1.	**Course Title**	**Software Reliability and Quality Assurance**		
2.	**Course Code**	**CCPS3553**		
3.	**Status**	Elective Major		
4.	**Credit Hour**	3 (2+1) 2 lecture (2 hours lecture x 14 weeks) 1 tutorials (1.5 hours per x 14 weeks) using simulator & emulator supervised by tutor		
5.	**Semester/Year**	-		
6.	**Prerequisites**	CCPS3523 Software Engineering		
7.	**Teaching method:**	Distance Learning (Electronic)		
8.	**Evaluation**	**Assessment and Marking Percentage:** Participation 5% Exercises 10% Mid Sem Exam 10% Project 25% Final Examination 50%		
9.	**Lecturer**			
10.	**Objective of the Subject**	To introduce the concepts in software reliability and quality assurance to the students and equip them with skill needed to develop reliable software and to assure the quality of the software.		
11.	**Learning Outcomes**	By the end of the subject, students should be able to: • Describe and interpret basic software development processes • Describe and interpret software reliability engineering concepts, principles and practices • Describe and interpret oftware reliability models, techniques to improve and predict software reliability • Describe and interpret software quality assurance policies and activities		
12.	**Synopsis**	To give the explanation to students how to apply the concepts and existing standards (CMM, ISO 900, etc) in developing a reliable software and to assure the quality of the software. It will apply reliability and quality assurance in any single topics of software development.		
13.	**Topics**	Details	Lecture (Hrs)	Tutorial (Hrs)
	Topic 1	**1. Software Quality** • What is quality • Software quality factors • Quality control • Cost of quality • Quality assurance	4	3
	Topic 2	**2. Software Reliability** • Software reliability specification • Software reliability metrics • Fault avoidance • Fault tolerance • Programming for reliability • Software safety and hazard analysis	5	4
	Topic 3	**3. Software Quality Assurance** • SQA activities • Formal technical reviews • Software quality metrics • Statistical quality assurance	6	4
	Topic 4	**4. ISO 9000 Quality Standards** • ISO 9000 requirements and certification • ISO 9000-3 for software quality process • Process documentation	4	3

		• Quality audit		
	Topic 5	**5. Capability Maturity Model** • Software engineering institute • Levels of maturity • Key process areas • Comparison between ISO 9000 standards and CMM	4	3
	Topic 6	**6.Ensuring Quality And Reliability** • Verification and validation • Measurement tracking and feedback mechanism • Total quality management • Risk management	5	4
		Total contact hours	28	21
		Equivalent lecture hours	28	14
		Total lecture hours	42	
		Credit hours	3	
14.	**Main reference: Textbook:**	Sagar Naik and Piyu Tripathy, **Software Testing and Quality Assurance: Theory and Practice** (2008)		
15.	**Additional References:** **Other Materials:**	1. Roger S Pressman, **Software Engineering: A Practitioner's Approach** (2007) 2. *Maria I. Sanchez-segura (Editor) Silvia T. Acuna (Editor),* ***New Trends in Software Process Modelling (Software Engineering and Knowledge Engineering) (Series on Software Engineering and Knowledge Engineering)*** *(2006)* All materials will be available to the students online.		