|  |  |
| --- | --- |
| **Course Code** | CSU4302 |
| **Level**  | 4 |
| **Course Title** | System Analysis and Software Engineering |
| **Credit value** | 3 credits |
| **Core/Optional** | Core |
| **Prerequisites** | (CSU3200+CSU3301+CSU3302) (EL/CR) |
| **Hourly breakdown** | **Theory** | **Practical****hours** | **Independent Learning** | **Assessments** | **Total hrs.** |
| 24 Sessions X 2 = **48 hrs.** | 6 DS x 3 hrs. = **18 hrs.** | 2 Lab x 3 hrs. =**06 hrs.** | * Sessions (24 x 3)

 = 72 hrs.* Online = 3 hrs.
* Lab (06 x 0.5) = 3 hrs.

Total = **78 hrs.** | * Continuous Assessments (CA) : **02 hrs.**
 | **152 hrs.** |
| **Course Aim/s.** | To provide software solutions for the real world problem while applying the theories in the software engineering. |
| **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.**PLO3: Communication**: Demonstrate the competency in communicating efficiently and effectively to present information, ideas and concepts to the scientific community as well as to the wider society.**PLO4: Individual Work, Team Work and Leadership**: Demonstrate the competency in working independently and in groups in addressing issues in multi-disciplinary environments and completing the tasks on time through collaborative learning while exhibiting leadership. **PLO5: Creativity and Problem Solving:** Identify and analyze problems using quantitative and/or qualitative approaches using scientific methodology to provide valid conclusions. **PLO7: Information and Communication Technology Literate**: Demonstrate the competency of using Information and Communication Technology for numerical and statistical analysis, and in day to day applications. **PLO8**: **Vision for Life:** Develop the capacity to project for future through identifying self-directed goals and continuously targeting towards them for self-improvement by undertaking further studies. **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: Define what software engineering is (PLO1).CLO2: Define the key concerns that are common to all software development processes (PLO1, PLO2).CLO3: Model the structure and the behavior of a software system using UML diagrams (PLO1, PLO4, PLO5, PLO7).CLO4: Analysis and design software for an organization using appropriate tools (PLO1, PLO2, PLO3, PLO4, PLO5, PLO7, PLO8, PLO9). |
| **Content** **(Main topics, sub topics)**  | Introduction to Software Engineering, Software Processes, Software Requirements and Requirements Engineering Process, System Models, Critical Systems, Introduction to Software Design, Object- Oriented Design and Introducing UML, Use Case Diagrams, Class Diagrams, State Diagrams, Sequence Diagrams, Activity Diagrams, Component Diagrams, Software Development, Rapid Application Development, Component-Based Software Engineering, Software Testing, Software System Implementation, Software Maintenance, Software Cost Estimation, Software Quality Management, Configuration Management, Project Management, Computer Aided Software Engineering Tools |
| **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)
 |

|  |  |  |
| --- | --- | --- |
| **Assessment strategy** | Overall Continuous Assessment Mark (OCAM): 40% | Final Assessment: 60 % |
| Details: Continuous Assessment (CA I) : **01 hr.**  Continuous Assessment (CA II): **01 hr.** OCAM computation: OCAM= 60% of best CA I/CA II+ 40% of other CA I/CA II | Final Evaluation Theory: **02 hrs.** |
| **Recommended** **Readings:** | 1. Sommerville, I. (2015). *Software Engineering* . (10th ed.). : Person.
2. Schmuller, J (2004).*Sams Teach Yourself UML in 24 Hours*. (3rd ed.).: Sams Indianapolis.
3. Schach, S. (2001).*Object Oriented Software Engineering* (1st ed.).: Person
 |