Academic Year 2016-2017 Semester I

Course Handout (Part-II)

Course Number : **SS G552**

Course Title : **SOFTWARE TESTING METHODS**

Instructor-In-Charge : **Kuldeep Kumar** (Email: kuldeep.kumar@pilani.bits-pilani.ac.in)

Course Description

The course is intended to offer exactly what the course title implies. It covers

- Various concepts and principles related to software testing;
- Existing software testing tools;
- Different types of testing techniques;
- Hands-on on some of the existing testing tools;
- Review and critical evaluation of recent advancements in the domain of software testing. (selected readings from top-tier software testing conferences)

Objective

To provide the students with a skill-set that enables them to choose and apply a particular testing strategy per se software system requirements.

Text Book

T1 **Aditya P. Mathur, "Foundations of Software Testing", Second edition, Pearson Education, 2013**.

Reference Books

R1 M.G. Limaye, "Software Testing: Principle, Techniques and Tools", McGrawHill, 2009.
R2 A. Basu, "Software Quality Assurance, Testing and Metrics", PHI, 2015.
R3 Paul Jorgensen, "Software Testing A Craftsman's Approach", Second Edition, 2002
R4 R. Patton, "Software Testing", SAMS, 2005

Lecture Plan

LECTURE NO	TOPICS	REFERENCE
1-6	Fundamentals of Software Testing	T1-Chapter 1 R1-Chapter 3
7-8	Mathematical Preliminaries	T1-Chapter 2
9-10	Unit Testing	T1-Chapter 10
11	Research Talk and Brain Storming Session – I	-
12-14	Domain Partitioning	T1-Chapter 3
15-17	Predictive Analysis	T1-Chapter 4
18-20	Test Generation – FSM Models	T1-Chapter 5
21-23	Combinatorial Design	T1-Chapter 6
24	Research Talk and Brain Storming Session - II	-
25-29	Control and Data Flow	T1-Chapter 7

30	Testing Levels	R1-Chapter 9
31-35	Acceptance and Regression Testing	T1-Chapter 9 R1-Chapter 10
36-38	Integration Testing	T1-Chapter 11 R2-Chapter 6
39	Cloud Testing, Agile Testing	R2-Chapter 9 R2-Chapter 11
40	Test Management	R2-Chapter 10

Evaluation Scheme

SN	Evaluation Component	Duration	Weightage	Date, Time	Remarks
1	Mid Semester Examination	90 Minutes	25%	8/10 4:00 - 5:30 PM	Closed Book
2	Term Paper Presentation-I Presentation-II, Report, Viva	10 Minutes 25 Minutes	25% Feedback Only 25%		Take-Home
3	Research Seminar	25 Minutes	15%		
4	Comprehensive Examination	180 Minutes	35%	14/12 AN	Partially Open Book*

*One-page single-sided handwritten A4 size cheat sheet is allowed.

Research Talk and Brain Storming Session

Lecture starts with a 30 minute presentation on any of the following topics (tentative list), which is followed by a general discussion among the students. Topics of presentation and discussion include, but not limited to:

- How to Read a Software Engineering Research Article
- How to perform Controlled Experiments in Software Engineering.

Term Paper

A team of 2–3 students needs to choose an appropriate topic to conduct research study, through a prior discussion with the I/C. They need to make *two presentations* over the research study conducted and submit a term paper (not report).

Research Seminar

A team of 2–3 students needs to choose an appropriate research paper on FCFS order from the pool of papers provided by the I/C (teams are allowed to choose their own paper through a prior discussion with the I/C). They need to critically evaluate the paper, make *one presentation*, and submit a 1-2 page report on critical evaluation.

Chamber Consultation Hour

TBA later.

Make-up Policy

No make-up can be given for assignments. Make-up for written examinations may be granted in case of extreme exigencies, if prior permission is sought from the Instructor-in-charge.

Notices

All notices regarding this course will be placed on the course website. Some notices will also be placed on the notice board of Department of Computer Science.

Instructor-in-charge