

CS3332 Software Engineering

Midterm Exam

Lecturer: Tuan-Dung CAO

Duration: 100 minutes

1. (15 pts)

a. What is *software engineering*?

Present your opinion about the necessity and importance of software engineering, especially in modern software development.

2. (15 pts)

Present **at least three erroneous beliefs (myths)** about software or the process used to build it, and explain the **corresponding truths in reality**.

3. (25 pts)

a. What is a **software process**?

Compare **two generic software process models** that you know. (15 pts)

b. Propose the **most appropriate software process model** that could be used to manage the development of the following systems and explain your reasons. (10 pts)

1. A system to control and monitor **nuclear power plants**.
 2. A **Learning Management System (LMS)** with integrated video conferencing features from third-party services such as Zoom or MS Teams.
 3. A **digital marketing tool** that helps online sellers and small companies boost their business.
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4. (15 pts)

Explain **in detail two** of the following key tenets of **Extreme Programming (XP)** and describe **why each is important**:

- a. Pair Programming
 - b. Constant Unit Testing
 - c. Short Iterative Cycles
 - d. Stories as Requirements
 - e. The 40 Hour Week
 - f. Refactoring
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5. (30 pts)

You are part of a **Requirement Engineering (RE)** team developing an **online COVID-19 health declaration application**.

Write the following for the system:

- a. At least **three user requirements**.
- b. Choose **one** of them and break it down into **system requirements**, then describe those system requirements.
- c. Provide **two measurable non-functional requirements**.