**Midsemester Syllabus**

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| **List of Topic Title** | **Sub-Topics** | **Reference** |
| Definition and importance of software quality assurance | Introduction, Standards, Errors Defects Failures | T1 Chapter 1 |
| Distinction between Quality Assurance and Quality Control | Software Quality Assurance, Quality Control | Lecture Notes |
| Success Factors in Quality Assurance | Factors Foster Software quality and Factors effect software quality | T1 Chapter 1 & T2 Chapter 1 |
| Cost of Quality and Quality Culture | Cost of projects, Calculations, Quality Culture Principles | T1 Chapter 2 |
| Quality Culture Principles | Principles for Ensuring a Quality-Driven Culture | T1 Chapter 2 |
| Role of SQA in software development life cycle |  | Lecture Notes |
| Software Quality Models | Quality Perspective McCall, IEE1601, ISO 25000 | T1 Chapter 3, R1 Chapter 2 |
| Specifying Quality Requirements and Plan | Definition, Type of requirements, Characteristics | T1 Chapter 3 |
| Requirement Traceability During Software Lifecycle | Process | T1 Chapter 3 |
| Standards and Frameworks for Quality Management | Standards (ISO 9001, ISO/IEC 90003, ISO/IEC/IEEE 12207, IEEE 730) | T1 Chapter 4 |
| Frameworks (ITIL, ISO, CMMi) | Overview of ITIL, ISO, CMMi Frameworks | T1 Chapter 4 |
| Software Requirements into Software Quality Factors | Models, Product operation factors, Product Revision factors, Product Transition factors | T2 Chapter 3 |
| Understanding quality attributes   * Reliability * Usability * Maintainability   Other quality attributes | * Reliability * Usability * Maintainability * Other quality attributes | T2 Chapter 3, R1 Chapter 2 |
| Alternative models of Software Quality Factors | Evans and Marciniak Factor Model, Deutsch and Willis Factor Model | T2 Chapter 3 |
| Software Testing Fundamentals | Key Characteristics, Software Testing Strategies | T2 Chapter 9, R2 Chapter 1 |
| Software Verification and Validation | Definition, Techniques | R2 Chapter 2 |
| Test design techniques (black-box testing, white-box testing, boundary value analysis, equivalence partitioning, etc.) | black-box testing, white-box testing, boundary value analysis, equivalence partitioning | R2 Chapter 3 & 4 |
| Test levels and types (unit testing, integration testing, system testing, etc.) | Unit testing, Integration testing, System testing | R2 Chapter 7 |
| Test Execution Process | Test Methodology, Planning, Designing, Performing | T2 Chapter 10 |
| Test Case Design | Test Case Examples | T2 Chapter 10 |
| Automated testing | Automated Testing Processes, Types, Test Management | T2 Chapter 10, R2 Chapter 9 |