COURSE CONTENTS

1.	**Course Title**	SOFTWARE ENGINEERING
2.	**L-T-P structure**	3-0-2
3.	**Credits**	4
4.	**Course number**	CSL740
5.	**Prerequisites:**	CSL201 & CSL302

6.	**Course objective** : To learn Software Engineering concepts and techniques relevant to design and development of large complex Software Systems

7.	**Course contents** : Introduction to Software Engineering, Software Processes & Management:, Requirements Specification and Analysis . Top-down design and development, Information hiding, abstraction, modularity, Structured programming, Object-oriented techniques,UML, Design patterns, User Interface Design, Software Quality Management, Configuration Management, Testing and Test Case Generation, Reliability, Software Metrics, Cost analysis and estimation, Manpower and Time management, Organization and management of large software design projects

8. Lecture Outline (with topics and number of lectures)

Module no.	Topic	No. of lectures (1.5 Hours)
1	Introduction	1
2	Software Processes & Management	2
3	Requirement Engineering	2
4	Software Design	3
5	Object Oriented Deisgn, UML	2
6	Design Patterns	1
7	User Interface Design	1
8	Testing & Test Case Generation, Reliability	4
9	Software Maintenance	1
10	Software Metric & Cost Estimation	2

11	Project Management	2
12	Quality Management	1
13	Software Standards	1
14	Configuration Management	1
15	Project Discussion, Review (as and when required)	4
COURSE TOTAL		28 (= 42 hours)

Marks Breakup

- Minor1 15
- Minor2 15
- Major 20 **50**

- **Project work**

Requirements Doc	10	
Design Document	10	
Test Plan	05	
Presentation	10	
Demo	10	
Code Structure	05	**50**
	Total	**100**

Projects (Group of 3-4 Students, 14x2 = 28 hours from each student)

1) Search Engine for Academic Environment
2) Hadoop like Distributed File System
3) Reliable and scalable Content Management System
4) Portal Framework for Academic Institution
5) Google Apps Engine based Applications
6) Social Networking Application
7) Parallel Computation over Hadoop DFS
8) Data Base Engine Components
9) Android Based Applications
10) Software Defined Network Applications
11) Software Defined Storage
12) Mobile Device Management

13) Workflow Engine for process implementation
14) Framework for UG/PG Process Applications
15) UG/PG mobile apps
16) Application Integration using Web services
17) Faculty Recruitment System

18) Ruby on Rails based applications
19) Python based applications

20)Event / Notification Management System
21)Resource Management System
22)Hostel Management System

References

1. **Software Engineering,** Ian Somerville,
   8th Edition, Pearson Education

2. **Fundamentals of Software Engineering**, Rajib Mall
   3rd Edition, PHI, 2009

3. **Software Engineering: A Precise Approach,** Pankaj Jalote,
   Wiley Publication, 2010

4. **Software Engineering,** KK Aggarwal, Yogesh Singh,
   3rd Edition, New Age International Publishers