

<b>Semester: III</b>				
<b>Programme : B.Sc. Computer Science (Hons)</b>				
<b>Course : JAVA</b>				
<b>Paper code: S2CS230311P</b>				<b>Credits: 3</b>
<b>Hours/week : 5</b>				
<b>Category: Core/MDC/SEC/VAC : SEC</b>				
<b>Theory / Practical / Composite : Practical</b>				
<b>No of Modules : 1</b>				
<b>Course Overview:</b> This course introduces students to the fundamentals of Java programming, including object-oriented concepts, arrays, strings, input/output handling, inheritance, exception handling, and multithreading. It focuses on developing practical programming skills required to build Java applications.				
<b>Course Outcome:</b>				
1. Understand basic Java programming concepts and syntax				
2. Develop programs using methods and arrays				
3. Implement string handling and input/output operations				
4. Apply object-oriented concepts like inheritance and interfaces				
5. Handle runtime errors using exception handling techniques				
6. Develop multithreaded applications				
<b>Prerequisites:</b> Basic knowledge of programming concepts				
<b>SYLLABUS</b>				
<b>UNIT/Module</b>	<b>CONTENT</b>	<b>HOURS or NUMBER OF CLASSES</b>	<b>CO Mapping</b>	<b>COGNITIVE LEVEL</b>
Module 1	Introduction to Java, Features, C++ vs Java, Data types, Operators, Control statements	8	CO1	K1, K2 (Remember, Understand)
Module 2	Java Methods: Definition, Scope, Arguments, Return values.	6	CO2	K2, K3
Module 3	Arrays: 1D & 2D arrays, Dynamic referencing.	6	CO2	K3
Module 4	Strings: String class, manipulation, immutability, equality.	6	CO3	K2, K3
Module 5	I/O: Scanner class, File handling, Byte & Character streams.	6	CO3	K3, K4
Module 6	Inheritance, Method Overriding, Abstract class, Interface, Packages.	8	CO4	K3, K4
Module 7	Exception Handling: Types, try-catch, user-defined exceptions.	6	CO5	K3, K4, K5
Module 8	Multithreading: Thread class, Runnable, thread priority.	6	CO6	K3, K4, K6
<b>Text Books</b>				
1. Head First Java – O'Reilly Media				

2. Programming with Java – E. Balaguruswamy
3. Java: The Complete Reference (13th Edition) <i>by</i> Herbert Schildt
<b>Suggested readings</b>
1. Java: How to Program – Deitel & Deitel
2. Core Java Programming - A Practical Approach: Tushar B. Kute
<b>Web Resources</b>
1. Oracle Java Documentation ( <a href="http://dev.java/docs.oracle.com">dev.java / docs.oracle.com</a> )
2. W3Schools Java Tutorial ( <a href="https://www.w3schools.com/Java/">https://www.w3schools.com/Java/</a> )
3. Coursera (Java Programming courses)
4. TutorialsPoint (Java section)
<b>Evaluation</b> Practical Examination

### Course outcomes (COs) and Cognitive Level Mapping

COs	CO Description	Cognitive levels
CO1	Understand Java fundamentals	K1, K2
CO2	Develop programs using methods and arrays	K2, K3
CO3	Implement strings and I/O handling	K3, K4
CO4	Apply inheritance and OOP concepts	K3, K4
CO5	Handle exceptions in Java	K4, K5
CO6	Develop multithreaded applications	K3, K4, K6