

Devi Ahilya University, Indore, India Institute of Engineering & Technology				ME – I Year (Spl Digital Communication) Semester- B				
Subject Code & Name		Instructions Hours per Week		Credits				
DCR2E4 Software testing and Quality assurance		L	T	P	L	T	P	Total
Duration of Theory Paper: 3 Hours		3	1	2	3	1	1	5

**Course Objectives:** To enhance students software testing and analysis skills.

**Prerequisites**

## COURSE OF CONTENTS

### UNIT I

#### QUALITY MODELS

Introduction-views on quality-cost of quality-quality models-Statistics and measurements-Statistics and measurements-Analysis of given source code using SQA and Sonar models.

### UNIT II

#### QUALITY FRAMEWORK and TESTING:

Quality framework characteristics – verification- Measuring test adequacy overview of black box testing techniques-decision tables-combinatorial testing classification tree method- white box testing-Random and exploratory.

### UNIT III

#### SOFTWARE ANALYSIS

Introduction to Static analysis- Static analyzer for finding dynamic programming errors-dataflow testing – procedure to apply data flow testing- examples performance analysis and verification-Security analysis and verification –Software vulnerabilities and exploitation.

### UNIT IV

#### QUASAR METHOD

Applying the Design structure matrix to system decomposition and integration problems- achieving Agility through Architecture visibility-Recovering and verifying architecture through design structure matrices.

### UNIT V

#### QUALITY MANAGEMENT

Project quality management- Essential Testing-Test driven development –guidance for software verification and validation plans-Master test planning.

#### Books Recommended:

- [1]. Edited by KshirasagarNaik and PriyadarshiTripathy, “*Software testing and Quality Assurance: theory and practice*”, John wiley& sons Inc, copyright,2008.
- [2]. Daniel Galin, “*Software Quality Assurance from Theory to Implementation*”,Pearson Education Ltd., 2004.
- [3]. “*Quality models to engineering quality requirements*” published in journal ofobject technology, chair of Software engineering, Vol.2, No. 5 Sep. – October2003. Online at <http://www.jot.sm>.
- [4]. Tyson R. Browning, A review and new directions, “*Applying the designstructure matrix to system decomposition and integration problems*”, IEEEtransactions on Engineering management, Vol. 48, No.3, August 2001.
- [5]. Neerajsangal and frank waldman in the journal of “*Defense softwareengineering Dependency models to mana*”