

**Software Engineering**

<b>Semester III</b>	<b>Subject Code: BC31605</b>	<b>Lectures: 60</b>
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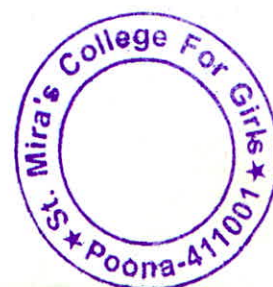
**Objectives:**

The course is designed to equip students with,

- The knowledge of software engineering
- The concepts of software product and processes
- The ability to analyze and to design, verify, validate, implement, apply, and maintain software systems

<b>Unit 1: Introduction to System Concepts</b>	<b>04</b>
<ul style="list-style-type: none"> <li>• System Definition , Elements of System</li> <li>• Characteristics of System</li> <li>• Types of System</li> <li>• System Concepts</li> </ul>	

<b>Unit 2: Requirement Analysis</b>	<b>08</b>
<ul style="list-style-type: none"> <li>• Definition of System Analysis</li> <li>• Requirement Anticipation</li> <li>• Knowledge and Qualities of System Analyst</li> <li>• Role of a System Analyst</li> <li>• Feasibility Study <ul style="list-style-type: none"> <li>➤ Technical Feasibility study</li> <li>➤ Economical Feasibility study</li> <li>➤ Operational feasibility study</li> </ul> </li> <li>• Fact Gathering Techniques <ul style="list-style-type: none"> <li>➤ Interview</li> <li>➤ Questionnaires</li> <li>➤ Record Review</li> <li>➤ Observation</li> </ul> </li> </ul>	



Unit 3: Software Development (Methodologies) Life Cycle & Process Models.	06
<ul style="list-style-type: none"> <li>• SDLC (System Development Life Cycle) <ul style="list-style-type: none"> <li>➤ Introduction</li> <li>➤ Phases of SDLC.</li> </ul> </li> <li>• Process Models <ul style="list-style-type: none"> <li>➤ Waterfall Model</li> <li>➤ Incremental Process Models</li> <li>➤ Evolutionary Process Models <ul style="list-style-type: none"> <li>➤ Prototyping Model</li> <li>➤ Spiral Model</li> </ul> </li> </ul> </li> <li>• Concurrent Models</li> </ul>	
Unit 4: Analysis and Design Tools	16
<ul style="list-style-type: none"> <li>• Entity-Relationship Diagrams</li> <li>• Decision Tree and Decision Table</li> <li>• Data Flow Diagrams (DFD)</li> <li>• Data Dictionary(DD)</li> <li>• Elements of DD</li> <li>• Advantage of DD</li> <li>• Pseudo code</li> <li>• Input And Output Design</li> <li>• Mini Project (Based on Unit 2 and Unit 4)</li> </ul>	
Unit 5:- System Design and Testing	14
<ul style="list-style-type: none"> <li>• Qualities of Good Design</li> <li>• Coupling, Types of Coupling</li> <li>• Cohesion, Types of Cohesion</li> <li>• Testing characteristics and definition</li> <li>• Types of testing <ul style="list-style-type: none"> <li>➤ Black-Box Testing</li> <li>➤ White-Box Testing</li> <li>➤ Unit testing</li> <li>➤ Integration testing</li> </ul> </li> <li>• Verification</li> <li>• Validation</li> <li>• Introduction to Software Testing Tool <ul style="list-style-type: none"> <li>➤ Software Testing Tools</li> </ul> </li> </ul>	



- WINRUNNER
- LOADRUNNER
- JUnit

**\*Contact hours – 12 hours**

**Text Books:**

- ✓ 1. *Software Engineering*, Umakant s. shrishetti, Nirali prakashan June 2009
- ✓ 2. *Software Engineering*, Dr. D.D. Balsaraf, Umakant s. shrishetti, Nirali prakashan June 2014
- ✓ 3. *Software Engineering*, Mahesh Pawar, Gautam Kudale, Tech-Max Publication June 2009
- ✓ 4. *Software Engineering*, Manwar Kumbhar, Vision Publication 2009

**Reference Books:**

- 1 Roger s. Pressman, *Software Engineering*
- 2 Prof. Khalkar and Prof. Parthasarathy, *SADASE( System Analysis and Design)*  
Master Academy.

