

# Advanced Software Engineering

Special Subjects  
Elective 2 credit

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## 1. Course Description

The contents of the lectures are summarized as follows: (1) software process models (waterfall model and agile model), (2) phases of software process model (requirement analysis, software design, programming, software test and software maintenance), (3) software development methods (structured analysis/design technique and object-oriented methodology), and (4) software verification/specification methods (formal method, model checking, etc.).

## 2. Course Objectives

The aim of this course is to understand the following items: (1) software process models, (2) software development methods, and (3) logic-based software verification/specification methods such as model checking.

## 3. Grading Policy

Students are evaluated by a term examination, some midterm examinations, and some quizzes.

## 4. Textbook and Reference

Textbook

No textbook.

Reference

Michael Huth and Mark Ryan Logic in Computer Science: Modelling and Reasoning about Systems  
Cambridge University Press

## 5. Requirements (Assignments)

Students should read the slides of the lecture. The video contents of the lecture should be viewed.

The following site should be bookmarked:

Guide to the Software Engineering Body of Knowledge (SWEBOK Guide) , IEEE Computer Society,  
<http://www.computer.org/web/swebok>

## 6. Note

LMS is used in this course.

## 7. Schedule

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|------|---|
| [1]  | Introduction  |
| [2]  | Software process models                                       |
| [3]  | Requirement analysis  |
| [4]  | Software design   |
| [5]  | Programming   |
| [6]  | Software test   |
| [7]  | Software maintenance  |
| [8]  | Structured analysis/design technique                          |
| [9]  | Object-oriented methodology (1): Concepts                     |
| [10] | Object-oriented methodology (2): Examples                     |
| [11] | Modeling technique (1): Concepts                              |
| [12] | Modeling technique (2): Examples                              |
| [13] | Formal methods and verification technique (1): Concepts       |
| [14] | Formal methods and verification technique (2): Model checking |
| [15] | Software evaluation   |