Bangladesh University of Business and Technology (BUBT)

COURSE OUTLINE

Program: Bachelor of Computer Science & Engineering (CSE)

Course Code: CSE -453 **Course Title: Software Testing and Quality Assurance**

Semester: FALL 2017-2018 **Intake: 27 (1)**

Course Teacher: Tarannum Zaki (TZ), Lecturer, Dept. of CSE

Course Objective:

The course "**Software Testing & Quality Assurance**" has been designed to focus on the fundamentals of software quality and testing concepts in the vast field of software engineering. Software testing levels, techniques, models and test documentation. Software project planning, risk management and software reliability. Building test teams, including recruiting and retaining test engineers. Software quality measurement and metrics. Software quality, quality assurance management, accreditation factors and process improvement.
It is expected that by the end of this course the students will be able to know about different levels of software testing tools and techniques, how to plan design and execute them and how to ensure the quality of a software product.

Course Information:

Course Code	: CSE -453	Course Title	: Software Testing and Quality Assurance
Credit Hour	: 3.00	Contact Hour	: 3 hrs
Intake	: 27	Section	: 01
Prerequisites	: Software Engineering		

Class Schedule:

Day	Time	Room No
Tuesday	11:45 am -12.45 pm	319
Wednesday	01:15 pm -02.15 pm	808
Wednesday	01:20 pm -02.20 pm	808

Instructor Information:

Instructor **:** Tarannum Zaki, Lecturer, Dept. of CSE
Short Code **:** TZ
Office **:** Room No-310 (Permanent Campus)
Email **:** tarannumzaki@yahoo.com
Phone No. **:** 01751588577

Office Hours:

/Time Day/	8.30-9.30	9.35-10.35	10.40-11.40	11.45-12.45	01.15-02.15	2.20-3.20
Saturday	Office Hour		Office Hour		Office Hour	
Sunday	Office Hour		Office Hour	Office Hour	Office Hour	Office Hour
Monday						
Tuesday	Office Hour		Office Hour			
Wednesday	Office Hour	Office Hour		Office Hour		
Thursday	Office Hour	Office Hour				

Planning of the Course Contents:

Month	Week	Lecture	Topics	Chapter	Remarks
Oct 10-16, 2017	1	1	Overview of the course, software engineering, role of software engineering, software, SDLC lifecycle, program testing, testing goals, validation & verification	Som. Ch. 8	
		2	I/O model of program testing, ultimate goal of V&V, V&V techniques – inspection, testing, pros & cons of inspection and testing	Som. Ch. 8	
		3	Basics – SW quality, 5 views of SW quality, SW quality assessment category, SW quality attributes, failure, fault, error & defect, SW reliability, test case	Naik Ch. 1	
Oct 17-23, 2017	2	4	Basics - Stakeholder, objective of testing, expected outcome, complete testing, test selection sources, white box-black box testing	Naik Ch. 1	
		5	Basics - test plan & design, monitoring & measuring test execution, test tool & automation, test team organization & management, oracle, SW testing process model	Naik Ch. 1+ Som. Ch 8	
		6	Tests levels – 3 stages, development testing – unit testing (Automated unit testing, unit test case, test a unit, unit test phase – static, dynamic, unit test tools, unit test in XP)	Som. Ch 8+ Naik Ch. 3	
Oct 24-30, 2017	3	7	Development testing – component testing (interface testing, type and errors, guidelines), integration testing (granularity, integration testing techniques)	Som. Ch 8+ Naik Ch. 7	
		8	Development testing – integration testing (HW & SW integration, integration testing phases, off the shelf component testing)	Som. Ch 8+ Naik Ch. 7	
		9	**Class Test – 1**		
Nov 01-07, 2017	4	10	Development testing – system testing (types of system tests – Basic, Functionality, Robustness, Interoperability, Performance, Scalability)	Naik Ch. 8	
		11	Development testing – system testing (types of system tests – Stress, Load and stability, Reliability, Regression, Documentation, Regulatory)	Naik Ch. 8	
		12	**Quiz- 1**		
		13	Release testing – requirements based testing, scenario testing, performance testing; user testing – UAT, BAT, alpha, beta & acceptance testing	Som. Ch 8+ Naik Ch. 14	
Nov 08-18, 2017	5	14	User testing - acceptance testing process, acceptance criteria, test-driven development	Som. Ch 8+ Naik Ch. 14	
		15	Test design & it's factors, identification and testability of requirements, lifecycle model of test case, test results, test case design effectiveness, structure of system test plan, test environment	Naik Ch. 11+12	
		16	**Quiz- 2**		
			Review Class For Mid Term Exam		
Nov 20-29, 2017	6	17	**Mid-term Examination**		
		18			
		19			
Dec 02-08, 2017	7	20	Test execution strategy, scheduling & test milestones, system test automation, system test execution – metrics for tracking system test	Naik Ch. 12+13	
		21	System test execution - First Customer Shipment, System Test Report, Product Sustaining, Measuring Test Effectiveness	Naik Ch. 13	
		22	Test team organization – test group, test group hierarchy, recruiting and retaining test engineers, team, team building	Naik Ch. 16	
Dec 09-15-, 2017	8	23	Project management – risk management, managing people, teamwork	Som. Ch. 22	
		24	Project planning – software pricing, estimation techniques	Som. Ch. 23	
		25	Software quality management - Software quality (McCall's quality factors & criteria), Software standards	Som. Ch. 24 +Naik Ch. 17	
Dec 16-22, 2017	9	26	Software quality management - Software standards, Reviews and inspections, Software measurement and metrics	Som. Ch. 24+ Naik Ch. 17	
		27	Software quality assurance, SQA group, elements of SQA, SQA tasks, goals and metrics, statistical SQA	Press. Ch. 16	
		28	**Class Test – 2**		

Dec 23-29, 2017	10	29	Software reliability – Fault and failure, time interval between failures, failure intensity, factors influencing software reliability, reliability models	Naik Ch. 15	
		30	Configuration management – system building, release management	Som.Ch. 26	
		31	**Quiz Test-3**		
Dec 30-Jan 05, 2018	11	32	Configuration management – change management, version management	Som. Ch. 26	
		33	Process improvement - The process improvement process, Process measurement, Process analysis	Som. Ch. 26	
		34	Process improvement - Process analysis (Contd.), Process change, The CMMI process improvement framework	Som. Ch. 26	
Jan 06-12, 2018	12	35	**Quiz Test – 4**		
		36	**Assignment submission**		
			Practical Usage and programming regarding software testing and SQA tools		
Jan 13-19, 2018	13	37	**Review Class For Final Exam**		
		38	**Review Class For Final Exam**		
		39	**Review Class For Final Exam**		
Semester Final Examination (January 21-30, 2018)			**Semester Final Examination**		

Result Published: Feb 04, 2018

Teaching Materials

Text Book:

1. **Software Testing and Quality Assurance: Theory and Practice by KSHIRASAGAR NAIK and PRIYADARSHI TRIPATHY, Wiley- Spektrum Publishing**
2. **Software Engineering by Ian Sommerville**

Reference Book:

1. **Software Testing by Ron Patton, Sams Publishing**
2. **Software Engineering by Roger S. Pressman**

Course Evaluation:

Class Attendance	**:**	**05%**
Quiz	**:**	**05%**
Class Test	**:**	**10%**
Assignment	**:**	**10%**
Midterm Examination	**:**	**30%**
Final Examination	**:**	**40%**

Course Grade:

Numerical Grade	**Letter Grade**		**Grade Pont**
80% and above	**A+**	**(A Plus)**	**4.00**
75% to less than 80%	**A**	**(A Regular)**	**3.75**
70% to less than 75%	**A-**	**(A Minus)**	**3.50**
65% to less than 70%	**B+**	**(B Plus)**	**3.25**
60% to less than 65%	**B**	**(B Regular)**	**`3.00**
55% to less than 60%	**B-**	**(B Minus)**	**2.75**
50% to less than 55%	**C+**	**(C Plus)**	**`2.50**
45% to less than 50%	**C**	**(C Regular)**	**2.25**
40% to less than 45%	**D**		**2.00**
Less than 40%	**F**		**0.00**

(Tarannum Zaki)
Lecturer
Dept. of CSE, BUBT