SYLLABUS

2017-2 (Spring 2018)

Class Meeting:

Lecture Notes: stmt_sysu@163.com

Instructor: Guoyang Cai, email: isscgy@mail.sysu.edu.cn

Software Testing: Methods & Technologies

School of Data & Computer Science, Sun Yat-sen University

Syllabus

- **A. DESCRIPTION**
  - The Importance of STMT
    - ✧ Testing knowledge is a crucial industry need: testing accounts for more than half the cost of developing software; developers spend 50% of their time testing; and reliability requirements are steadily increasing.
    - ✧ New and growing technology areas (web applications, embedded software, secure systems, object-oriented software) require software that is tested more thoroughly.
    - ✧ 《中国软件测试行业2013年度发展白皮书》
    - ✧ 《2014年版中国软件测试现状调查报告》
  - Prerequisite
    - ✧ No formal requirement, but it is recommended that students have basic knowledge of Discrete Mathematics, Software Engineering and Programming Languages like C, C++ or Java.

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- **B. ORGANIZATION**
  - Lecture Time
    - 数媒
      - **Monday** 10:00-11:40, B502
      - **Friday** 10:00-11:40, B302 (W1-W9)
    - 计应
      - **Monday** 14:20-16:00, B502
      - **Friday** 14:20-16:00, B302 (W1-W9)
    - 电政
      - **Wednsday** 10:00-11:40, B502
      - **Friday** 10:00-11:40, B302 (W11-W19)
    - 嵌软+通软
      - **Wednsday** 14:20-16:00, B502
      - **Friday** 14:20-16:00, B302 (W11-W19)

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- **C. COURSE OBJECTIVES**
  - To introduce
    - ✧ 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
    - ✧ Introduce a selected range of useful concepts, techniques, and tools in software testing.
  - To develop
  - To provide

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- **D. COURSE TOPICS**
  - 软件工程回顾
    - ✧ 软件与软件危机
    - ✧ 软件开发
    - ✧ 软件生命周期模型
    - ✧ 软件质量模型
    - ✧ 敏捷开发

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- **D. COURSE TOPICS**
  - 软件测试基本概念
    - ✧ 概述
    - ✧ 生命周期软件测试方法
    - ✧ 软件测试分类与分级

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- **D. COURSE TOPICS**
  - 软件静态测试
    - ✧ 软件评审
    - ✧ 代码检查与分析
    - ✧ 软件复杂性度量

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- **D. COURSE TOPICS**
  - 软件动态测试
    - ✧ 白盒测试
    - ✧ 黑盒测试
    - ✧ 灰盒测试
    - ✧ 测试用例设计
    - ✧ 单元测试
    - ✧ 集成测试
    - ✧ 确认测试
    - ✧ 系统测试
    - ✧ 动态测试工具

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- **D. COURSE TOPICS**
  - 软件缺陷管理
  - 软件可靠性测试
  - 软件安全性测试
  - 软件国际化与本地化测试
  - 面向对象软件的测试
  - 典型应用软件测试综述
    - ✧ 客户端应用软件测试
    - ✧ 移动应用软件测试
    - ✧ 云应用软件测试
    - ✧ 游戏软件测试
    - ✧ 嵌入式软件测试

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- **E. TEXT AND REQUIRED SUPPLIES**
  - Course Notes
    - Check stmt_sysu@163.com
  - References
    - Ron Patton, Software Testing, 2nd Ed., Pearson (2005)
    - Paul C. Jorgensen, Software Testing - A Craftsman's Approach, 4thEd., CRC (2010)
    - Glenford J. Myers, The Art of Software Testing, 2nd Ed., Wiley (2004)
    - Paul Ammann, Introduction To Software Testing, Cambridge U. Press (2008)
    - 朱少民, 软件测试方法和技术, 清华大学出版社 (2014)
    - 郑人杰, 软件测试, 清华大学出版社 (2011)

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- **F. GRADING PLAN**
  - Final Exam 60%
  - Attendance 10%
  - Assignments & Lab works 30%
    - ✧ You can discuss the problems with your classmates, but all work handed in should be original, written by you in your own words and uploaded on time.
    - ✧ No late homework will be accepted.

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- **F. GRADING PLAN**
  - Homework sends to
    - ✧ 计应：
      - ○ S/N 1-60: 胡晨 huchen_ta_sysu@163.com
      - ○ S/N 其它: 汪擎天 15627860364@163.com
    - ✧ 数媒：
      - ○ S/N 1-60: 吴跃隆 jaylen_west@163.com
      - ○ S/N 其它: 孟凡辉 mengfh_1994@163.com
    - ✧ 电政：
      - ○ S/N 1-60: 吉眉颖 jmy19941111@126.com
      - ○ S/N 其它: 毛毛雨 maoxiaoxue2002@sina.com
    - ✧ 嵌软+通软：
      - ○ S/N 1-60: 邝巧斌 m18844544377@163.com
      - ○ S/N 其它: 黄永杰 sysujayce@163.com
    - ✧ Check stmt_sysu@163.com to get your S/N and UPDATE with your TA's mailbox for handing in you assignments.

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- **G. CLASSROOM RULES OF CONDUCT**
  - Cell phone using
  - Laptop using
  - Food & drink
  - Being Late for class