


III Semester

| OBJECT ORIENTED PROGRAMMING WITH JAVA LABORATORY | | | |
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| Course Code | 21CSL35 | CIE Marks | 50 |
| Teaching Hours/Week (L:T:P: S) | 0:0:2:0 | SEE Marks | 50 |
| Total Hours of Pedagogy | 24 | Total Marks | 100 |
| Credits | 1 | Exam Hours | 03 |
| <p>Course Objectives:</p> <p>CLO 1. Demonstrate the use of Eclipse/Netbeans IDE to create Java Applications.</p> <p>CLO 2. Using java programming to develop programs for solving real-world problems.</p> <p>CLO 3. Reinforce the understanding of basic object-oriented programming concepts.</p> | | | |
| Note: two hours tutorial is suggested for each laboratory sessions. | | | |
| Prerequisite | | | |
| <ul style="list-style-type: none"> Students should be familiar with about java installation and setting the java environment. Usage of IDEs like Eclipse/Netbeans should be introduced. | | | |
| Sl. No. | PART A – List of problems for which student should develop program and execute in the Laboratory | | |
| 1 | <p>Aim: Introduce the java fundamentals, data types, operators in java</p> <p>Program: 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.</p> | | |
| 2 | <p>Aim: Demonstrating creation of java classes, objects, constructors, declaration and initialization of variables.</p> <p>Program: Create a Java class called Student with the following details as variables within it. USN Name Branch Phone</p> <p>Write a java program to create n Student objects and print the USN, Name, Branch, and Phone of these objects with suitable headings.</p> | | |
| 3 | <p>Aim: Discuss the various Decision-making statements, loop constructs in java</p> <p>Program: A. Write a program to check prime number</p> | | |
| 4 | <p>Aim: Demonstrate the core object-oriented concept of Inheritance, polymorphism</p> <p>Design a super class called Staff with details as StaffId, Name, Phone, Salary. Extend this class by writing three subclasses namely Teaching (domain, publications), Technical (skills), and Contract (period). Write a Java program to read and display at least 3 staff objects of all three categories.</p> | | |
| 5 | <p>Aim: Introduce concepts of method overloading, constructor overloading, overriding.</p> <p>Program: Write a java program demonstrating Method overloading and Constructor overloading.</p> | | |
| 6 | <p>Aim: Introduce the concept of Abstraction, packages.</p> <p>Program: Develop a java application to implement currency converter (Dollar to INR, EURO to INR, Yen to INR and vice versa), distance converter (meter to KM, miles to KM and vice versa), time converter (hours to minutes, seconds and vice versa) using packages.</p> | | |
| 7 | <p>Aim: Introduction to abstract classes, abstract methods, and interface in java</p> | | |

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| <p>be proportionally reduced to 50 marks</p> <p>2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), should have a mix of topics under that module.</p> <p>The students have to answer 5 full questions, selecting one full question from each module</p> |
| <p>Textbooks</p> <ol style="list-style-type: none"> 1. Carl Hamacher, Zvonko Vranesic, Safwat Zaky, Computer Organization, 5th Edition, Tata McGraw Hill 2. M. Morris Mano, Computer System Architecture, PHI, 3rd Edition <p>Reference:</p> <ol style="list-style-type: none"> 1. William Stallings: Computer Organization & Architecture, 9th Edition, Pearson |
| <p>Weblinks and Video Lectures (e-Resources):</p> <ol style="list-style-type: none"> 1. https://nptel.ac.in/courses/106/103/106103068/ 2. https://nptel.ac.in/content/storage2/courses/106103068/pdf/coa.pdf 3. https://nptel.ac.in/courses/106/105/106105163/ 4. https://nptel.ac.in/courses/106/106/106106092/ 5. https://nptel.ac.in/courses/106/106/106106166/ 6. http://www.nptelvideos.in/2012/11/computer-organization.html |
| <p>Activity Based Learning (Suggested Activities in Class)/ Practical Based learning</p> <ul style="list-style-type: none"> • Discussion and literature survey on real world use cases • Quizzes |


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