Krantiguru Shyamji Krishna Verma Kachchh University, Bhuj
Master of Science (Computer Applications & Information Technology)
Semester: IX

Paper Code: CCCS919	Total Credit : 4
Title of Paper: Software Testing and Quality Assurance	Total Marks : 70 Time : 3 Hrs

Unit	Description	Weighting
I	**Testing Environment and Test Processes** World-Class Software Testing Model – Building a Software Testing Environment - Overview of Software Testing Process – Organizing for Testing – Developing the Test Plan – Verification Testing – Analyzing and Reporting Test Results – Acceptance Testing – Operational Testing – Post Implementation Analysis	**20%**
II	**Testing Techniques** Using White Box Approach to Test design, Static Testing Vs. Structural Testing, Code Functional Testing, Coverage and Control Flow Graphs, Using Black Box Approaches to Test Case Design, Random Testing, Requirements based testing, Decision tables, State-based testing, Cause-effect graphing, Error guessing, Compatibility testing, Levels of Testing, Unit Testing, Integration Testing, Defect Bash Elimination. System Testing, Usability and Accessibility Testing, Configuration Testing, Compatibility Testing, Case study for White box testing and Black box testing techniques.	**20%**
III	**Incorporating Specialized Testing Responsibilities** Testing Client/Server Systems, Rapid Application Development Testing, Testing in a Multiplatform Environment, Testing Software System Security, Testing Object-Oriented Software, Object Oriented Testing, Testing Web based systems, Web based system, Web Technology Evolution, Traditional Software and Web based Software, Challenges in Testing for Web-based Software, Testing a Data Warehouse, Case Study for Web Application Testing.	**20%**
IV	**Test Automation** Selecting and Installing Software Testing Tools, Software Test Automation, Skills needed for Automation, Scope of Automation, Design and Architecture for Automation – Requirements for a Test Tool, Challenges in Automation, Tracking the Bug, Debugging, Case study using Bug Tracking Tool	**20%**
V	**Software Testing and Quality Matrices** Testing Software System Security, Six-Sigma, TQM, Complexity Metrics and Models, Quality Management Metrics, Availability Metrics, Defect Removal Effectiveness, FMEA, Quality Function. Deployment, Taguchi Quality Loss Function, Cost of Quality. Case Study for Complexity and Object, Oriented Metrics	**20%**
Basic Text & Reference Books :-		
1.	William Perry, "Effective Methods of Software Testing", Third Edition,Wiley Publishing 2007	
2.	Srinivasan Desikan and Gopalaswamy Ramesh, "Software Testing – Principles and Practices",Pearson Education, 2007	
3.	Naresh Chauhan , "Software Testing Principles and Practices " Oxford University Press , NewDelhi , 2010.	
4.	Stephen Kan, "Metrics and Models in Software Quality", Addison – Wesley, Second Edition,2004.	
5.	Boris Beizer, " Software Testing Techniques" – 2nd Edition, Van Nostrand Reinhold, New York,1990	

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Unit	Description		Total Marks
I	Q.1 (A) Answer the Following. (Definitions, Blanks, Full Forms, True/False, Match the Following)	06	14
	Q.1 (B) Medium / Long Questions. (With Internal Option)	08	
II	Q.2 (A) Answer the Following. (Definitions, Blanks, Full Forms, True/False, Match the Following)	06	14
	Q.2 (B) Medium / Long Questions. (With Internal Option)	08	
III	Q.3 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.3 (B) Medium / Long Questions. (With Internal Option)	08	
IV	Q.4 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.4 (B) Medium / Long Questions. (With Internal Option)	08	
V	Q.5 (A) Short / Medium Questions (With Internal Option)	06	14
	Q.5 (B) Medium / Long Questions. (With Internal Option)	08	