**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) |