



# School of Computer Science & IT Devi Ahilya Vishwavidyalaya

## SYLLABUS

### M.Tech Executive (Computer Science) 2 years

#### Program Educational Objectives (PEOs)

- PEO 1:** Build strong theoretical and practical skills in Computer Science to accelerate career in industry or academia.
- PEO 2:** Demonstrate analytical, research, design, and implementation skills and deal with large- scale projects.
- PEO 3:** Imbibe lifelong learning, professional, and ethical attitude for embracing global challenges.

#### Program Specific Outcomes (PSOs)

- PSO 1:** Expose industry professionals in the areas of emerging technologies.
- PSO 2:** Implement projects that are industrial strength with a blend of theoretical knowledge gained in academia.

## III - SEMESTER

## CS-6220: Internet Programming Using Java

### Aim:

To make students learn fundamental concept of coding and perform them practically and to develop problem-solving skills

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### Course Outcomes:

- CO 1: Understanding of OOPs concepts clearly
  - CO 2: Understanding of client server architecture and thier working
  - CO 3: Understanding database creating and server technologies
  - CO 4: providing knowledge of advance java concepts like servlet, JSP, etc.
  - CO 5: Understanding of MVC Architecture
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### Unit-I

Review of java concepts: Features of Java, Object-oriented programming overview, Introduction of Java Technologies, How to write simple Java programs, Data Types, Variables, Memory concepts, control statements, looping, Method CallStack and Activation Record, Argument Promotion and Casting, Scope of declaration and Method Overloading, String Handling: The String constructors, String operators, Character Exaction, String comparison, String Buffer. Arrays: Declaring and Creating Arrays, Enhanced for Statement, Passing Arrays to Method, Multidimensional Arrays, Variable-Length Argument lists, Using Command-line Arguments

### Unit-II

Inheritance: Extending classes & related things, Packages and Interfaces: Defining a Package, Understanding CLASSPATH, Access Protection, Importing packages, creating own packages Exception Handling: Introduction, over view of doing it and keywords used, when to use it, Multithreading: What are threads, The java Thread model, Thread priorities, Thread life cycle, Thread Synchronization, Applets: Applet basics, Applet Architecture, Applet life cycle methods, Database connectivity: JDBC, The design of JDBC, Typical uses of JDBC

### Unit-III

Introduction to HTTP, webServer and application Servers, Installation of Application servers, Config files, Web.xml. JavaServlet, Servlet Development Process, Deployment Descriptors, Generic Servlet, Lifecycle of Servlet. Servlet Packages, Classes, Interfaces, and Methods, Handling Forms with Servlet, Various methods of Session Handling, various elements of deployment descriptors.

### Unit-IV

JSP Basics: JSP lifecycle, Directives, scripting elements, standard actions, implicit objects. Connection of JSP and Servlet with different database viz. Oracle, MS-SQL Server, MySQL.java.sql Package. Querying database, adding records, deleting records, modifying records, types of Statement. Separating Business Logic and Presentation Logic, Building and using JavaBean. Session handling in JSP, Types of errors and exceptions handling.

### Unit-V

MVC Architecture Introduction to Remote Method Invocation, Introduction to Enterprise Java Bean, Types of EJB, Creating and working with Session Bean

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**Text Books:**

1. Java2: The Complete Reference by Herbert Schildt, Tata McGraw-Hill, 8th Edition, 2011.
2. K. Mukhar, "Beginning Java EE 5: From Novice to Professional", Wrox Press.

**Reference Book(s):**

1. The Java Programming Language, Ken Arnold, James Gosling, David Holmes, 3rd Edition, Person Education, 2000.
2. Head First Java, Kathy Sierra, Bert Bates, O'Reilly Publication, 2nd Edition, 2005

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## CS-6518: Cloud Computing

### Aim:

To provide students with the fundamentals and essentials of Cloud Computing, thus creating a sound foundation while enabling students to start using and adopting Cloud Computing services and tools in their real-life scenarios.

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### Course Outcomes:

- CO 1: Learn the main concepts, key technologies, strengths, and limitations of cloud computing and the possible applications for state-of-the-art cloud computing
  - CO 2: Identify the architecture and infrastructure of cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc.
  - CO 3: To gain knowledge of virtualization and Hands-on exercises on AWS, Salesforce and Google Cloud.
  - CO 4: Understanding of appropriate cloud computing solutions and recommendations according to the applications.
  - CO 5: Learn the core issues and latest trends and technologies of cloud computing
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### Unit-I

Introduction to cloud computing, History, Importance of cloud computing in the current era, characteristics of cloud computing, what cloud computing really is and isn't, pros and cons of cloud computing, technologies in cloud computing, migrating into cloud.

### Unit-II

Types of clouds, cloud infrastructure, cloud application architecture, working of cloud computing, trends in cloud computing, cloud service models, cloud deployment models, cloud computing and services pros and cons.

### Unit-III

Cloud computing technology, cloud life cycle model, role of cloud modeling and architecture, cloud system architecture, virtualization, types of virtualization, importance and limitations of various types of virtualization, virtualization in cloud computing.

### Unit-IV

Data storage, introduction to enterprise data storage, data storage management, file system, cloud data stores, cloud storage characteristics, applications utilizing cloud storage.

### Unit-V

Introduction to web services, cloud service deployment tools, management/ administrative services, risk management in cloud computing, introduction to apache Hadoop.

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### Text Books:

Cloud Computing: A practical approach for learning and implementation, 1st edition, Pearson, A. Srinivasan, J. Suresh.

**Reference Book(s):**

1. Investigating various tools such as VMWare, Eucalyptus etc.
2. Examining cloud applications in context to social networking, email, document/ spreadsheet hosting services etc. and various Google cloud applications.

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