University of Colombo School of Computing

B.Sc. in Computer Science

Software Engineering

Lecturer : Prof. N.D.Kodikara

Course Objectives : To provide a broad understanding of the software engineering concepts, process and the systematic development and management of software projects.

Topics :

Introduction
- Problems in software development
- Need for Software Engineering
- What is Software Engineering?
- Software quality attributes

Software Process
- The waterfall model
- Prototyping approaches
- Evolutionary development
- Incremental development
- Rapid Application Development
- Spiral model

Requirements Analysis and Specification
- Requirements Engineering
- Definition, analysis, specification
- Requirement document
- Functional and non-functional requirements
- Requirements evolution
- Requirement validation

Software Design
- Design process
- Principles of design: modularity, abstraction, encapsulation, polymorphism
- Designing for reusability, adaptability, maintainability
- Design quality
- Software architecture
- Object Oriented Design
- Design Patterns

Coding

Coding Practices
Code reviews, walkthroughs

Testing

Test plans
Testing methods
Testing strategies

Software Maintenance and Evolution

Software change and maintenance
Corrective maintenance, adoptive maintenance
Software re-engineering
Software configuration management

Project Management

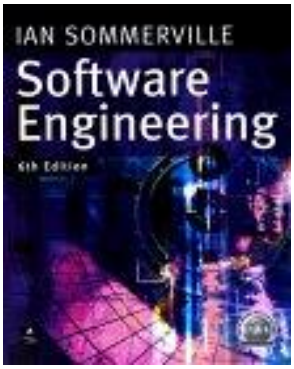
Scheduling
Risk Management
Cost estimation
Team management

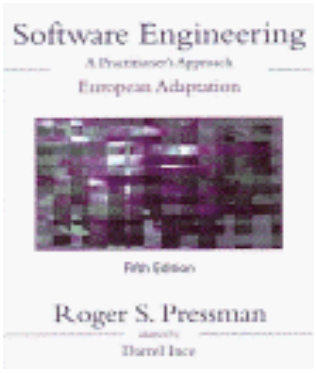
Software quality

Definition
Quality assurance

References:

Ian Sommerville, Software Engineering, 6th Edition, Addison Wesley, 2000.





R Pressman, Software Engineering - A Practitioners Approach, 5th Edition, McGraw Hill.