

EVALUATION PATTERN:

Category of Course	Continuous Assessment	Mid – Semester Assessment	End Semester
Theory	40	20	40

CO - PO Mapping:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
CO2	✓	✓	✓	✓	✓				✓			✓
CO3	✓	✓	✓	✓								✓
CO4	✓	✓	✓	✓								✓
CO5	✓	✓	✓	✓	✓				✓	✓	✓	✓

CS6308**JAVA PROGRAMMING**

Pre-requisites: None

OBJECTIVES:

- To learn about the fundamentals of Java language constructs
- To familiarize the student with Object Oriented Programming in Java
- To expose the student to creating UI
- To understand the concepts of parallel programming
- To develop web applications with Java

CS6308	JAVA PROGRAMMING	L	T	P	EL	CREDITS		
		3	0	4	3	6		
MODULE I		FUNDAMENTALS OF JAVA LANGUAGE			L	T	P	EL
					3	0	4	3
Introduction to Java, Java basics – Variables, Operators, Expressions, Control flow Statements, Methods, Arrays								
SUGGESTED ACTIVITIES :								
<ul style="list-style-type: none">• Practical-Implementation of simple Java programs Using Java Basic Constructs and Arrays using any standard IDE like NETBEANS / ECLIPSE• EL – Understanding JVM								

SUGGESTED EVALUATION METHODS:					
<ul style="list-style-type: none">• Assignment problems• Quizzes					
MODULE II	JAVA OBJECTS -1	L	T	P	EL
		3	0	4	3
Classes and Objects, Constructor, Destructor, Static instances, this, constants, Thinking in Objects, String class, Text I/O					
SUGGESTED ACTIVITIES :					
<ul style="list-style-type: none">• Flipped classroom• Practical - Implementation of Java programs – using String class, Creating Classes and objects• EL – Thinking in Objects					
SUGGESTED EVALUATION METHODS:					
<ul style="list-style-type: none">• Assignment problems• Quizzes					
MODULE III	JAVA OBJECTS – 2	L	T	P	EL
		3	0	4	3
Inheritance and Polymorphism – Super classes and sub classes, overriding, object class and its methods, casting, instance of, Array list, Abstract Classes, Interfaces, Packages, Exception Handling					
SUGGESTED ACTIVITIES :					
<ul style="list-style-type: none">• flipped classroom• Practical - implementation of Java programs – use Inheritance, polymorphism, abstract classes and interfaces, creating user defined exceptions• EL – dynamic binding, need for inheritance, polymorphism, abstract classes and interfaces					
SUGGESTED EVALUATION METHODS:					
<ul style="list-style-type: none">• Assignment problems• Quizzes					
MODULE IV	GUI	L	T	P	EL
		3	0	4	3
Creating UI, Frames, layout manager, Panels, components, Event Driven Programming					
SUGGESTED ACTIVITIES :					
<ul style="list-style-type: none">• flipped classroom• Practical – Mouse, key events, creating interactive forms using AWT/Swing and adding functionality• EL – Understand AWT and SWING					
SUGGESTED EVALUATION METHODS:					
<ul style="list-style-type: none">• Quizzes					
MODULE V	I/O STREAMS	L	T	P	EL
		3	0	4	3
I/O Streams, binary I/O					

SUGGESTED ACTIVITIES :					
<ul style="list-style-type: none">• Practical - binary streams, file streams• EL – Lambdas and Streams					
SUGGESTED EVALUATION METHODS:					
<ul style="list-style-type: none">• Assignment problems• Quizzes					
MODULE VI	MULTITHREADING	L	T	P	EL
		3	0	4	3
Multithreading – states, synchronization, avoiding deadlocks					
SUGGESTED ACTIVITIES :					
<ul style="list-style-type: none">• Practical – implementing threads• Flipped Classroom,• EL – Parallel Programming					
SUGGESTED EVALUATION METHODS:					
<ul style="list-style-type: none">• Assignment problems• Quizzes					
MODULE VII	NETWORKING AND DATABASE CONNECTIVITY	L	T	P	EL
		3	0	4	3
Java Networking – Inet address class, Sockets, JDBC					
SUGGESTED ACTIVITIES :					
<ul style="list-style-type: none">• Flipped class room• Practical – Using Socket, Developing simple applications using JDBC• EL – Internationalization					
SUGGESTED EVALUATION METHODS:					
<ul style="list-style-type: none">• Assignment problems• Quizzes					
MODULE VIII	FRAMEWORKS	L	T	P	EL
		3	0	4	3
Collections Frameworks – lists, vector and stack classes, Generics,					
SUGGESTED ACTIVITIES :					
<ul style="list-style-type: none">• Flipped classroom• Practical - Using Generic classes and Collections framework, Using Comparative interface, list, stack• EL - Code Annotations					
SUGGESTED EVALUATION METHODS:					
<ul style="list-style-type: none">• Assignment problems• Quizzes					
MODULE IX	WEB DEVELOPMENT - 1	L	T	P	EL
		3	0	4	3
Applets, Servlets / JSP					

SUGGESTED ACTIVITIES : <ul style="list-style-type: none"> • Flipped class room • Practical - Implementations of Java programs – Creating applets, servlets, JSP • EL – Java based web servers 				
SUGGESTED EVALUATION METHODS: <ul style="list-style-type: none"> • Assignment problems • Quizzes 				
MODULE X	WEB DEVELOPMENT - 2	L	T	P
		3	0	4
JSF, RMI, Web services				
SUGGESTED ACTIVITIES : <ul style="list-style-type: none"> • Flipped class room • Practical - Implementations of Java programs – Creating UI with JSF, Implementing RMI • EL – creating UI with JSF 				
SUGGESTED EVALUATION METHODS: <ul style="list-style-type: none"> • Quizzes 				

OUTCOMES:

Upon completion of the course, the students will be able to:

- Use NETBEANS or equivalent open source editors for Java programming
- Create and use Java Objects for applications related to object oriented concepts
- Demonstrate networked Java Applications using Java Sockets and JDBC
- Implement Multithreading and create rich UI
- Implement and deploy web applications using Java

TEXT BOOKS:

1. Y. Daniel Liang, "Introduction to Java Programming and Data Structures, Comprehensive Version", 11th Edition, Pearson Education, 2018.
2. Herbert Schildt, "Java: The Complete Reference", 11th Edition, McGraw-Hill Education, 2018.

REFERENCES:

1. Paul Dietel and Harvey Deitel, "Java - How to Program Early Objects", 11th Edition, Pearson Education, 2017.
2. Sachin Malhotra, Sourabh Choudhary, "Programming in Java", Revised 2nd Edition, Oxford University Press, 2018.
3. Cay S. Horstmann, "Core Java - Vol. 1, Fundamentals", 11th Edition, Pearson Education, 2018.

Web references:

1. NPTEL
2. MIT OCW

EVALUATION PATTERN:

Category of Course	Continuous Assessment	Mid – Semester Assessment	End Semester
Theory Integrated with Practical	15(T) + 25 (P)	20	40

CO - PO Mapping:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	✓	✓			✓				✓	✓		
CO2	✓	✓			✓				✓	✓		
CO3	✓	✓		✓	✓				✓	✓		
CO4	✓	✓		✓	✓				✓	✓		
CO5	✓	✓	✓	✓	✓				✓	✓		✓