**Course Schedule for Academic Year 2018 – 19**

**Class**: PGDCA **Semester I**

**Paper Code**: DCA11 **Name**: Object Oriented Programming

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| **Lecture No** | **Unit** | **Topic** | **Subtopics** | **Books/ References** |
| 1 | I | **Principles of OOP** | Syllabus  – Brief introduction (Theory and Practical)  - Course Evaluation Scheme | T1, R3 |
| 2 | Programming Paradigms | T1, T2, R3 |
| 3 | Basic concepts – Classes, Objects, OOP: major principles - encapsulation, abstraction | T1, R3 |
| 4 | Inheritance, Polymorphism | T1, R3 |
| 5 | Benefits of OOP, Applications of OOP. | T1, R3 |
| 6 | II | **Introduction to Java** | Introduction to Java programming | T1, R3 |
| 7 | Constants, Data types, Variables | T1, R3, W1 |
| 8 | Operators, Control structures | T1, R3, W1 |
| 9 | Review and Discussion Activity | T1, R3, W1 |
| 10 | Conditional statements | T1, R3, W1 |
| 11 | Java Loops | T1, R3, W1 |
| 12 | **CA – 1** |  |
| 13 | Java methods | T1, R3, W1 |
| 14 | java.Math class | T1, R3, W1 |
| 15 | Arrays in java | T1, R3 |
| 16 | III | **Objects and Classes** | Basics of objects and classes in java | T1, T2, R3 |
| 17 | Constructors, Finalizer, | T1, T2, R3 |
| 18 | Visibility modifiers | T1, T2, R3 |
| 19 | Methods and objects | T1, T2, R3 |
| 20 | this reference, Inbuilt classes like  String, Character | T1, T2, R3 |
| 21 | StringBuffer, File | T1, T2, R3 |
| 22 | IV | **Inheritance and Polymorphism** | Inheritance in java, super and sub class | T1, T2, R3 |
| 23 | Method Overloading | T1, T2, R3 |
| 24 | Method Overriding, Polymorphism | T1, T2, R3 |
| 25 | Dynamic binding, Casting objects, | T1, T2, R3 |
| 26 | Instance of operator, Abstract class | T1, T2, R3 |
| 27 | **CA – 2** |  |
| 28 | Interface in java, Package in java, java.util package | T1, T2, R3 |
| 29 | V | **Event and GUI programming** | Design patterns – what and why? It’s classification | T1, T2, R3 |
| 30 | Introduce the Observer design pattern. | T1, T2, R3 |
| 31 | Event handling in java, Event types, Mouse and key events | T1, T2, R3 |
| 32 | GUI Basics, Panels, Frames,  Layout Managers: Flow Layout, Border Layout, Grid Layout | T1, T2, R3 |
| 33 | GUI components like Buttons, Check Boxes, Radio Buttons, Labels, Text Fields, Text Areas, | T1, T2, R3 |
| 34 |  |  | Combo Boxes, Lists, Scroll Bars, Sliders, Windows, Menus, Dialog Box | T1, T2, R3 |
| 35 | Applet and its life cycle | T1, T2, R3 |
| 36 | Introduction to swing. | T1, T2, R3 |
| 37 | Revision and Discussion | T1, T2, R3 |
| 38 | VI | **Exception Handling**. | Exception handling – what and why?  Try and catch block | T1, T2, R3 |
| 39 |  |  | Multiple catch blocks, Nested try, finally block | T1, T2, R3 |
| 40 |  |  | throw keyword, throws keyword, Custom Exception | T1, T2, R3 |
| 41 |  |  | CA - 3 |  |
| 42 | VII | **Collections Framework** | Introduction | T1, T2, R3 |
| 43 | Collections framework | T1, T2, R3 |
| 44 | CA – 4 |  |
| 45 |  |  | Review Activity and Discussion | T1, T2, R3 |

**Text Book:**

1. Mahesh Matha, **“**Core Java, A Comprehensive Study “, PHI, India
2. Deitel & Deitel, *Java - How to Program*, Prentice Hall Publications

**Reference Books:**

1. Patrick Naughton, Herbert Schildt, *Java 2 – The Complete Reference*, McGraw Hill

Education (India) Pvt. Ltd., 2002.

1. Patrick Naughton, *The Java Handbook*, McGraw Hill Education (India) Pvt. Ltd., 1996.
2. Balaguruswamy E, *Programming with Java – A Primer*, McGraw Hill Education (India) Pvt. Ltd., 2009.
3. Flanagan David, *Java Examples in a Nutshell*, Spd/O'Reilly Reprint, 2nd Edition.
4. Gosling J, Arnold K, & Holmes D, *The Java Programming Language*, Addison-Wesley Professional, 3rd Edition, 2008.

**Web References:**

1. https://www.w3schools.in/java-tutorial/