Vivekanand Education Society's Institute Of Technology

Department Of MCA

LABORATORY PLAN

Academic Year: 2020-2021[ODD]

Name of the Course : MCAL302 JAVA Programming
Branch : MCA SEM III (Regular Second Shift)
Faculty In charge : Sunny Nahar

Grading /Marking System

Subject Code	Subject Name	Credits
MCAL302	**Java Programming and Unified Modeling Language Lab**	**03**

Subject Code	Subject Name	Teaching Scheme			Credits Assigned			
		Theory	Pract.	Tut	Theory	Pract.	Tut	Total
MCAL302	**Java Programming and Unified Modeling Language Lab**	**--**	**06**	**--**	**--**	**03**	**--**	**03**

Subject Code	Subject Name	Examination Scheme							
		Theory Marks				TW	Pract.	Oral	Total
		Internal Assessment			End Semester Exam				
		Test1 (T1)	Test2 (T2)	Average of T1 & T2					
MCAL302	**Java Programming and Unified Modeling Language Lab**	**--**	**--**	**--**	**--**	**25**	**50**	**25**	**100**

References:

1. The complete reference JAVA2, Herbert schildt. Tata McGraw Hill
2. Programming with Java A Primer, E.Balaguruswamy Tata McGraw Hill
3. Core Java for beginners, Sharanam Shah and vaishali shah, SPD
4. Java 6 Programming Black Book, Wiley –Dreamtech
5. Web Enabled Commercial Application Development using java 2.0, Ivan Byaross
6. JDBC, Servlet, and JSP Black Book, Santosh Kumar, Dreamtech
7. Java Server Programming java EE6, Black book, Dreamtech press.
8. Core Servlets and Java Server Pages :Vol I: Core Technologies 2/e , Marty Hall and Larry Brown, Pearson
9. Java 6 Programming, Black Book, Dreamtech Press.
10. Spring in Action, Craig Walls, 3rd Edition, Manning

Course Educational Objectives (CEO): At the end of the course, the students will be able to

CEO1 Understand, Develop, Test and Debug Java Program

Course Outcomes (CO):

CO1: Develop a simple software application using the object oriented approach

CO2: Design and develop a Java Web Applications.

Program Educational Objectives (PEO's)

A. To provide students with a solid foundation in the core engineering concepts like mathematics, programming, data management, networking etc. This will further enable students to analyse, design and create solutions for any enterprise, national or global in multidisciplinary fields.

B. To inculcate in students a strong ethical and professional attitude which along with effective communication, managerial and teamwork skills will enable success in a broad social context?

C. To prepare the students to excel in academic environment and make them ready for productive employment through global education and to empower them to develop high end business and innovative skill.

D. To provide broad educational and research experience through interdisciplinary and industrial collaboration program.

Programme Outcomes

PO	Description
PO1	**Computational Knowledge:** Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for the computing specialization to the abstraction and Conceptualization of computing models from defined problems and requirements.
PO2	**Problem Analysis:** Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences And relevant domain disciplines.
PO3	**Design /Development of Solutions:** Design and evaluate solutions for complex computing problems, and design and evaluate systems, components, or processes that meet specified needs with appropriate consideration For public health and safety, cultural, societal, and environmental considerations.
PO4	**Conduct investigations of complex Computing problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide Valid conclusions.
PO5	**Modern Tool Usage:** Create, select, adapt and apply appropriate techniques, resources, and modern computing Tools to complex computing activities, with an understanding of the limitations.
PO6	**Professional Ethics:** Understand and commit to professional ethics and cyber regulations, responsibilities, and Norms of professional computing practices.

PO7	**Life-long Learning:** Recognize the need, and have the ability, to engage in independent learning for continual Development as a computing professional.
PO8	**Project management and finance:** Demonstrate knowledge and understanding of t h e computing and management principles and apply these to one's own work, as a member and leader in a team, to Manage projects and in multidisciplinary environments.
PO9	**Communication Efficacy:** Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear Instructions.
PO10	**Societal and Environmental Concern:** Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to Professional computing practices.
PO11	**Individual and Team Work:** method effectively as an individual and as a member or leader in diverse teams and in Multidisciplinary environments.
PO12	**Innovation and Entrepreneurship** Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large

Program Specific Objective (PSO)

PSO1: The ability to develop and apply computer based application of varying complexity and domains using standard practice.

PSO2: Demonstrate the ability to use latest technology and tools in developing the software thus helping our product to be Employable and become Successful Entrepreneur.

Week	Experiment	Ref.	Rubrics	CO Mapped	Expected % attainment of CO
1 2nd Week	**Introduction to JAVA** ● Prime no between 1 to N ● Function Overloading to find area of circle rectangle and triangle ● To implement a program to perform complex number addition, multiplication, subtraction using constructors overloading. ● Count no of object of object Created using Static method	1,2,3	Direct Evaluation: Viva/ESE/Lab Indirect Evaluation: Discussion	CO1	68%
2 3rd Week	**Program based on Array and Strings** ● To check if the array has any duplicate element ● To count the no of Vowel and Consonant in the given string.	1,2,3	Direct Evaluation: Viva/ESE/Lab Indirect Evaluation:	CO1	65%

	● Check whether the string is Palindrome or not ● Matrix multiplication ● Mean , variance and deviation of array		Discussion		
3 4th Week	**Program on Interface, Wrapper Class and Abstract Data** ● Program to demonstrate interface: Create a interface for Bank with following operation:-Deposit,Withdraw,Account open,Close account. ● To implement basic arithmetic operation using Wrapper Class ● To implement a program to demonstrate basic in-built function used in String Class. ● To implement a program to implement Queue/Stack as ADT in JAVA.	1,2,3	Direct Evaluation: Viva/ESE/Lab Indirect Evaluation: Discussion	CO1	65%
4 5th week	**Program on inheritance and Packages** ● To implement Dynamic Method Dispatch in Java using Abstract Class To find the area of various shape :Rectangle Circle Ellipse Square and Triangle. ● Create Super Class Student and two sub class of it, Graduate and Under Graduate. The members of the Student are name, id, grade, age and address and at least one method : boolean method IsPassed which takes in the parameter integer grade(0-100).The two sub classes over ride the method, for UG its 70% for passing and for G its 80% as passing grade. ● Sample Program to Demonstrate Access Specifier in Packages	1,2,3	Direct Evaluation: Viva/ESE/Lab Indirect Evaluation: Discussion	CO1	70%
5 6th Week	**Generics, Collections and Lambda Expression Generics** ● implement bounded types (extend superclass) with generics ● implement bounded types (implements an interface) with generics **Collections** ● Implement any three collection classes ● Lambda Expressions ● perform addition, subtraction, multiplication as well as division using Lambda Expression	1,2,3	Direct Evaluation: Viva/ESE/Lab Indirect Evaluation: Discussion	CO1	70%
6 7th Week	**Exception Handling:** ● To implement a program to demonstrate Exceptions for Negative Array Size and Divide By Zero etc. ● To implement a program to demonstrate	1,2,3	Direct Evaluation: Viva/ESE/Lab Indirect Evaluation: Discussion	CO1	70%

	NumberFormatException : Enter Roll No, Name, Marks and Subject from command line and calculate percentage. ● To implement a program to implement nested try , multiply catch and finally. ● To implement a program to create user define exception. Create class Bank and define methods open (), deposit() and withdraw() with minimum balance 500. Create an exception Payoutofbounds and fire exception				
7 8th Week	**Multithreading** ● To implement a program to demonstrate multi-threading: even numbers between 1to 100, Prime Numbers between 1 to 100 and Fibonacci Series. ● To implement a program to demonstrate Thread Priority in above program. ● To implement Multi-threaded Producer Consumer Application. ● Program on Thread Synchronization.	1,2,3	Direct Evaluation: Viva/ESE/Lab Indirect Evaluation: Discussion	CO1	70%
8 9th Week	**File Handling** ● To implement program using console based IO using character and byte stream ● To implement a program to store the detail of employee in file using file reader and writer class/File Input Stream and Output stream. ● To implement a program on buffered Reader/Writer ● To demonstrate Object serialization and De serialization.	1,2,3	Direct Evaluation: Viva/ESE/Lab Indirect Evaluation: Discussion	CO1	70%
9 10th Week	**Program based on Applets & Swings** **Applets** ● To design an applet to display shapes like: House, Ashok Chakra, Indian flag. ● To demonstrate JApplet. ● To Devlope Chess Board using Applet **Swings** ● Traffic Signal Simulator using Swing Components. ● To design a form using Swings Component for Movie Ticket Booking application.	1,2,3	Direct Evaluation: Viva/ESE/Lab Indirect Evaluation: Discussion	CO1, CO2	68% 70%
10 11thWeek	**Database Programming** ● To implement an online Exam or Shopping Cart application using swings and JDBC Type 1 Driver ● To implement a program using JDBC Type 4 driver and mysql connector. **Note: Cover all the database Operations**	1,2,3	Direct Evaluation: Viva/ESE/Lab Indirect Evaluation: Discussion	CO1	68% 70%
12	**Web Development using Servlets**	6,7,8	Direct	CO1,	75%

12th & 13th Week	• To design a simple web-based interface to a currency converter application. The interface should consist of a title, suitable instructions, and a form for entering the amount to be converted and an optional currency rate. Use text fields for entering the amount and rate. Use the POST method to submit the form. • To implement a program to count the no of visits made to the site using cookies in servlet. • To implement a program for Session management in servlet where the session in maintain under username. • To implement a sample program to handle post method in servlet.		Evaluation: Viva/ESE/Lab Indirect Evaluation: Discussion	CO2	
13 13th & 14th Week	**Web Development using JSP** • To design a form and use of JSP Scripting Element and JSP Directive. Display Grade of a student by accepting marks in five subjects. • To implement error and error Objects • To implement a program to create a Visitor Log that reports the IP Address of each User, and the time they visited the page. • To implement a program for Session management in JSP for Shopping cart Application	6,7,8	Direct Evaluation: Viva/ESE/Lab Indirect Evaluation: Discussion	CO1, CO2	75%
14 14th & 15th Week	**Introduction to Spring Frameworks** To implement basic program on Spring Framework	10	Direct Evaluation: Viva/ESE/Lab Indirect Evaluation: Discussion	CO1	75%
	Mini Project				

Course Outcome (CO) mapped with Programme Outcome (PO) & Program Specific Objective (PSO):

Course Outcome (CO)	Programme Outcome(PO)			Program Specific Objective(PSO)	
	PO 3	PO 5	PO7	PSO1	PSO2
CO1	√	√	√	√	√
CO2	√	√	√	√	√

Assignment / Assignment Marking Scheme

Sr.No	Marks	Remarks
01	10	On date of DOS & Good Presentation
02	08	After one week of DOS & Good Presentation
03	06	After two week of DOS
04	00	Late submission

Faculty In-charge

Sunny Nahar