**Mukesh Patel School of Technology Management and Engineering**

**Computer Engineering Department**

**Course Policy**

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| **Program/Branch/Semester** | **:** | B.Tech CSBS /Computer/ Sem VIII |
| **Academic Year** | **:** | 2022-23 |
| **Course Code & Name** | **:** | IT Project Management |
| **Credit Details** | **:** | |  |  |  |  | | --- | --- | --- | --- | | L | T | P | C | | 3 | 0 | 2 | 4 | |
| **Course Coordinator Faculty** | **:** | Prof. Swarnalata Bollavarapu |
| **Contact No. & Email** | **:** | ​022-45024772  [Swarnalata.B@nmims.edu](mailto:Swarnalata.B@nmims.edu) |
| **Office** | **:** | 401 Faculty Area, 5th Floor, MPSTME Phase II |
| **Students contact hours** | **:** |  |
| **Other Course Faculty members teaching this course** | **:** | Prof. Asha Rawat - asha.rawat@nmims.edu  (Navi Mumbai Campus) |
|  |  | Prof. Ritesh Shah- rkshah334@gmail.com  Dr. Dharmendra Sharma –  Dharmendra.Sharma@nmims.edu  (Shirpur Campus)  —----- |
| ***Queries by Emails are encouraged.*** | | |
| **Course link (Google Drive link)** | **:** |  |

Introduction to the Course

## Importance of the course

Project Management is a huge part of the software development process. For the success of the projects, it is essential to have a good understanding of project management approaches. A strong understanding of Agile and its benefits will prepare you for work in the majority of companies, which often rely on agile and Scrums to make ongoing improvements to their product.

## Objective of the Course

To impart the knowledge of stages in the system development lifecycle and the objectives that are carried out to implement an IT application. Students will be able to manage scope, time and budget for IT projects, evaluate agile project management techniques for IT projects

## Prerequisite

Software Engineering, Software Design using UML

# Course Outcomes (CO) and mapping with Program Outcomes (PO)

## Course Outcomes

After successful completion of the course, a student will be able to-

1. Learn the techniques to effectively plan, manage, execute, and control projects within time and cost target with a focus on Information Technology and Service Sector
2. Apply agile project management techniques such as Scrum and DevOps on real time projects

## CO-PO Mapping

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| **CO1** |  |  |  |  |  |  |  |  |  |  |  |  |
| **CO2** |  |  |  |  |  |  |  |  |  |  |  |  |
| **CO3** |  |  |  |  |  |  |  |  |  |  |  |  |

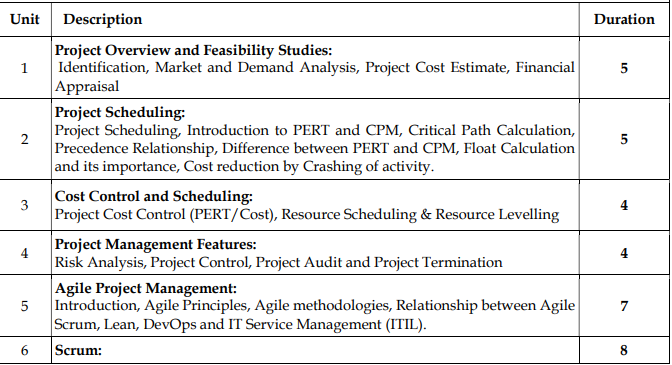
1: Low mapping, 2: medium mapping, 3: high mapping

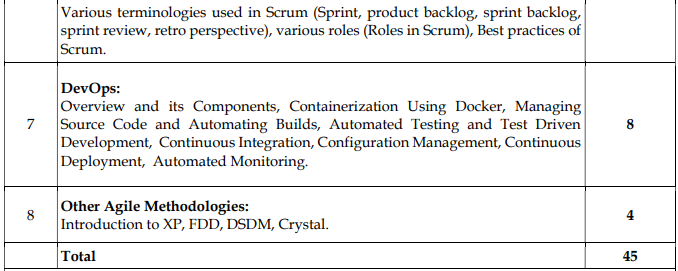
# Syllabus, Pre-class activity and References

## Teaching and evaluation scheme

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Teaching Scheme** | | | | **Evaluation Scheme** | |
| **Lecture**  **Hours per week** | **Practical**  **Hours per week** | **Tutorial**  **Hours per week** | **Credit** | **Internal Continuous Assessment (ICA)**  **As per Institute Norms**  **(50 Marks)** | **Theory**  **(3 Hrs,**  **100 Marks)** |
| 3 | 2 | 0 | 4 | Marks Scaled to 50 | Marks Scaled to 50 |

## 3.2 Syllabus

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## Pre-class activity

It is expected that the students revise the topics covered in the previous class. If a student remains absent for a class, he/she should take updates from some classmate about the topics covered in the missed class.

## References

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| --- |
| **Text Books:**  **C:\Users\swarnalata.b\Desktop\Capture.PNG** |
| **Reference Books:** |

***Note: The latest edition of books should be referred.***

# Laboratory details

The following 10 programming exercises will form the submission for laboratory coursework.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr. No** | **Week No.** | **Practical List** | **Corresponding CO’s** | **Submission Deadline** |
| 1 | 1 | Compare and Study various open source Project management tools/software   * Prepare a document that includes various features of any 6 open source project management tools * Comparison of the tools | All Co’s | Week 1 |
| 2 | 2 | Study of Microsoft Project Management Software – MSProject |  | Week 2 |
| 3 | 3 | Project identification as per the market need - case study |  | Week 3 |
| 4 | 4 | Create feasibility document for selected problems |  | Week 4 |
| 5 | 5 | Cost estimation of selected problems |  | Week 5 |
|  | **6** | **Assessment 1- Presentation** |  | Week 6 |
| 6 | 7 | Project Scheduling - PERT and CPM |  | Week 7 |
| 7 | 8 | Introduction to jira |  | Week 8 |
| 8 | 9 | Introduction to KANBAN |  | Week 9 |
|  | **10** | **Assessment 2- Presentation** |  | Week 10 |
| 9 | 11 | Scrum |  | Week 11 |
| 10 | 12 | Devops/Test driven |  | Week 12/13 |
| **11** | **14-15** | **Final Presentation and Evaluation** |  | Week 14 |

# Assessment Policy

## Component wise Continuous Evaluation Internal Continuous Assessment (ICA) and Term End Examination (TEE)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Assessment Component** | **ICA (100 Marks)**  **(Marks scaled to 50)** | | | | | **TEE (100 marks)**  **(Marks scaled to 50)** |
|  | **Lab Performance and Viva**  **(A)** | **Assignment/Project Presentation (B)** | **Research Paper Presentation (Group activity) (C)** | **Class Test1 and Class Test 2 (D)** | **Class interaction and other learning**  **(E)** |  |
| **Weightage** | 10% | 10% | 5% | 20% | 5% | 50% |
| **Marks** | 20 | 20 | 10 | 20+20 | 10 | 100 |
| **Deadline** |  | 6,10,14 |  |  |  |  |

## Assessment Policy for Internal Continuous Assessment (ICA)

Assessment of ICA comprises the following components.

1. **Lab performance evaluation (20 marks)**
   1. Lab experiments (20 marks)
      1. Continuous assessment for laboratory experiments will be conducted. There are 10 practical’s’, each carrying a weightage of 10 marks. Each experiment will be evaluated the same day based on the parameters mentioned in point b. At the end of the course, the average of total marks will be taken to obtain marks out of 10.
      2. Discussion of your work with your peers is allowed. However, each student is expected to submit his/her original work. Submissions which are very similar will be marked zero. Assessment of the lab work will be carried out based on parameters like timely completion of lab work, lab document, understanding of the experiment performed, originality in the work, involvement of the student, regularity, discipline etc. during the session. There will be a 30% penalty on late submission.
      3. Students should perform the experiment in the lab taking prior permission in case of absenteeism
      4. At the end, lab viva will be conducted on all the experiments which will have weightage of 10 marks

Rubrics:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Excellent** | **Good** | **Poor** |
| **Prerequisite readiness (2)** | Came prepared with the required prerequisite topics (2) | Partial understanding of the required prerequisite topics (1) | Not prepared (0) |
| **Lab completed in timely manner (5)** | Task assigned in the lab experiment is completed successfully/ execution of program with correct output (5) | Task assigned in the lab experiment is partially completed/ execution of program with incorrect output (4-3) | Task assigned in the lab experiment is not completed/ program is not completed (3-2) |
| **Document submission (3)** | Fully completed document submitted in timely manner (3) | Partially completed document submitted (2) | Document not submitted on time (1) |

1. **Assignment (20 marks) –** Student will have to solve two Assignments which will be given in the class. Each assignment will carry weightage of 10 marks.

Rubrics:

* Solving Assignment in given time frame- 4 marks
* Submission on time- 2 marks
* Answering questions based on assignment- 4 marks

1. **Research Paper Presentation (10 marks)**
   * Student will work in a group of 3 students
   * Each group will select 2 research papers approved by the faculty
   * Read the papers and prepare a presentation
   * Group will then make a presentation
   * Presentation should include the following points:

* Introduction,
* Objective of each paper,
* Methods used in each paper,
* Results of each paper,
* Comparative Analysis of both the papers,
* Conclusion,
* References

Each group will be evaluated on the basis of: Understanding of the topic and PPT

* + Content (5),
  + Presentation and Viva (3),
  + Paper Approval (2)

1. **Class test 1 and 2**

First question should be compulsory and should cover all topics marked for the test. Thereafter an option to attempt two questions out of the remaining three. The questions should have a balanced mix of questions to include relevant Bloom’s taxonomy levels of learning.

1. **Class Participation (10 marks)-** Active Class participation is expected in each class and lab. The interaction in the class will be counted in class participation. At regular intervals some class activity will be done in the form of QnA, Quiz or discussions. The idea is to encourage students to pay attention in class and actively participate. These marks will be added in the ICA class participation component.

## Assessment Policy for Term End Examination (TEE)

A written examination of 100 marks for 3 Hours duration will be conducted for the course as per the academic calendar.

# 7.Lesson Plan

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Session No.** | **Unit No.** | **Topics to be covered** | **Mapped CO** | **Textbook Chapters & Readings** | **Teaching Pedagogy** |
| 1 | 1 | Course Overview |  |  |  |
| 2 | 1 | Project Overview and Feasibility Studies: Identification | CO1 |  | PPT |
| 3 | 1 | Project Overview and Feasibility Studies: Market and Demand analysis | CO1 |  | PPT |
| 4 | 1 | Project Overview and Feasibility Studies: Project Cost estimate | CO1 |  | PPT |
| 5 | 1 | Project Overview and Feasibility Studies: financial appraisal | CO1 |  | PPT |
| 6 | 2 | Project Scheduling: What it is? Introduction to PERT | CO1 |  |  |
| 7 | 2 | Project Scheduling: Precedence relationship | CO1 |  |  |
| 8 | 2 | Project Scheduling: difference between PERT and CPM | CO1 |  |  |
| 9 | 2 | Project Scheduling: float calculation and its importance | CO1 |  |  |
| 10 | 2 | Project Scheduling: Cost reduction by crashing of activity | CO1 |  |  |
| 11 | 3 | Cost Control and Scheduling: Project Costs Control (PERT/Cost) | CO1 |  |  |
| 12 | 3 | Cost Control and Scheduling: Resource Scheduling and Resource Levelling | CO1 |  |  |
| 13 | 3 | Cost Control and Scheduling: Resource Scheduling and Resource Levelling | CO1 |  |  |
| 14 | 4 | Project Management Features: Risk analysis | CO1 |  |  |
| 15 | 4 | Project Management Features: project control, project audit | CO1 |  |  |
| 16 |  |  |  |  |  |
| 17 | 4 | Project Management Features: project audit and project termination | CO1 |  |  |
| 18 | 5 | Agile Project Management: Introduction | CO2 |  |  |
| 19 | 5 | Agile Project Management: Agile principles | CO2 |  |  |
| 20 | 5 | Agile Project Management: agile methodologies | CO2 |  |  |
| 21 | 5 | Agile Project Management: agile methodologies | CO2 |  |  |
| 22 | 5 | Agile Project Management: agile and scrum | CO2 |  |  |
| 23 | 5 | Agile Project Management: Lean, DevOps | CO2 |  |  |
| 24 | 5 | Agile Project Management: IT Service Management (ITIL) | CO2 |  |  |
| 25 | 6 | Scrum: various terminologies --sprint | CO2 |  |  |
| 26 | 6 | Scrum: various terminologies --sprint | CO2 |  |  |
| 27 | 6 | Scrum: product backlog | CO2 |  |  |
| 28 | 6 | Scrum: sprint backlog | CO2 |  |  |
| 29 | 6 | Scrum: sprint review | CO2 |  |  |
| 30 | 6 | Scrum: roles in Scrum | CO2 |  |  |
| 31 |  |  |  |  |  |
| 32 | 6 | Scrum: best practices of Scrum | CO2 |  |  |
| 33 | 7 | DevOps: Overview and its components | CO2 |  |  |
| 34 | 7 | DevOps: Containerization | CO2 |  |  |
| 35 | 7 | DevOps: Containerization using Docker | CO2 |  |  |
| 36 | 7 | DevOps: managing server code and builds | CO2 |  |  |
| 37 | 7 | DevOps: automated testing , test driven development | CO2 |  |  |
| 38 | 7 | DevOps: Continuous Integration | CO2 |  |  |
| 39 | 7 | DevOps: configuration management | CO2 |  |  |
| 40 | 7 | DevOps: continuous deployment, automated monitoring | CO2 |  |  |
| 41 | 8 | Introduction to XP | CO2 |  |  |
| 42 | 8 | Introduction to FDD | CO2 |  |  |
| 43 | 8 | Introduction to DSDM | CO2 |  |  |
| 44 | 8 | Introduction to Crystal | CO2 |  |  |
| 45 |  | Doubt Solving session | CO2 |  |  |

# 8.Teaching-learning methodology

Lecture and laboratory session will be conducted as follows-

1. **Lectures:** 
   * Outline for preliminary study to be done for each unit will be provided prior to commencement of each unit.
   * Deeper concepts and applications will be explained through Presentation and Video Lectures.
   * Numerical problems based on concept will be solved during the session on *smart board*
2. **Laboratory:**
   * Lab manual consisting of theory and algorithm to support the lab experiment will be uploaded on the student portal.
   * You are expected to read the lab manual and be ready with the prerequisites (if any) as mentioned in the lab manual.
   * Regular lab assessment and grading will be done. Students will be marked based on parameters like completion of lab assignment, originality, logic developed, interaction during the lab, submission, punctuality and discipline

**9.Active learning techniques**

Active learning is a method of learning in which students are actively or experientially involved in the learning process. Following active learning techniques will be adopted for the course.

1. **Blended Learning:** Students will be introduced to the topic at home while the in-depth topics, applications and numerical problems will be discussed by the faculty in the lecture session. Outline for preliminary study to be done for each unit will be provided prior to commencement of each unit. Preliminary study material (presentation) will be made available on the student portal.
2. **German-style Quiz**: Faculty will give a Question during a class that can have multiple options, students will have to choose the correct option.
3. **Think –pair - share**: - pair of students will be created and one topic will be given to them they can discuss it within themselves and later on they will discuss it in front of whole class

**10.Course Material**

Following course material will be uploaded on the student portal:

* Course Policy
* Lecture Presentations
* Books / Reference Books
* Assignments
* Lab Manuals

**11.Course Outcome Attainment**

Following means will be used to assess attainment of course learning outcomes.

* Use of formal evaluation components of continuous evaluation, assignments, laboratory work, semester end examination
* Informal feedback during course conduction

1. **Academic Integrity Statement**

Students are expected to carry out assigned work under Internal Continuous Assessment (ICA) independently. Copying in any form is not acceptable and will invite strict disciplinary action. Evaluation of the corresponding component will be affected proportionately in such cases. Plagiarism detection software will be used to check plagiarism wherever applicable. Academic integrity is expected from students in all components of course assessment.

**Computer Engineering Program Outcomes:**

|  |  |
| --- | --- |
| **Program Outcome Statements** | |
| **After successful** completion **of the program students will be able to :** | |
| **PO1** | Ability to apply the knowledge of mathematics, science & engineering fundamentals to one or more of the broad complex engineering problems in general & computer engineering problem in particular |
| **PO2** | Ability to identify, formulate, research literature, and analyse complex computer engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences |
| **PO3** | Ability to design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal and environmental considerations |
| **PO4** | Capacity to use research-based knowledge and research-methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions to computer engineering problems |
| **PO5** | Skills to create, select, and apply appropriate techniques, resources and modern engineering and IT tools for computer engineering challenges |
| **PO6** | Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to computer engineering practice |
| **PO7** | Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development |
| **PO8** | Apply ethical principles and commit to professional ethics and responsibilities and norms of computer engineering practice |
| **PO9** | Ability to function effectively as an individual , and as member or leader in diverse teams , and in multidisciplinary settings |
| **PO10** | Capacity to communicate effectively on complex engineering activities with the engineering community and with the society at large |
| **PO11** | Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments |
| **PO12** | Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change |