



UNIVERSITI TEKNOLOGI MARA

CSC782: SOFTWARE QUALITY

Course Name (English)	SOFTWARE QUALITY APPROVED
Course Code	CSC782
MQF Credit	3
Course Description	The course introduces the students to structured and systematic discipline of software quality engineering and management techniques. It covers, among others, quality in requirements and development process including software inspection, verification and testing as well as software metrics measurement techniques.
Transferable Skills	Demonstrate ability to analyse issues/problems from multiple angles and make suggestions
CLO	CLO1 Create the awareness that software quality is achieved by the application of sound software engineering methodologies applied throughout the life cycle. CLO2 Analyze processes that will bring order and discipline into the software product development. CLO3 Develop the understanding and approach to software quality.
Pre-Requisite Courses	No course recommendations
Topics	
1. 1. Overview of Software Quality 1.1) Concepts of Quality 1.2) Software Errors, Faults and Failures 1.3) Software Quality Dilemma 1.4) Achieving Software Quality	
2. 2. Software Quality in the Project Life Cycle 2.1) Software Development Lifecycle (Requirement, Analysis, Design, Coding, System Tests) 2.2) Software Development Practices and Methods (i.e. Waterfall, Staged Delivery, Prototype, Object Oriented) 2.3) Factors Affecting Software Quality Activities in the Development Process 2.4) Modeling Software Quality	
3. 3. Software Quality Requirements 3.1) Requirement Engineering 3.2) The Need for Software Quality Requirements 3.3) Classification of Software Requirements into Software Quality Factors 3.4) Product Operation Factors 3.5) Product Revision Factors 3.6) Product Transition Factors	
4. 4. Software Configuration Management 4.1) Elements of Software Configuration Management 4.2) Software Configuration Repository 4.3) Software Configuration Process 4.4) Version Control 4.5) Change Management	
5. 5. Software Process Improvement (SPI) 5.1) Approaches to SPI 5.2) Maturity Models 5.3) SPI Process 5.4) Risk Management for SPI 5.5) Capability Maturity Model Integration (CMMI)	

6.6. Software Testing Strategies

- 6.1) Strategic Approach to Software Testing
- 6.2) Test Strategies
- 6.3) Validation Testing
- 6.4) System Testing
- 6.5) Debugging Process

7.7. Software Product Metrics

- 7.1) The Challenge of Product Metrics
- 7.2) Attributes of Effective Software Metrics
- 7.3) Software Measurement
- 7.4) Metrics for Software Quality

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	n/a	10%	CLO1 , CLO2 , CLO3
	Assignment	n/a	10%	CLO1 , CLO2 , CLO3
	Group Project	Group Project based on given topics	50%	CLO2 , CLO1 , CLO3
	Quiz	n/a	10%	CLO2
	Test	n/a	20%	CLO2 , CLO3

Reading List	Recommended Text	
	Reference Book Resources	<ul style="list-style-type: none"> • Elvis C. Foster 2014, <i>Software Engineering</i>, Apress [ISBN: 9781484208489] • Stephen Vance 2013, <i>Quality Code: Software Testing Principles, Practices, and Patterns</i>, 1 Ed., Addison Wesley [ISBN: 978-032183298] • Ron Jeffries 2015, <i>The Nature of Software Development: Keep It Simple, Make It Valuable, Build It Piece by Piece</i>, Pragmatic [ISBN: 9781941222379] • Sandro Mancuso 2014, <i>The Software Craftsman</i>, Pearson Education [ISBN: 9780134052502] • Dave Nicolette 2015, <i>Software Development Metrics</i>, Manning Publications Co. [ISBN: 978-16172913] • Roger S Pressman 2010, <i>Software Engineering: A Practitioner's Approach</i>, McGraw-Hill [ISBN: 007-1238] • Linda M. Laird, M. Carol Brennan 2006, <i>Software Measurement and Estimation</i>, Wiley-IEEE Computer Society Press [ISBN: 0-471-67622-5] • Galin, D. 2003, <i>Software Quality Assurance: From Theory to Implementation</i>, Pearson Education Limited • Witold Suryn 2014, <i>Software Quality Engineering: A Practitioner's Approach</i>, Wiley [ISBN: 978-1118592]

Article/Paper List	This Course does not have any article/paper resources
Other References	This Course does not have any other resources