B.Sc. 601
Software Engineering

Unit I:
 Introduction: Introduction to software engineering, Importance of software, The evolving role of software, Software Characteristics, Software Components, Software Applications, Software Crisis, Software engineering problems, Software Development Life Cycle, Software Process.

Unit II:
 Software Requirement Specification: Analysis Principles, Water Fall Model, The Incremental Model, Prototyping, Spiral Model, Role of management in software development, Role of matrices and Measurement, Problem Analysis, Requirement specification, Monitoring and Control.

Unit III:
Software-Design: Design principles, problem partitioning, abstraction, top down and bottom up-design, Structured approach, functional versus object oriented approach, design specifications and verification, Monitoring and control, Cohesiveness, coupling.

Unit IV:
Coding: Top-Down and Bottom –Up programming, structured programming, information hiding, programming style and internal documentation.
Testing: Testing principles, Levels of testing, functional testing, structural testing, test plane, test case specification, reliability assessment, software testing strategies, Verification & validation, Unit testing, Integration Testing, Alpha & Beta testing, system testing and debugging.

Unit V:
Software Project Management: Measures and measurements – S/W complexity and science measure – size measure – data and logic structure measure – information flow measure. Software cost estimation – function point models – COCOMO model. Taxonomy of CASE tools

References:
1. Software Engineering Concepts 1997 Edition Author : RICHARD FAIRLEY Publishers : TATA Mc GRAW-Hill Edition.
2. Software Engineering VI Edition, Author : ROGER S . PRESSMAN Publishers TATA McGRAW - HILL International Edition.
3. Software Engineering Programs Documentation Operating procedures
 4. Author : K.K. AGGARWAL & YOGESH SINGH Publishers : NEW AGE INTERNATIONAL PUBLISHERS