# OOAD

# Introduction

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## Objectives



1. Understand and apply (a) object-oriented approach and (b) system modeling using diagrams (UML) in system analysis & design process;
2. Utilize the advantages of the object-oriented approach (for example, reuse) to design systems; aimed at object-oriented programming for software.
3. Able to use SW tools to support system analysis & design process.

## Course description



1. Basic concepts
2. Object-oriented approach for OOAD
3. System analysis (requirements from external environment)
   - Usecase (situation where a SW system is needed)
   - Usecase description & modeling with UML
   - Detailed specification required for each system component
4. System design (addressing solution, looking inside)
   - From analysis-class to design-class
   - Cohesion and coupling, SOLID principle
   - Design components (sub-system) --- application
   - Design packages --- reuse
   - Database
   - Information security

## Textbooks



1. *Object-Oriented Analysis, Design and Implementation, 2nd edition*, Brahma Dathan &Sarnath Ramnath, Springer 2015 (pdf)
2. *Object Oriented Analysis & Design, Understanding System Development with UML 2.0*, Mike O'Docherty, John Wiley & Sons Ltd, 2005 (pdf)
3. *Software Engineering*, Ivan Marsic, Rutgers University, 2012 (pdf)
4. *Introduction to CRC Cards*, David M. Rubin, Softstar Research 2002 (pdf)
5. *The Unified Modeling Language Reference Manual*, James Rumbaugh et al, Addison Wesley 1999 (pdf)

- Or, mentioned at the end of slide.

## Grading Policy



- Attendance: 10 % (điểm danh, thảo luận)
- Mid-term exams: 20 %
- Project: 20 % (group working)
- Final examination: 50 %

- *Being present in class is just a necessary condition*
- *Learning attitude really determines learning results.*

## Some guidelines



1. Understand the lesson through the simplest practical example.
2. Familiar with the concept of generalization and modeling.
3. Should do exercises & discuss in groups.
4. Only use academic materials (english) from technical universities.
5. Knowledge must be gradually expanded throughout the course schedule (lesson, excercise, project)