**A screenshot of a cell phone

Description generated with very high confidenceCOURSE PLAN**

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| --- | --- | --- | --- |
| **Department** | **Humanities and Mangement** | | |
| Course Name | Software Application Design | Course Code | CSF 3121 |
| Semester | V | Curriculum | 2022 |
| Name of the faculty | Dr Srikanth Prabhu | Academic year | 2025-26 |
| No. of Contact Hours/Week | L T P C: 2 1 0 3 | | |

**COURSE OUTCOMES (CO’S)**

|  |  |  |  |
| --- | --- | --- | --- |
| **At the end of this course, the student should be able to:** | | **No. of Hours** | **Marks** |
| **CO1** | To understand basic concepts and life cycle models. | 8 | 22 |
| **CO2** | To analyze the requirements of the project. | 4 | 12 |
| **CO3** | To model and design the project | 8 | 22 |
| **CO4** | Understand the analysis and design of the project using UML | 8 | 22 |
| **CO5** | Ability to use standards in coding and testing | 8 | 22 |
| **Total hours/ Marks** | | **36** | **100** |

**In semester & End semester plan and schedule (AY: 2024-25)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Component** | **Type** | **Max. Marks** | **Syllabus: Topics covered during** | **Schedule** | **Blooms taxonomy levels** |
| IA 1 | Quiz | 5 | July 22 2023 to Aug 5 2024 | Aug 12 2024 to August 20 2024 | 2 to 6 |
| IA 2 | Surprise Assignment | 5 | August 6 2024 to August 25 2024 | Sep 2 2024 to Sep 9 2024 | 2 to 6 |
| 1A 3 | Quiz | 5 | Aug 26 2024 to Oct 1 2024 | Oct 7 2024 to Oct 14 2024 | 4 |
| 1A4 | Surprise Assignment | 5 | Oct 2 2023 to Oct 19 2024 | Oct 21 2024 to Nov 26 2024 | 5 |
| **END Semester examination** | | 50 | L1 – L36 | Nov – Dec 2024 | 2 to 6 |

**MISAC – Mandatory In semester Assessment Components**

**FISAC – Flexible In semester Assessment components**

**FISAC 1/2 should be different**

**\*Topics covered under FISAC 1 may vary depending on the assessment type chosen**

|  |  |  |  |
| --- | --- | --- | --- |
| **Blooms Taxonomy Level – FISAC 1 & 2** | | | |
| **No** | **FISAC Components** | **First year** | **Higher semester** |
| A | QUIZ/MCQs | Same as IA1-IA3 ( 2-6) | |
| B | Surprise Assignment | 3 | IA2-IA4 |
| C | Take home assignment | 3 | 4 |
| D | Group Assignment | 4 | 5 |
| E | Seminar | 4 | 5 |
| F | Quiz based on invited talks | 4 | 5 |
| G | Development of SW/Apps | 4 | 5 |
| H | Mini Project | 4 | 5 |

**LESSON PLAN**

|  |  |  |
| --- | --- | --- |
| **Lecture No.** | **Topic** | **CO's addressed** |
| L0 | Introduction. Brief orientation on Software Engineering concepts . | - |
| L1 | Evolution from an art form to an engineering discipline, Software development Projects. Click or tap here to enter text. | CO1 |
| L2 | Exploratory style of software development, Emergence of software Engineering. Click or tap here to enter text. | CO1 |
| T1 | Notable changes in software development practices. Computer Systems Engineering. | CO1 |
| L3 | Software Life cycle models: A few basic concepts, Waterfall model and its extensions. | CO1 |
| L4 | Software Life cycle models: Rapid Application Development. | CO1 |
| T2 | Life Cycle Model: Case Studies. | CO1 |
| L5 | Software Life cycle models: Agile development models and Spiral Model. | CO1 |
| L6 | Software Life Cycle Models: Summary. | CO1 |
| L7 | SRS: Gathering and Analysis. | CO2 |
| T3 | SRS: Case Study, Algebric Specification and Axiomatic Specification. | CO2 |
| L8 | Software Design: Overview of the design Process, and how to characterize a good design. | CO3 |
| T4 | Design Issues | CO3 |
| L9 | Software Design: Cohesion and coupling, Layered arrangement of modules, Approaches to software design. | CO3 |
| L10 | Function oriented software design: Overview of SA/SD methodology and Structured Analysis. | CO3 |
| L 11 | Function oriented software design: Developing the DFD Model of a system | CO3 |
| T 5 | DFD Designs | CO3 |
| L12 | Function oriented software design: Structured design, Detailed Design, Design Review | CO3 |
| T6 | Structured Design | CO3 |
| L13 | Object Modelling using UML: Basic object-orientation concepts, UML Click or tap here to enter text. | CO4 |
| L14 | Object Modelling using UML: Basic object-orientation concepts | CO4 |
| L15 | Introduction to UML Diagrams | CO4 |
| L16 | Object Modelling using UML: Use case model | CO4 |
| L17 | Object Modelling using UML: Class diagrams Click or tap here to enter text. | CO4 |
| L18 | Object Modelling using UML: Interaction diagrams | CO4 |
| T7 | Use Case Diagrams, Class Diagrams and Interaction Diagrams: Case Studies | CO4 |
| L19 | Object Modelling using UML: Activity Diagram | C04 |
| L20 | Object Modelling using UML: State chart diagram | CO4 |
| T8 | Activity Diagrams and State Chart Diagrams: Case Study | CO4 |
| L21 | Object Modelling using UML: Postscript, Design Patterns | CO4 |
| L22 | Object Modelling using UML: Postscript, Design Patterns | CO4 |
| T9 | Design Patterns: Case Study | CO4 |
| L23 | Object Modelling using UML: An Object-Oriented Analysis and Design (OOAD) Methodology. | CO4 |
| L24 | Coding and Testing: Coding, Code review, Software Documentation | CO5 |
| L25 | Coding and Testing: Unit Testing and Black-Box testing and White Box Testing | CO5 |
| T10 | Program Analysis Tools, Regression Testing, Security Testing, Robustness Testing, Fuzzy Testing, System Testing and Integration Testing | CO5 |

**References:**

|  |  |
| --- | --- |
| References | |
| 1 | Rajib Mall, Fundamentals of Software Engineering (4e), PHI Learning, 2014 |
| 2 | Hans Van Vliet, Software Engineering: Principles and Practice (3e), Wiley India, 2012. |
| 3 | Bernd Bruegge, Allen H. Dutoit, Object-Oriented Software Engineering using UML Patterns and Java (2e) , Pearson Publication, 2011 |
| 4 | Ian Sommerville, Software Engineering (9e), Addison-Wesley, 2011. |
| 5 | Nooper Davis, Secure Software Development Life Cycle Processes, Software Engineering Institute, Carnegie Mellon University, 2013. |
| 6 | Julie Cohen, Dan Plakosh, Kristi Keeler, Robustness Testing of Software-Intensive Systems: Explanation and Guide, Carnegie Mellon University, 2005. |

**Submitted by:**

**Name of the faculty**

**Dr Srkanth Prabhu**

**(Signature of the faculty)**

**Date: 13/8/2025**

**Approved by:**

**(Signature of HOD)**

**Date: 25/07/2025**

**FACULTY MEMBERS TEACHING THE COURSE (IF MULTIPLE SECTIONS EXIST):**

|  |  |  |  |
| --- | --- | --- | --- |
| **FACULTY NAME** | **SECTION** | **FACULTY NAME** | **SECTION** |
| Dr. Srikanth Prabhu | A |  |  |
|  |  |  |  |
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**COURSE PLAN – ADDITIONAL DETAILS**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **At the end of this course, the student should be able to:** | | **No. of contact Hours** | **Marks** | **Program outcomes (PO's)** | **Learning outcomes (LO's)** | **PSO** | **BL** |
| **CO1** | To understand basic concepts and life cycle models. | 8 | 22 | 1 | 1-6 | \_ | 2,3 |
| **CO2** | To analyse the requirements of the project. | 4 | 12 | 1 | 1-6 | \_ | 2,3 |
| **CO3** | To model and design the project. | 8 | 22 | 1,4 | 1-6 | \_ | 2,3 |
| **CO4** | Understand the analysis and design of the project using UML | 8 | 22 | 1,4 | 1-6 | \_ | 3,4 |
| **CO5** | Ability to use standards in coding and testing | 8 | 22 | 1,3,4,8 | 1-6 | 1 | 5,6 |
| **Total hours/ Marks** | | **36** | **100** |  |  |  |  |

**Mapping of course outcomes (COs) with Program outcomes (POs) and Program Specific outcomes (PSOs)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course outcomes (COs)** | | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** | **PSO3** | **PSO4** |
| **CO1** | To understand basic concepts and life cycle models. | 2 | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ |
| **CO2** | To analyse the requirements of the project. | 2 | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ |
| **CO3** | To model and design the project. | 2 | \_ | \_ | 2 | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ |
| **CO4** | Understand the analysis and design of the project using UML | 2 | \_ | \_ | 3 | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ | \_ |
| **CO5** | Ability to use standards in coding and testing | 3 | \_ | 3 | 3 | \_ | \_ | \_ | 3 | \_ | \_ | \_ | \_ | 3 | \_ | \_ | \_ |
| **Average Program Articulation Level** | | **2.2** | **0** | **3** | **2.67** | **0** | **0** | **0** | **3** | **0** | **0** | **0** | **0** | **3** | **0** | **0** | **0** |

**Mapping of course learning outcomes (CLOs) with AHEP Learning outcomes (AHEP LOs)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Learning Outcomes (CLOs)** | | **C1** | **C2** | **C3** | **C4** | **C5** | **C6** | **C7** | **C8** | **C9** | **C10** | **C11** | **C12** | **C13** | **C14** | **C15** | **C16** | **C17** | **C18** |
| **CLO3154.1** | To understand basic concepts and life cycle models. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **CLO3154.2** | To analyse the requirements of the project. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **CLO3154.3** | To model and design the project. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **CLO3154.4** | Understand the analysis and design of the project using UML |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **CLO3154.5** | Ability to use standards in coding and testing |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Abbreviations**

1. **CO – Course outcome**
2. **PO – Program outcome**
3. **PSO – Program Specific outcome**
4. **LO – Learning outcome**
5. **CLO – Course Learning outcome**
6. **BL – Blooms Taxonomy**
7. **AHEP – The Accreditation of Higher Education Programmes**