

**Course:** BTech**Semester:** 3**Prerequisite:** Basic knowledge of software applications**Rationale:** This course provides a broad introduction to software engineering. The various process models required to develop software is also being described. Moreover the functional and non-functional requirements are also described.**Teaching and Examination Scheme**

Teaching Scheme					Examination Scheme					Total
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Hrs/Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
0	0	2	0	1	-	-	20	-	30	50

**SEE** - Semester End Examination, **CIA** - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)**Course Outcome****After Learning the Course the students shall be able to:**

After learning the course the students shall be able to:

1. Understand the principles and practice of object oriented programming.
2. Write, compile and debug programs with Java compiler.
3. Create a robust application using exception handling.
4. Understand the principles of synchronization and design application using multi-threading.

**List of Practical**

1.	write a program to display Hello World message in console window.
2.	Write a program to perform arithmetic and bitwise operations in a single source program without object creation.
3.	Write a program to perform arithmetic and bitwise operations by creating individual methods and classes than create an object to execute the individual methods of each operation.
4.	Write a java program to display the employee details using Scanner class.
5.	Write a Java program that prints all real solutions to the quadratic equation $ax^2+bx+c = 0$ . Read in a, b, c and use the quadratic formula. If the discriminate $b^2-4ac$ is negative, display a message stating that there are no real solutions?
6.	The Fibonacci sequence is defined by the following rule. The first 2 values in the sequence are 1, 1. Every subsequent value is the sum of the 2 values preceding it. Write a Java program that uses both recursive and non- recursive functions to print the nth value of the Fibonacci sequence?
7.	Write a Java program that prompts the user for an integer and then prints out all the prime numbers up to that Integer?
8.	Write a Java program to multiply two given matrices?
9.	Write a Java program for sorting a given list of names in ascending order?
10.	Write a java program for Method overloading and Constructor overloading
11.	Write a java program to represent Abstract class with example.
12.	Write a program to implement multiple Inheritances.
13.	write program to demonstrate method overriding and super keyword.
14.	Write a java program to implement Interface using extends keyword.
15.	Write a java program to create inner classes.
16.	Write a java program to create user defined package.
17.	Write a Java program that displays the number of characters, lines and words in a text?
18.	Write a Java program that checks whether a given string is a palindrome or not. Ex: MADAM is a palindrome?
19.	Write a Java program that reads a line of integers and then displays each integer and the sum of all integers. (Use StringTokenizer class)?
20.	Write a java program for creating single try block with multiple catch blocks.
21.	write a program for multiple try blocks and multiple catch blocks including finally.
22.	write a program to create user defined exception.
23.	Write a java program for producer and consumer problem using Threads.
24.	Write a java program that implements a multi-thread application that has three threads. First thread generates random integer every 1 second and if the value is even, second thread computes the square of the number and prints. If the value is odd, the third thread will print the value of cube of the number.
25.	write a program to create dynamic array using ArrayList class and the print the contents of the array object.
26.	Write programs to implement add, search and remove operation on ArrayList object.

**Miscellaneous**
**Exam Requirement**

It consists of Assignments/Seminars/Presentations/Quizzes/Surprise Tests (Summative/MCQ) etc.