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Description generated with very high confidence

**Course Plan**

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| **Department :** | Information & Communication Technology |
| **Course Name & code :** | Object Oriented Programming & ICT 2155 |
| **Semester & branch :** | III SEM & B.TECH (CCE) |
| **Name of the faculty :** | Dr.Manjula Shenoy K |
| **No of contact hours/week:** | |  |  |  |  | | --- | --- | --- | --- | | **L** | **T** | **P** | **C** | | 3 | 1 | 0 | 4 | |

**Course Outcomes (COs)**

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|  | ***At the end of this course, the student should be able to:*** | **No. of Contact Hours** | **Marks** |
| CO1: | Develop simple applications using JAVA primitives (data types, operators, arrays, variables) | 10 | 20 |
| CO2: | Design object oriented concepts using JAVA | 12 | 24 |
| CO3: | Use inbuilt library packages of JAVA | 13 | 30 |
| CO4: | Develop java applications using object oriented concepts | 8 | 16 |
| CO5: | Write simple concurrent programs using threads | 5 | 10 |
|  | **Total** | 48 | 100 |

**Assessment Plan**

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| **Components** | **Assignments** | **Sessional Tests** | **End Semester/**  **Make-up Examination** |
| **Duration** | 20 to 30 minutes | 60 minutes | 180 minutes |
| **Weightage** | 20 % (4 X 5 marks) | 30 % (2 X 15 Marks) | 50 % (1 X 50 Marks) |
| **Typology of Questions** | Understanding/ Comprehension; Application; Analysis; Synthesis; Evaluation | Knowledge/ Recall; Understanding/ Comprehension; Application | Understanding/ Comprehension; Application; Analysis; Synthesis; Evaluation |
| **Pattern** | Answer one randomly selected question from the problem sheet (Students can refer their class notes) | MCQ: 10 questions (0.5 marks)  Short Answers: 5 questions (2 marks) | Answer all 5 full questions of 10 marks each. Each question may have 2 to 3 parts of 3/4/5/6/7 marks |
| **Schedule** | 4, 7, 10, and 13th week of academic calendar | Calendared activity | Calendared activity |
| **Topics Covered** | Quiz 1 (L 1-8& T 1-2) **(CO1&2)** | Test 1  (L 1-17& T 1-5)  **(CO 1&2)** | Comprehensive examination covering full syllabus. Students are expected to answer all questions **(CO1-5)** |
| Quiz 2 (L **9-17**& T 3-5) **(CO2)** |
| Quiz 3 (L 18-26& T 6-8) **(CO3&4)** | Test 2  (L 18-30& T 6-9)  **(CO 3&4)** |
| Quiz 4 (L 27-33& T 9-10) **(CO5&3)** |

**Lesson Plan**

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| **L. No.** | **Topics** | **Course Outcome Addressed** |
| **L0** | Introduction to the course |  |
| **L1** | Introduction: The birth of modern programming language C, the need for C++, Java, Importance of Java in the internet | CO2 |
| **L2** | Java applets and applications, security, probability, the byte code, An overview of Java, OOP, Two paradigms, abstraction, the three OOP principles | CO2 |
| **L3** | Simple types, integers, floating point types, characters, Booleans. Variables - declaring variable, dynamic initialization, the scope and life time of variables. | CO1 |
| **T1** | Simple java programs based on concepts discussed in lecture1 to lecture 3 | CO1 |
| **L4** | Type conversion and casting, arrays-one dimensional arrays and multi-dimensional arrays | CO1 |
| **L5** | Operators and control statements : Arithmetic operators, bitwise operators | CO1 |
| **L6** | Relational operators, Logical operators, ternary operators, assignment operators, Operator precedence, Control statements - if, switch, break, continue | CO1 |
| **T2** | Simple java programs based on concepts discussed in lecture 4 to lecture 6 | CO1 |
| **L7** | While, do-while, for nested loops with examples | CO1 |
| **L8** | Class fundamentals, declaring objects, assigning object references variables. | CO4 |
| **L9** | Introducing methods, constructors, Overloading method, Using objects as parameters, argument passing, returning objects | CO2 |
| **T3** | Simple java programs based on concepts discussed in lecture 7 to lecture 9 | CO2 |
| **L10** | Using objects argument passing, returning objects, Recursion, Use of static and final key word | CO2 |
| **L11** | Nested and inner class, Using command line arguments, Inheritance basics. | CO2 |
| **L12** | Inheritance - using super, Wrapper classes, Creating multilevel, hierarchy ,Constructors call | CO2 |
| **T4** | Simple java programs based on concepts discussed in lecture 10 to lecture 12 | CO2 |
| **L13** | Method overriding, Dynamic method dispatch, using abstract classes, Using final inheritance | CO2 |
| **L14** | Packages, defining a package, using of CLASSPATH, Package example. | CO4 |
| **L15** | Access protection, Importing packages, Interfaces - defining an interface, implementing interfaces | CO2 |
| **T5** | Simple java programs based on concepts discussed in lecture 13 to lecture 15 | CO2 |
| **L16** | Applying interfaces, Variables in interface | CO2 |
| **L17** | Extending interfaces. | CO4 |
| **L18** | The list interface, Array list class, Vector | CO3 |
| **T6** | Simple java programs based on concepts discussed in lecture 16 to lecture 18 | CO3 |
| **L19** | String handling : String constructors, string length | CO1 |
| **L20** | Special operations, character extraction. | CO4 |
| **L21** | String comparison, searching strings,modifying a string , string buffer | CO1 |
| **T7** | Simple java programs based on concepts discussed in lecture 19 to lecture 21 | CO1 |
| **L22** | Exception handling : Fundamentals, Exception types, uncaught exception | CO3 |
| **L23** | Using try and catch, multiple catch clauses | CO3 |
| **L24** | Nested try statements, Throw, throws-examples | CO3 |
| **T8** | Simple java programs based on concepts discussed in lecture 22 to lecture 24 | CO4 |
| **L25** | Java's built in exception classes | CO3 |
| **L26** | Creating exception subclasses, using exception-examples | CO4 |
| **L27** | Multi threaded Programming : The Java thread model, thread priorities, Thread class and runnable interface, The main thread, creating a thread | CO5 |
| **T9** | Simple java programs based on concepts discussed in lecture 25 to lecture 27 | CO4 |
| **L28** | Creating a multiple threads, Using is Alive() and join() Synchronization | CO5 |
| **L29** | Suspending, Resuming and Stopping threads | CO5 |
| **L30** | Inter thread communication. | CO5 |
| **T10** | Simple java programs based on concepts discussed in lecture 28 to lecture30 | CO5 |
| **L31** | Input/Output : Java I/O classes and interfaces, File - directories ,Using filename filter, The stream classes, the byte streams | CO3 |
| **L32** | Input stream, output stream, file input stream, file output stream, BufferedReader, BufferedWriter | CO3 |
| **L33** | Random access files, The character streams - Reader, Writer, FileReader, FileWriter | CO3 |
| **T11** | Simple java programs based on concepts discussed in lecture 31 to lecture 33 | CO3 |
| **L34** | Serialization, serialiable , Object Output, Object Output Stream, Object Input, Object Input Stream. | CO4 |
| **L35** | Swing fundamentals, writing swing application, swing library | CO3 |
| **L36** | Layouts and controls, introduction to event handling | CO3 |
| **T12** | Simple java programs based on concepts discussed in lecture 34 to lecture 36 | CO3 |
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**References:**

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| 1. | Herbert Schildt, Java The Complete Reference (9e), Tata McGrawHill 2014. |
| 2. | Cay S. Horstmann & Gary Cornell, Core Java Volume I – Fundamentals (9e), Prentice Hall 2013. |
| 3. | Cay S. Horstmann & Gary Cornell, Core Java Volume II – Advanced Features (9e), Prentice Hall 2013. |
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| **Submitted by:** | Dr. Manjula Shenoy K |

**(Signature of the faculty)**

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| **Date:** | **16-09-2021** |

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| **Approved by:** | **DR. SMITHA N PAI** |

**(Signature of HOD)**

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| **Date:** | **16-09-2021** |

**Faculty members teaching the course (IF MULTIPLE sections EXIST):**

|  |  |  |  |
| --- | --- | --- | --- |
| **FACULTY** | **Section** | **FACULTY** | **Section** |
| Dr. Raghavendra Achar | CCE-A |  |  |
| Mrs. Diana Olivia | CCE-B |  |  |
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