**FR. Conceicao Rodrigues College Of Engineering**

Father Agnel Ashram, Bandstand, Bandra-west, Mumbai-50

**Department of Information Technology**

**T.E. (IT) (semester VI)  (2018-2019)**

**Lesson Plan**

**Subject: Software Engineering with Project Management(ITC601)**

**Credits-4**

SYLLABUS

|  |  |  |  |
| --- | --- | --- | --- |
| **Sr.**  **No.** | **Module** | **Detailed Content** | **CO**  **Mapping** |
| 00 | Prerequisite | Nature of Software, Software  Definition, Software  Characteristics, Software  Application Domains |  |
| 01 | The Software  Process | Generic view of Process,  Prescriptive Models: Waterfall  Model, Incremental-RAD Model,  Evolutionary Process Model-  Prototyping, Spiral and Concurrent  Development Model, Specialized  Models: Component based, Aspect  Oriented Development, Agile  Methodology, Scrum and Extreme  Programming | CO1 |
| 02 | Requirements  Engineering and  Cost Estimation | Requirement, Types of  Requirements, Requirement  gathering, Requirement  Engineering Task, Identifying  Stakeholders, Multiple viewpoints,  SRS (Software Requirement  Specification) Project Estimation,  LOC based, FP based and Use case  based estimation. | CO1  CO2 |
| 03 | Analysis and  Design  Engineering | Introduction of Analysis elements,  Scenario based, Flow based,  behavior and class based Design4Concepts and Principles,  Architecture Design, Component  Level Design, System Level  Design, User Interface Design**.** | CO1  CO2  CO3 |
| 04 | Quality &  Configuration  Management | Need for Testing, Testing Tactics,  Testing strategies, McCall’s  Quality Factor, Software  Configuration Management, SCM  Process | CO4 |
| 05 | IT Project  Management | Introduction, 4 P’s, W5HH  Principle, Need for Project  Management, Project Life cycle  and ITPM, Project Feasibility, RFP,  PMBOK Knowledge areas,  Business Case, Project Planning,  Project Charter and Project Scope | CO5 |
| 06 | Project Scheduling  and Risk  Management | WBS, Developing the Project  Schedule, Network Diagrams  (AON, AOA), CPM and PERT,  Gantt Chart, Risk Identification,  Risk Projection and RMMM | CO1  CO2  CO3  CO4  CO6 |

Internal Assessment:

Internal Assessment consists of two tests. Test 1, an Institution level central test, is for 20 marks and is to be based on a minimum of 40% of the syllabus. Test 2 is also for 20 marks and is to be based on the remaining syllabus. Test 2 may be either a class test or assignment on live problems or course project.

**CO-Statements:**

CO1: Define various software application domains and Identify suitable process model for software development.

CO2: Explain needs for software specifications also and Identify different types of software requirements with the help of gathering techniques.

CO3: Convert the requirements model into the design model and demonstrate use of software and user-interface design principles.

CO4: Estimate time and cost of the project and Perform Risk management.

CO5: Distinguish among SCM and SQA and can classify different testing strategies and tactics and compare them.

CO6: Justify role of SDLC in Software Project Development and evaluate the importance of Software Engineering in PLC.

**CO-PO-PSO Mapping**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Name** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** |
| CO1 |  | 2 |  | 3 |  |  |  |  |  |  |  |  | 2 | 3 |
| CO2 |  | 3 | 3 | 2 | 2 |  |  |  |  | 3 | 2 |  | 3 | 3 |
| CO3 |  | 3 | 3 |  | 1 |  |  |  |  |  |  |  | 3 | 3 |
| CO4 |  | 3 |  | 2 | 1 |  |  |  |  |  |  |  | 3 | 3 |
| CO5 |  | 2 |  |  | 1 |  |  |  |  |  |  |  | 2 | 3 |
| CO6 |  |  |  |  |  |  |  |  |  |  | 3 |  | 2 | 3 |

**CO Assessment Tools**

|  |  |  |
| --- | --- | --- |
|  | **Indirect Methods** | |
|  | **Test** | **Assignment** | | **End Sem Exam**  **(W)** | **End Sem Exam**  **(O)** | Course Exit Survey |
| CO1 | **30%(test1)** | **30%** | | **10%** | **30%** | 100% |
| CO2 | **30%(test1)** | **30%** | | **10%** | **30%** | 100% |
| CO3 | **50%(test1,test2)** | **-** | | **10%** | **40%** | 100% |
| CO4 | **50%(test2)** | **-** | | **10%** | **40%** | 100% |
| CO5 | **50%(test2)** | **-** | | **10%** | **40%** | 100% |
| CO6 | **50%(Test2)** | **=** | | **10%** | **40%** | 100% |

**Curriculum Gap/**

**Procurement management**

1. **Data Flow Diagram**
2. **Communication Management**
3. **Human Resource Management**

**Content beyond syllabus**

**Implementation of a project**

**Lecture Plan:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Lecture no | Topic | Planned date | Actual Date | Mode of teaching |
| 1 | Nature of Software, Software  Definition, | 1/1/19 | 1/1/19 | black board and chalk |
| 2 | Software  Characteristics, Software  Application Domains | 2/1/19 | 2/1/19 | black board and chalk |
| 3 | Generic view of Process,  Prescriptive Models: Waterfall  Model, Incremental-RAD | 3/1/19 | 3/1/19 | PPT, black board and chalk |
| 4 | Model, Evolutionary Process Model-Prototyping, | 4/1/19 | 4/1/19 | PPT, black board and chalk |
| 5 | Prototyping, Spiral and Concurrent  Development Model, Specialized | 8/1/19 | 8/1/19 | PPT, black board and chalk |
| 6 | Models: Component based, Aspect  Oriented Development, Agile  Methodology, | 9/1/19 | 8/1/19 | PPT, black board and chalk |
| 7 | Agile  Methodology, Scrum and Extreme  Programming | 10/1/19 | 11/1/19 | PPT, black board and chalk |
| 8 | Requirement, Types of  Requirements, Requirement  gathering, Requirement  Engineering Task, | 11/1/19 | 17/1/19 | black board and chalk |
| 9 | Identifying  Stakeholders, Multiple viewpoints,  SRS (Software Requirement  Specification) | 14/1/19 | 18/1/19 | PPT, black board and chalk |
| 10 | Project Estimation,  LOC based, FP based | 15/1/19 | 22/1/19 | PPT, black board and chalk |
| 11 | FP based | 16/1/19 | 23/1/19 | PPT, black board and chalk |
| 12 | Use case based estimation. | 17/1/19 | 24/1/19 | PPT, black board and chalk |
| 13 | Introduction of Analysis elements, Scenario based, | 22/1/19 | 25/1/19 | black board and chalk |
| 14 | Flow based, behaviour(UCD) | 23/1/19 | 28/1/19 | black board and chalk |
| 15 | Flow based, behaviour(UCD) | 24/1/19 | 29/1/19 | black board and chalk |
| 16 | class based Design | 25/1/19 | 30/1/19 | black board and chalk |
| 17 | class based Design | 29/1/19 | 7/2/19 | black board and chalk |
| 18 | Flow based, behaviour(sequence Diagram) | 30/1/19 | 8/2/19 | black board and chalk |
| 19 | Flow based, behaviour(Activity diagram) | 1/2/19 | 11/2 | black board and chalk |
| 20 | Flow based, behaviour (State chart Diagram) | 7/2/19 | 12/2 | black board and chalk |
| 21 | Concepts and Principles,  Architecture Design, | 8/2/19 | 20/2 | black board and chalk |
| 22 | Component  Level Design, System Level  Design, | 12/2/19 | 21/2/19, 22/2/19 | black board and chalk |
| 23 | User Interface Design**.** | 20/2/19 | 27/2/19 | black board and chalk |
| 24 | Need for Testing, Testing Tactics, | 21/2/19 | 27/2/19 | PPT, black board and chalk |
| 25 | Testing strategies | 22/2/19 | 28/2/19 | PPT, black board and chalk |
| 26 | McCall’s Quality Introduction, 4 P’s, | 26/2/19 | 1/3/19 | PPT, black board and chalk |
| 27 | W5HH Principle | 27/2/19 | 1/3/19 | PPT, black board and chalk |
| 28 | Need for Project Management, Project Life cycle | 28/2/19 | 5/3/19 | PPT, black board and chalk |
| 29 | ITPM, | 1/3/19 | 5/3/19 | PPT, black board and chalk |
| 30 | Project Feasibility, RFP,  PMBOK Knowledge areas, | 5/3/19 | 6/3/19 | PPT, black board and chalk |
| 31 | Business Case | 6/3/19 | 6/3/19 | PPT, black board and chalk |
| 32 | Project Planning,  Project Charter | 7/3/19 | 7/3/19 | PPT, black board and chalk |
| 33 | Project Charter, | 8/3/19 | 8/3 | PPT, black board and chalk |
| 34 | Project scope | 12/3/19 | 13/3 | PPT, black board and chalk |
| 35 | Factor, Software  Configuration Management, SCM  Process | 137/3/19 | 14/3 | PPT, black board and chalk |
| 36 | WBS, Developing the Project  Schedule, | 14/3/19 | 19/3 | PPT, black board and chalk |
| 37 | Network Diagrams  AON,CPM | 19/3/19 | 20/3 | PPT, black board and chalk |
| 38 | AOA | 20/3/19 | 22/3 | black board and chalk |
| 39 | PERT,  Gantt Chart, | 22/3/19 | 27/3 | PPT, black board and chalk |
| 40 | Risk Identification, | 26/3/19 | 28/3 | PPT, black board and chalk |
| 41 | Risk Identification, | 27/3/19 | 28/3 | PPT, black board and chalk |
| 42 | Risk Projection and RMMM | 28/3/19 | 29/3 | PPT, black board and chalk |
| 43 | Risk Projection and RMMM | 29/3/19 | 29/3 | PPT, black board and chalk |

**Lab Plan for Software Development Lab**

**Lab Outcomes:**

LO1: Prepare SRS documentation

LO2: Sketch a Modelling with UML

LO3: Estimate Cost and time for development of the project

LO4: Develop project using appropriate development tools

Lab Plan: SEPM

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No | Topic | Week No | Lab outcome |
| 1 | Define Problem statement | Week1 | LO1 |
| 2 | SRS Document | Week2 | LO1 |
| 3 | Class Diagram | Week3 | LO2 |
| 4 | Object Diagram | Week 3 | LO2 |
| 5 | Use case diagram | Week5 | LO2 |
| 6 | Sequence Diagram | Week5 | LO2 |
| 7 | Activity diagram | Week6 | LO2 |
| 8 | State chart diagram | Week6 | LO2 |
| 9 | Package Diagram | Week7 | LO2 |
| 10 | Component diagram | Week7 | LO2 |
| 11 | Deployment diagram | Week7 | LO2 |
| 12 | Work Breakdown Structure (WBS) | Week8 | LO3 |
| 13 | Cost estimation - | Week8 | LO3 |
| 14 | Gantt Chart | Week9 | LO3 |
| 15 | AON-CPM | Week9 | LO3 |
| 16 | Implementation | Week10 | LO4 |
| 17 | Mini Project report submission | Week11 |  |

**Assignment Plan:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Assignment No** | **Date** | **Questions** | **CO/LO** |
| **1** | **25/1/2019** | Define various software application domains and Identify suitable process model for software development. | **CO1** |
| **2** | **25/1/2019** | 1. Identify the functional and non-functional requirement for the Online Examination System. 2. Identify any two requirement gathering technique for online examination system. 3. Explain any two requirement engineering tasks to specify requirements of Online Examination System. | **CO2** |
| **3** | **15/3/1019** | **Estimate Cost for the Miniproject Using Function Point/Use Case Point Analysis** | **LO3** |
| **4** | **4/4/2019** | **Orange Scrum –Case Study** | **LO4** |

**Term Work:**

**Term Work:**

Term Work shall consist of full Mini Project on above guidelines/syllabus. Also Term work Journal must include at least 2 assignments.

**Term Work Marks:** 25 Marks (Total marks) = 15 Marks (Case Study) + 5 Marks (Assignments) + 5 Marks (Attendance)

**Oral Exam:** An Oral exam will be held based on the Case Study and Presentation.