

**INTERNATIONAL INSTITUTE OF PROFESSIONAL STUDIES  
DEVI AHILYA UNIVERSITY, INDORE**

**MCA (6 Years)**

**V SEMESTER**



**JULY-DECEMBER 2019**

<b>Sub. Code</b>	<b>Sub. Name</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
IC-501B	Internet & Web Programming	3	1	0	4
IC-504A	System Programming	3	1	0	4
IC-506A	Core Java	3	1	0	4
IC-512A	Computer oriented Numerical Method	3	1	0	4
IC-505	Operational Behavior	3	1	0	4
IC-508C	IWP Lab	0	0	4	2
IC-510A	Core Java Lab	0	0	4	2
IC-509	Comprehensive Viva	0	0	0	4
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**INTERNATIONAL INSTITUTE OF PROFESSIONAL STUDIES, DAVV, INDORE**  
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**IC-501B:- Internet and Web Programming**

**Aim of Course:** The aim of the course is to provide knowledge of internet tools and to introduce some of the basic technologies for creating and processing content on Internet web sites.

**Objectives:**

The course is designed to make students:

- Understand the fundamental concepts of working of internet.
- Design, format and link web pages.
- Write dynamic interfaces using JavaScript.
- Link databases to web sites.

**Course Contents:**

**UNIT I**

Introduction to computer networks: Introduction, Components, Standards, Transmission types, Topologies, Transmission mode.

**UNIT II**

Internet Basics: Introduction, Internet Service Provider (ISP), Search Engines, Web Browse Architecture, Internet Addressing: IP Address IPv4 and IPv6, e-mail address, Domain address, Uniform Resource Locator (URL), Internet Services: FTP, Telnet, E-mail (SMTP), WWW (HTTP), DNS.

**UNIT III**

Hypertext Markup Language (HTML): Web Terminologies, Web Characteristics, Effective web programming, Web Documents: Static, Dynamic, Active, Browser Architecture, Characteristics of HTML, Types of Tags, Basic Tags, List, Table. Introduction to HTML 5.

Dynamic Hypertext Markup Language (DHTML): Introduction, Cascading Style Sheet (CSS): Introduction, Attributes, Types (Inline style, Style element, External Style Sheet), Class, Introduction to CSS-3.

**UNIT IV**

Java Script: Introduction, Document Object Model (DOM), Variables, functions and events, Data Types and operators, Decision making with control structure and statements, Forms, Cookies, Use of Java Script library *JQuery*.

**UNIT V**

Introduction to PHP, creating Server-side Applications with PHP, Introduction to Extensible Markup Language (XML). Client side Vs Server side scripting.

**Required Text(s) :**

1. Data Communication and Networking By Behrouz A. Forouzan (Tata McGraw Hill)
2. Web enabled commercial application By Ivan Bayross (BPB)

*Reference Books:*

1. HTML By Herbert Schildt
2. Web Programming By Chris Bates.
3. HTML 5 and CSS 3: Develop with Tomorrow's Standard Today( Pragmatic Programmers) By Brian P. Hogan
4. Learning jQuery By Jonathan Chaffer & Karl Swedberg (PACKT Publishing)

**Electronic Materials, Web Sites etc:**

1. <http://www.youtube.com/user/basant1978>, <http://www.w3schools.com/js/>
2. <http://www.w3schools.com/css3/>, <http://www.jquery.com>
3. <http://www.w3schools.com/html/>, <http://www.w3schools.com/css/>

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**IC-504A: System Programming**

**Aim of Course:** To enhance the understanding of the concepts of System Programming and to provide a basis for judgment in the design of System Software - Preprocessors, Compilers, Loaders, Debuggers, and Assemblers

**Prerequisite:** Basic knowledge of operating System.

**Objectives:**

The course is designed to make students:

- Understand basic concepts of system software and system programming.
- Learn the design of assemblers, compilers and preprocessors.
- Understand the working of loaders, linkers, editors, debuggers and other software tools used in programming development environment.

**Course Contents:**

**UNIT I**

Introduction to Software: System Software and Application Software, System Programming, Components of Language Processing System, Fundamentals of Language processing systems.

**UNIT II**

Assembler: Elements of Assembly Language programming, a simple Assembly Scheme, Pass Structures of Assemblers, Design of a Two-pass Assembler, Algorithms for two pass assembler.

**UNIT III**

Macros and Macro Processors: Macro definition and call, macro expansions, nested macro calls, Advance Macro facilities, Design of Macro Preprocessor and macro Assembler.

**UNIT IV**

Compiler: Compiler and Translators, cross compilers, phases in compiler Design, Design of Lexical analyzer.

**UNIT V**

Loaders and Linkers: Loader, General loader scheme, Absolute loading, Relocatable Loading, Dynamic Run Time Loading, Linker, Dynamic Linker, Re-locatable and self-relocating programs.

Software Tools: Software tools for program development, Editors, Debugger, Debug Monitors, Programming Environments, User Interfaces, Co-routines and reentrant programs.

**Text Books:**

1. D. M. Dhamdhare, System Programming and Operating System, 5th edition
2. John. J. Donovan, System Programming, Tata McGraw Hill.

**Reference Books:**

- 1 Aho and Ullman , Principles of Compiler Design, Pearson Education.
- 2 Leland L. Beck, "System Software An Introduction to Systems Programming", Pearson Education 3rd Edition.
3. Douglas. V. Hall , "Microprocessors and Interfacing", Tata McGraw Hill.

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**IC-506A : Core Java**

**Aim of Course:** To learn the Java programming language fundamentals: its syntax, idioms, patterns, and styles with object oriented programming concepts.

**Objectives:**

The course is designed to make students:

- Write programs using the Java language. Basic topics considered are programs and program structure in general, and Java syntax, data types, flow of control, classes, methods, objects, arrays, exception handling, recursion, and graphical user interfaces (GUIs).

**Course Contents:**

**UNIT I**

Introduction to Java: Features of Java, Object-oriented programming overview, Introduction of Java Technologies, How to write simple Java programs, Data Types, Variables, Memory concepts, decision making operators, Naming Conventions Introduction to Class, Objects, Methods and Instance Variables, Primitive type Vs Reference Type, Initializing Objects with Constructors. Type conversion & casting, Operators, Control statement, while, do-while, for, foreach Statements, switch Multiple-Selection Statement, break and continue Statements. Static Method, static field and Math Class, Argument Promotion and Casting, Scope of declaration and Method Overloading.

String Handling & Arrays: String Handling: The String constructors, String operators, Character Exaction, String comparison, String Buffer.

Arrays: Declaring and Creating Arrays, Passing Arrays to Method, Multidimensional Arrays, Variable-Length Argument lists, Using Command-line Arguments. Final Instance Variables, this reference, static import, overloaded Constructors, Garbage collection and method finalize, Overloading methods, Parameter passing.

**UNIT II**

Inheritance & Polymorphism: Inheritance: Extending classes, protected Members, relationship between Superclasses and Subclasses, Using super, Constructor in Subclasses

Polymorphism: Method overriding, upcasting, Dynamic Method Dispatch, final Method and classes, Abstract classes and Methods, instanceof operator, Downcasting

Packages and Interfaces: Packages: Defining a Package, Understanding CLASSPATH, Access Protection, Importing packages, creating own packages.

Interfaces: Defining an Interface, Properties of interface, advantages of interface, Achieving multiple inheritance through interfaces, Variables in Interfaces.

**UNIT III**

Nested Classes & Exception Handling: Nested Classes: Overview of nested class and interfaces, static nested class and interfaces, non-static nested class and, anonymous classes.

Exception Handling: Introduction, overview of doing it and keywords used, when to use it, Java

Exception Hierarchy, finally block, chained exceptions, declaring new exception types .  
Streams and Files: Introduction to Data Hierarchy, Files and Streams, Sequential-access Text Files, Object Serialization, Random-Access files, Java Stream class Hierarchy.

#### **UNIT IV**

Multithreading: What are threads, The java thread model, Thread priorities, Thread life cycle, Creating thread and executing thread, Thread Synchronization, producer-consumer problem without Synchronization. Producer-consumer problem with Synchronization, Other class and Interfaces in java.util.concurrent, Monitor and Monitor Locks, Thread Groups, Synchronization, Inter-thread Communication.

Introduction to GUI & Applets: Introduction To GUI : Introduction, Overview of swing Components, Displaying text and Images in a window, Introduction to Event Handling, Common GUI Event Type and Listener Interfaces, How Event Handling Works, Adapter Classes, Layout Managers

Applets: Applet basics, Applet Architecture, Applet life cycle methods, Applet HTML Tag and attributes, Executing applet in web browser and in the appletviewer, in Passing parameters to Applets, doing GUI programming in applet.

#### **UNIT V**

Generic & Collection: API Generic: Introduction, Motivation for Generic Methods, Generic Methods : Implementation and Compile- time Translation Issues, Overloading Generic Methods, Generic Classes, Raw Types, Generic and Inheritance

Database connectivity: JDBC, The design of JDBC, Typical uses of JDBC, The Structured Query language, Basic JDBC Programming concepts, Executing Queries.

#### **Text Books:**

1. Deitel & Deitel, JAVA How to Program, Pearson Education, Sixth Edition
2. Herbert Schildt , Java : The Complete Reference, Tata McGraw- Hill, 7th Edition

#### **Reference Books:**

1. John Hubbard , Programming with Java (Schaum's Easy Outline)
2. JAVA 2 Black Book
3. Bruce Eckel , Thinking in Java, Prentice Hall
4. Gary Cornell, Cay Horstmann Core Java: Volume 1 Fundamentals, Eighth Edition, Pearson,
5. Sams Teach Yourself Java6 in 21 Days

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**IC-505: Computer Oriented Numerical Methods**

**Aim of Course:** To teach basic numerical methods required for typical engineering and business applications.

**Objectives:**

The course is designed to make students:

- Understanding the properties of different numerical methods so as to be able to choose appropriate methods and interpret the results for engineering problems that they might encounter.
- Find numerical approximations to the roots of an equation by Iterative method, Newton method, Bisection Method, etc.
- Use finite differences for interpolation and learn various interpolation methods.
- Understand numerical integration and differentiation.

**Course Contents:**

**UNIT I**

**Introduction:** - Error, Types of error, Introduction of Transcendental and Algebraic equation, Iterative method derivation and numerical, Bisection method derivation and numerical, False-Position method derivation and numerical, Newton Raphson method derivation and numerical.

**UNIT II**

**Interpolation:** - Finite Differences, Forward, Backward and Central differences, Differences of a polynomial, Newton's formula for interpolation, Related numerical and derivation, Gauss's central differences formula, Related numerical and derivation, Interpolation with unevenly spaced points, LaGrange's interpolation derivation and numerical, Inverse interpolation derivation and numerical, Divided differences and their properties, Newton's general interpolation formula, Method of successive approximations, Extrapolation.

**UNIT III**

**Numerical Differentiation and Integration:**-Introduction of Numerical Differential & Numerical Integration, General Quadrature Formula of Integration derivation and numerical, Trapezoidal rule, Simpson's 1/3 rule, Simpson's 3/8 rule, Boole's rule and Weddle's rule, derivation and numerical.

**UNIT IV**

**Solution of differential Equations:** -Solution of differential equation, Taylor's series method derivation and numerical, Picard's method of successive approximations derivation and numerical, Euler's method derivation and numerical, Runge-Kutta methods, derivation and numerical.

**UNIT V**

**Ill-conditioned equation and refinement of solution:** -Simultaneous Linear Equations, Solution of simultaneous linear equations, Gauss elimination and pivoting derivation and numerical, Gauss - Seidel iterative methods derivation and numerical.

**Text Books:**

1. S. S. Shastri, Numerical Methods (Text Book 1 for Numerical Methods)
2. Computer Based Numerical and Statistical Techniques by Dr. Santosh Kumar (S. Chand Publications)

**Reference Books:**

1. Computer Oriented Numerical Methods by *V.Rajaraman*
2. Numerical methods by *Veda Murthi and iyenger.*
3. *C77* by *Rama N. Reddy and Carol a. Ziegler*
4. Numerical Analysis by *Krishna Murthi.*

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**IC-505: Organization Behavior**

**Aim of Course:-the aim of course is to provide the students with the basic concepts of individual and interpersonal behavior .so are to enable them to MCA -6<sup>yrs</sup> better employees in the IT industry**

**Course objective:** An organization is a living organism whose basic component is the individual. The students are required to gain the intricacies of individual behavior in order to function effectively and efficiently in the organization and also avoid potential sources of conflicts which will make their careers interesting and enjoyable.

**Course contents:**

**Unit 1**

Foundation of Individual Behavior : Concept, definition and importance of Organizational behavior. Application of Organizational behavior in personal and professional life.

**Unit 2**

Perception , factors affecting perception and role of emotional intelligence in corporate life.

**Unit 3**

learning concept, definition and learning theories, perception and its process. Personality concept definition and Determinant and Attributes.

**Unit 4**

Motivation : meaning, concept and definition. Needs. Maslows hierarchy of needs, Herzbergs two factors theory. ERG theory.

**Unit 5**

Foundation of Group Behavior: Defining and Classifying groups, group structure and process, Group Behaviors process of group formation, Group decision making.

**Unit 6**

Leadership : Meaning, definition and Trait theories, behavioral theories- ohio state studies, Michigan Studies And managerial grids; contingency theories, situational theories.

**Unit 7**

Managing Change: Organizational Change: Meaning, definition & Types of organizational change. How to overcome the Resistance to Change, Kurt Lewins- Three step model. And stress management (types, working of mechanism )

**Text Book :**

Organization Behavior by stephen robbins PHI

Organization behavior by Fred Luthans, PHI

**Reference books:**

Human Resource Management : Gary Dessler, Pearson Education

Managing Human Resources : David B Balkin, Pearson Education