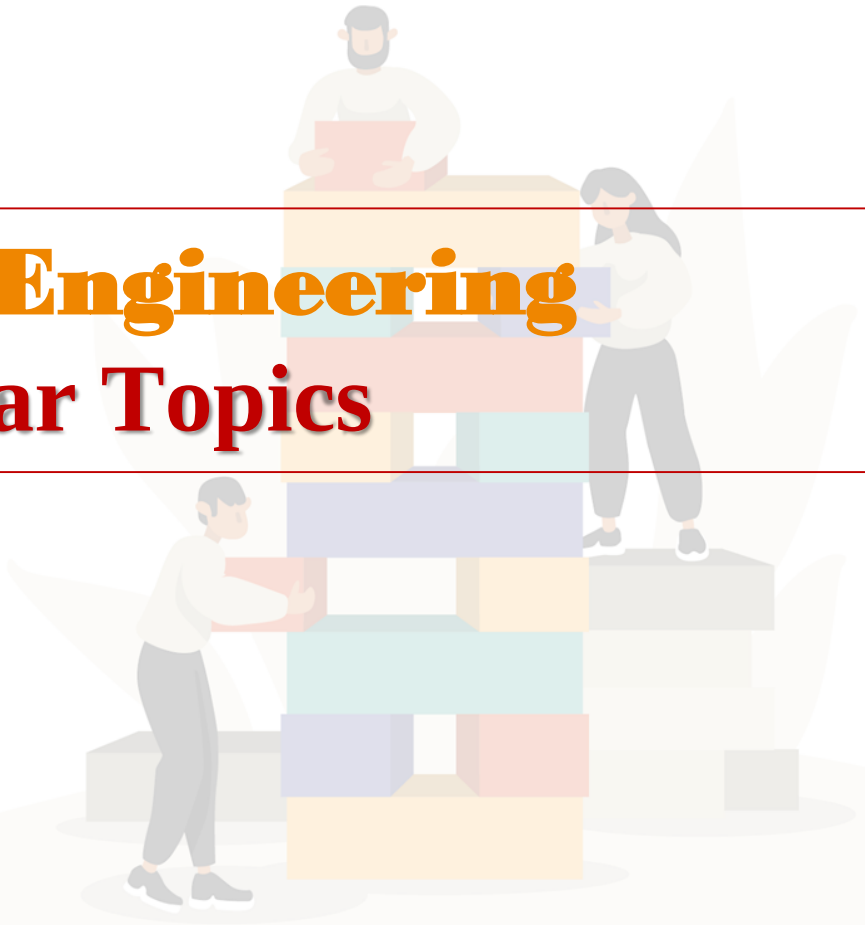
Software Engineering

Seminar Topics



Topic 01: Spiral Model (W5)

- What is the Iterative Development Process?
- What is a spiral model?
- What are the advantages and disadvantages of spiral model?
- When to use the spiral model?
- A case study of spiral model.
- 1 questions (per one student) for discussion

Topic 02: Scrum (W5)

- Agile development? (Agile Approach is both *Iterative* and *Incremental*)
- Scrum (what, when, benefits, problems)
- A case study of Scrum approach
- 1 questions (per one student) for discussion

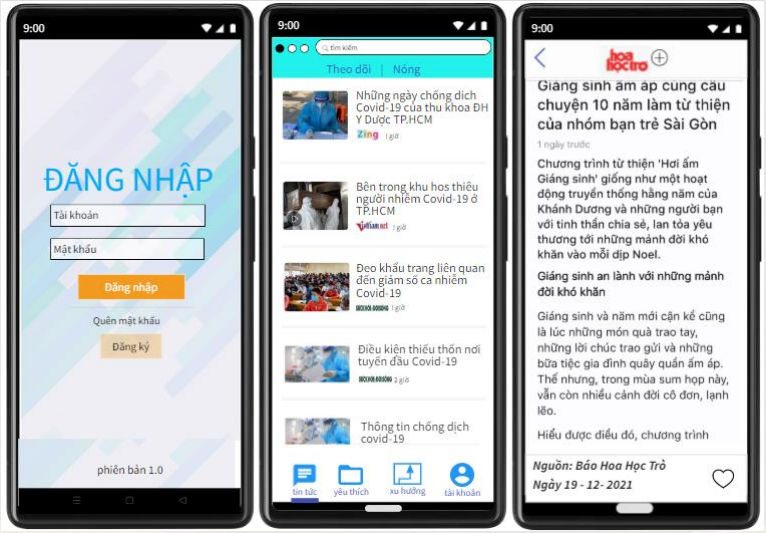
Topic 04: Requirements validation techniques (W5)

- Prototyping
  1. What is the prototyping?
  2. Mock-ups and proofs of concept prototypes
  3. Throwaway and evolutionary prototypes
  4. An example of prototype tools
  5. 2 questions (per one student) for discussion

Topic 05: Wireframes to Prototypes (5)

- https://www.figma.com (2)
- https://mockflow.com (1)
- https://miro.com (1)
- https://dribbble.com (1)

- Giới thiệu Wireframe
- Giới thiệu Tool
- Demo với project cụ thể



Topic 06: Design Principles From Davis (3sv)

1. The design process should not suffer from ‘tunnel vision.’
2. The design should be traceable to the analysis model.
3. The design should not reinvent the wheel.
4. The design should “minimize the intellectual distance” between the software and the problem as it exists in the real world.
5. The design should exhibit uniformity and integration.
6. The design should be structured to accommodate change.
7. The design should be structured to degrade gently, even when aberrant data, events, or operating conditions are encountered.
8. Design is not coding, coding is not design.
9. The design should be assessed for quality as it is being created, not after the fact.
10. The design should be reviewed to minimize conceptual (semantic) errors.

Topic 07: Golden Rules of UI Design (3sv)

a) Place the user in control (6 rules)

b) Reduce the user’s memory load (5 rules)

c) Make the interface consistent (3 rules)

Topic 08: Coding Conventions/Standards

- What are the coding standards?
- Present the coding standard of a programming language
- How you can apply the coding standard to your project?

Topic 9: Software Testing

- What is the software testing?
- Who tests the software?
- Types of testing: unit test, integration test, system test, acceptance test
- Testing Techniques: white box, black box
- Test case design (project)

Topic 10: Automation Testing

- Introduce to automation testing
- Unit Testing Tools (Junit/Nunit)
- Demo (Testcase)

Topic 11: Automation Testing

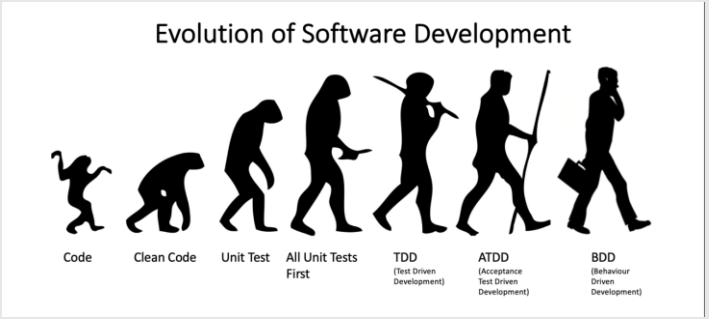
- Introduce to automation testing
- Web Testing Tools (Selenium)
- Demo (Testcase)

Topic 12: Reverse Engineering

- What is Reverse Engineering?
- Why do we need Reverse Engineering?
- Approaches: Restructuring, Reengineering
- Tools

Topic 13: Lehman's laws of software evolution (2sv)

1. Law of continuing change
2. Law of increasing complexity
3. Law of self-regulation
4. Law of conservation of organizational stability (Invariant Work-Rate)
5. Law of conservation of familiarity
6. Law of continuing growth
7. Law of declining quality
8. Law of feedback systems



Topic 14: Open Source Development

- Introduction
- Open source systems
- Open source business
- Open source licensing
  - License models
  - License management

Assessments

- Thuyết trình (slides, trình bày, Q&A,…): 50%
- Báo cáo toàn văn sau thuyết trình: 20%
- Tham gia + thảo luận: 20%
- Đánh giá của sinh viên: 10%