

Tárgytematika / Course Description

System and Software Testing

GKNM_INTA057

Tárgyfelelős neve /

Teacher's name: dr. Csapó Ádám Balázs

Félév / Semester: 2020/21/2

Beszámolási forma /

Assesment: Vizsga

Tárgy heti óraszám /

Teaching hours(week): 2/2/0

Tárgy féléves óraszám /

Teaching hours(sem.): 0/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

Whenever developing complex software systems, continuous testing is a key task, for multiple reasons. First, testing enables development teams to find and correct bugs early, thereby saving costs. Second, testing offers some guarantees that the software will operate as intended once deployed. By completing this course, students will obtain an overview of the theoretical and practical background of systems and software testing.

TANTÁRGY TARTALMA / DESCRIPTION

Lectures cover the following topics:

- Introduction: why is software testing important? Why is it hard? Software lifecycle, modern approaches to software development (V-model, prototype model, agile development, scrum, extreme programming)
- Hierarchical levels of software testing: unit testing, integration testing, system testing and acceptance testing. Key terms: testing, verification, validation. Test cases, test specifications, test sets, error model, test coverage.
- Unit testing. Coverage metrics. Tools for testing based on source code / source code + models.
- Practical examples. Unit testing based on frameworks. Example frameworks from Node.JS and Python.
- Strategies for integration testing - top-down and bottom-up approaches. Methods of system testing: service testing, volume testing, stress testing, usability testing, performance testing, configuration testing, dependability testing.
- Test management - institutional frameworks for testing. Incident and configuration management. Issue tracking.

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESSMENT'S METHOD

The course consists of lectures and a final exam.

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

R. C. Martin. "Clean Code: A Handbook of Agile Software Craftmanship". Prentice Hall, 2009

B. Laboon. "A Friendly Introduction to Software Testing". 2016.