# 19CS41O4 - SOFTWARE ENGINEERING

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| Course Category: | Open Elective | Credits: | 3 |
| Course Type: | Theory | Lecture-Tutorial-Practical: | 3-0-0 |
| Prerequisite: | Require the fundamental concepts of computers and basic analytical capabilities | Sessional Evaluation:  Univ. Exam Evaluation:  Total Marks: | 40  60  100 |
| Objectives: | Students undergoing this course are expected to understand:   * To define and understanding various software engineering phases. * Explore the concepts of software processes. * To facilitate the environment of software development in the outside world. * To explore the importance of Software maintenance. | | |

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| Course Outcomes | Upon successful completion of the course, the students will be able to: | |
| CO1 | Understand the basics of software engineering concepts. |
| CO2 | Learn various process models and study different example paradigms. |
| CO3 | Study the requirement concepts to create a behavioural model. |
| CO4 | Identify various design issues and their applicability |
| CO5 | Examine different coding and testing strategies for conventional software development. |
| CO6 | Study various estimation and risk strategies to improve software quality. |
| Course Content | UNIT-I  **INTRODUCTION:** What is Software Engineering? A Systems Approach, An Engineering Approach.  UNIT-II  **MODELLING THE PROCESS AND LIFE CYCLE:** The meaning of process, Software process models, Process Improvement model (Capability Maturity Model).  UNIT-III  **CAPTURING THE REQUIREMENTS:** The requirement process, Characteristics of Requirements, how to express requirements, SRS;  UNIT-IV  **DESIGNING THE SYSTEM:** Definition of Design, Issues in Design creation, Characteristics of good design, Design Reviews, Function oriented software design;  UNIT-V  **CODING AND TESTING:** Coding, Code review, Internal documentation, External documentation, Software faults and failures, Testing Issues, Unit testing, Integration testing, Test plan;  UNIT-VI  **PLANNING AND MANAGING THE PROJECT:** Tracking Progress, Project Personnel, Effort Estimation, Risk Management, and the project plan. | |
| Text Books &  References  Books | **TEXT BOOKS**   1. Shari Lawrence Pfleeger, Joanne M. Atlee “Software Engineering Theory and Practice” 4th edition Pearson 2010 2. Rajib Mall “Fundamentals of Software Engineering” 3rd edition PHI learning 2009.   **REFERENCE BOOKS**   1. Roger S. Pressman “Software Engineering APractioner’s Approach, McGraw-Hill, 6th edition, 2005. 2. Ian Sommerville “Software Engineering”, Pearson, 9th edition, 2010 3. PankajJalote “An integrated approach to Software Engineering” Springer, 3rd edition, 2005. | |
| E-Resources | 1. <https://nptel.ac.in/courses> 2. <https://freevideolectures.com/university/iitm> | |