



# GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Bachelor of Vocation (B.Voc.), 2<sup>nd</sup> Semester

Branch: Information Technology

Subject Name: OOPs with Java

Subject Code: 1120503

With effective from academic year 2022-23

**Type of course:** Core

**Prerequisite:** NA

**Rationale:** Java is a general-purpose computer programming language that is a class-based, object-oriented. It is intended to let application developers "write once, run anywhere" meaning that compiled Java code can run on all platforms that support Java without the need for recompilation.

## Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P		Theory		Practical		
			University exams (ESE)	Internal evaluation (PA)	External Practical /viva Exam(ESE)	Internal Practical /viva Exam(PA)		
3	-	-	3	50	-	-	-	50

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

## Contents:

Sr. No.	Practical / Hands on Exercise	Hrs.	Weightage
1	<b>UNIT-I</b> What is OOP? Concept of OOP. Principles of OOP. C++ vs JAVA, JAVA and Internet and WWW, JAVA support systems, JAVA environment. JAVA program structure, Tokens, Statements, JAVA virtual machine, Constant & Variables, Data Types, Declaration of Variables, Scope of Variables, Symbolic Constants, Type Casting. Operators: Arithmetic, Relational, Logical Assignments, Increment and Decrement, Conditional, Bitwise, Special, Expressions & its evaluation. If statement, if...else... statement, Nesting of if...else... statements, else...if Ladder, Switch, operators, Loops –While, Do, For, Jumps in Loops, Labelled Loops.	8	20
2	<b>UNIT-II</b> Defining a Class, Adding Variables and Methods, Creating Objects, Accessing Class Members, Constructors, Methods Overloading, Static Members, Nesting of Methods. Inheritance: Extending a Class, Overriding Methods, Final Variables and Methods, Final Classes, Finalize Methods, Abstract methods and Classes, Visibility Control.	10	25
3	<b>UNIT-III</b> Arrays: One Dimensional & two Dimensional, strings, Vectors, wrapper Classes, Defining Interface Extending Interface, Implementing Interface, Accessing Interface Variable, System Packages, Using System Package, Adding a Class to a Packages, Hiding Classes.	6	15
4	<b>UNIT-IV</b> Creating Threads, Extending the Threads Class, Stopping and Blocking a Thread, Life Cycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the Runnable Interface.	8	20



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5	<b>UNIT-V</b> Local and Remote Applets Vs Applications, Writing Applets, Applets Life Cycle, Creating an Executable Applet, Designing a Web Page, Applet Tag, Adding Applet to HTML File, Running the Applet, Passing Parameters to Applets, Aligning the Display, HTML Tags & Applets, Getting Input from the User.	10	20
	<b>Total</b>	<b>42</b>	

## Reference Books:

1. Java Fundamentals A comprehensive introduction By Herbert Schildt, Dale Skrien, McGraw Hill Education.
2. Programming with Java A Primer – E.Balagurusamy, Mc Grawhill
3. Object Oriented Systems with Java, Tanweer Alam, Khanna Publishing House
4. Core Java, Tanweer Alam, Khanna Publishing House Suggested Specification table with Marks (Theory):  
(For BVOC only)

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	20	20	0	0	0

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

## Course Outcomes:

Sr. No.	CO Statement	Marks % Weightage
CO-1	Understand object oriented programming concepts and implement in java	20
CO-2	Comprehend building blocks of OOPs language and inheritance	25
CO-3	Understand interface and packages in Java	15
CO-4	Implement multithreading in object oriented programs.	20
CO-5	Understand the concept of Applets	20

## Laboratory work: NA

### List of Open Source Software/learning website:

Students must refer to following sites to enhance their learning ability.

- 1) <http://www.oracle.com/technetwork/java/javase/downloads/index.html>
- 2) <http://docs.oracle.com/javase/tutorial/java/index.html>
- 3) <http://www.javatpoint.com/>
- 4) <http://www.tutorialspoint.com/java/>