**Lahore College for Women University**

**Department Of Computer Science**

***Course Outline (Weekly Plan)***

**CS-511 Software Quality Assurance**

**Credit Hours 3 (3-0)**

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| **Program: MSCS** | **Semester: II** |

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| **Week** | **Topic** | **Learning Material** |
| **1** | 1. Introduction and Importance of Software Quality Assurance, 2. The Quality Challenge | **Slide Set:** Software Quality Assurance(Provide in data file)  **Video Link:** <https://www.youtube.com/watch?v=M7ZVcQOSVF4>  **Slide Set:** Software Quality Challenges (Provide in data file)  **Research Paper:** Software-quality-challenges-practice (Provide in data file) |
| **2** | 1. Software Quality Assurance in Software Projects, 2. Principles and Practices, 3. Quality Management, 4. Quality Assurance and Standards, 5. Quality Planning and Quality Control, 6. Verification and Validation | **Research Paper:** Software Quality Assurance in Software Projects  (Provide in data file)  **Slide Set:** Software Quality Assurance in Software Projects (Provide in data file)  **Document:** Quality Assurance Principles and Practices (Provide in data file)  **Slide Set:** Quality Management(Provide in data file)  **Video Link:** <https://www.youtube.com/watch?v=0hzqHwu1i_I>  **Document pdf:** Standards in SQA (Provide in data file)  **Slide Set:** Quality Planning and Quality Control (Provide in data file)  **Video link:** <https://www.youtube.com/watch?v=cDQ34z0oqnQ> |
| **3** | Quality Assurance Research Methodologies(with reference to research papers taken from this domain) | **Research Paper:**  Software Quality Model (Provide in data file) |
| **4** | Introduction to Total Quality Management (TQM) | **Slide Set:** Total quality management (Provide in data file)  **Research Paper:** Effects of Total Quality Management Practices (Provide in data file) |
| **5** | 1. Process Management, 2. Software Process Measurements, 3. Product Quality and Process Quality | **Slide Set: SQA Process Management** (Provide in data file)  **Slide Set:** Software Process Measurement (Provide in data file)  **Research Paper:** Software Process Measurement (Provide in data file)  **Document : Product Quality and Process Quality** (Provide in data file)  **Research Paper:** Software\_Process\_and\_Product\_Quality\_Assurance (Provide in data file) |
| **6** | 1. Quality Standards ISO 9001 Quality Management for Process Quality Framework, 2. Maturity Models for Process Quality | **Slide Set:** Quality Standards ISO 9001 Quality Management (Provide in data file)  **Research Paper:** QA Maturity (Provide in data file) |
| **7** | Discussion on Case Study for real time implementation of ISO Quality Standard | **Document:** Case\_Study 1 (Provide in data file)  **Document:** Case Study 2 (Provide in data file) |
| **8** | Discussion on Research Papers | **Research Paper:** Quality Assurance and Quality Control (Provide in data file) |
| **9** | Quality Standards Six Sigma | **Slide Set:** Quality Standards Six Sigma (Provide in data file)  **Video Link:** <https://www.youtube.com/watch?v=0x6nHBQXe6w> |
| **10** | Quality Standards CMM and CMMI | **Slide Set:** CMM(Provide in data file)  **Research Paper:** Software Quality and the Capability Maturity Model(Provide in data file)  **Video Link:** <https://www.youtube.com/watch?v=JX45JtlJX1s> |
| **11** | Quality Standards CMM and CMMI | **Slide Set:** **CMMI** (Provide in data file)  **Research Paper:**  CMMI and Software Quality (Provide in data file) |
| **12** | 1. Software Testing, 2. Specification based Test Construction Techniques, 3. White-box and Black-box 4. Grey-box testing | **Document:** Software Testing (Provide in data file)  **Video Link:** <https://www.youtube.com/watch?v=cDQ34z0oqnQ>  **Document:** Specification based Test Techniques (Provide in data file)  **Research Paper:** A Framework for Specification-Based Testing (Provide in data file)  **Video Link:** <https://www.youtube.com/watch?v=96JZf4gwnBk&t=191s>  **Video Link:** <https://www.youtube.com/watch?v=g3t-JrL-0Ew> |
| **13** | Discussion on Research Papers | **Research Paper:** A comparison of software assurance methods (Provide in data file) |
| **14** | 1. Walkthroughs and Inspections, 2. Formal Technical Reviews (FTRs), 3. Assignment to summarize the contents of research paper | **Document:** Walkthroughs and Inspections (Provide in data file)  **Slide Set:** FTR (Provide in data file)  **Research Paper:**  Formal\_Technical\_Reviews\_for\_Research\_Projects (Provide in data file) |
| **15** | Brainstorming Sessions | **Document 1:** Brain\_Stroming Basics (Provide in data file)  **Document 2:** Brainstorming On Software Quality Assurance (Provide in data file) |
| **16** | Industry Track – Invited Talks | **Document:** Industry Track – Invited Talks (Provide in data file) |