

IT4490 - SOFTWARE DESIGN AND CONSTRUCTION

0. INTRODUCTION TO COURSE

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What is the real software to be built?



How the customer explained it



How the project leader understood it



How the analyst designed it



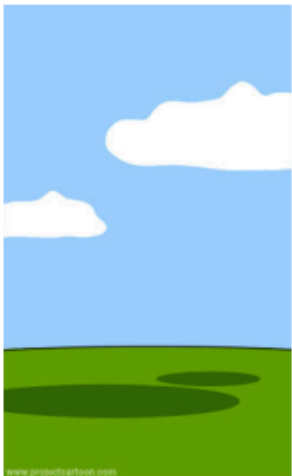
How the programmer wrote it



What the beta testers received



How the business consultant described it



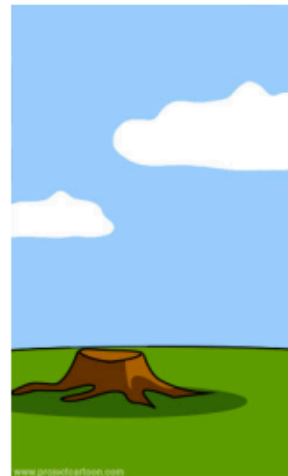
How the project was documented



What operations installed



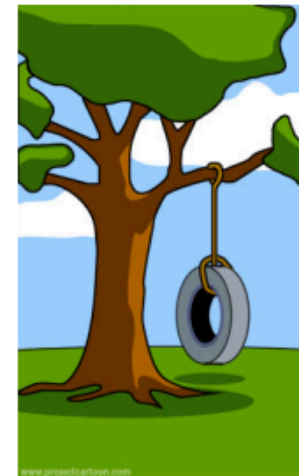
How the customer was billed



How it was supported



What marketing advertised



What the customer really needed

Alan Perlis Epigrams

- It is easier write an incorrect program than understand a correct one.
- Most people find the concept of programming obvious, but the doing impossible.
- To understand a program you must become both the machine and the program.

Course objectives

- Design effective program structures with
 - appropriate modularity
 - separation of abstraction and implementation concerns
 - use of standard design patterns
 - use of standard libraries/frameworks
- Use modern programming languages effectively
 - type systems, objects and classes, modularity
 - identity and equality, exceptions and assertions
- Gain experience with contemporary software tools
 - integrated development environments (IDE)
 - test frameworks, debuggers, version control
 - documentation processing tools

Programming language/tools

- Software design tool: Astah
 - Free for students
- Programming language: Java
- IDE: Eclipse
- Version control: Bitbucket
- Test framework: JUnit
- Architectural model / pattern: 3 tiers / MVC



Assessment

- Mid-term score: 30% - 40 %
 - Homeworks: 2/10
 - Project: 8/10
 - Work in groups, but individual score
 - *Reward or Punish*
 - *Quizzes/Exercises/Attendance at class: ± 2*
- Final score: 60% - 70%
 - Project: 2/10 (not fixed)
 - Exam: 8/10 – 10/10

Text books

- [SW-Design] D. Budgen. *Software Design, 2nd Edition*. Addison-Wesley. 2004.
- [OO-Design] Cay Horstmann. *Object-Oriented Design and Patterns*. John Wiley & Sons, Inc. 2006
- [PRAG-Prog] Andrew Hunt and David Thomas. *The Pragmatic Programmer*. Addison-Wesley, 2000.
- [JAVA-Eff] Joshua Bloch. *Effective Java, 2nd ed*. Addison-Wesley, 2008
- [TESTING] Boris Beizer. *Software Testing Techniques, 2nd Edition*. International Thomson Computer Press

Course Materials

- Slides
- Assignments
- Project descriptions
- Announcements...
- Interaction channels:
 - Email: hainn@soict.hust.edu.vn
 - <https://bitbucket.org/account>
 - Add to your project member: hainn-student