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 :

- 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:

- 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 :

- Flipped classroom
- Practical - Implementation of Java programs – using String class, Creating Classes and objects
- EL – Thinking in Objects

SUGGESTED EVALUATION METHODS:

- 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 :

- 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:

- 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 :

- flipped classroom
- Practical – Mouse, key events, creating interactive forms using AWT/Swing and adding functionality
- EL – Understand AWT and SWING

SUGGESTED EVALUATION METHODS:

- Quizzes

MODULE V I/O STREAMS	L	T	P	EL
	3	0	4	3

I/O Streams, binary I/O

SUGGESTED ACTIVITIES :

- Practical - binary streams, file streams
- EL – Lambdas and Streams

SUGGESTED EVALUATION METHODS:

- Assignment problems
- Quizzes

MODULE VI MULTITHREADING	L	T	P	EL
	3	0	4	3

Multithreading – states, synchronization, avoiding deadlocks

SUGGESTED ACTIVITIES :

- Practical – implementing threads
- Flipped Classroom,
- EL – Parallel Programming

SUGGESTED EVALUATION METHODS:

- 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 :

- Flipped class room
- Practical – Using Socket, Developing simple applications using JDBC
- EL – Internationalization

SUGGESTED EVALUATION METHODS:

- Assignment problems
- Quizzes

MODULE VIII FRAMEWORKS	L	T	P	EL
	3	0	4	3

Collections Frameworks – lists, vector and stack classes, Generics,

SUGGESTED ACTIVITIES :

- Flipped classroom
- Practical - Using Generic classes and Collections framework, Using Comparative interface, list, stack
- EL - Code Annotations

SUGGESTED EVALUATION METHODS:

- Assignment problems
- Quizzes

MODULE IX WEB DEVELOPMENT - 1	L	T	P	EL
	3	0	4	3

Applets, Servlets / JSP

SUGGESTED ACTIVITIES : • Flipped class room • Practical - Implementations of Java programs – Creating applets, servlets, JSP • EL – Java based web servers				
SUGGESTED EVALUATION METHODS: • Assignment problems • Quizzes				
MODULE X WEB DEVELOPMENT - 2	**L**	**T**	**P**	**EL**
	3	**0**	**4**	**3**
JSF, RMI, Web services				
SUGGESTED ACTIVITIES : • Flipped class room • Practical - Implementations of Java programs – Creating UI with JSF, Implementing RMI • EL – creating UI with JSF				
SUGGESTED EVALUATION METHODS: • 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	✓	✓	✓	✓	✓				✓	✓		✓