MAHARSHIDAYANANDSARASWATI UNIVERSITYAJMER

Syllabus

Vocational Computer Applications (VCA)

VCAPart – II& III
(Session- 2024 – 25)
Semester- III, IV, V, VI

MaharshiDayanandSaraswatiUniversity
Ajmer

TEACHING AND EXAMINATION SCHEME

Vocational Computer Applications

W.E.F. 2024-2025 (CBCS)

Semester III

Category	Type	Code	Paper Name (Theory)	Lec	Max Marks		Credits (L+T)
					Sessional	Semester	
CC	DCC	VCA-301	Java Programming	3	30	70	**4**

Category	Type	Code	Paper Name (Practical)	Prac Hrs.	Max Marks	Credits (L+T)
AE	SEC	VCA-302	Lab-Java Programming	3	50	**2**

Semester IV

Category	Type	Code	Paper Name (Theory)	Lec			Credits (L+T)
CC	DCC	VCA-401	HTML & JavaScript	3	30	70	**4**

Category	Type	Code	Paper Name (Practical)	Prac Hrs.	Max Marks	Credits (L+T)
AE	SEC	VCA-402	Lab- HTML & JavaScript	3	50	**2**

Semester V

Category	Type	Code	Paper Name (Theory)	Lec	Max Marks		Credits (L+T)
					Sessional	Semester	
CC	DCC	VCA-501	PHP Programming	3	30	70	**4**

Category	Type	Code	Paper Name (Practical)	Prac Hrs.	Max Marks	Credits (L+T)
AE	SEC	VCA-502	Lab-PHP Programming	3	50	**2**

Semester VI

Category	Type	Code	Paper Name (Theory)	Lec			Credits (L+T)
CC	DCC	VCA-601	Database Technology	3	30	70	**4**

Category	Type	Code	Paper Name (Practical)	Prac Hrs.	Max Marks	Credits (L+T)
AE	SEC	VCA-602	Lab-Database Technology	3	50	**2**

VCA-301 Java Programming

Unit 1

Introducing Data Types and Operators, Java's Primitive Types, Literals, Variables, operators, Type conversion in Assignments, Cast, Operator Precedence, Expressions.

Program Control Statements, Input characters from the Keyboard, if statement, Nested ifs, if-else-if Ladder, Switch Statement, Nestedswitch statements, for Loop, Enhanced for Loop, While Loop, do-while Loop, Use break, Use continue, Nested Loops**.**

Introduction to Classes, Objects and Methods, Class Fundamentals, Reference Variables and Assignment, Methods, Using Parameters, Constructors, Parameterized Constructors, The new operator.

Arrays, Multidimensional Arrays, Alternative Array Declaration Syntax, Assigning Array References, Usingthe Length Member, The Bitwise operators.

Unit 2

String Fundamentals, The String Constructors, Three String-Related Language Features, The Length() Method, Obtaining the characters within a string, String comparison, using indexOf() and last IndexOf(),Changing the case of characters within a string, StringBuffer and StringBuilder.

Method Overloading, Overloading Constructors, Recursion

Inheritance Basics, Member Access and Inheritance, Constructors and Inheritance, Using super to CallSuperclass constructors, Using super to Access Superclass Members, Creating a Multilevel Hierarchy

Interface Fundamentals, Creating an Interface, Implementing an Interface, Using Interface References,Implementing Multiple Interfaces, extending Interfaces

Unit 3

Package Fundamentals, Packages and Member Access, Importing Packages, Static Import

The Exception Hierarchy, Exception Handling Fundamentals, using Multiple catch clauses, Catching subclass Exceptions, nested try blocks, Throwing an Exception

Multithreading fundamentals, The Thread Class and Runnable Interface, Creating Thread, Creating Multiple Threads, Determining When a Thread Ends, Thread Priorities, Synchronization, Thread Communication using notify(), wait() and notifyAll(), suspending, Resuming and stopping Threads.

VCA-401 HTML & JavaScript

Unit 1

HTML - Concepts of Hypertext, Versions of HTML, Elements of HTML syntax, Head & Body Sections, Building HTML documents, Inserting texts, Images, Hyperlinks, Backgrounds and Color controls, Different HTML tags, Table layout and presentation, Use of font size & Attributes, List types and its tags, Use of Frames and Forms in web pages.

Cascading Style Sheets, introduction, levels of style sheetstyle specification formats, selector forms, property value forms, font properties, list properties, color, alignment of text, the box model, background images, the and tags, conflict resolution.

Unit 2

Overview of JavaScript, object orientation and JavaScript, syntactic characteristics, primitives, operations, and expressions, screen output and keyboard input, control statements, object creation and modification, arrays, functions, constructors, pattern matching using regular expressions, errors in scripts.

Unit 3

JavaScript execution environment, the Document Object Model, elements access in JavaScript, events and event handling, handling events from body elements, handling events from text box and password input elements, the DOM2 event model, the navigator object, DOM tree traversal and modification, positioning elements, moving elements, element visibility, changing colors and fonts, dynamic content, stacking elements, locating the mouse cursor, reacting to a mouse click, slow movement of elements, dragging and dropping elements.

VCA-501 PHP Programming

Unit 1

Basics of PHP: Introduction to PHP, what does PHP do?, history of PHP, language basics, data types, variables, expressions and operators, flow control statements, including code, embedding PHP in web pages.

Unit 2

Functions & Strings: Calling a function, defining a function, variable scope, function parameters, return values, variable functions, anonymous functions.
Strings: Accessing individual characters, cleaning strings, encoding and escaping, comparing strings, manipulating and searching strings, regular expressions.

Unit 3

Arrays & Objects: Indexed vs. associative arrays, identifying elements of an array, storing data in arrays, multidimensional arrays, extracting multiple values, converting between arrays and variables, traversing arrays, sorting. Objects: Creating an object, accessing properties and methods, declaring a class, introspection.

VCA-601 Database Technology

Unit 1

Conventional file system, object of database systems, data abstraction, data definition language, data manipulation language, database administrator. Database design stages, database model, database system architecture.

Entity-Relationship Model, entity, entity set, attributes, tuples, domains, keys, super and candidate key, overview of hierarchical, network and relational models, comparison of network, hierarchical and relational models, file organization

Unit 2

Relational Model: Storage organization for relations, relational algebra, set operators, relational operators, decomposition of relation schemes, functional dependencies, normalization up to BCNF.

Unit 3

MySQL Overview: Introduction, connecting to and disconnecting from the server, Entering queries, Creating and using a database, Creating and selecting a database, creating a table, loading data into a table, Retrieving information from a table, selecting all data, selecting particular rows, selecting particular columns, sorting rows, date calculations, working with NULL values, pattern matching, counting rows, using more than one tables.

Connecting to a MySQL database, querying the database, Retrieving and displaying the results, modifying data, deleting data.