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| **Course Code** | CSU4301 |
| **Level**  | 4 |
| **Course Title** | Object Oriented Programming |
| **Credit value** | 3 credits |
| **Core/Optional** | Core |
| **Prerequisites** | (CSU3200+CSU3301+CSU3302) (EL/CR) |
| **Hourly breakdown** | **Theory** | **Practical****hours** | **Independent Learning** | **Assessments** | **Total hrs.** |
| 25 Sessions X 2 hrs. = **50 hrs.** | 06 DS x 3 hrs. = **18 hrs.** | 2 Lab x 3 hrs. = **06 hrs.** | * Sessions (25 x 3)

 = 75 hrs.* Online = 02 hrs.

Total = **77 hrs.** | * Continuous Assessments (CA) : **01 hr.**
* Practical assessments (PA) : **01 hr.**
 | **153 hrs.** |
| **Course Aim/s.** | To enhance knowledge & familiarize concepts of Object Oriented Programming and also Threads and Multithreaded programming in JAVA programming. |
| **PLOs addressed by course**  | **PLO1: Knowledge:** Explain the fundamental, principles and broader knowledge pertaining to the chosen science disciplines offered for the degree.**PLO2: Practical Knowledge and Application**. Demonstrate the competency to use the knowledge and practical skills appropriately.**PLO5: Creativity and Problem Solving:** Identify and analyze problems using quantitative and/or qualitative approaches using scientific methodology to provide valid conclusions. **PLO9: Lifelong Learning**: Develop the capacity to foresee new trends and their impacts and continuously update knowledge and develop skills willingly to meet those future challenges. |
| **Course Learning Outcomes (CLO)** | At the completion of this course student will be able to:CLO1: Explain what is Object Oriented Programming and its key concepts. (PLO1)CLO2: Explain about styles of programming and evaluation of Object Oriented Programming languages. (PLO1)CLO3: Discuss key features of the Java Program.(PLO2)CLO4: Explain how to declare variables and constants, standard functions of input and output in the Java language. (PLO2)CLO5: Identify data types, various operators, their precedence, control structures, conditional statements and repetitions in Java program. (PLO2)CLO6: Implement Classes, Objects and key concepts, Abstraction/Encapsulation, Inheritance, and Polymorphism using Java programming language.(PLO2,PLO5,PLO9)CLO7: Comprehend the usage of ‘Access Controls’ in Java Classes and methods.(PLO2,PLO5)CLO8: Define and implement abstract Classes, final Classes and methods, inner Classes and interfaces Using Java. (PLO2,PLO5,PLO9)CLO9: Utilize advance operations in Java like Exceptions handling, Threads and Multithreaded Programming. (PLO1,PLO2) |
| **Content** **(Main topics, sub topics)**  | Design of Programs, Object Oriented Programming, Object Oriented Programming –Terminologies, Java, Classes in Java, Controlling access to Java classes, Working with Objects, Constructors in JAVA, Inheritance, Implementation- Inheritance, Polymorphism, Overloading, Overriding, Abstract Classes and methods, Interfaces in JAVA, Inner Classes, Association, Aggregation and Composition, Exception Handling, Threads and Multithreaded programming, Swing Class, Introduction to Java Programming, Java Operators, Control Structure, Arrays and String, Java Methods |
| **Teaching Learning methods (TL)** | Self-learning/independent learning of self - study (IL)* Learning the course contents in course materials in print and web-based materials (SS)
* Learning through practical exercises (PR)
* Additional reading materials/ recommended reading (RE)

Contact sessions* Day schools (discussion sessions) (Non-compulsory)
* Laboratory practical exercises (PR) (compulsory)
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| **Assessment strategy** | Overall Continuous Assessment Mark (OCAM): 40% | Final Assessment: 60 % |
| Details: Continuous Assessment (CA) : **01 hr.**  Practical Assessment (PA) : **01 hr.** OCAM= 60% of best CA/PA + 40% of other CA/PA | Final Evaluation Theory: **02 hrs.** |
| **Recommended** **Readings:** | 1. Cadenhead R., Laura L.(2003). *Sams Teach Yourself Java in 21 days*, Pearson Education,
2. Buyya R, Selvi T., Chu X, (2009*) Object-oriented Programming with Java*: Essentials and Applications, Tara McGraw Hall
3. Holmes. B.J., Joyce D.T.,(2001).*Object-oriented Programming with Java*, Jones & Bartlett Publisher.
4. Jana, D., (2005). *Java And Object-Oriented Programming Paradigm*, Prentice Hall of India
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