

National Institute of Technology Calicut

Department of Computer Science and Engineering

Tentative Course Details: WINTER 2021-2022

CS3004D SOFTWARE ENGINEERING

(The instructor reserves the right to adjust the syllabus when required)

Course Outcomes:

- CO1. Apply the basic concepts, principles and theories in software engineering to build software systems from the scratch, considering both technical and managerial aspects.
- CO2: Design and implement different phases in the life cycle of software development, and identify appropriate process models.
- CO3. Analyze real problems/requirements, and design systems by developing specifications and abstractions to make development of complex systems easy.

Lecture:

Lecture Hours : A slot (Mon 8AM – 9AM, Tue 1PM – 2PM, Wed 9AM – 10AM, Fri 10.15AM – 11.15AM)
Platform : Online through Webex (until further notice)

Instructors

Dr. Vinod Pathari (email: pathari@nitc.ac.in ; Phone: 9495043555)
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Evaluation Scheme

Quizzes and Assignments - 50, Mid 1 - 15, Mid 2 - 15, End Sem - 20

Grading Policy:

- Grading will be relative.
- Even though the grading will be relative; here is a tentative mark to grade conversion formula: 90-100: S; 80-89: A; 70-79: B; 60-69: C; 50-59: D; 40-49: E; 35- 39: R; 0-34: F.
- There will be no makeup for quizzes conducted during classes.
- Assignment deadlines, once agreed in class, must be met.
- Absence without prior permission from the instructor will be equivalent to zero marks in tests/examinations..
- All issues regarding evaluation of quizzes/assignments/midsem-exams must be resolved within one week after the marks are announced.

Standard of Conduct

Each student is expected to adhere to high standards of ethical conduct, especially those related to cheating. Any academic dishonesty will result in zero marks in the corresponding exam or quiz and further penalty including F grade in the course. The department policy on academic integrity can be found at: <https://minerva.nitc.ac.in/?q=node/650>

References

1. R. S. Pressman, *Software Engineering: A Practitioner's Approach*, 6/e, McGraw Hill, 2008.
2. T. C. Lethbridge and R. Laganieri, *Object Oriented Software Engineering*, 1/e, Tata McGraw Hill, 2004.
3. K. Beck, *Extreme Programming*, 2/e, Pearson Education, 2006.
4. C. Fowler, *The Passionate Programmer*, SPD Pvt. Ltd., 2009.

Tentative Course Schedule :

Sl. No.	Topic
1	Introduction to Software Engineering – Reasons for software project failure – Similarities and differences between software and other engineering products
2	Software Development Life Cycle (SDLC) – Overview of Phases. Detailed Study of Requirements Phase
3	Principles of software Design – Problem partitioning (subdivision) – Power of Abstraction – Concept of functional decomposition. UML diagrams – emphasis on class, object, sequence diagrams
4	<i>Test 1</i>
5	UML Diagrams – Activity diagrams, ER diagrams.
6	Introduction to architectural patterns including MVC. Coding – Methods and tools for version control
7	Testing – Types of testing – Specification of test cases – Code review and inspection process
8	Software Project Management – Project Planning and Scheduling – Introduction to metrics
9	Software Process Models.
10	<i>Test 2</i>
11	Costing, Scheduling and Tracking techniques
12	Extreme Programming - Values, Principles, Practices. Agile approach
13	Introduction to Service Oriented Architecture - Entities and Characteristics - Web Service as an example of SOA Implementation - Evolution of Web Services
14	Technologies behind Web Service - REST - Micro Services
15	<i>End semester Examination</i>