Name of the course: Software Testing	Total credits: **2+2+1=5**
IPM-18AUTSOTEG	
Type: Obligatory	
Total hours per semester: lecture: 26 practice: 26 consultation: 13	
Type of testing: Exam Other: tests, project work	
Semester: 2nd	
Subject requirement: Software Technology	

Description

Principles of software testing, Project life-cycle and testing, Agile concepts. Test process life-cycle.
Test design techniques:
Black-box: Equivalence partitioning, Boundary value analysis, Decision tables, Cause-and-effect graphs, State machines, Use-case testing, etc.
White-box: Statement coverage, decision coverage, MC/DC, path testing.
Experience based: error guessing, exploratory testing, attack testing.
Defect-based testing.
Test documentation, test management.
Reviews: Informal and formal reviews.
Defect management, test automation, test tools.
Automotive Norms and Standards, ISO 26262, ASPICE.

Literature

Compulsory:

- Dorothy Graham, Erik Van Veenendaal, Isabel Evans, Rex Black: Foundations of Software Testing: ISTQB Certification, Cengage Learning, 3rd ed. 2013, ISBN-13: 978-1408044056, ISBN-10: 1408044056
- Anne Mette Jonassen Hass: Guide to Advanced Software Testing, Artech House, 2008, ISBN-13: 978-1596932852, ISBN-10: 1596932856

Recommended:

- Graham Bath, Judy McKay: The Software Test Engineer's Handbook, 2nd Edition: A Study Guide for the ISTQB Test Analyst and Technical Test Analyst Advanced Level Certificates 2012, Rocky Nook Computing, ISBN-13: 978-1937538446

Competencies

Knowledge

- Possession of complex and up-to-date knowledge in software testing, regarding the principles of testing, testing life-cycle, V-model, various test design techniques, review forms, static and dynamic testing, test automation, norms and standards in automotive.
- Detailed and expert-level knowledge of the technical terms and expressions of software

testing in English.

Competencies

- Understanding the testing challenges, approaches that works and that do not.
- Understanding how to take part and perform complex test projects in automotive
- Ability to understand code coverage for automotive safety integrity levels (ASIL) required by standards and norms such as ASPICE and ISO 26262.
- Ability for written and oral communication in English, using the technical terms and expressions of computer science.
- Ability to argue, to prepare reports, to read, understand and exploit scientific and technical material (e.g. books and papers).
- Ability to design and implement tests
- Expertise in utilizing sources of technical information, their critical interpretation and evaluation, and the extraction of information relevant to the solution of a specific problem.

Attitude

- Attends professional, technological test development related to their qualification.
- Commitment to critical feedback and self-assessment.
- Commitment to lifelong learning and receptivity to new testing competencies.
- Adopts and coordinates the ethical principles of work, organizational culture and research.
- Shares professional knowledge, mediates professional results.
- Mediates and implements eco-conscious behavior and social responsibility, helping them with tools.
- Commitment to quality standards

Autonomy and responsibility

- Takes responsibility for his professional decisions taken during his professional activities.
- Takes responsibility for observing and enforcing deadlines.
- Takes responsibility for own and fellow workers' work.
- In the case of critical IT systems, he/she can be assigned responsibility for testing, according to his/her professional competencies.