CSE291 – Introduction To Software Engineering

Lecture 1

Orientation

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Course Learning Outcomes

- Explain the concept of software engineering along with its processes and deliverables.
- Identify functional and non-functional requirements for a software system.
- Construct appropriate design models for the structure and behavior of a software system.
- Apply software testing and quality assurance techniques to software.
- Demonstrate software project management skills and maintenance process.

Course Outline

- Introduction to Software and Software Engineering
  - Definitions
  - Differences
  - Importance
- Software Process and Process Models
  - What is software process?
  - Software Construction and Management
  - Different Software Process Models
- Requirements Engineering
  - Definitions
  - Types of Requirements
  - Steps of Requirement Engineering

Course Outline

- System Modelling
  - Context Modelling
    - Context Diagram
    - Activity Diagram
  - Interaction Modelling
    - Use Case Diagram
    - Sequence Diagrams
  - Behavioural Modelling
    - State Transition
    - Data Flow Diagrams
  - Structural Modeling
    - Class Diagrams and their relationships

Course Outline

- **Software Architecture and Design**
  - Architectural design decisions
  - System organization
  - Architectural Styles.
- **Overview of Software Project Management**
- **Software Quality Engineering: Concepts, and Approaches**
- **Software Testing**
  - Verification vs Validation
  - Types of Testing
- **Software Configuration Management**
  - Configuration management planning
  - Change management
  - Version and release management

Text Books

1. Software Engineering: A Practitioner's Approach, Roger S. Pressman &Bruce R. Maxim, McGraw-Hill, 2020.

2. Engineering Software Products: An Introduction to Modern Software Engineering, Ian Sommerville, Global Edition, Pearson Education Limited, 2021.

Reference Books

1. Software Engineering, Ian Sommerville, Pearson Education Limited, 2016.

2. Software Engineering with UML, Bhuyan Unhelkar, CRC Press, 2018.

Google Class

- Course Handbook
- Deadlines & Important Information
- Course Material (Lecture Notes and reference material)
- Assignments

Course Assessment/Grading

Component	Weightage
Midterm	25 %
Terminal	50 %
Quizzes	15 %
Assignments	10 %

- Submit all assignments in soft copy
- No credit for copied or late submissions
- No relaxation for students found cheating in any quiz or exam.
- At least 80% attendance is mandatory.
- To get good grade you must attend all lectures and perform good in all course assessments.

Rules

- Mobile phones – Silent or switch off
- Arrive on time in class
- If you do not understand a point, raise your hand and ask me to explain or contact during office hours
- No disturbance!!!! No Misconduct!!!!
- REMEMBER: Your first priority must be your studies

Conclusion

- We have discussed the Course Handbook
- Objective of this course
- Importance of Software Engineering in degree plan
- Basic rules and regulations.