

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

NAME OF DEPT./CENTRE: **Electronics and Computer Engineering**

1. Subject Code: **EC - 357** Course Title: **Software Engineering**

2. Contact Hours: **L: 3 T: 0 P: 0**

3. Examination Duration (Hrs.): **Theory**

0	3
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Practical

0	0
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4. Relative Weightage: **CWS**

15

PRS

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MTE

35

ETE

50

PRE

00

5. Credits:

0	3
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 6. Semester

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Autumn Spring Both

7. Pre-requisite: **EC-251**

8. Subject Area: **DCC**

9. Objective: To introduce the concepts of software development, design and implementation.

10. Details of Course:

Sl. No.	Contents	Contact Hours
1.	Introduction to software and software engineering, various software process modules, capability, maturity, module and KPAs.	6
2.	Project planning, project introduction, team organization, scheduling and management, constructive cost model.	6
3.	Software measures, indicators and metrics, software risk analysis and management.	5
4.	Software requirement analysis and specifications, applicability to small, medium, and large-scale systems.	4
5.	Software design, technical design, objectives of design, design metrics, modularity, module coupling and cohesion, relation between cohesion and coupling; Design strategies: Bottom up design, top down design, hybrid design, functional oriented design, object oriented design; IEEE recommended practice for software design description	8
6.	Software testing, testability, testing process, structural testing, unit testing and integrated testing, debugging, testing tools, software maintenance, maintenance process, maintenance cost, reverse engineering and re-engineering.	7
7.	Configuration management, assessing and controlling software quality.	3
8.	CASE tools and workbenches.	3
Total		42

11. Suggested Books:

Sl. No.	Name of Books / Authors	Year of Publication
1.	Pressman R., "Software Engineering", 7 th Ed., McGraw-Hill.	2000
2.	Sommerville, I., "Software Engineering", 6 th Ed., Pearson Education.	2007
3.	Dfleeger, S. L., "Software Engineering", Pearson Education.	2000