

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE MODULE FOR THE SESSION 2026-2027 (ODD SEM)

Course Syllabus with CO's

Academic Year: 2026 – 2027							
Department: Computer Science & Engineering							
Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
1BCS302	Object Oriented programming with Java	Core	-	3	-	2	42
Objectives	Course Objectives: To make/enable students to - To learn primitive constructs JAVA programming language. - To understand Object Oriented Programming Features of JAVA. - To gain knowledge on: packages, multithreaded programing and exceptions						
Teaching-Learning Process These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes and make Teaching –Learning more effective - Use https://pythontutor.com/visualize.html#mode=edit in order to visualize the Java programs - Chalk and talk - Online demonstration - Hands on problem solving							
Module-1 An Overview of Java: Object-Oriented Programming, A First Simple Program, A Second Short Program, Two Control Statements, Using Blocks of Code, Lexical Issues, The Java Class Libraries, Data Types, Variables, and Arrays: Java Is a Strongly Typed Language, The Primitive Types, Integers, Floating-Point Types, Characters, Booleans, A Closer Look at Literals, Variables, Type Conversion and Casting, Automatic Type Promotion in Expressions, Arrays,Operators: Arithmetic Operators, The Bitwise Operators, Relational Operators, Boolean Logical Operators, The Assignment Operator, The ? Operator, Operator Precedence, Using Parentheses, Control Statements: Java’s Selection Statements, Iteration Statements, Jump Statements.							
Module-2 Introducing Classes: Class Fundamentals, Declaring Objects, Assigning Object Reference Variables, Introducing Methods, Constructors, The this Keyword, Garbage Collection, The finalize() Method, A Stack Class, A Closer Look at Methods and Classes: Overloading Methods, Using Objects as Parameters, A Closer Look at Argument Passing, Returning Objects, Recursion, Introducing Access Control, Understanding static, Introducing final, Arrays Revisited							

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Module-3

Inheritance: Inheritance, Using super, Creating a Multilevel Hierarchy, When Constructors Are Called, Method overriding, Dynamic Method Dispatch, Using Abstract Classes, Using final with Inheritance, The Object Class.
 Packages: Packages, Packages and Member Access, Importing Packages.
 Interfaces: Interfaces, Default Interface Methods, Use static Methods in an Interface, Private Interface methods.

Module-4

Exceptions: Exception-Handling Fundamentals, Exception Types, Uncaught Exceptions, Using try and catch, Multiple catch Clauses, Nested try Statements, throw, throws, finally, Java's Built-in Exceptions, Creating Your Own Exception subclasses, Chained Exceptions.
 Multithreaded Programming: The Java Thread Model, The Main Thread, Creating a Thread, Creating Multiple Threads, Using isAlive() and join(), Thread Priorities, Obtaining a Thread's State.

Module-5

Enumerations, Type Wrappers and Autoboxing: Enumerations (Enumeration Fundamentals, The values() and valueOf() methods), Type Wrappers (Character, Boolean, The Numeric Type Wrappers), Autoboxing (Autoboxing and Methods, Autoboxing/Unboxing Occurs in Expressions, Autoboxing/Unboxing Boolean and Character Values).
 Generics: A Simple Generics Example, A Generic Class with Two Type Parameters, The General Form of a Generic Class. in Expressions, Autoboxing/Unboxing Boolean and Character Values).

Course Outcomes

- CO1 Demonstrate proficiency in writing simple programs involving branching and looping structures.
- CO2 Construct object-oriented solutions using classes, objects, and methods.
- CO3 Develop programs using inheritance, packages, and interfaces.
- CO4 Make use of exception handling and multithreading in solving complex problems
- CO5 Apply concepts of autoboxing, enumerations, and generics in program development.
- CO6 Choose a suitable IDE tool to design, develop, and debug Java programs.

Internal Assessment Marks: 40 (3 Session Tests are conducted during the semester and marks allotted based on average of performances).

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Subject Code:	1BCS302		TITLE: Object Oriented Programming with Java									
List of Course Outcomes	Program Outcomes											Total
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	
CO-1	3	2	1	-	1	-	-	-	-	-	1	8
CO-2	3	3	2	1	1	-	-	-	-	-	1	11
CO-3	3	3	3	1	1	-	-	-	-	-	1	12
CO-4	3	3	3	2	2	-	-	-	-	-	1	14
CO-5	2	2	2	1	1	-	-	-	-	-	1	9
CO-6	1	2	2	1	3	-	-	-	1	-	2	12
Total	15	15	13	6	9	0	0	0	1	0	7	66

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution 0 = No Contribution



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Subject Code:	1BCS302	TITLE: Object Oriented Programming with Java	
List of Course Outcomes	Program Specific Outcomes		Total
	PSO-1	PSO-2	
CO-1	1	-	1
CO-2	2	-	2
CO-3	2	-	2
CO-4	2	1	3
CO-5	2	-	2
CO-6	1	1	2
Total	10	2	12

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution 0 = No Contribution





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