

# Academic Session March-2023

## Syllabus- MCA (3<sup>rd</sup> Semester)

Course Code	Course Title	Credits	Th/ Th-P/P/Pro
OMC301	JAVA Programming	3	Theory
OMC302	Software Engineering	3	Theory
OMC303	Internet Technologies and Applications	3	Theory
OMC304	C Sharp (C#) .Net Programming	3	Theory
OMC305	Computer Graphics	3	Theory
OMC306	Cloud Computing	3	Theory
OMC321	JAVA Programming and ITA Lab	2	Practical
OMC322	C#(.Net) and Elective- I Lab	2	Practical

# JAVA Programming

<b>Course Code: OMC 301</b>	<b>Course Title: JAVA Programming</b>
<p><b>Course Objective:</b> The student will be able to</p> <ul style="list-style-type: none"> <li>➤ Students will able to Use the development tools in the JAVA development environment.</li> <li>➤ Make GUI-rich apps using all the major AWT controls and describe layout managers</li> <li>➤ Store and manipulate data in the Files</li> <li>➤ Understand the concept of Networking, and instant messaging using mail system</li> <li>➤ Prepare applications in multi-threaded environment.</li> </ul>	

## Course Contents

Sr. No.	Unit No./ Unit description	Unit Objectives
1	<i>Unit 1-</i> Introduction and Evolution of Java: Evolution of Java, Byte Code, JDK, JVM, JRE, Data type, Variable, Arrays, Operator, Control Statements, Classes & Objects, Constructor, Methods, this, super keyword, Inheritance, static blocks. Packages, Defining Packages, Using Packages, import and static import, jar utility, classes modifiers: abstract, final; member modifiers: public, protected, default, private, static, final, abstract, synchronized, native, transient, volatile, strict fp, instance of operator.	Students will be able to understand and evaluate the basic concepts of java and also be able to configure Eclipse.
2	<i>Unit 2-</i> Interface: Defining Interfaces, abstract methods declarations, implementing interfaces, extended interfaces, interface references and constants in interfaces	Students will be able to understand the importance object oriented programming
3	<i>Unit 3-</i> Fundamental Classes: Object class, Wrapper classes, String class, immutability, String Buffer and String Builder.	Students will be able to describe and design application using string manipulation
4	<i>Unit 4-</i> Exception handling: Exception Types, Exception class, Runtime Exception Class, Error Class, Checked and unchecked Exceptions, defining new exceptions; Handling: try, catch and finally; throw statement, throws clause.	Students will be able to create and design applications to make better/robust system.
5	<i>Unit 5-</i> Thread: Overview of threads, thread Creation; implementing the runnable interfaces, extending the thread class, Thread States, methods: Running,	Students will able to implement multiple events with the help of Thread.

	Yielding, sleeping, joining, waiting and notifying. Synchronized and static synchronized threads.	
6	<i>UNIT 6-</i> Object Lifetime: Garbage Collection, Reachable Objects, Object Finalization. Nested and Inner Classes	Students will be able to implement that how memory utilized.
7	<i>Unit 7-</i> I/O: The File class, File name Filter, Byte Streams: Input and Output streams, Character streams: readers and writers; object serialization	Students will be able to evaluate and apply the File properties in different applications area.
8	<i>Unit 8- Storage</i> Introduction to Generic Classes and Collection (List, Set, Map) Vector, Array List	Students will be able to understand, evaluate and apply Object manipulation and design to store data.
9	<i>Unit 9-</i> Applet: Applet basics, Applet Architecture, Applet Life cycle; Event Handling: Event handling mechanisms, the Delegation Event Model, Event classes, sources of events, Event Listener Interfaces, Adapter classes	Students will be able to understand, evaluate and apply GUI concepts
10	<i>Unit 10-</i> AWT: AWT Controls, Layout Managers, Frame, Images, Graphics, Fonts, Cursors, Colors, File Dialog box. Swing- Introduction, Advantages over AWT, Swing applications.	Students will be able to understand and evaluate the Event delegation Model.
11	<i>Unit 11-</i> Networking: Networking Basics, Java and the Net, TCP/IP Client sockets, URL, Reconnection, TCP/IP Server sockets, Datagram	Students will be able to understand and evaluate that how data integrated in packets and sockets.
12	<i>Unit 12-</i> Introduction to RMI (Remote Method Invocation): RMI, remote Interfaces, Stubs and skeletons, RMI registry, Bind and Rebind, a simple client server application using RMI.	Students will be able to analyse client server applications.

**References: -**

- Naughton, Schildt, “JAVA, The Complete Reference”, Eleventh Edition, 2020
- Khalid A. Mughal: A Programmer’s Guide To JAVA, Addison Wesley, 3rd edition.

## Software Engineering

<b>Course Code:</b> OMC 302	<b>Course Title:</b> Software Engineering
<p><b>Course Objective:</b> - The students will be able to:</p> <ul style="list-style-type: none"> <li>➤ Understand and apply software engineering principles and development life cycle models in real life projects.</li> <li>➤ Develop software requirement specification and design documents for software projects.</li> <li>➤ Understand and apply design and coding principles in software projects.</li> <li>➤ Create and develop test cases using black box and white testing techniques.</li> </ul>	

### Course Contents

Sr. No.	Unit No./ Unit description	Unit Objectives
1	<b>Unit 1- Introduction:</b> Software Crisis, Software Processes & Characteristics, Introduction to Software engineering, Software life cycle models, Process Models.	Students will be able to understand and evaluate the basic concepts of software engineering and life cycle models.
2	<b>Unit 2- Software Reliability Quality:</b> Introduction, Importance of Software Reliability, Failure and Faults, Reliability Models.	Students will be able to understand and evaluate the importance of software reliability.
3	<b>Unit 3- Software Quality Models:</b> compression of CMM and ISO 9001, Six-Sigma, just in time, total quality management etc.	Students will be able to understand the concepts and importance of software quality and quality models.
4	<b>Unit 4- Software Project Management:</b> Software Project Management life cycle, Software Project Planning Project.	Students will be able to understand and implement Software Project Management life cycle.

5	Unit 5- Estimation: Size Estimation: Lines of Code & Function Count, Cost Estimation Models, Risk Estimation and Management, Effort estimation, Project monitoring and control.	Students will be able to implement size estimation techniques like LOC and Function count. He will also be able to understand the concept of effort estimation.
6	<b>UNIT 6- Software Requirements Analysis &amp; specifications:</b> Requirement Engineering, Elicitation techniques, Requirements analysis using DFD, Data dictionaries & ER Diagrams, Requirements documentation, Characteristics & organization of SRS, IEEE Standard for SRS.	Students will be able to understand and develop the basic concepts of <i>Software Requirements Analysis &amp; specifications</i> .
7	<b>Unit 7- Software Development:</b> Agile method Methodology; Extreme programming; Rapid application development; Clean Room Software Development; Component Based Software Development.	Students will be able to evaluate and apply the concepts of Agile development Methodology.
8	<b>Unit 8- Software Design:</b> Design Concepts, Cohesion & Coupling, Function Oriented Design, Object Oriented Design, Software coding techniques and guidelines.	Students will be able to understand, evaluate and apply the efficient design concepts.
9	<b>Unit 9- Software Testing:</b> Objectives, lifecycle, Testing process, Design of test cases, Levels of Testing, Debugging, testing techniques,	Students will be able to understand the basics of Testing in software.
10	<b>Unit 10- Blackbox and Whitebox testing techniques:</b> Introduction to functional testing & Structural testing, Object oriented testing and web-based software testing.	Students will be able to understand and implement software testing techniques including black box and white box testing.
11	<b>Unit 11- Software Maintenance:</b> Management of Maintenance, Maintenance Process, Maintenance Models, Reverse Engineering, Software Re-engineering, Software Configuration Management.	Students will be able to understand the process of software maintenance. Student will also be able to differentiate Software

	Software Configuration Management vs Software maintenance.	Configuration Management vs Software maintenance.
12	<b>Unit 12- Project Scheduling:</b> Basic Concepts, Project Scheduling- Basic Principles, Relationship between People and Effort, Task Network, Scheduling, Gantt and PERT charts, Staffing.	Understand and defend the importance of Basic Concepts, Project of Scheduling.
<p><b>References: -</b></p> <ul style="list-style-type: none"> <li>➤ Pressman, Roger S., “Software Engineering: A Practitioner’s Approach Ed. Boston: McGraw Hill, 2001, 2004.</li> <li>➤ Jalote, Pankaj, “Software Engineering Ed.2”, New Delhi: Narosa 2002.</li> <li>Sommerville, Ian, “Software Engineering”, AWL, 2000 Fairly, “Software Engineering”, New Delhi: TMH.</li> </ul>		

## Internet Technologies and Applications

<b>Course Code:</b> OMC 303	<b>Course Title:</b> Internet Technologies and Applications
<b>Course Objective:</b> - The students will be able to: <ul style="list-style-type: none"> <li>➤ Gain the knowledge of Protocols, Websites and Web Applications.</li> <li>➤ Analyze a web page and identify its elements and attributes.</li> <li>➤ Design a basic web site using HTML and CSS to demonstrate responsive web design.</li> <li>➤ Build well-formed XML Document.</li> <li>➤ Create and build dynamic web pages using JavaScript (client side programming).</li> <li>➤ Design and create simple web application using server side PHP programming and Database Connectivity using MySQL.</li> </ul>	

## Course Contents

Sr. No.	Unit No./ Unit description	Unit Objectives
1	<b>Unit 1- Introduction to Internet and Protocols:</b> History of the Internet and World Wide Web, Gopher, HTML Protocols – HTTP, SMTP, POP3, MIME, IMAP, Telnet, Load Balancing.	Students will be able to understand and evaluate the basic concepts of Internet and protocols.
2	<b>Unit 2- Deploying server:</b> Web server and Application server, Email Server, FTP, ISP, URL address, DNS. Static VS Dynamic Websites and Website VS Web Applications.	Students will be able to understand the importance of server, websites and web applications.
3	<b>Unit 3- Introduction of HTML:</b> What is HTML, how to write HTML, HTML Building blocks, Tags, Attribute, Elements, Formatting Tags, Breaking rule, Horizontal rule.	Students will be able to describe and design about HTML web pages.
4	<b>Unit 4- Web Page Designing:</b> Heading, Paragraph, Anchor Tag, Image, Table, List, Linking, Frame, form.	Students will be able to create and design static web pages.
5	<b>Unit 5- Introduction of HTML 5:</b> Introduction of HTML 5, History of HTML 5, HTML 5 Tags, HTML 5 Elements, HTML 5 Events.	Students will be able to implement HTML 5 to make web pages more attractive.
6	<b>UNIT 6- CSS:</b> Introduction of CSS, CSS Selectors, Types of CSS, Box Model, Pseudo Class, Pseudo Element, CSS Properties.	Students will be able to create, apply, and design the style characteristics.
7	<b>Unit 7- XML:</b> What is XML, Why XML, Features of XML, Pros and cons of XML, Tree, DOM, and DTD?	Students will be able to evaluate and apply wide variety of applications.
8	<b>Unit 8- JavaScript Basics:</b> Introduction of JavaScript, Pros and Cons of JavaScript, Variable, Data types, Operators, Internal and External JavaScript, Expressions, Loops, and Function.	Students will be able to understand, evaluate, and apply the basics of Scripting.
9	<b>Unit 9- JavaScript Objects:</b> Object, Array, String, Date, Number, Boolean, Window, History, Navigator, and Screen.	Students will be able to understand, evaluate and

		apply Objects to make web applications more reliable.
10	<b>Unit 10- JavaScript DOM:</b> What is DOM, Why DOM, Methods of DOM, innerHTML, Validation using DOM.?	Students will be able to understand and evaluate the components of DOM to create dynamic web pages.
11	<b>Unit 11- PHP Introduction:</b> PHP basics, Installation of PHP, Echo, Variable, and Data types, Operators, Constants, Expressions, Loops, Array, Functions.	Students will be able to understand and evaluate that how PHP will work?
12	<b>Unit 12- Advance PHP:</b> PHP form, Include, Cookie, Session, Data Storage using MySQLi.	Students will be able to create, analyze, design and implement the form with database part to make web page attractive and dynamic.
<b>References: -</b> <ul style="list-style-type: none"> <li>➤ Laura Lemay, Rafe Colburn, Jennifer Kyrnin, “Mastering HTML, CSS, &amp; JavaScript Web Publishing”, BPB Publications, 2016.</li> <li>➤ Luke Welling, Laura Thomson, “PHP and MYSQL Web Development”, Addison Wesley, 2016.</li> <li>➤ Kogent Learning Solutions Inc., “Web Technologies Black Book”, Dreamtech Press, 2009.</li> <li>➤ DT Editorial Services, “HTML 5 Black Book”, Dreamtech Press, 2016.</li> <li>➤ Steave Holzner, “PHP: The Complete Reference”, McGraw Hill Education”, 2017.</li> </ul>		



## C Sharp (C# ) Programming

<b>Course Code:</b> OMC 304	<b>Course Title:</b> C Sharp (C# ) Programming
<p><b>Course Objective:</b> - The students will be able to:</p> <ul style="list-style-type: none"> <li>➤ Understand the .NET framework as a platform for running different languages.</li> <li>➤ Solve programming problems using the C# programming language.</li> <li>➤ Describe and apply concepts of object-oriented programming in application development.</li> <li>➤ Walkthrough Microsoft Visual Studio Community and its various components and create projects in solution.</li> <li>➤ Evaluate Custom queries in SQL Server to perform basic CRUD operations using ADO.NET.</li> <li>➤ Apply .NET Framework to solve the problems in different domains.</li> </ul>	

### Course Contents

Sr. No.	Unit No./ Unit description	Unit Objectives
1	<b><i>Unit 1- Overview of the Microsoft .NET Platform:</i></b> Future of computing and the Microsoft's vision, Understanding the motivation behind the .NET platform, Constituents of the .NET platform, CLR, Forces behind the fame, CTS, CLS, Know the role of CIL, Platform independence in .NET, .NET [R]Evolution, advantages, & prospects, Understanding the core: Assemblies (DLL HELL, Metadata, Namespace & Versioning), Deploying the .NET runtime.	Students will be able to understand the vision of Microsoft, the motivation behind .NET, and various components of .NET platform.
2	<b><i>Unit 2- C# Language Syntax:</i></b> Working with data types & conversions, Strings, Dates & Time, Integers, Performing calculations with mathematical operators, Converting between data types.	Students will be able to understand the C# language syntax, data types and their conversions, operators and implement the same in basic console applications.
3	<b><i>Unit 3- Controlling program execution:</i></b> IF statements, CASE (SWITCH) statements, FOR, FOREACH Loops, WHILE, DO-WHILE Loops, Storing multiple values with arrays.	Students will be able to understand how to control the program execution by conditional statements and looping, concepts of arrays, and implement the concepts in basic console applications.
4	<b><i>Unit 4- C# .NET Object Oriented Programming:</i></b> Coding object oriented applications: Dividing code into classes, Adding fields, method properties, events and constructors to classes, Defining scope & visibility,	Students will be able to understand and implement object oriented concepts,

	Garbage collector, Inheritance & polymorphism, Overloading methods, Handling errors: Throwing exceptions, Try.....Catch.....Finally, Simplifying maintenance through inheritance: Implementing a base class, Defining virtual and abstract methods, Overriding methods in derived classes.	error and exception handling in C#.
5	<b>UNIT 5- Building applications with Visual Studio:</b> Managing projects with the solution explorer, Setting project properties and adding references, Adding files, folders and code, Compiling, debugging and testing programs.	Students will be able to understand how to create projects and solution in visual studio IDE.
6	<b>UNIT 6- Automating testing with Visual Studio:</b> Creating Visual Studio test projects, Writing Unit tests, Testing classes, properties, method and exceptions.	Students will be able to create unit test projects and understand how to create and write unit test cases.
7	<b>Unit 7- Programming Web Applications with ASP.NET:</b> Constructing ASP.NET Web Sites with Visual Studio, Writing HTML pages and forms, Maintaining consistency with Master pages, Designing pages with ASP.NET controls, Styling sites with ASP.NET themes.	Students will be able to create and understand web application and websites by integration of HTML, CSS and JavaScript, understand the concept of master pages.
8	<b>Unit 8- Processing ASP.NET Web Forms:</b> Initializing Web Forms controls, Activating Web Forms with events, ASP.NET AJAX, Working with XML, ASP.NET MVC.	Students will be able to understand, evaluate and apply master page concepts in processing web forms, understand event driven programming, ajax, XML and MVC.
9	<b>Unit 9- Incorporating Relational Databases:</b> Relational database concepts, Selecting, inserting, updating and deleting query syntax.	Students will be able to understand the basics of relational database concepts and the implementation of basic SQL queries.
10	<b>Unit 10- Creating a SQL Server Database:</b> Defining primary & foreign key relationships.	Students will be able to create SQL Server sample database, and understand the concept of primary key and foreign key relationships
11	<b>Unit 11- Accessing the database with ADO.NET:</b> Connecting to the database and running SQL commands, Storing user information, Retrieving existing records.	Students will be able to understand data access framework (ADO.NET) architecture and create database driven web applications.
12	<b>Unit 12- Deploying .NET Applications:</b> Installing the .NET Framework, Moving ASP.NET applications to the Web.	Understand how to install .NET framework and various techniques to deploy .NET applications over the internet.

**References: -**

- Andrew Stellman and Jennifer Greene, “Head First C#, 4e: A Learner's Guide to Real-World Programming with C# and .NET Core”, O’Reilly, 2020.
- Joseph Albahari and Ben Albahari, “C# 8.0 Pocket Reference: Instant Help for C# 8.0 Programmers”, O’Reilly, 2019.
- Andrew Troelsen, “Pro C# 5.0 and the .NET 4.5 Framework”, Sixth Edition, Apress, 2013.
- Ian Griffiths, Matthew Adams, Jesse Liberty, “Programming C# 4.0”, Sixth Edition, O’Reilly, 2010.
- Anders Hejlsberg, Mads Torgersen, Scott Wiltamuth, and Peter Golde, “C# Programming Language (C# 4.0)”, 4th Edition, Microsoft .NET Development Series, 2010.

## Computer Graphics

<b>Course Code:</b> OMC 305	<b>Course Title:</b> Computer Graphics
<p><b>Course Objective:</b> - The students will be able to:</p> <ul style="list-style-type: none"> <li>➤ Understand the concept and basics of Matrices and interactive Computer Graphics and their applications.</li> <li>➤ write program functions to implement graphics primitives</li> <li>➤ Understand the concept of Geometrical transformations</li> <li>➤ demonstrate an understanding of the use of object hierarchy in graphics applications</li> <li>➤ write programs that demonstrate computer graphics Animation</li> <li>➤ Understand the concept of 2D image processing techniques.</li> </ul>	

## Course Contents

Sr. No.	Unit No./ Unit description	Unit Objectives
1	<b>Unit 1-</b> Graphics Primitives: Display Devices: Refresh Cathode Ray Tube, Raster Scan Display, Plasma display, Liquid Crystal display, Aliasing and Anti-Aliasing. Input-Output Devices.	Students will be able to understand the basics of Computer Graphics and about the input output devices.
2	<b>Unit 2-</b> Mathematics for Computer Graphics: Point representation, Vector representation, Matrices, Vector addition and vector multiplication, Line Drawing Algorithms: DDA algorithms, Brenham's algorithm	Students will be able to understand the mathematics required to get sound concept of computer Graphics. Also they will know about the drawing of lines on computer screen
3	<b>Unit 3-</b> Circle, Ellipse generation algorithms. Viewing Transformation, Clipping: Point Clipping, Line Clipping. Polygon Clipping.	Students will be able to draw geometric primitives on screen and the concept of clippings.
4	<b>Unit 4-</b> Filling: Inside Tests, Flood fill algorithm, Boundary-Fill Algorithm and scan-line polygon fill algorithm.	Students will be able to understand and implement different polygon filling algorithms.
5	<b>Unit 5-</b> . Transformation: 2D transformation, Basic Transformations, Composite transformations:	Students will be able to understand the basics of 2 D transformation.

6	<b>UNIT 6-</b> Reflection, Shearing, And Transformation between coordinate systems. 3 D transformations.	Students will able to understand more about transformation and transformation in 3D.
7	<b>Unit 7-</b> Projections: Parallel projection, Perspective projection, Quadric surfaces: Sphere, Ellipsoid, Spline & Bezier Representations:..	Students will able to understand concept of projections and curve representations.
8	<b>Unit 8-</b> Interpolation and approximation, parametric continuity conditions, Spline specifications. Bezier curves and surfaces	Students will able to understand the concept behind the curve and surface generation.
9	<b>Unit 9-</b> Visible lines and surfaces identification, Hidden surface removal, Fractal Theory	Students will able to understand the basics of elimination of hidden lines and surfaces .also they will get knowledge about fractal theory.
10	<b>Unit 10-</b> Rendering: Illumination models, polygon mesh shading, transparency, shadow, texture. Some advance topics/applications:	Students will able to understand the concept of lighting, shadow and texture.
11	<b>Unit 11-</b> (i) Animation and morphing,	Students will able to understand the basics of animation, morphing and about various animation software's.
12	<b>Unit 12-</b> (ii) Virtual reality, (iii) User-interface design, (iv) Fractal graphics, (v) 3D visualization.	Students will able to understand the concept of virtual reality, USD and Visualizations.

**References: -**

- Donald Hearn, M.Pauline and Baker, "Computer Graphics", PHI, 2001.
- Godfrey, "Computer Graphics", Schaum Series, TMH, 2003.
- Steven Harrington, "Computer Graphics: Programming Approach", TMH, 2001.
- Prajapati A.K."Computer Graphics", PPM, Ed2, 2004.

# Cloud Computing

<b>Course Code:</b> OMC 306	<b>Course Title:</b> Cloud Computing
<p><b>Course Objective:</b> - The students will be able to:</p> <ul style="list-style-type: none"> <li>➤ Understand the concepts of database management and can differentiate the database approach with the file system approach.</li> <li>➤ Sketch and develop Entity Relationship Diagrams for real world problems and design databases.</li> <li>➤ Apply and analyze Relational database queries with the help of Structured Query Language (SQL) and construct simple and moderately advanced database queries in SQL.</li> <li>➤ Evaluate and Apply logical database design principles, including keys, constraints and database normalization and design normalized databases.</li> <li>➤ Understand and defend the importance of concurrency control in Transaction Processing Systems and examine the importance of recovery management in databases and solve deadlock related problems.</li> </ul>	

## Course Contents

Sr. No.	Unit No./ Unit description	Unit Objectives
1	<b>Unit 1-</b> Cloud computing Fundamentals – Short history of cloud computing, Cloud Storage, Pros and Cons of cloud computing.	Students will be able to understand and evaluate the basic concepts of Cloud Computing
2	<b>Unit 2-</b> Benefits from cloud computing. Basic and Essential characteristic of cloud computing model. Use and application of Cloud computing.	Students will be able to understand and evaluate the importance of Cloud Computing. Students will be able to analyze the characteristics of Cloud Computing
3	<b>Unit 3- Cloud Platform Architecture:</b> NIST cloud reference architecture, Cloud Computing and service Models: IAAS, PAAS, SAAS	Students will be able to understand different cloud service models.
4	<b>Unit 4- Cloud Deployment models,</b> public, private, hybrid and community models and their comparative study.	Students will be able to understand different cloud deployment model.
5	<b>Unit 5- Storage Architectures:</b> Evolution of storage technology, storage models, file systems and database, distributed file systems, general parallel file systems.	Students will be able to understand various storage models and file systems.
6	<b>UNIT 6-</b> Google file system. Prevalent Storage technologies like DAS, RAID, NAS and SAN architectures, Data centers for Cloud Computing.	Students will be able to differentiate between various cloud computing architectures.

7	<b>Unit 7- Virtual Machines and Virtualization</b> : Introduction, brief history of virtualization, Need for virtualization,	Students will be able to evaluate and understand Virtualization need in Cloud Computing.
8	<b>Unit 8-</b> Concept of hypervisor and its types, Virtualization architecture, pros and cons of virtualization.	Students will be able to understand and evaluate Virtualization architectures and concept of Hypervisors.
9	<b>Unit 9-</b> Types of Virtualization, Hardware Virtualization, Software Virtualization, Memory Virtualization, Storage Virtualization Network Virtualization	Students will be able to understand the basics of types of Virtualization.
10	<b>Unit 10-</b> Security Recommendations and Software Environments: Cloud Security Recommendations ,Virtualization Security Recommendations	Students will be able to understand and defend the Cloud Security recommendations.
11	<b>Unit 11-</b> Introduction to AWS, Key Amazon offerings, Google App Engine, Key Google offerings. Microsoft Azure	Students will be able to understand AWS , Google App Engine and Azure
12	<b>Unit 12-</b> Case Study: AWS Cloud Infrastructure Services, AWS networking and databases: Virtual private clouds, Cloud models, Private DNS servers (Route 53)), Relational database service – DynamoDB, ElastiCache, Redshift.3	Understand AWS Infrastructure and can examine the importance of various services offered by AWS.
<b>References: -</b> <ul style="list-style-type: none"> <li>➤ Barrie Sisisky,“Cloud Computing Bible”, Published by Wiley Publishing, Inc.2011.</li> <li>➤ Erl T., Puttini R. and Mahmood Z., “Cloud Computing: Concepts, Technology &amp; Architecture”, Pearson Education India, 2013.</li> <li>➤ Kavis M. “Architecting the Cloud: Design Decisions for Cloud Computing Service Models (SaaS, PaaS, and IaaS)”, Wiley Publishing, 2010</li> <li>➤ Srinivasan A. “Cloud Computing: A Practical Approach for Learning and Implementation”, Pearson Education India, 2018</li> </ul>		