

Software Redesign

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Course Objectives

- **identify problems** with existing software architectures & **develop ability to redesign** existing architectures
- **understand** software **design quality**, its **qualitative evaluation** measures and application methods
- **understand** concept and importance of **refactoring** & **develop ability** to **systematically apply refactoring techniques** at various levels

Course Schedule

Day 1

- General Introduction (08:30 ~ 09:30)
- **Reverse Engineering** (09:30 ~ 11:00)
 - Software Design
 - Architecture Recovery
- **Exercise 1 : Design Recovery** (11:00 ~ 12:00) [**30 points**]
 - Structural (class diagram) & Behavioral (sequence diagram) Recovery
- **Software Quality** (13:00 ~ 15:30)
 - Software Quality & Metrics
 - Design Principles / Pattern
- **Exercise 2 : Design Evaluation** (15:30 ~ 17:30) [**50 points**]
 - Design/Architecture Analysis & Evaluation

Course Schedule

Day 2

- **Refactoring** (08:30 ~ 10:00)
 - Bad Smells
- **Exercise 3 : Smell Detection** (10:00 ~ 12:00) [**80 points**]
 - Smell Detection for Video Rental System
- **Refactoring & Exercise 4 : Refactoring Technique** (13:00 ~ 17:30)
 - Refactoring Techniques
 - Refactoring Techniques Practices with IDE's Support Tool
 - Answers to Refactoring Techniques Practices

Course Schedule

Day 3

- **Refactoring** (08:30 ~ 09:30)
 - Treatments for Bad Smells
- **Refactoring to Pattern** (9:30 ~ 12:00)
 - Refactoring to Pattern
- **Exercise 5 : Refactoring to Pattern** (13:00 ~ 13:30)
 - Refactoring Small Program to Appropriate Pattern (if time allows)
- **Architecture Refactoring** (13:30 ~ 15:00)
 - Introduction to Architectural Refactoring (if time allows)
- **Exercise 6 : Refactoring** (15:00 ~ 17:30) [**90 points**]
 - Refactoring Video Rental System

Assessment (total of 250 points)

- Assignments (250 points)

#	Title	Contents	Day & Time	Submission Deadline	Points
1	Design Recovery	Class & Sequence Diagram Recovery	Day1: 11:00~12:00(1h)	Day1: 17:30	30 Points
2	Design Evaluation	Design Analysis & Evaluation (tools)	Day1: 15:30~17:30(2h)	Day1: 17:30	50 Points
3	Smell Detection	Code Smell Detection	Day2:10:00~12:00(2h)	Day2: 17:30	80 Points
4	Refactoring Techniques	Refactoring Techniques Practices (tools)	Day2: 13:00~17:30(xh)	-	
5	Refactoring to Pattern	Refactoring to Patternized Structure	Day3: 13:00~13:30(0.5h)	-	
6	Refactoring	Refactoring Detected Code Smell	Day3: 15:00~17:30(2.5h)	Day3: 17:30	90 Points
Total			approx. 8 + x hours		250 Points