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| **Subject Name:** | | | | | | Object oriented Analysis and JAVA Programming | | | | | | | | | | | | | | | | | | | **Subject Code:** | | | | | | | TMC 202 | | |
|  | | | | | |  | | | | | | | | | | | | | | | | | | |  | | | | | | |  | | |
| **Course Name:** | | | | | | Master of Computer Applications (MCA) | | | | | | | | | | | | | | | | | | |  | | | | | | |  | | |
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| **1** | **Contact Hours:** | | | | | | | | 45 | | |  | | | | | | | | | | | | | | **L** | | 3 | | **T** | | 0 | **P** | 0 |
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| **2** | **Examination Duration (Hrs):** | | | | | | | | | | | | | |  | **Theory** | | | 0 | 3 |  | **Practical** | | | | | 0 | | 0 |  | | | | |
|  |  | | | | | | | | | | | | | |  |  | | |  |  |  |  | | | | |  | |  |  | | | | |
| **3** | **Relative Weightage:** | | | | | | | | |  | | | | **CWE:** | | | | 25 | **MTE:** | | | 25 | | **ETE:** | | | | 50 | | |  | | | |
|  |  | | | | | | | | |  | | | |  | | |  | |  | | |  | |  | | | |  | | |  | | | |
| **4** | **Credits:** | | | | 0 | | 3 | |  | | | | | | | |  | |  | | |  | |  | | | |  | | |  | | | |
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| **5** | **Pre-Requisite:** | | | | | | | | Knowledge of programming | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **6** | **Subject Area:** | | | | | | | | Computer Science | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **7** | **Objective:** | | | | | | | To familiarize students with object-oriented concepts and the power of Java language , enrich them with robust tools of Java language**.** | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **8** | **Course Outcome:** | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | |
|  | **CO 1** | | | Apply and characterize the Java programming features to develop programs for demonstrate the same. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | **CO 2** | | | Make use of object oriented concepts to develop applications | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | **CO 3** | | | Classify exceptions and demonstrate applications for file handling and multithreading. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | **CO 4** | | | Evaluate and select the most reliable approaches for developing applications using proper exception handling techniques using several networking classes. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | **CO 5** | | | Compare and utilize collection framework to create programming applications by describing and developing applications for GUI. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | **CO 6** | | | Design and describe applications by deploying for event handling and accessing databases using Java features. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| **9** | | **Details of the Course:** | | | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | |
| **Unit No.** | | | **CONTENT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | **CONTACT HOURS** | | | |
| **1** | | | **Introduction to Java :**Importance and features of Java, Concepts of Java Virtual machine (JVM) Keywords, Constants, Variables and data types, operators and expressions, Control statements, Conditional statements, loops and iterations.  **Concept of class:** Class definition, adding variables and methods, creating objects, constructors, defining methods, calling methods, Arrays,String Handling in java( String, StringBuffer classes), Wrapper classes.  **Scanner Class**: Scanner class methods (next(),nextLine() etc. | | | | | | | | | | | | | | | | | | | | | | | | | | | | **9** | | | |
| **2** | | | **Object Oriented Programming concepts:** Inheritance, super classes,  multilevel hierarchy, abstract and final classes, overloading and overriding  **Packages and interfaces**: Packages, Defining Packages, Using Packages, import and static import, Access protection.  **Interface:** Defining Interfaces, abstract methods declarations, implementing interfaces, extended interfaces, interface references. | | | | | | | | | | | | | | | | | | | | | | | | | | | | **8** | | | |
| **3** | | | **Exception handling:** Exception Types, Exception class, RuntimeException Class, Error Class, Checked and uncheced Exceptions, Defining new exceptions; Handling: try, catch and finally; throw statement, throws clause.  **Multithreaded programming:** Java thread model, Thread synchronization, messaging, thread class, Runnable interface, inter thread communication, Producer/ consumer problems, Wait () and notify ().  **Object Lifetime:** Garbage Collection, Reachable Objects. | | | | | | | | | | | | | | | | | | | | | | | | | | | | **10** | | | |
| **4** | | | **AWT & Swing:** Introduction to AWT and Swings, Swings advantages over AWT, Swing applications, Swing Controls :  JButton ,JLabel , JCheckBox , JRadioButton , JList , JComboBox, JTextFiled, JTextArea , JScrollBar, JTable, Graphics in swing  **Event Handling:**Event delegation model, classes, Event Listener Interfaces, Adapter classes. | | | | | | | | | | | | | | | | | | | | | | | | | | | | **8** | | | |
| **5** | | | **Collection and Generic Framework:** Introduction to Collection and Generic Framework: Interfaces Iterator, List, Set, ArrayList, LinkedList HashSet .Jar Utilities.  **JDBC:** Concept of JDBC, JDBC Driver Types, JDBC Packages, Database Connection, Associating the JDBC/ODBC Bridge with the Database, JDBC URL, Statement Objects, ResultSet, Transaction Processing, commit, savepoint, rollback, ResultSetMetadata, DatabaseMetadata, Data Types, SQLException, Prepared Statement, CallableStatement, Batch updates.  Storing and Retrieving images via JDBC. | | | | | | | | | | | | | | | | | | | | | | | | | | | | **10** | | | |
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| **10** | | **Suggested Books:** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | |
| **Sl. NO.** | | **NAME OF AUTHORS/BOOKS/PUBLISHERS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **YEAR OF PUBLICATION** | | | |
| **1** | | Patrick Naughton and Herbert Schildt, “Java 2 The Complete Reference”, 9th edition, McGraw Hill Education | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2017 | | | |
| **2** | | Bruce Eckel, “Thinking in Java”, 4th edition,Pearson Education India | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2008 | | | |
| **3** | | E. Balaguruswamy, “Programming with Java a Primer”, 4thedition, Tata McGraw Hill, | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **2009** | | | |

**4.** Cay S Horstmann and Gary Cornell, “Core Java Volume –I and II”, Standard edition, Sun Microsystems, 2001

**5.** Harvey Deitel and Paul Deitel, “Java How to Program” , 4thedition, PHI Learning, 2004