NANYANG TECHNOLOGICAL UNIVERSITY

CZ3002 - Advanced Software Engineering

Course Review (First Half)

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What has been covered (Testable)

- Introduction to Software Engineering
  - Project Management Lifecycle and Classic Mistakes
- Quality Management
  - Quality Management
  - Verification Methods
- Project Management
  - Project Planning
  - Software Estimation
  - Project Scheduling
  - Agile Development Methods
  - Risk Management

T1 Introduction to Advanced Software Engineering

- **Problem domain**
  - Project management, Quality management, Classic mistakes
- **Theory: Models /Methods**
  - Advanced Software Engineering
  - Project management lifecycle 4 phases
- **Instantiations**
  - Using sound engineering principles, methods to engineer software within budget, on time and with good quality
  - Knowing the differences between the project management lifecycle and the project development lifecycle
  - Understanding classic mistakes

T2.1 Quality Management

- **Problem domain**
  - Deliver good quality software on time in budget
- **Theory: Models /Methods**
  - Quality management activities
  - Quality models
- **Instantiations**
  - Quality planning
  - Process definition
  - Software metrics

T2.2 Verification

- **Problem domain**
  - Quality control
- **Theory: Models /Methods**
  - Management review
  - Technical review
  - Audit
- **Instantiations**
  - Review process
  - Inspections and walk-through
  - Meeting minutes

T3.1 Software Estimation

- **Problem domain**
  - It‘s challenging to do software estimation
- **Theory: Models /Methods**
  - Function Points
  - Cocomo Models
- **Instantiations**
  - Using Function Point methods to estimate the software size
  - Use Cocomo models to estimate the effort, duration, team size, and cost/budget

T3.2 Software Scheduling

- **Problem domain**
  - It‘s challenging to do scheduling
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- **Theory: Models /Methods**
  - Activity network (AOA, AON)
  - Critical path method
  - Time-cost model
- **Instantiations**
  - Establish activity network
  - Workout critical path
  - Use time-cost model

Example Questions

- List three classic mistakes related to the project planning.
- Rate the different techniques for different defects using *excellent*, *good*, *fair*, *poor*, *and NA* respectively.
- What kinds of procedures would you implement, for monitoring and control of *proper interaction design* for usability at various stages of the waterfall development life cycle?
- Explain the principles of agile development methods.

Example Questions (Cont'd)

- Identify and list the five Function Point (FP) primary elements/characteristics and Compute the unadjusted function points based on …
- Estimate the effort of the system, duration of the project, and the team size using COCOMO ...
- Use a critical path to analyze the minimum number of weeks that are needed to complete the whole activities and which activities cannot afford delay. If the budget is increased by $3000, analyze the minimum number of weeks that the whole activities may take after the adjustment according to the information in Table Q2b below.

Other Matters

- E-Learning Week
  - Two lectures
    - Introduction to agile development methods
    - Risk management
  - No tutorial but one gradable assignment
  - Labs are as usual

- Assignment
  - Available on Saturday
  - Deadline is before the next Saturday

- Q&A