Eklavya University

SESSION

2023-24

M.Sc.(CS) III SEMESTER

SYLLABUS

OF

Computer Application And Information Technology Department

School of Basic and Applied Sciences

EKLAVYA UNIVERSITY, DAMOH (M.P.)

Scheme of Examination Computer Science MSc.(cs) III Sem

For batch admitted in Academic Session 2023-24

Subject wise distribution of marks and corresponding credits

S.No.	Subject Code	Subject Name	Maximum Marks Allotted					Total Marks	Contact Periods Per week			Total Credits
			Theory Slot			Practical Slot						
			End Sem.	Mid term Examination	Quiz/ Assignment/ Attendance	End Sem	Lab Work/ sessional		L	T	P	
1	MCOSC20S301	Web Technology	60	30	10	-	-	100	4	1	-	5
2	MCOSC20S302	Software Engineering	60	30	10	-	-	100	5	-	-	5
3	MCOSC20S303	Operating System	60	30	10	-	-	100	4	1	-	5
4	MCOSC20S304	Programming with Java	60	30	10	-	-	100	4	1	-	5
Open Elective												
5	MCOSC20S305	Data Warehousing and Mining (5A)	60	30	10	-		100	5	-	-	5
6	MCOSC20S306	Cloud Computing (5B)	60	30	10	-		100	5	-	-	5
7	MCOSC20S307	E-Commerce and E-Governance (5C)	60	30	10	-	-	100	5	-	-	5
8	MCOSC20S308	Computer Lab 3	-	-	-	60	40	100	-	-	5	5
Total			300	150	50	60	40	600	22	3	5	30

Induction programme of three weeks (MC): Physical activity, Creative Arts, Universal Human Values, Literary, Proficiencey Modules, Lectures by Eminent People, Visits to local Areas, Familiarization to Dept./Branch & Innovations.

01/06/23 01.06.23 01/06/23 01/06/23

EKLAVYA UNIVERSITY
ज्ञान प्राप्तये लक्ष्य संधानम्

School of Basic & Applied Sciences

Class	**MASTER OF SCIENCE (COMPUTER SCIENCE) MSC (CS)**
Semester/Year	**SEMESTER - III**
Subject & Subject Code	**Web Technology - MCOSC20S301**
Max. Marks	**60 (ETE) + 40 (IA) = 100**

Credit			Total Credits
L	T	P	5
4	1	0	

Course Objectives:

1. Learn How to Design and Develop a Web Page Using HTML and CSS
2. Learn How to Link Pages So that they Create a Web Site.
3. Design and Develop a Web Site Using Text Images Links Lists and Tables for Navigation and Layout.
4. Style Your Page Using CSS Internal Style Sheets and External Style Sheets.
5. Learn to use JavaScript & XML in Web Design.
6. Learn How to use Database in Web Design.

Course Outcome:

1. Describe the concepts of WWW including Browser and HTTP Protocol.
2. List the Various HTML Tags and use them to develop the User Friendly Web Pages.
3. Define the CSS with its Types and use them to provide the Styles to the Web Pages at Various Levels.
4. Develop the Modern Web Pages using the HTML and CSS Features with different layouts as per Need of Applications.
5. Use the Javascript to develop the dynamic Web Pages.
6. Use Server Side Scripting with PHP to Generate the Web Pages dynamically using the Database Connectivity.

Student Learning Outcomes (SLO):

Upon successful completion of this course, the student will:

1. Create an Information Architecture document for a web site.
2. Construct a web site that conforms to the web standards of today and includes e-commerce and web marketing
3. Publish the website to a remote server using FTP.
4. Perform regular web site maintenance (test, repair and change).

Unit	Syllabus	Periods
UNIT - I	Introduction to Web , Designing and Website Planning :concept of WWW , Internet and WWW HTTP Protocol : Request and Response, Web Browser and Web Servers , Website Hosting-Free Vs. Paid , Linux Vs. Windows ,Hosting Concepts & use of Database & Mail Servers , Associated with Web Sites, Features of Web 2.0 , Concepts of Effective Web Design , Web Design Issues Including Browser , Bandwidth and Cache Display , Resolution Look and Feel of the Website Page Layout and Linking, User Centric Design, Sitemap Planning and Publishing Website Designing Effective Navigation. Website Hosting Issues C panel and FTP.	8

01/06/23 01.06.23 01/06/23 01/06/23

UNIT - II	Web Development with HTML : Basics of HTML ,Formatting and Fonts Commenting Code, Color Hyperlink ,Lists Tables ,Images ,Forms Meta ,Tags Character, Entities, Frames and Frame ,Sets Browser Architecture and Web Site Structure. Overview and Features of HTML5, use of HTML ,Code Editor & WYSIWYG Editor. Cascading Style Sheets (CSS): Style Sheets : Need for CSS , Introduction to CSS Basic Syntax and Structure Using CSS Background Images Colors and Properties Manipulating Texts Using Fonts Borders and Boxes Margins Padding Lists Positioning Using CSS CSS2 Overview and Features of CSS3 .	8
UNIT - III	Technologies for Web Applications Javascript & XML: Javascript : Client Side Scripting with Javascript ,Variables Functions, Conditions Loops and Repetition Pop Up ,Boxes, Advance Javascript: Javascript and Objects, Javascript Own Objects the Dom and Web Browser Environments Manipulation Using Dom Forms and Validations DHTML : Combining HTML, CSS and Javascript, Events and Buttons. XML : Introduction of XML, Validation of XML Documents DTD Ways to use XML, XML for Data Files Html Vs XML Embedding XML into HTML Documents, Converting XML to HTML for Display, Displaying XML Using CSS and XSL Rewriting, HTML as XML Relationship Between HTML SGML and XML, Web Personalization, Semantic, Web Semantic Web Services. Transforming XML Using XSL and XSLT.	8
UNIT - IV	Web Design with PHP : Introduction and Basic Syntax of PHP Decision and Looping with Examples PHP and HTML, Arrays Functions, Browser Control and Detection String Form Processing .Files, Advance Features: Cookies and Sessions, Object Oriented Programming with PHP .	8
UNIT - V	Introduction to Database Driven Websites with PHP: PHP and MYSQL: Basic Commands with PHP Examples, Connection to Server, Creating Database, Selecting a Database, Listing Database, Listing Table Names, Creating a Table, Inserting Data Altering, Tables Queries, Deleting Database, Deleting Data and Tables PHP Myadmin and Database Bugs Introduction to Search Engine, Types of Search Engine, Working Process of Search Engine, Introduction Search Engine, Optimization Need of Search Engine, Optimization Search Engine Optimization Process.	8

References Books:

1. Roger S.Pressman David Lowe "Web Engineering" Tata McGraw Hill Publication 2007
2. Achyut S Godbole and Atul Kahate "Web Technologies" Tata McGraw Hill
3. Gopalan N P Akilandeswari "Web Technology: a Developer S Perspective" PHI
4. Chris Bates Web Programming :Building Internet Applications Wiley
5. C. Xavier "Web Technology &Design" Tata McGraw Hill
6. HTML 5 Black Book Dreamtech Press
7. Joel Sklar- Web Design Cengage Learning
8. . P.J. Deitel & H.M. Deitel - Internet and World Wide Web How to Program Pearson

EKLAVYA UNIVERSITY
ज्ञान प्राप्तये लक्ष्य संधानम्

School of Basic & Applied Sciences

Class				**MASTER OF SCIENCE (COMPUTER SCIENCE) MSC (CS)**
Semester/Year				**SEMESTER - III**
Subject & Subject Code				**Software Engineering - MCOSC20S302**
Max. Marks				**60 (ETE) + 40 (IA) = 100**
Credit			**Total Credits**	
L	**T**	**P**	**5**	
5	**0**	**0**		

Course Objectives:

1. Understand Learn and Apply the Theoretical and Practical Knowledge of Software Development Such as Software Development Paradigms Process Models Tools and Techniques.
2. Understand and Learn the Process of Software Requirements Identification Analysis Review and Learn Recording Requirements in the IEEE Format of the SRS Document.
3. Understand the Various Types and Levels of Software Testing and Basic Approaches of Test Case Designing.
4. Gain the Knowledge of the Various Models of Software Quality Estimation Quality Assurance and Control.

Course Outcome:

1. Identify Analyze Review and Validate the Requirement of Software Components and System and Also Prepare Software Requirement Specification (SRS) Document Using Relevant Standards Tools and Methodologies.
2. Manage a Software Project by Applying Project Management Concepts Such as Planning cheduling and Risk Management for Developing Qualitative and Economic Software.
3. Work Effectively in Various Profiles of Software Developing Team Such as Software Analyst Architecture Programmer Tester Quality Assurance and Control officer Project Manager and Leaders.
4. Communicate and Coordinate Competently by Listening Speaking Reading and Writing Software Documents
5. Apply Coding Standards & Guidelines and Quality Norms in Coding of Software Systems to Satisfy the Requirements and Quality.
6. Design Test Cases and Optimize the Test Suite for Unit Integration and System-Level Testing Using Various Techniques and Tools for Adequately Testing the Software Components and Systems.

Student Learning Outcomes (SLO):

Students will:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare as well as global, cultural, social, environmental, and economic factors.
3. Communicate effectively with a range of audiences.
4. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

Unit	Syllabus	Periods
UNIT - I	Software: Software, Characteristics ,Components and Applications Software Engineering a Layered Technology ,Software Development Life Cycle Software Process Models- Linear Sequential Model, Prototype & RAD Model, Incremental and Evolutionary Process Models. Introduction of Agile, Software Development.	8

01/06/23 01.06.23 01/06/23 01/06/23

UNIT - II	Analysis Concept and Principles: Requirement Analysis,, Analysis Principles Requirement Elicitation, Information Gathering Techniques, Requirements Specification ,Requirements Verification and Validation Requirements Management. Documenting Software, Requirement Specification (SRS) Characteristics of SRS, Format of SRS Software. Project Planning: Objectives Decomposition Techniques and Empirical Estimation Models. Project Metrics: Software Measurement–Size Oriented Function Oriented Metrics.	8
UNIT - III	Design Concepts and Principles: Design Process, Design Concepts, Design Principles Effective Modular, Design Human Computer Interface, Design Interface Design Guidelines. System Design:Design Models for Architecture, Component Data and User Interfaces; Problem Partitioning, Abstraction Cohesiveness Coupling Top Down and Bottom Up Design Approaches; Functional Versus Object Oriented Approach ,Design Specification. Coding: Top-Down and Bottom-Up Structure Programming ,Information Hiding Programming Style and Internal Documentation Verification.	8
UNIT - IV	Software Testing: White and Black Box Testing , Levels of Testing, UNIT Integration System Testing,Functional Testing, Structural Testing Test Plan Software Testing Strategies Verification & Validation Incremental & Non-Incremental Testing Top Down and Bottom Up Integration, Testing Alpha & Beta Testing White Box and Black Box Testing Techniques, Debugging Techniques. Software Quality, Quality Models, Quality Control and Quality Assurance, ISO SEI Capability Maturity Model (CMM) and Comparison between ISO& SEI CMM.	8
UNIT - V	Software Maintenance Need and Categories of Maintenance ,Software Configuration, Management Software Reverse and Reengineering Models S/W Reuse, Benefits of S/W Reuse, Reuse Process, Classification and Retrieving, Components Economics of S/W Reuse Case : Introducing to Case Taxonomy of Case Tools, Case and its Scope Case, Support in Software Life Cycle Documentation, Support Architecture of Case Environment.	8

References Books:

1 Roger S. Pressman Software Engineering-a Practitioner's Approach McGraw Hill International Edition

2 K. K. Aggarwal Yogesh Singh Software Engineering

3 Ian Sommerville- Software Engineering Addison-Wesley Publishing Company

4 James F. Peter Software Engineering - an Engineering Approach John Wiley

5 Fairley Richard Software Engineering Concepts Tata McGraw Hill

EKLAVYA UNIVERSITY
ज्ञान प्राप्तये लक्ष्य संधानम्

School of Basic & Applied Sciences

Class				**MASTER OF SCIENCE (COMPUTER SCIENCE) MSC (CS)**
Semester/Year				**SEMESTER - III**
Subject & Subject Code				**Operating System - MCOSC20S303**
Max. Marks				**60 (ETE) + 40 (IA) = 100**
Credit			**Total Credits**	
L	**T**	**P**	**5**	
4	**1**	**0**		

Course Objectives:

1. Understand the Services provided by Operating System
2. Understand the Working and Organization of Process and its Scheduling and Synchronization.
3. Understand Different Approaches of Memory Management Techniques.
4. Understand the Structure and Organization of the File System.

Course Outcome:

1. Identify and describe the Services Provided by Operating Systems.
2. Understand and Solve the Problems Involving Process Control Mutual Exclusion Synchronization and Deadlock.
3. Apply Various Approaches of Memory Management
4. Analyze Various Operating System Approaches in Linux and Windows

Student Learning Outcomes (SLO):

Students will:

1.Operating system form and function
2.Software structure: abstraction, modularity, interface vs. implementation, layers
3.Concurrent execution: problems and solutions
4.Reading code.
5.The UNIX API: files, interrupts, and processes

Unit	Syllabus	Periods
UNIT - I	Definitions ,Components and Types of Operating System, Operating System Services, System Calls, System Programs Process, Concepts Process, State & Process, Control Block Process Scheduling, Scheduling Criteria, Scheduling Algorithms, Multiple-Processor, Scheduling Real-Time Scheduling, Threads Introduction	8
UNIT - II	The Critical Sections Problem , Semaphores, Classical Problem of Synchronization, Deadlock, Characterizations Method for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock, Combined Approach to Deadlock	8
UNIT - III	Storage Management, Logical Versus Physical Address, Space Swapping Contiguous Allocating Paging Segmentation, Virtual Memory, Demand Paging, Performance of Demand Paging, Page Replacement Page Replacement Algorithms, Thrashing Demand Segmentation	8
UNIT - IV	Disk Structure, Disk Scheduling, Disk Management, Swap Space Management Disk Reliability, Stable Storage, Implementation File Concepts, Directory Structure, Protecting I/O Subsystem, Overview I/O Hardware, Application I/O Interface, Kernel I/O Subsystem.	8

01/06/23 01.08.23 01/06/23 01/06/23

UNIT - V	Case Studies: Linux System: History, Components, Kernel Modules Process Management – Model Identit,y Context Scheduling – Kernel Synchronization Process Scheduling, Memory Management of Physical Memory,Windows 2000 System: History Design, Principal Components	8

References Books:

1 Silberschatz Galvin Gagne -Operating System Concepts Wiley Student Edition

2 Milan Milenkovic Operating System Concepts & Design-TMH Publication

3 Andrew S. Tanenbaum -Modern Operating System PHI

School of Basic & Applied Sciences

Class				**MASTER OF SCIENCE (COMPUTER SCIENCE) MSC (CS)**
Semester/Year				**SEMESTER - III**
Subject & Subject Code				**Programming With Java - MCOSC20S304**
Max. Marks				**60 (ETE) + 40 (IA) = 100**
Credit			**Total Credits**	
L	**T**	**P**	**5**	
4	**1**	**0**		

Course Objectives:

1.Introduce and Learn the Usage of the Java SDK Environment to Create Debug and Run Java Programs.
2. Understand Fundamentals of Java Programming Such as Character Set Variables Data Types and Control Structures Array Class and Methods etc.
3. Understand the Concepts of OOPs and Learn Implementation of them in Java by Defining Classes Invoking Methods using Class Libraries.
4. Introduce Strings Vectors Interfaces Packages and Threads Handling in Java.
5. Gain the Knowledge of Java Applets AWT Swings Servelet.
6. Learn and Understand the GUI Application Web Applications N-Tier Architecture.
7. Develop the Understandings of the Basic Knowledge of File Handling Database Connectivity Java Servlets and Web Application.

Course Outcome:

1. Explain and apply the Object Oriented Concepts for Solving Real Problem.
2. Use the Java SDK Environment to Create Debug and Run Simple Java Programs.
3. Apply Java Technology to Develop the Small Applications Utilities and Web Applications.
4. Apply Event Management and Layout Managers Using AWT Swing JDBC and Servlet for Developing the Software for Various Problems.

Student Learning Outcomes (SLO):

Students will:
1.Use an appropriate programming environment to design, code, compile, run and debug computer programs.
2. Demonstrate basic problem solving skills: analyzing problems, modeling a problem as a system of objects, creating algorithms, and implementing models and algorithms in an object-oriented computer language (classes, objects, methods with parameters, abstract classes, interfaces, inheritance and polymorphism).
3. Illustrate basic programming concepts such as program flow and syntax of a high-level general purpose language.
4. Demonstrate working with primitive data types, strings and arrays.

Unit	Syllabus	Periods
UNIT - I	Basics of Java : History and Basics of Java, Java Environment ,JDK Tools, Java Virtual Machine ,Java Program, Structure Java Language- Tokens, Keywords Constants, Variables and Data Types. Operators and Expressions, Statements - Decision Making, Branching and Looping, Labeled Loops Statement, Jump Statements: Break Continue and Return Command, Line Argument.	8

01/06/23 01.06.23 01/06/23 01/06/23

UNIT - II	Classes and Objects: Classes Objects, Defining a Class, Adding Variables and Methods, Creating Objects Accessing, Class Members, Constructors Static Members Nesting of Methods. Inheritance and Polymorphism: Basics, Types, Extending a Class Using Super Method, Overloading Method Overriding Final Variables and Methods Final Classes. Finalize Method, Abstract Methods and Classes Visibility Control.	8
UNIT - III	One and Two Dimension Arrays , String Array, String and String Buffer Classes Vectors , Wrapper Classes, Interfaces: Defining Interfaces, Extending Interfaces Implementing Interfaces, Accessing Interface Variables Packages: System Packages Naming Conventions Creating Packages, Accessing a Package Using Package Adding a Class to a Package Hiding Classes,Exception Handling: Introduction to Exception Handling, Try-Catch, Finally, Throws, Throw, Java Thread Model: Life Cycle of a Thread, Thread Class, Runnable Interface	8
UNIT - IV	Applet Programming : Creating and Executing Java Applets Inserting Applets in a Web Page Applet, Tag Local and Remote Applets, Applets Vs. Applications Applets Life Cycle. AWT Classes Swing Classes, Event Handling. AWT Programming: Working with Windows Graphics and Text Using AWT Controls Layout Managers and Menus Handling, Image Animation, Sound and Video. Java Swing: Japplet Icons and Labels, Text, Fields, Buttons, Radio Buttons Check Boxes, Combo Boxes, List Boxes, Tabbed and Scroll Panes, Tables. Event Handling:	8
UNIT - V	I/O Stream : Introduction of I/O Stream, Types of Streams, Stream Class Hierarchy Using File Class, Byte Streams Vs Character Streams, Textfile Vs Binary File, Standard I/O Streams and Random Access File Serialization. Database Programming Using JDBC:-Introduction to JDBC, JDBC Drivers, Types of JDBC Drivers, Connecting with Database. J2EE: Introduction of J2EE, Web Application. Basics Architecture and Challenges of Web Application, Servlet Servlet Life Cycle Developing and Deploying Servlets.	8

References Books:

1 E. Balagurusamy "Programming with Java a Primer"TMH ISBN-13: 978-0-07-061713-1Isbn-10: 0-07-061713-9.

2 Patrick Naughton and Herbert Schildt "Java: the Complete Reference" TMH Publication ISBN 0-07-463769-X.

3 Yashavantkanetkar "Let us Java" BPB Publications.

4 Cay Horstmann "Big Java" Wiley Publication

5 Peter Norton "Java Programming" Techmedia Publications.

01/06/23

01/06/23

01.06.23

01/06/23

EKLAVYA UNIVERSITY
ज्ञान प्राप्तये लक्ष्य संधानम्

School of Basic & Applied Sciences

Class	**MASTER OF SCIENCE (COMPUTER SCIENCE) MSC (CS)**
Semester/Year	**SEMESTER - III**
Elective Paper	**Open Elective**
Subject & Subject Code	**Data Warehousing & Mining (5A) - MCOSC20S305**
Max. Marks	**60 (ETE) + 40 (IA) = 100**

Credit			Total Credits
L	T	P	5
5	0	0	

Course Objectives:

1. Introduce the Basic Concepts of DataBase Data Warehouse and Data Mining
2 Understand the Concept of Knowledge Discovery
3 Understand the process of deriving Information from data with Different Perspectives
4 Understand and apply Preprocessing Methods On Raw Data
5 Discover Interesting and useful Patterns and associations Analyze Supervised and Unsupervised Models
6 Understand the concept of Business Intelligence and different types of databases.

Course Outcome:

1. Demonstrate an Understanding and knowledge of the Data Warehousing Data Mining and Business Intelligence
2. Explain the Data Analysis and Knowledge Delivery Stages.
3. Organize and Prepare the Data Needed for Data Mining Using Pre Preprocessing Techniques
4. Implement the Appropriate Data Mining Methods Like Association Classification Clustering
5. Apply Data Mining Methods to Solve Practical Problems. (Analyze the Problem Domain Data Collection Preprocessing Apply Suitable Data Mining Method Interpret and Visualize the Results and Provide Decision Support.)

Student Learning Outcomes (SLO):

Knowledge:
The candidate will get knowledge of:
- Data preprocessing and data quality.
- Modeling and design of data warehouses.
- Algorithms for data mining.

Skills:
- Be able to design data warehouses.
- Ability to apply acquired knowledge for understanding data and select suitable methods for data analysis.

Unit	Syllabus	Periods
UNIT - I	Data Ware Housing: Definition Usage and Trends, DBMSVs. Data Warehouse Data Marts, Metadata. Data Mining: Definition & Application, DBMS Vs. Data Mining KDD Versus Data Mining ,Data Mining Techniques, Business Intelligence Introduction Cycle of a Business Intelligence, Analysis Data Preprocessing: Need Data Cleaning, Integration & Transformation	8

01/06/23 01.06.23 01/06/23 01/06/23 01/06/23

UNIT - II	Data Warehouse Process & Architecture OLAP and OLTP, Definitions, Difference Between OLAP and OLTP, Dimensional Analysis, Multidimensional Data Mode Data Cubes Drill-Down and Roll-Up – Slice and Dice or Rotation Operations Types of OLAP, ROLAPvs. MOLAP, Schemas for Multidimensional Database: Stars Snowflakes and Fact Constellations, Relation betweenBusiness Intelligence I and Data Warehouse the Business Intelligence, User Types Standard Reports, Interactive Analysis and Ad Hoc Querying, Parameterized Reports and Self-Service Reporting Dimensional Analysis, Alerts/Notifications Visualization: Charts Graphs, Widgets, Scorecards and Dashboards	8
UNIT - III	Association Rule Mining Single-Dimensional, Boolean Association Rules Incremental Database, Dynamic Database Apoiri Algorithm, FP Growth Multi-Level ,Association Rules from Transaction Databases	8
UNIT - IV	Classification and Prediction, Concepts of Decision Tree Induction and Bayesian Classification Cluster Analysis, Categorization of Methods Partitioning, Methods K-Means Algorithm, Outlier Analysis, Hierarchical Methods	8
UNIT - V	Emerging Technologies - Machine Learning Big Data: Introduction, Importance Four vsData Mining for Business Applications, Like, Fraud, Detection Market Segmentation, Retail Industry, Telecommunications, Industry, Banking & Finance and CRM etc.Spatial Databases, Multimedia Databases, Time Series and Sequence Data, Text Databases, Web Mining Concepts.	8

References Books:

1 Jiawei Han Michelinekamber "Data Mining Concepts and Techniques" Morgan Kaufmann Publishers

2 Arun K Pujari "Data Mining Concepts and Techniques" University Press

3 G.K.Gupta"Data Mining with Case Studies" PHI Pvt Ltd

01/06/23 01.06.23 01/06/23 01/06/23

EKLAVYA UNIVERSITY
ज्ञान प्राप्तये लक्ष्य संधानम्

School of Basic & Applied Sciences

Class	**MASTER OF SCIENCE (COMPUTER SCIENCE) MSC (CS)**
Semester/Year	**SEMESTER - III**
Elective Paper	**Open Elective**
Subject & Subject Code	**Cloud Computing (5B) - MCOSC20S306**
Max. Marks	**60 (ETE) + 40 (IA) = 100**

Credit			Total Credits
L	T	P	5
5	0	0	

Course Objectives:

1.To Learn Fundamentals of Cloud Computing.
2. To Know Various Cloud Computing Technologies
3. To Understand Virtualization Fundamentals Foundation
4. To Introduce Data Storage in Cloud
5. To Learn Elements and Services in Cloud Computing
6. To Learn Application Platform for Cloud Applications.
7. To Introduce Various Cloud Services.
8. To Know Tools of Cloud Computing

Course Outcome:

1. Describe the Key concepts Advantages Limitations and Applications of Cloud Computing
2. Explain the various Models and services of Cloud.
3. Understand and Describe the Core Issues and challenges of cloud computing Such as Security Privacy and Interoperability.
4. Select and Apply Suitable Technologies Tools and Applications in the Cloud Computing Driven Systems
5. Design and develop the efficient solutions of the Cloud Computing problems and issues with consideration of environment and sustainable development.
6. Analyze the interface requirement for deploying the Applications in Cloud

Student Learning Outcomes (SLO):

1 Articulate the differences between deployment models (public,private, hybrid, and community) versus service models (infrastructure-, platform-, and software-as-a-service) of cloud computing.
2 Describe cloud security architectures from the perspectives of: providers, brokers, carriers, and auditors.
3 Describe a methodology for orchestrating a cloud ecosystem.
4 Understand how cloud computing changes the traditional enterprise security considerations compared to on-premise.
5 Understand how identity management considerations are different in the cloud, compared to on-premise.
6 How shared security responsibilities change in each service model.

Unit	Syllabus	Periods
UNIT - I	Introduction to Cloud Computing: Definition History, Importance, Characteristics Pros & Cons, Cloud Computing Technologies, Types of Cloud- Public & Private Clouds Community Cloud, Hybrid Cloud, Infrastructure Cloud Service, Models, Cloud Deployment Models.	8
UNIT - II	Virtualization: Characteristics Benefits Virtualization in Cloud Computing, Hypervisors Multitenancy, Types of Tenancy Virtualization - Architecture, Clustering, Grid Computing and Virtualization .Virtual Infrastructure, CPU Virtualization, Network and Storage Virtualization Cloud Tools: - VMware, Eucalyptus, Cloudsim, Opennebula.	8

01/06/23 01.06.23 01/06/23 01/06/23

UNIT - III	Cloud Computing Application Platform, Tools for Building, Cloud Programming in the Cloud Moving, Applications to Cloud Microsoft, Cloud Services - Azure Google Cloud Applications -Gmail, Calendar, Docs, Video etc. Google App, Engine, Amazon, Cloud Services EC2, Other Cloud Services - Cisco Webex Mail Yahoo, Zimbra, Elasticemail, Salesforce.Com. IBM.	8
UNIT - IV	Data Storage and Cloud Computing - Introduction to Enterprise, Data Storage-DAS SAN, NAS Data Storage Management FAT, NTFS, Cloud File Systems, Distributed Data Storage - Amazon, Dynamo, Couchdb, Thrudbetc, Online File Storage, Amazon Storage System.	8
UNIT - V	Cloud Computing Services -Cloud Computing Elements, Cloud Do's and Don'ts Understanding Services and Applications by Types - Web Based Services Infrastructure Services, On-Demand Computing, Other Cloud Services- STAAS DAAS, INAAS, Future Trends in Cloud Computing, Mobile Cloud Multimedia, Cloud Energy Aware, Cloud Computing Jungle, Computing Online Photo Editing Services.	8

References Books:

1 Raj Kumar Buyya James Broberg andrezei M.Goscinski -Cloud Computing: Principles and Paradigms-Wiley 2011

2 Srinivasan J.Suresh-Cloud Computing – a Practical Approach for Learning and Implementation Pearson India [ISBN-978131776513]

3 Marty Poniatowski-Foundations of Green IT- [ISBN: 978-0137043750].

4 Ravi Kant Soni Learning Spring Application Development Packt Publishing.

5 Michael Miller Cloud Computing 2008.

01/06/23 01.06.23 01/06/23

01/06/23 01/06/23

12

EKLAVYA UNIVERSITY
ज्ञान प्राप्ये लक्ष्य संधानम्

School of Basic & Applied Sciences

Class	**MASTER OF SCIENCE (COMPUTER SCIENCE) MSC (CS)**
Semester/Year	**SEMESTER - III**
Elective Paper	**Open Elective**
Subject & Subject Code	**E-Commerce And E-Governance (5C) -MCOSC20S307**
Max. Marks	**60 (ETE) + 40 (IA) = 100**

Credit			Total Credits
L	T	P	5
5	0	0	

Course Objectives:

1. Learn How to Design and Develop a Web Page Using HTML And CSS
2. Learn How to Link Pages So that they Create a Web Site.
3. Design and Develop a Web Site Using Text Images Links Lists and Tables for Navigation and Layout .
4. Style Your Page Using CSS Internal Style Sheets and External Style Sheets. 5.

Course Outcome:

1. Explain and demonstrate E-Governance Initiatives at the National Level in India
2. Make Classification of E-Commerce and E- Governance
3. Students Able to Think Critically and Analytically to New Successful Business Ideas.

Student Learning Outcomes (SLO):

1. Define and describe the 9 major ecommerce business models.
2. Identify the differences and similarities among customers and their perception of value in B2B and B2C e-commerce.
3. Compare and contrast developing a marketing mix in B2B and B2C ecommerce.

Unit	Syllabus	Periods
UNIT - I	Introduction to E-Commerce: Definition, History of E-Commerce, E-Business Models B2B, B2C ,C2C, C2B, Environment of E-Commerce, Dimensions of E-Commerce Ethical Issues, Electronic Data Interchange, Value Chain and Supply Chain E-Commerce Marketing, E-Commerce Strategy, ECommerce Infrastructure, Advantages and Disadvantages of E-Commerce.	8
UNIT - II	Electronic Payment Systems: Payment Gateways, Payment Cards, Credit Cards, Debit Cards, Smart Cards, E-Credit Accounts, E-Money Marketing on the Web Categories of E-Commerce, Edi Marketing, Strategies, Advertising on the Web Customer Service and Support Internet Banking, Introduction to M-Commerce Case Study: E-Commerce in Passenger Air Transport, Element of E-Commerce, Issues of E-Commerce.	8
UNIT - III	E-Government : Theoretical Background of E-Governance, Issues in E-Governance Applications, Evolution of E-Governance its Scope and Content Benefits and Reasons for the Introduction of EGovernance, E-Governance Models- Broadcasting Critical Flow, Comparative Analysis, Mobilization and Lobbying, Interactive Services / G2CC2G .	8
UNIT - IV	E-Readiness, E-Government Readiness. E- Framework Step & Issues, Application of Data Warehousing and Data Mining in E-Government Case Studies: Nicnet-Role of Nationwide, Networking in E- Governance, E-Seva. E-Governance Projects in India, Measures to be considered before going for E-Governance, Workplan and Infrastructure	8

01/06/23 01/06/23 01.06.23 01/06/23

UNIT - V	E-Government Systems Security: Challenges and Approach to Security of E-Government, Security Concern in E-Commerce Security, for Server Computers Communication Channel Security, Security for Client Computers. E-Security Network and Web Site, Risk for E-Business Information Technology ACT 2000 and its Highlights Related to E-Commerce, E-Security Firewalls, Electronic Market / EShop, Introduction to Security,, Types of Securities Security Tools, Network Security.	8

References Books:

1 Gary P. Schneider "E-Commerce" Cengage Learning India.

2 C.S.R. Prabhu "E-Governence: Concept and Case Study" PHI Learning Private Limited.

3 P. Tjoseph S.J."E-Commerce an Indian Perspective" Prentice-Hall of India.

4 V. Rajaraamn "Essentials of E-Commerce Technology" PHI Learning Private Limited.

5 . Amir Manzoor " E-Commerce: an Introduction" Lambert.

01/06/23 01-08-23 01/06/23 01/06/23

14

EKLAVYA UNIVERSITY
ज्ञान प्राप्तये लक्ष्य संधानम्

School of Basic & Applied Sciences

Class				MASTER OF SCIENCE (COMPUTER SCIENCE) MSC (CS)
Semester/Year				Semester - III
Subject & Subject Code				Computer Lab-3 - MCOSC20S308
Max. Marks				100 [80+20]
Credit			Total Credits	
L	T	P	5	
0	0	5		

JAVA Programming Lab

1. Write a Program in Java to Calculate the Simple Interest.
2. Write a Program in Java to Calculate Sum of Two Numbers Input from Command Line Argument.
3. Write a Program in Java to Calculate Area of Circle Using Scanner Class.
4. Write a Program in Java to Calculate Square Root of a Number.
5. Write a Program in Java to Display Name Age Calendar and Salary of a Person Input from the Keyboard.
6. Write a Program in Java to Display Grading of Student When His Percentage is Input from Keyboard.
7. Write a Program in Java to Display Odd Number from 1 to 100.
8. Write a Program in Java to Display the Following Pattern.

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

9. Write a Program in Java to Display the Following Pattern Using Function.

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

10. Write a Program in Java to Display the Following Pattern Using Function.

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

11. Write a Program in Java to Display the Following Pattern Using Function.

```
1
2 3
4 5 6
7 8 9 10
11 12 13 14
```

12. Write a Program in Java to Calculate the Factorial of a Number.
13. Write a Program in Java to Determine Whether a Number Input from Keyboard is Prime Number or Not.
14. Write a Program in Java to Display the Prime Numbers from 1 to 500 Using Function.
15. Write a Program in Java to Show Accessing Class Members and use a Dot(.).
16. Write a Program in Java to Show Multilevel Inheritance.
17. Write a Program in Java to Show Single Inheritance.
18. Write a Program in Java to Concatenate Two Strings Without Using Library Function.
19. Write a Program in Java to Make First Alphabet Capital of Each Word in a String.

01/06/23 01.06.23 01/06/23 01/06/23

20. Write a Program in Java to Get the Last Index of Any Given Character in a String.
21. Write a Program in Java to Reverse Words of a String.
22. Write a Program in Java to Find Occurrences of Each Character in a String.
23. Java Program to Get String and Count Number of Words in Provided String.
24. Write a Program in Java to Check Given String is Palindrome String or Not in Java.
25. Write a Program in Java to Reverse Each Word of Given String.
26. Write a Program in Java to Get Sub String from a Given String.
27. Java Program to Convert String to Lowercase and Uppercase.
28. Create a Java Applet and Show the use of Drawstring() Function.
29. Create a Java Applet to Show How to use Various Methods of Applet Class and Graphics Class in a Java Applet.
30. Write a Program in Java to Show the use of Interface.
31. Create a Java GUIApplication Using Labels and Textfields.
32. Create a Java GUI Application Using Radiobuttons.
33. Create a Java GUI Application Using Checkboxes.
34. Create a Java GUI Application Using Comboboxes.
35. Create a Java GUI Application Using Listboxes.
36. Create Two Html Pages with Links to Navigate from One Page to Other Page.
37. Write a Servlet to Display Current Date and Time of Server On Client : Date Servlet
38. Write a Servlet to Display Natural Numbers from 1 to 100 : Numberservlet
39. Create a JSP to Display Natural Numbers from 1 to 50 :Number.Jsp and Write Down the Process of Running It Step by Step.
40. Create a JSP to Display Current Date and Time of Server onClient :Date.Jsp and Write down the Process of running it Step by Step.

Group Assignment

1. Scientific Calculator utility
2. Chat Application
3. Text Editor Like Notepad/Wordpad
4. Paint Application

Web Technologies Lab

1. Write an HTML code to display your education details in a tabular format.
2. Write an HTML code to display your CV on a web page.
3. Write an HTML code to create a Home page having three links: About Us Our
4. Services and Contact Us. Create separate web pages for the three links.
5. Write an HTML code to create a login form. On submitting the form the user
6. Should get navigated to a profile page.
7. Write an HTML code to create a Registration Form. On submitting the form the
8. User should be asked to login with this new credentials.
9. Write an HTML code to create your Institute website Department Website and
10. Tutorial website for specific subject.
11. Write an HTML code to illustrate the usage of the following:
    - Ordered List
    - Unordered List
    - Definition List
12. Write an HTML code to create a frameset having header navigation and
13. content sections.
14. Write an HTML code to demonstrate the usage of inline CSS.
15. Write an HTML code to demonstrate the usage of internal CSS.
16. Write an HTML code to demonstrate the usage of external CSS.
17. Write a Java script to prompt for users name and display it on the screen.

01/06/23 01.06.23 01/06/23 01/06/23

18. Design HTML form for keeping student record and validate It using Java script.
19. Write an HTML program to design an entry form of student details and send it to store at database server like SQL Oracle or MS Access.
20. Write programs using Java script for Web Page to display browsers information.
21. Create an applet which will have a line an Oval & a Rectangle
22. Writing program in XML and create a style sheet in CSS & display the document in internet explorer.
23. Write an XML program to display products
24. Write a program using PHP and HTML to create a form and display the details
25. entered by the user
26. Create a PHP page using functions for comparing three integers and print the largest number.
27. Write a function to calculate the factorial of a number (non-negative integer). The function accept the number as an argument.
28. Write a PHP script that finds out the sum of first n odd numbers.
29. WAP to check whether the given number is prime or not.
30. Create a PHP page which accepts string from user. After submission that page displays the reverse of provided string.
31. Write a PHP function that checks if a string is all lower case.
32. Write a PHP script that checks whether a passed string is palindrome or not? (A palindrome is word phrase or sequence that reads the same backward as forward e.g. madam or nurses run)
33. WAP to create and sort an array.
34. WAP to create an associative array.
35. Write a PHP script to read a file character by character
36. Write a PHP script to append text to a file

01/06/23 01.06.23 01/06/23 01/06/23 1/6/23