MULTIMEDIA UNIVERSITY®

COURSE INFORMATION

1 .	**Name of Course**	Software Reliability and Quality Assurance
2 .	**Course Code**	TIS 3151
3 .	**Type of Course** (e.g. : Core, major, elective etc.)	Specialization core
4 .	**Synopsis**	This subject gives an overview about the quality factors considered in software development and realted quality assurance activities. It also intorduces the software development quality standards in the industry. Risk management is also discussed .
5 .	**Version** (State the date of theSenate's approval - previous and the current approval date)	Current: January 2018 Previous: June 2016
6 .	**Name(s) of Academic Staff**	Rosalind Deena Kumari, Samini Subramaniam
7 .	**Semester and Year Offered**	Trimester 1 (Delta)
8 .	**Credit Value**	4
9 .	**Pre-Requisite**	TSE2101 Software Engineering Fundamentals

10 . **Objective of the course in the programme:**

To equip students with knowledge about software engineering and quality assurance concepts. To introduce them to standards like ISO and CMMI and its relevance to software engineering. Using the knowledge acquired to develop the skills to produce reliable software while being aware about the standards that are used in the software industry.

11 . **Justification for including the course in the programme:**

To provide students with general concepts about software engineering, quality assurance and its standards and skills to develop quality software.

12 . **Course Learning Outcomes (CLO)**

		Domain	Level
CLO1:	Identify the role of existing standards such as CMMI & ISO 9001 in ensuring a reliable and quality software	Cognitive	2
CLO2:	Interpret the concepts of software reliability and quality assurance and its practices.	Cognitive	2
CLO3:	Apply software reliability metrics, models and techniques to ensure development of reliable software and application of quality practices.	Cognitive	3

13 . **Mapping of the Course Learning Outcomes to the Programme Learning Outcomes, Teaching Methods and Assessment:**

Course Learning Outcomes (CLO) (Must tally with CLOs in item 12)	Programme Learning Outcomes (PLO)												Teaching Methods	Assessment Method
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12		
CLO1							√						Lectures, Tutorials	Final Exam, Test and Quiz
CLO2							√	√					lectures Tutorials, discussion	Final Exam, Assignment, Test and Quiz
CLO3									√				lectures Tutorials, discussion	Final Exam, Assignment and Quiz
CLO4														
Total							**2**	**1**	**1**				*Indicate the relevancy between the CLO and PLO by ticking "✓" the appropriate relevant box (This description must be read together with standards 2.1.2, 2.2.1, and 2.2.2 in Area 2 – pages 16 & 18 of COPPA 2.0)*	

14 . **Transferable Skills:**

Skills - Leadership, Time management How it is developed - Based on the work for the assignment Assessment - Report and Interview

15 . **Distribution of Student Learning Time (SLT)**

	Course Content Outline	**CLO	Teaching and Learning Activities – Guided Learning (F2F)* *L	*T	*P	*O	Guided Learning (NF2F)*	Independent Learning (NF2F)*	Total SLT
1	**1. Software Quality Quality & Software quality factors; Quality control & Quality assurance; cost of quality**	**CLO2**	4	4				8	16
2	**2. Software Reliability Software reliability specification; Software reliability metrics; Fault avoidance; Fault tolerance; Programming for reliability; Software safety and hazard analysis**	**CLO2, CLO3**	6	4			4	10	24
3	**3. Software Quality Assurance SQA activities; Formal technical reviews; Software quality metrics; Statistical quality assurance**	**CLO2, CLO3**	5	3			4	8	20
4	**4. ISO 9001 Quality Standards ISO 9001 requirements and certification; Software quality process; Process documentation; Quality audit**	**CLO1**	4	4				8	16
5	**5. Capability Maturity Model –Integrated (CMMI) Software engineering institute; Levels of maturity; Key process areas; Comparison between ISO 9001 standards and CMMI**	**CLO1**	4	4				8	16

	6	**6.Ensuring Quality And Reliability Verification and validation; Measurement tracking and feedback mechanism; Total quality management; Risk management**	**CLO3**	5	5				10	20
								Total SLT		**112**

SUMMATIVE ASSESSMENT

1. Continuous Assessment	**Percentage %**	**Total SLT**
Quiz	10%	3
Test	10%	5
Assignments	30%	18
	Total SLT for Continuous Assessment	**26**

2. Final Assessment	**Percentage %**	**Total SLT**	
		F2F	**ILT**
Final Exam	50%	2	20
	Total SLT for Final Assessment (F2F + NF2F)	**22**	
Grand Total	**100%**	**160**	

****Indicate the CLO based on the CLO's numbering in Item 12.**
***L= Lecture, *T= Tutorial, *P= Practical, *O= Others, F2F*= Face to Face, NF2F*= Non Face to Face**

16 . **Identify Special Requirement to Deliver the Course (e.g., software, nursery, computer lab, simulation room):**
Computer Lab

17 . **Main References:**

18 **Additional References:**

Murali Chemuturi, Mastering Software Quality Assurance: Best Practices, Tools and Techniques for Software Developers, J. Ross Publishing, Inc 2010.
Daniel Galin, Software Quality Assurance: From Theory to Implementation, 1st ed. Pearson Education Limited, 2004.
Pressman, R. S. Software Engineering: A Practitioner's Approach, 6th ed. McGraw-Hill, 2004
Ian Sommerville. Software Engineering, 9th ed. Pearson Education Limited, 2011

Note:

	Cells shaded light grey contain formulas / fixed values. Edit these formulas only if needed.