**CI54 SOFTWARE ENGINEEING**

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| Course Code: CI54/CY54 | Credits: 3:0:0 |
| Prerequisites: Nil | Contact Hours: 42L |
| Course Coordinator/s: Ms. Pallavi TP |  |

**COURSE CONTENTS**

**UNIT-I**

**Introduction:** Professional software development, Software engineering ethics, Case studies. **Software processes:** Software process models, Process activities, coping with change, The Rational Unified process. **Agile Software Development:** Agile methods, Plan-driven and agile development, Extreme programming, Agile project management, Scaling agile methods.

Pedagogy: Chalk and Talk, PowerPoint Presentations

# Links: <https://nptel.ac.in/courses/106105182>

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| **UNIT-II** |
| **Requirements engineering:** Functional and Non-functional requirements, the software requirements document, Requirements specification, Requirements Engineering Processes, Requirements elicitation and analysis, Requirements validation, Requirements management.  Pedagogy: Chalk and Talk, PowerPoint Presentations Links: <https://nptel.ac.in/courses/106105182> |
| UNIT III |
| **Architectural Design:** Software Design and Implementation, Architectural design decisions, Architectural views, Architectural patterns, Application architectures.  **Design and implementation**: Object-oriented design using the UML, Design patterns, Implementation issues, Open source development.. Links: <https://nptel.ac.in/courses/106105182> |
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| UNIT IV |
| **Software testing:** Development testing, Test-driven development, Release testing, User testing. **Software evolution:** Evolution processes, Program evolution dynamics, Software maintenance, Legacy system management **Software Project Estimation:** Software Sizing, Problem-Based Estimation, An Example of LOC-Based Estimation, An Example of FP-Based Estimation, The COCOMO II Model.  Pedagogy: Chalk and Talk, PowerPoint Presentations Links: <https://nptel.ac.in/courses/106105182> |
| UNIT V |
| **Software Management:** Project management: Risk management, Managing people, Teamwork. **Project planning:** Software pricing, Plan-driven development, Project scheduling, Agile planning, And **Quality management:** Software quality, Software measurement and metrics. **Process improvement:** The process improvement process, The CMMI process improvement framework.  Pedagogy: Chalk and Talk, PowerPoint Presentations Links: <https://nptel.ac.in/courses/106105182> |

# Textbooks:

# 1. Ian Sommerville, Software Engineering, 9th Edition, Pearson Education, 2011

2. Roger S Pressman and Bruce R. Maxim, Software Engineering : A Practitioner's Approach, 8/e, New York: McGraw-Hill, 2015

# References:

1. Emilia Mendes, Nile Mosley: Web Engineering,Springer,2006
2. David Gustafson: Software Engineering, Schaum's Outline Series, McGraw Hill,2002

**Course Outcomes (COs):**

1. Understand the concepts of software engineering and development processes.

(PO-1,8,9,10,11,12) (PSO-1)

1. Analyze the functional and non-functional requirements for the given problem

(PO-1,2,9,10,11,12) (PSO-1)

1. Apply software architectural design for the given scenario

(PO-1,2, 3,9,10,11,12) (PSO-1)

1. Understand Software testing and evolution processes.

(PO-1, 9,10,11,12) (PSO-1)

1. Analyze Software Project Management issues and process improvement.

(PO-1,2,11) (PSO-1)