BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, Pilani
Pilani Campus
Instruction Division

Academic Year 2016-2017 Semester I

COURSE HANDOUT (Part-II)

Course Number : **SS G562**

Course Title : **SOFTWARE ENGINEERING AND MANAGEMENT**

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

Course Description

Current concepts, methods, techniques, and tools of the software engineering process; software process models; process definition and assessment; software measurement and metrics; project planning, estimation and control; requirements analysis and specification, design methods; quality assurance and testing; configuration management; process improvement; case studies, and project work.

Scope and Objectives

This course provides the knowledge and skills necessary to lead a software project team, understand the relationship of software development to overall product engineering, estimate time and costs, and understand the software process. Topics include life cycle models, requirements elicitation, configuration control, and quality assurance.

Text Book

T1 Sommerville I, Software Engineering, Pearson Education, 9th Edition, 2011

Reference Books

R1 Pressman, R.S., Software Engineering: A Practitioner's Approach, 7th (Alternate) Edition, McGraw Hill International Edition, 2010
R2 Mall R., "Fundamentals of Software Engineering", Fourth Edition, PHI, 2016.
R3 Jalote, P., An Integrated Approach to Software Engineering, Narosa, 2nd Ed., 1998
R4 Schach, S., Software Engineering, TMH, 7th Ed., 2007
R5 Kelkar, S.A., Software Engineering: A Concise Study, PHI, 2007
R6 Jawadekar, W.S., Software Engineering: Principles and Practice, TMH, 2004

Lecture Plan

Lecture No.	**Topics**	**Text Book / Reference Book**
1-2	Software and Software Engineering	T1-Chapter 1 R1-Chapter 1
3-4	Software Process Models	T1-Chapter 2
5	Agile Software Development	T1-Chapter 3
6	Principles that Guide Software Engineering Practice	R1-Chapter 4
7-8	Requirements Engineering	T1-Chapter 4
9-10	System Modeling	T1-Chapter 5 R1-Chapter 6
11	Formal Modeling and Verification	R1-Chapter 21

12	Design Concepts	R1-Chapter 8
13-15	Architectural Design	T1-Chapter 6
16-17	Design and Implementation	T1-Chapter 7
18	Quality Concepts	R1-Chapter 14
19	Review Techniques	R1-Chapter 15
20-21	Software Quality Assurance	R1-Chapter 16
22-23	Software Testing Strategies	T1-Chapter 8
24-25	Software Product Metrics	R1-Chapter 23
26-27	Software Process and Project Metrics	R1-Chapter 25
28-29	Software Project Management	T1-Chapter 22
30-31	Software Project Planning	T1-Chapter 23
32-33	Software Quality Management	T1-Chapter 24
34-35	Software Configuration Management	T1-Chapter 25
36-37	Software Process Improvement	T1-Chapter 26
38	Software Maintenance and Evolution	R2-Chapter 13 T1-Chapter 9
39	Software Reuse	T1-Chapter 16
40	Component-based Software Engineering Aspect-Oriented Software Engineering	T1-Chapter 17 T1-Chapter 21

Note
All topics with chapter references to R1 are also reading assignments.
Additional reading assignments will be announced in the class whenever appropriate.
All such reading assignments will be included in the syllabi for the written examinations.

EVALUATION SCHEME:

SN	Evaluation Component	Duration	Weightage	Date, Time	Remarks
1	Mid Semester Examination	90 Minutes	25%	5/10 4:00 - 5:30 PM	Closed Book
2	Team Project, Assignments, Quizzes	TBA	40%		Take-Home/Open Book
3	Comprehensive Examination	180 Minutes	35%	7/12 AN	Partially Open Book*

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

Team Project
A complete project is to be done by a team of 2-3 students using the best practices of software engineering. Evaluation will be done continuously, on the basis of the quality of work products delivered according to the project plan and schedule, as well as process compliance. They need to make *two presentations* and submit a term paper.

Team Project Grading
Grades assigned to individual students are determined using periodic presentations, design and other documents, teamwork, quality of the prototype and the product, and technological innovation.

Chamber Consultation Hour
TBA

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