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| **Course Code** | CSU5301 | | | | | | |
| **Level** | 5 | | | | | | |
| **Course Title** | Software Quality Assurance | | | | | | |
| **Credit value** | 3 credits | | | | | | |
| **Core/Optional** | Optional | | | | | | |
| **Prerequisites** | (EL/CR in CSU4302) and (EL/CR in 3 credits from L4 Computer Science courses) | | | | | | |
| **Hourly breakdown** | **Theory** | | **Practical**  **hours** | **Independent Learning** | | **Assessments** | **Total hrs.** |
| 25 Sessions X 2 = **50 hrs.** | 7 DS x 3 hrs. = **21 hrs.** | **-** | * Sessions (25 x 3)   = 75 hrs.   * Online = 03 hrs.   Total = **78 hrs.** | | * Continuous Assessments (CA) : **02 hrs.** | **151 hrs.** |
| **Course Aim/s.** | To assure the quality of software products while applying the appropriate theories and tools. | | | | | | |
| **PLOs addressed by course** | **PLO1: Knowledge:** Explain the fundamental, principles and broader knowledge pertaining to the chosen science disciplines offered for the degree.  **PLO5: Creativity and Problem Solving:** Identify and analyze problems using quantitative and/or qualitative approaches using scientific methodology to provide valid conclusions.  **PLO8**: **Vision for Life:** Develop the capacity to project for future through identifying self-directed goals and continuously targeting towards them for self-improvement by undertaking further studies. | | | | | | |
| **Course Learning Outcomes (CLO)** | At the completion of this course student will be able to;  CLO1: Describe the theories behind software quality standards, quality certification and its implementation in a software development organization (PLO1).  CLO2: Discuss the role of software quality assurance in improving the software development process (PLO1)  CLO3: Analyze different approaches to software testing and quality assurance, and select optimal solutions for different situations and projects, by proposing innovative solutions (PLO1, PLO5, PLO8).  CLO4: Prepare a software quality plan for a software project (PLO5, PLO8). | | | | | | |
| **Content**  **(Main topics, sub topics)** | Introduction to Software Quality Assurance, Quality Assurance Concepts, What is Quality Software, Problems in Software Development Process, Software Quality Assurance Standards, Software Engineering Testing, Testing Techniques, Software Testing in Difference Environments, Static versus Dynamic Testing, Types of Testing, Levels of Testing, Creating a Test Plan, Software Bugs, Quality Assurance versus Quality Control, The Cost of Quality, Software Quality Factors, Factors Affecting Software Testing, The Five Levels of Maturity, Risk Management, Configuration Management, Automating Testing, Performance Testing, The Importance of Work Process, Testing Competency, Team Building. | | | | | | |
| **Teaching Learning methods (TL)** | Self-learning/independent learning of self - study (IL)   * Learning the course contents in course materials in print and web-based materials (SS) * Additional reading materials/ recommended reading (RE)   Contact sessions   * Day schools (discussion sessions) (Non-compulsory) | | | | | | |
| **Assessment strategy** | Overall Continuous Assessment Mark (OCAM): 40% | | | | Final Assessment: 60 % | | |
| Details: Continuous Assessment I (CA I) : **01 hr.**  Continuous Assessment II(CA II) : **01 hr.**    OCAM computation:  OCAM= 60% of best CA I/CA II + 40% of other CA I /CA II | | | | Final Evaluation  Theory: **02 hrs.** | | |
| **Recommended**  **Readings:** | 1. Schulmeyer , G. (2008).*Handbook of Software Quality Assurance* (4th ed.).: Artech House | | | | | | |