of the Course	Hours	Credits
V	21UCS53CP06	Software Lab 6: DISTRIBUTED PROGRAMMING	3	2

CO No.	CO-Statements On successful completion of this course, students will be able to	Cognitive Levels (K- Levels)
CO -1	recall the HTML tags and design simple web pages	K1
CO-2	illustrate the procedure of deploying ASP.Net web applications.	K2
CO-3	apply the web server controls to create web applications	K3
CO-4	analyze and use web user controls.	K4
CO-5	develop and evaluate applications using ADO.NET.	K5, K6

List of Exercises:

1. Simple Webpage creation using HTML.
2. HTML form validation using VB Script / Java Script
3. Design a Simple Calculator
4. Request and Response Objects
5. Server-side controls.
6. Working with Toolbox Controls.
7. Validation Controls.
8. AdRotator Control
9. Calendar Control
10. Database Access - ADO.NET

Relationship matrix for Course outcomes, Programme outcomes/ Programmes Specific outcomes

Semester	Course Code	Title of the Course							Hours	Credit
V	21UCS53CP06	Lab- 6 (Software): DISTRIBUTED PROGRAMMING							3	2
Course Outcomes ↓	Programme Outcomes (PO)					Programme Specific Outcomes (PSO)				Mean Scores of Cos
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO5	
CO-1	3	3	2	1	2	3	3	2	1	2	2.2
CO-2	3	3	3	2	1	3	3	3	2	2	2.5
CO-3	2	3	3	2	2	2	3	3	2	2	2.4
CO-4	3	3	3	1	2	3	3	3	1	2	2.4
CO-5	2	3	3	1	2	2	3	3	2	1	2.3
Mean Overall Score											2.36
Result											# High

Semester	Course Code	Title of the Course	Hours	Credits
V	21UCS53ES01 A	DSE - 1: OPERATING SYSTEMS	5	3

CO No.	CO-Statements	Cognitive Levels (K- Levels)
	On successful completion of this course, students will be able to	
CO -1	recall the basic principles and importance of the operating system in a computer	K1
CO-2	illustrate the objectives and functions of the operating system components	K2
CO-3	identify the various operating system techniques and security	K3
CO-4	analyze the issues and challenges of the operating system and security mechanisms	K4
CO-5	evaluate the functions and features of modern operating systems	K5

UNIT- I **(15 Hours)**

Operating Systems: Computer-System Organization - Computer-System Architecture - Operating System Structure - Operating-System Operations – Process Management - Memory Management - Storage Management - Protection and Security.

UNIT –II **(15 Hours)**

Process Concept: Process Scheduling-Operations on Processes –Inter process Communication - CPU Scheduling - Basic Concepts - Scheduling Criteria - Scheduling Algorithms. Deadlocks: System Model - Deadlock Characterization - Methods for Handling Deadlocks.

UNIT- III **(15 Hours)**

Main Memory: Swapping - Contiguous Memory Allocation - Segmentation - Paging - Structure of the Page Table. Virtual Memory: Demand Paging.

UNIT- IV **(15 hours)**

File Concept - Access Methods - Directory and Disk Structure - File-System Mounting File Sharing – Protection.

UNIT- V **(15 hours)**

Protection: Goals of Protection - Principles of Protection - Domain of Protection – Access Matrix - Implementation of the Access Matrix - Access Control. Security: The Security Problem - Cryptography as a Security Tool - User Authentication.

Book for Study

1. Abraham Silberschatz, Peter Baer Galvin and Greg Gagne "*Operating Systems Concepts*", 9th Edition, Wiley Publications, 2013.
   Unit- I *Chapter 1 (Sec: 1.2 -1.9)*
   Unit – II *Chapter 2 (Sec: 3.1-3.4) Chapter 6(6.1-6.3) Chapter 7(7.1 -7.3)*
   Unit –III *Chapter 8(Sec: 8.2-8.6) Chapter 9 (9.2)*
   Unit –IV *Chapter 11(11.1 -11.6)*
   Unit –V *Chapter 14(14.1-14.6) Chapter 15(15.1, 15.4, 15.5)*

Books for Reference

1. William Stallings, Operating Systems, PHI, Second Edition, 2001.
2. William Stallings, "Operating Systems –Internals and Design Principles", 8/E, Pearson Publications, 2014
3. Andrew S. Tanenbaum, "Modern Operating Systems", 4/E, Pearson Publications, 2014.

Semester	Course Code	Title of the Course	Hours	Credits
V	21UCS53ES02A	DSE- 2: COMPUTER NETWORKS	5	3

CO No.	CO-Statements On successful completion of this course, students will be able to	Cognitive Levels (K- Levels)
CO -1	recall the basic concepts of computer networks	K1
CO-2	summarize the technical specifications of various layers of OSI model for network	K2
CO-3	identify the appropriate protocols and standards for computer networks	K3
CO-4	classify technical factors of cellular networks and satellite communication	K4
CO-5	evaluate the applications of computer networks and communication	K5

UNIT- I **(15 Hours)**

Data Communication – Networks – The Internet – Protocols and Standards – OSI Model- Layers in OSI Model - TCP/IP Protocol Suite – Addressing.

UNIT –II **(15 Hours)**

Analog and Digital – Digital Signals – Transmission Impairment – Performance – Multiplexing – Guided Media – Unguided Media. Switching: Circuit Switched Networks – Datagram Networks – Virtual Circuit Networks.

UNIT- III **(15 Hours)**

Data Link Layer: Error Detection and Correction -Introduction – Block Coding: Error detection, Error correction – Data Link Control: Framing – Flow and Error Control – Protocols – Noiseless Channels – Noisy channels – HDLC – Point to Point Protocol.

UNIT- IV **(15 hours)**

Wired LAN: IEEE Standards – Standard Ethernet. Wireless LAN: IEEE 802.11 – Bluetooth. Connecting LANs: Connecting Devices – Virtual LANs. Wireless WAN: Cellular Telephony – Satellite Networks. Network Layer-Logical Addressing: IPv4 Addresses – IPv6 Addresses

UNIT- V **(15 hours)**

Transport Layer: Process to Process Delivery – User Datagram Protocol - TCP. Application Layer: Domain Name Space – DNS in the Internet – Electronic Mail – File Transfer. WWW: Architecture – HTTP.

Book for Study

1. Behrouz A. Forouzan, "Data Communications and Networking", McGraw-Hill Companies, New York, 4th Edition, 2007.

UNIT I – Chapters 1,2
UNIT II – Chapters 3,6,7,8
UNIT III – Chapters 10,11
UNIT IV – Chapters 13,14
UNIT V – Chapters 23,25,27

Book for Reference

1. William Stallings "Data and computer communications", Prentice Hall of India, 7th Edition, 2004.
2. Andrew S Tanenbaum, "Computer Networks", Prentice Hall of India, New Delhi, 2013.
3. Nasib Singh Gill, "Essential of Computer and Network Technology", Khanna Book Publishing Company (P) Limited, New Delhi, 2014.

Semester	Course Code	Title of the Course	Hours	Credits
V	21USS54SE03	SEC-3: SOFT SKILLS	2	1

POs (Programme outcomes)

- To provide a focused training on soft skills for students in colleges for better job prospects
- To create and interface between industries and educational institutions in order to match the expectations of employers and abilities of the employees
- To bring a transformation in interpersonal and societal living guided by value laden principals
- To explore and analyze personal attributes that enhance the individual's Interactions, Job Performance and Career Prospects
- To foster teamwork (synergy) that increases productivity and brings benefits to the individuals and the society

PSOs (Programme Specific Outcomes)

After the successful completion of the course, students will learn:

- the various concepts of communication skills as job seekers
- to write a Professional resume as required by the employers
- to demonstrate interview skills and actively participate in GD preparations and presentations in peer groups
- to discover various aspects of self and set short tem and long term goals for successful career and creates a congenial atmosphere
- to have access to solve simple and day to day Arithmetic problems and Verbal and Non-verbal reasoning formulas

Cos (Course Outcomes)

Upon completion of the course, Students will:

- be keen on developing and sustaining Soft Skills required of an educated youth
- be trained to present the best of themselves as job seekers to deal with any problem and conflict situations
- be able to transfer the skills learnt for concrete outcomes and increased productivity of companies
- be able to develop people skills, life skills that are required to be a good human in the long run and set a living standard
- be embedded with Employability skills such as "communication", "teamwork" , "initiative , "enterprise" , the attributes of "reliability", "balance between work -life", "commitment" and continuous learning

Module 1**: Effective Communication**

Definition of communication, Barriers of Communication, Verbal and Non-verbal Communication; Self introduction matrix, Conversation Techniques, Good manners and Etiquettes, Introduction to Professional Communication, Professional Grooming and Presentation Skills and exercises

Module II: **Resume Writing & Interview skills**

Resume Writing: Basic Resume Formats. Types of Resume - Chronological, Functional and Mixed Resume**,** Steps in preparation of Resume, Sample objectives, Model Resumes. **Interview Skills:** Preparation for interview, Common interview questions, Attitude, Body Language, Mock interviews and Practicum, Figuring out common interview questions and answers

Module III: **Group Discussion:** Definition of GD. The salient features of GD,Factors that influence GD, Outcome of GD, Tips for success in GD, Parameters of GD, Essential Points for GD preparation, GD Topics, Model GD and Practicum.

Module IV: **Personal Effectiveness:** Self Discovery: Personality, Traits of Personality; Personality Tests; Intelligence and Skill Assessment Form. **Goal Setting**: Goal setting Process, Questioneers & Presentations

Module V: **Numerical Ability:** Average, Percentage; Profit and Loss**,** Area, Volume and Surface Area. (Simple Interest, Compound Interest; Time and Work, Pipes and Cisterns; Time and Distance**,** Problems on Trains**,** Illustrations, Boats and Streams; Illustrations-Optional)

Module VI: **Test of Reasoning - Verbal Reasoning:** Series Completion, Analogy. **Non-Verbal**
Reasoning