 **DHANEKULA INSTITUTE OF ENGINEERING & TECHNOLOGY**

**GANGURU::VIJAYAWADA – 521 139**

**INSTRUCTIONAL PLAN** DIET/7.5.1/FT 06

**Unit Plan and Lesson Plan**

Name of the Program : B. Tech in Information Technology Academic Year : 2023-24

Year & Semester : II Year I Semester Section: A,B,C No of Credits : 03

Name of the Course :**Software Engineering** Code : R20C204

Course :**Core** Regulation : R20

Course Area/Module :Testing No of students registered :

Name of the Faculty : Mrs.V.Swarna/Mr.V.Naga Malleswara Rao Designation : Asst. Professor

No. of Lecture Hours per week:5 No .of Tutorial Hours/Makeup hours / per week: 1

**Unit Plan**

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Unit**  **No** | **Description** | **Scheduled Duration (Date)** | | **COs\*** | **POs\*** | **PSOs\*** | |
| **From** | **To** |
| **1** | Give exposure to phases of Software Development, common process modelsincluding Waterfall, and the Unified Process | 07-08-2023 | 26-08-2023 | R20C204.1 | 1 | | 1,2 |
| **2** | Agility, Software Engineering Knowledge, Building the Requirements Model | 28-08-2023 | 13-09-2023 | R20C204.2 | 1 | | 1,2 |
| **3** | Give exposure to a variety of Software Engineering practices such as requirementsanalysis and specification, code analysis, code debugging, testing, traceability, and  version control. | 14-09-2023 | 14-10-2023 | R20C204.3 | 1 | | 1,2 |
| **4** | Give exposure to Software Design techniques. | 16-10-2023 | 06-11-2023 | R20C204.4 | 1 | | 1,2 |
| **5** | The Golden Rules for interface design, Test Strategies for Conventional Software& execute test cases at the Unit and Integration level | 07-11-2023 | 25-11-2023 | R20C204.5 | 2 | | 1,2 |
|  | MID-I | 25-09-2023 | 30-09-2023 |  |  |  | |
|  | MID-II | 20-11-2023 | 25-11-2023 |  |  |  | |

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| **Lecture NO** | **Topic Description** | **Student topic wise Learning Outcome** | **Teaching learning Resources** | **CO’s** | **Completed**  **Date** | **Remarks** |
| **Unit-I**  **Nature of Software Engineering and Conventional Process Models** | | | | | | |
| L1 | The Nature of Software | Understanding of The Nature of Software | T1 | R20C204.1 |  |  |
| L2 | The Unique Nature of WebApps, Software Engineering, The Software Process | Understanding of The Unique Nature of WebApps, The Software Process | T1 | R20C204.1 |  |  |
| L3 | Software Engineering Practice | Understanding Software Engineering Practice |  | R20C204.1 |  |  |
| L4 | Software Myths, How It All Starts | Understanding Software Myths | T1 | R20C204.1 |  |  |
| L5 | A Generic Process Model, Process Assessment and Improvement | Understanding A Generic Process Model,Process Assessment and Improvement |  | R20C204.1 |  |  |
| L6 | Prescriptive Process Models | Understanding Process Models | T1 | R20C204.1 |  |  |
| L7 | Specialized Process Models, The Unified Process | Understanding Specialized Process Models,he Unified Process | T1 | R20C204.1 |  |  |
| L8 | Class test -1 | CT-1 for CO1 | T1 | R20C204.1 |  |  |
| L9 | Personal and Team Process Models, Process Technology. | Understanding Personal and Team Process Models, Process Technology. | T1 | R20C204.1 |  |  |
| **Unit-II**  **Agile Processing Models and Requirements Engineering** | | | | | | |
| L10 | Agility, Agility and the Cost of Change | Introduction to Agility, Agility and the Cost of Change | T1 | R20C204.2 |  |  |
| L11 | Agile Process, Extreme Programming (XP) | Introduction to Agile Process, Extreme Programming (XP) | T1 | R20C204.2 |  |  |
| L12 | Other Agile Process Models | Understanding Other Agile Process Models | T1 | R20C204.2 |  |  |
| L13 | A Tool Set for the Agile Process, Software Engineering Knowledge , Core Principles | Understanding A Tool Set for the Agile Process, Software Engineering Knowledge , Core Principles | T1 | R20C204.2 |  |  |
| L14 | Principles That Guide Each Framework Activity, Requirements Engineering | Understanding Principles That Guide Each Framework Activity, Requirements Engineering | T1 | R20C204.2 |  |  |
| L15 | Establishing the Groundwork | Understanding of Establishing the Groundwork | T1 | R20C204.2 |  |  |
| L16 | Eliciting Requirements, Developing Use Cases, Building the Requirements Model | Understanding Eliciting Requirements ,Developing Use Cases, Building the Requirements Model | T1 | R20C204.2 |  |  |
| L17 | Negotiating Requirements, Validating Requirements. | Understanding Negotiating Requirements, Validating Requirements. | T1 | R20C204.2 |  |  |
| L18 | Class test -2 | Class test -2 from CO2 | T1 | R20C204.2 |  |  |
| **UNIT-III**  **Requirements Analysis** | | | | | | |
| L19 | Requirements Analysis | Understanding of Requirements Analysis | T1 | R20C204.3 |  |  |
| L20 | Scenario-Based Modeling | Understanding of Scenario-Based Modeling | T1 | R20C204.3 |  |  |
| L21 | UML Models That Supplement the Use Case | Introduction of UML Models That Supplement the Use Case | T1 | R20C204.3 |  |  |
| L22 | UML Models That Supplement the Use Case | Introduction of UML Models That Supplement the Use Case | T1 | R20C204.3 |  |  |
| L23 | Data Modeling Concepts | Understanding of Data Modeling Concepts | T1 | R20C204.3 |  |  |
| L24 | Class-Based Modeling, | Understanding of Class-Based Modeling, | T1 | R20C204.3 |  |  |
| L25 | Requirements Modeling Strategies | Understanding of Requirements Modeling Strategies | T1 | R20C204.3 |  |  |
| L26 | Flow-Oriented Modeling | Understanding Flow-Oriented Modeling | T1 | R20C204.3 |  |  |
| L27 | Flow-Oriented Modeling | Understanding Flow-Oriented Modeling | T1 | R20C204.3 |  |  |
| L28 | Creating a Behavioral Model | Understanding Creating a Behavioral Model | T1 | R20C204.3 |  |  |
| L29 | Behavioral Model with examples | Understanding Behavioral Model with diagrams | T1 | R20C204.3 |  |  |
| L30 | Patterns for Requirements Modelling | Understanding Patterns for Requirements Modelling | T1 | R20C204.3 |  |  |
| L31 | Patterns for Requirements Modelling | UnderstandingPatterns for Requirements Modelling | T1 | R20C204.3 |  |  |
| L32 | Class Test-3 | Class test on CO3 | T1 | R20C204.3 |  |  |
| L33 | Applications | Various applications on modeling | T1 | R20C204.3 |  |  |
| L34 | Case Study Examples | Case study explanation | T1 | R20C204.3 |  |  |
| L35 | Case Study Examples | Case study explanation | T1 | R20C204.3 |  |  |
| L36 | MID-1 | | | |  |  |
| L37 |  |  |
| L38 |  |  |
| L39 |  |  |
| L40 |  |  |
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| L41 | Design within the Context of Software Engineering, The Design Process | Understanding Design within the Context of Software Engineering, The Design Process | T1 | R20C204.4 |  |  |
| L42 | Design Concepts, The Design Model, Software Architecture | Understanding Design Concepts, The Design Model, Software Architecture | T1 | R20C204.4 |  |  |
| L43 | Architectural Genres | Understanding Architectural Genres | T1 | R20C204.4 |  |  |
| L44 | Architectural Styles | Analyzing Architectural Styles | T1 | R20C204.4 |  |  |
| L45 | Assessing Alternative Architectural Designs | Understanding Assessing Alternative Architectural Designs | T1 | R20C204.4 |  |  |
| L46 | Architectural Mapping Using Data Flow | Understanding Architectural Mapping Using Data Flow | T1 | R20C204.4 |  |  |
| L47 | What Is a Component? Designing Class-Based Components, | Understanding What Is a Component? and Designing Class-Based Components, | T1 | R20C204.4 |  |  |
| L48 | Designing Traditional Components, Component-Based Development. | Understanding Designing Traditional Components, Component-Based Development. | T1 | R20C204.4 |  |  |
| L49 | Conducting Component-Level Design, | Understanding Conducting Component-Level Design | T1 | R20C204.4 |  |  |
| L50 | Component-Level Design for WebApps | Understanding Component-Level Design for WebApps | T1 | R20C204.4 |  |  |
| L51 | Class Test- 5 | Class test-5 fromCO4 | T1 | R20C204.4 |  |  |
| **Unit-V**  **User Interface Analysis,Design and SQA, Testing strategy** | | | | | | |
| L52 | The Golden Rules | Knowing The Golden Rules | T1 | R20C204.5 |  |  |
| L53 | User Interface Analysis and Design, WebApp Interface Design | Understanding User Interface Analysis and Design, WebApp Interface Design | T1 | R20C204.5 |  |  |
| L54 | Design Evaluation, Elements of Software Quality Assurance | Understanding Design Evaluation, SQA elements | T1 | R20C204.5 |  |  |
| L55 | SQA Tasks, Goals & Metrics | Understanding SQA Tasks, Goals & Metrics | T1 | R20C204.5 |  |  |
| L56 | Statistical SQA, Software Reliability, A Strategic Approach to Software Testing | Understanding Statistical SQA, Software Reliability, A Strategic Approach to Software Testin | T1 | R20C204.5 |  |  |
| L57 | Strategic Issues, Test Strategies for Conventional Software | Analyzing Strategic Issues, Understanding Test Strategies for Conventional Software, | T1 | R20C204.5 |  |  |
| L58 | Test Strategies for Object-Oriented Software, WebApps | Analyzing Test Strategies for Object-Oriented Software& Test Strategies for WebApps | T1 | R20C204.5 |  |  |
| L59 | Validation Testing, System Testing | Understanding Validation Testing, System Testing | T1 | R20C204.5 |  |  |
| L60 | The Art of Debugging, Software Testing Fundamentals | Understanding The Art of Debugging, Software Testing Fundamentals | T1 | R20C204.5 |  |  |
| L61 | Internal and External Views of Testing | Understanding Internal and External Views of Testing | T1 | R20C204.5 |  |  |
| L62 | White-Box Testing, Basis Path Testing | Understanding White-Box Testing, Basis Path Testing | T1 | R20C204.5 |  |  |
| L63 | Class Test-6 | Class test for CO5(Home Assignment submission) | T1 | R20C204.5 |  |  |
| L64 | Revision of unit 4,5 | Case study and explanation of important questions | T1 | R20C204.5 |  |  |
| L65 | MID-2 | |  |  |  |  |
| L66 |  |  |
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| L67 |  |
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**Teaching & Learning Resources:**

**Prescribed Text books:**

1) Software Engineering a practitioner’s approach, Roger S. Pressman, Seventh Edition, McGraw Hill Higher Education.

2) Software Engineering, Ian Sommerville, Ninth Edition, Pearson.

**Prescribed Reference Text books**

1) Software Engineering, A Precise Approach, PankajJalote, Wiley India, 2010.

2) Software Engineering, Ugrasen Suman, Cengage.

**Web Resources:**

1) https://nptel.ac.in/courses/106/105/106105182/

**Signature of Course Coordinator HOD, IT**

Date Date