

Course Syllabi

1. TICS-00037 SOFTWARE QUALITY

2. 96 credits hours.

3. Bibliography

- Ingeniería del Software Un Enfoque Práctico - 111447 / 111448, Pressman, Roger, 2010
- <https://iso25000.com/index.php/normas-iso-25000/iso-25010>, ISO/IEC , 2024
- https://insights.sei.cmu.edu/documents/87/2010_019_001_28782.pdf, Software Engineering Process Management Program - Carnegie Mellon University, 2010
- Calidad del producto y proceso software, Coral Calero, María Angeles Moraga y Mario Piattini, 2010

4. Specific Course Information

- a. The quality of software, in a general sense, is defined according to Pressman as “consistent with the explicitly established functional and performance requirements, with the explicitly documented development standards and with the implicit characteristics expected of any professionally developed software.” On the other hand, it is classified into three fundamental aspects: i) Product Quality, ii) Process Quality, and iii) Quality in Use. Hence, this subject deals with the aspects related to the quality mainly of process and product, which must be incorporated into the software artifacts developed by the professionals in the area of Computer Systems and Sciences, during the development stage and then be able to evaluate the same once the final product has been constructed or acquired.
- b. Prerequisites:
 - TICS-00065 DISTRIBUTED SYSTEMS
 - TICS-00068 TECHNOLOGIES FOR EDUCATION
 - TICS-00054 COMMUNITY SERVICE PRACTICES
 - TICS-00039 SOFTWARE DESIGN AND ARCHITECTURE
 - TICS-00048 HUMAN-COMPUTER INTERACTION
 - TICS-00059 WEB PROGRAMMING

5. Learning Objectives of the Course

- a. Provide an integrative vision of the quality of both process and software product.
 - Understand the general problem of software quality and the general concepts associated with software quality.
 - Ensure that the professional seeks the continuous improvement of the processes.
 - Understand the difficulties associated with the construction and evaluation of software components.
 - Know the main proposals, properties and methods for the construction of software quality models and standards of existing quality models.
 - Know the general structure of software process improvement models such as CMMI
 - DEV and understand the levels of maturity, aimed at strengthening the management of software development projects.
 - Understand measurement concepts and associated quality issues.
- b. Learning Outcomes
 - Design processes according to best practices proposed in models accepted by the industry.
 - Understands the implication of data quality.
 - Use appropriate measurement techniques to collect data.
 - Build quality models for the evaluation of software artifacts in a specific domain, considering various

functional and non-functional characteristics.

- Model and design processes in order to improve the software development process.
- Determines the quality features that a software component must meet in a specific software domain based on the needs of the real world.
- Build quality models for the evaluation of software artifacts in a specific domain, considering various functional and non-functional characteristics.
- Evaluate the characteristics of software artifacts in a specific domain in relation to built models.
- Determines the quality features that a software component must meet in a specific software domain based on the needs of the real world.

6. Course Topics

- Introduction to the quality of software
- Software quality models
- Building quality models software
- Measurement and estimation of the quality of software
- Assessment of the quality of software
- Software quality improvement process
- Explanation of material content
- Data quality
- The model of technological adoption