C. U. SHAH UNIVERSITY
Wadhwan City

FACULTY OF: Computer Science
DEPARTMENT OF: Bachelor of Science (Information Technology)
SEMESTER : V
CODE:4CS05IJV1
NAME: Programming with Java

Teaching and Evaluation Scheme W. E. F. : June – 2018

Sr. No	Subject Code	Subject Name	Teaching Hours/Week				Credits	Evaluation Scheme/Semester							
								Theory				Practical			Total Marks
								Sessional Exam		University Exam		Internal		Uni.	
			Th	Tu	Pr	Total		Marks	Hrs	Marks	Hrs	Pr	TW	Pr	
2	4CS05IJV1	Programming with Java	4	-	-	4	4	30	1.5	70	3	-	-	-	**100**

Objectives:-

- To develop proficiency in creating console based and GUI based applications using the Java Programming Language.
- To be able to understand the concepts of Object Oriented Programming Language and easily use Java.
- To get a good understanding of developing multi-threaded applications using the Java Programming Language.
- To be able to develop Applets for embedding in a web page.

Prerequisite:-

- Knowledge of Algorithm and Flow chart to implement the programming logic.

Course Outline:-

Sr. No.	Course Content	Hours
1	**Introduction** Introduction – what is java, importance of java, java implementation application of java, java buzzwords (simple, secure, portable, object-oriented, robust multithreaded, architecture – natural, interpreted, high performance, distributed dynamic) object oriented programming three OOP principals (encapsulation, inheritance, polymorph) sample Program & compilation, block of code, lexical issues (White space, identifiers, literals, comments, separators, keyword),	6

2	**Data type, operators, control structures** variables, constants, declaration, literals, scope of variable, type casting arithmetic operators, relational operators, logical operators, assignment operators, increment –decrement operators, conditional operators, bit wise operators, dot operators, if-else, statement, loops (while, do-while, for break, go to, continue return) switch statement, operator arrays –declaration, creation, initialization, length ,two-dimensional arrays string-string arrays,	4
3	**Introduction of classes, objects and methods** class, object & method, defining class, adding variables, adding methods, creating objects, constructors THIS key word, garbage collection, finalize() method ,accessing class members, method overloading, methods overloading static members, nesting of methods, vectors and wrapper classes, final variables and methods, final classes, finalize methods, abstract methods and classes, visibility control – public access, friendly access, protected access, private protected access, , object as parameters, argument passing, returning objects, recursion, access control, static, final, Nested & inner classes, string class , string buffer class, Command-Line arguments	10
4	**Inheritance, Packages and Interfaces** Inheritance, types of Inheritance, Member access, super class creating multilevel Hierarchy ,Method overloading & overriding, ,Defining packages, understanding CLASSPATH ,Access protection ,importing packages, defining interfaces	6
5	**Managing Errors & Exceptions ,java.util Package** exception types, uncaught exceptions ,multiple catch clauses ,nested try statements ,throw, throws, finally, java's built-in exceptions, creating your own exception ,classes from java.util package(Date, Time Zone, Calendar)	8
6	**I/O files in java, Multithreaded programming** Concept of streams, difference between characterstreams and byte streams characterstreams(reader,writer,bufferedreader, inputstreamreader,filereader, bufferwriter, outputstreamreader, filewriter, printwriter)Bytestream(inputstream,fileinputstream,bufferedinputstream, datainputstream,fileoutputstream,dataoutputstream, printstream)Other classes (random access file , streamtokenizer)creating threads, run()method, new thread, thread class, stopping &blocking threads, life cycle of thread- newborn, runnable, running, blocked, dead, waiting sleeping, suspended, blocked, using thread methods, thread exceptions, thread priority, implementing the Runnable interface	6
7	**Applet, Event Handling** Introduction to applet, applet lifecycle ,applet class,applet context class, passing parameters to applet,use of java .awt graphics class and its various methods in an applet,Event delegation model or event class hierarchy,all classes and interfaces of event delegation model, programmers related to event handling covering all types of events	4

8	**Graphical user interface** Layout managers (flowlayout, borderlayout, cardlayout gridbaglayout, gridlayout) AWT controls (labels, buttons,checkboxes, checkboxgroup, choices, textfields, textareas, lists, panels, windows, frames, menus, menubars)	4

Learning Outcomes:

- Ability to create appropriate classes using the Java Programming Language to solve a problem using Object Oriented Approach.
- Ability to write console based and GUI based applications in the Java Programming Language.
- Ability to develop to multi-threaded applications using the Java Programming Language.
- Ability to create Applets using the Java Programming Language.

Teaching & Learning Methodology:

- Using Whiteboard & Projector or OHP

Books Recommended:

1. Programming with Java a Primer 3e, **Balagurusamy,** McGraw Hill
2. Java: the Completed Reference , 7th Edition by **Schildt, Herbert,** TMH publication
3. The class of Java, **Pravin Jain,** Pearson Education.
4. The Java Programming Language, **Ken Arnold, James Gosling, David Holmes ,** Addison- Wesley Pearson Education (4th Edition – 2005).
5. Object-Oriented Programming with Java: Essentials & Applications, **Raj Kumar Buyya, S. Thamarai Selvi, & Xing Chen Chu,** Tata McGraw Hill