BTCOC503: Software Engineering

[Unit 1] **[7 Hours]**

Introduction: Professional software development, Software engineering ethics, Case studies. Software processes: Software process models, Process activities, Coping with change, The rational unified process.

[Unit 2] **[7 Hours]**

Agile software development: Agile methods, Plan-driven and agile development, Extreme programming, Agile project management, Scaling agile methods. Requirements engineering: Functional and non-functional requirements, The software requirements document, Requirements specification, Requirements engineering processes, Requirements elicitation and analysis, Requirements validation, Requirements management.

[Unit 3] **[7 Hours]**

System modeling: Context models, Interaction models, Structural models, Behavioral models, Model-driven engineering. Architectural design: Architectural design decisions, Architectural views, Architectural patterns, Application architectures.

[Unit 4] **[7 Hours]**

Design and implementation, Object-oriented design using UML, Design patterns Implementation issues, Open source development.

[Unit 5] **[7 Hours]**

Software testing, Development testing, Test-driven development, Release testing, User testing. Dependability properties, Availability and reliability, Safety Security.

Text Book:

1. Ian Sommerville, *Software Engineering*; 9th Edition, Addison-Wesley Publishing Company, USA.

Reference Books:

1. S.A. Kelkar, Software Engineering, , Prentice Hall of India, 2007.
2. Pressman, Software Engineering, Tata McGraw Hill, 6th Edition, 2006.
3. Pankaj Jalote, Software Engineering, Narosa Publishers, 3rd Edition, 2006.

NPTEL Course:

1. Software Engineering, Prof. Rajib Mall, Department of Computer Science and Engineering, IIT Kharagpur.