中山大學
SUN YAT-SEN UNIVERSITY

Part I [Overview]
1. Introduction

SE-307 Software Testing Techniques

http://my.ss.sysu.edu.cn/wiki/display/SE307/Home

Instructor: Dr. Wang Xinming, School of Software, Sun Yat-Sen University

Instructor Information

- Course name: 软件测试技术
- Instructor: Dr. Wang Xinming (王欣明)
- Education
  - PhD (HKUST)
  - MSc (Software Institute, China Academy of Science)
  - BSc (SYSU)
- Has been with the software school since November, 2012
- Research area: software quality techniques, testing, debugging, and program analysis
- Office: **A309** (shared with Dr. Wang Qin)
- E-mail: **wangxm35@mail.sysu.edu.cn**
- Office hours: **Tuesday 9:30AM – 11:30AM**

Outline

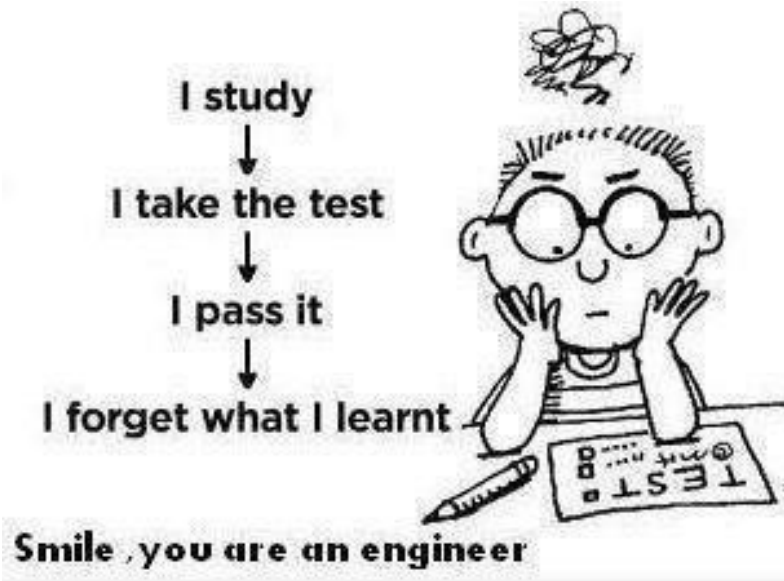
- Course requirements
  - For you and for me
- Course objectives
  - Why do you need to attend this course?
- The way of teaching and learning this course
  - My teaching philosophy
- Course schedule
  - How we arrange the course content
- Grading
  - Assignments
  - Course Projects
  - Final examination

Requirements for me

- Motivating
  - Make you become interested in software testing.
  - Not too easy, not too hard
- Clear
  - Tell if I fail.
  - Ask questions actively.
- Inspiring
  - Encourage you to explore testing techniques by yourself.
  - Contribution from everyone to this course.

Requirements for you

- Join the class actively
  - Have fun and think.
  - Get your hand dirty in the assignments and course projects.
  - Submit them on time!
- Make contribution to this course
  - Give me feedback by asking questions and giving suggestions.
  - Submit articles to the course websites.
- Remember the roadmap
  - Pay extra attention to the “big picture”.



This diagram indicates key slides

Course Objectives

- Understand and appreciate the key concepts in software quality.
- View the “big picture" of software testing as one of the most commonly used software quality assurance techniques.

  “*… When you look at a big commercial software company like Microsoft, there's actually as much testing that goes in as development. We have as many testers as we have developers. Testers basically test all the time, and developers basically are involved in the testing process about half the time*…".

  Bill Gates, keynote at the 17th Annual ACM Conference on Object-Oriented Programming

- Introduce a selected range of useful concepts, techniques, and tools in software testing.

Concepts, Techniques, Tools

e.g. QTP, JUnit, Cactus, Fitness

e.g. keyword driven test automation, category-partition testing

e.g. software quality, test oracle, test driven development

Example

- Concepts:
  - Automated testing
- Techniques:
  - Keyword-driven test automation, Data-driven test automation
- Tools:
  - QuickTest Professional, TestComplete, etc.

The way of teaching & learning

- Teaching & Learning 2.0

  - Not longer the “read-only” style of teaching & learning.
    - Traditional way: teaching & learning 1.0
  - The teacher, TAs, and students are all contributors to the SE-307 community.
    - Common goal: learning testing techniques
    - We learn from each other.
  - Using web 2.0 technology.
    - The course website in wiki style

The course website

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Contributing to the community

- Sharing interesting technical articles you found on the web, adding with your comments and opinions (推荐技术文章)

- Ask friends who are in the software testing industry to introduce their jobs (介绍行业工作经验)

- Share job interviews experiences of software testers (测试职位面试经验)

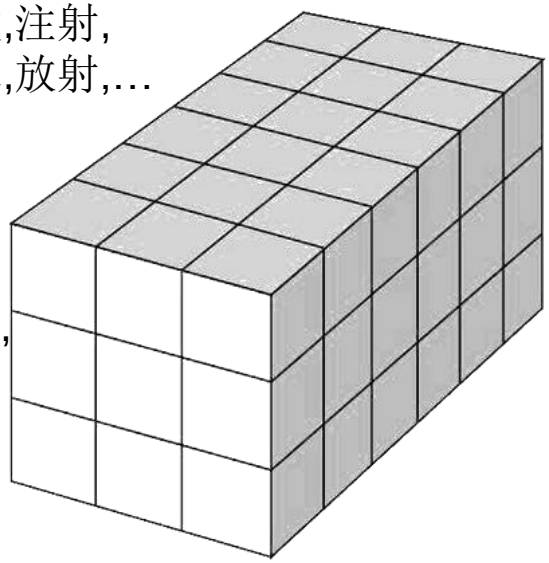
Course schedule

- **Part I: Introduction**
  - Software Quality and Software Quality Assurance
- **Part II: Problems (问题)**
  - oracle, adequacy, generation, automation, management
- **Part III: Methods (方法)**
  - blackbox, whitebox, exploratory, model-based
- **Part IV: Objectives (目标)**
  - functional (unit, integration, system), reliability, security, performance, acceptance, …
- **Part V: Domains (领域)**
  - multi-threaded, web application, database, …

Analogy: Learning medical techniques

维度2 (方法):
中药,西药,内服,
外敷,注射,
手术,放射,…

维度1 (病因):
创伤,劳损,细菌,
病毒,癌变,…



维度3 (部位):
心,肺,肝,手,脚,皮肤,眼,鼻…

Grading

本课程将综合平时作业和课程项目等环节进行教学评价，具体方法如下：

平时作业：20%　　课程项目：50%　　期末考试 30%

- Assignments (20%)
  - Done individually
- Course projects (50%)
  - Doing them in teams, each with preferably 6~8 students.
  - Three course projects.
- Final examination (30%)
  - 选择题和简答题

Course projects

- There will be three course projects
  - project #1: reading a book on testing technique
  - project #2: conventional GUI programs
  - project #3: Web applications
- The project score for each remember will be the team project score multiplied by a percentage that represents her/his contribution.
- You need to finish project #0: preparation (not a real project) by the class on next week (2015/3/12)
  - Finding your teammates.
  - Elect a team leader.
  - Choosing which book to read in project #1.
  - Send an email to TA and inform us your decision.

Thank you!