

Software Engineering

Software Engineering : SE01

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Course Outline

- Duration – 1 Semester (12 Weeks)
- Credits - 5
- Lectures – 2 hours per week
- Practical – 2 hours per week
- Directed learning – 24 hours
- Independent learning – 28 hours

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Course Material

- Course material will be made available on X:\ drive
(X:\Lab\C WOODS\SWEng\...)
- Supplement course material with reading from recommended texts and/or Internet

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Course Content

- **An overview of SW Engineering**
 - Socio-technical systems (People, hardware, software)
 - Systems engineering
 - Organisations, people, Computer Systems
- **Software Processes**
 - Process Models
 - Process Activities (**Specification, Development, Validation, Evolution**)
 - System Life cycle

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- **Analysis & Design Methodologies/Tools**
 - Statement of Scope & Objectives
 - Requirements Analysis & Specification
 - System Life cycle
 - System Modelling
 - Data Modelling
 - Software Specification
 - Verification & Validation: **Inspections, walkthroughs, management review**

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- **OO Analysis & Design**
 - UML
- **Agile Methods**
 - The agile approach to SW Engineering
 - Overview of an agile approach (e.g. Scrum)
- **Software Testing**
 - Objectives
 - Testing Strategies
 - Test Cases/Data
 - Automated test tools (e.g. JUNIT)

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- **Project Management**

- Cost/Benefit Analysis (ROI)
- Project task management
- Project resource management

- **System Documentation**

- **Quality Assurance**

- Quality standards and practices
- Quality Certification
- Quality Management

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Reading Material

- Software Engineering (8th / 9th Ed.)
Ian Sommerville (2007)
- Analysis & Design of Information Systems (2nd Ed) - James A. Senn (1989)
- Object-oriented Systems Analysis & Design using UML (3rd Ed) - Bennett, McRobb, Farmer (2005)

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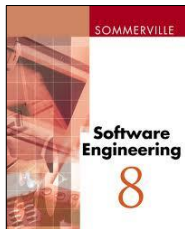
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- **Essential text:**

- ***Software Engineering* 8th Edition**

Ian Sommerville



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Other Material

- Useful web links will be provided
- Google! There is lots of useful material on the web

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Assessments

Continuous Assessment (CA) – 60%

- System Design (TPS system / Database)
- Application of design methodologies
- End Result: System Design Document
- Submitted in week 12
- Must present on-going design throughout the 12 weeks

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- Each student to choose/be assigned a system description (TPS)
- A schedule of dates for the intermediate deliverables will be posted next week
- Design can be reviewed/revised at intermediate intervals
- Marks awarded for final submission only and attendance rate is considered
- Submitted in MS Word format (Softcopy) via email. Document template will be provided.

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CA - Late Submissions

- Penalties apply - 20% deduction for each day late (week day).
- Medical certification, if applicable, must be submitted within one week in case of late submission

Final Examination (FE) – 40%

- 2 hour examination
- Paper contains 4 questions
- Answer question 1 and two other questions
- Q1: 40% (4 X 10 marks)
- Q2, Q3, Q4: 30% each

Important!

- Module pass rate: 40%
- Students must achieve 25% in Final Examination regardless of CA mark.