

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			
	L	T	P	L	T	P	Total
DCP4E4 Software testing and Quality assurance	3	1	2	3	1	1	5
Duration of Theory Paper: 3 Hours							

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 Kshirasagar Naik and Priyadarshi Tripathy, “*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 of object technology, chair of Software engineering, Vol.2, No. 5 Sep. – October 2003. Online at <http://www.jot.sm>.
- [4]. Tyson R. Browning, A review and new directions, “*Applying the design structure matrix to system decomposition and integration problems*”, IEEE transactions on Engineering management, Vol. 48, No.3, August 2001.
- [5]. Neeraj Sangal and Frank Waldman in the journal of “*Defense software engineering Dependency models to mana*”