Study programmes: Bachelor studies - Informatics

Course name: R290 - Software Development

Lecturers: Saša Malkov and other lecturers at Department of computer Science

Status: Compulsory

ECTS: 6

Attendance prerequisites: P100, P101, P102, P103

Course aims: Master the basic techniques of modern software development, including teamwork.

Course outcome: Upon completion of the course, the student mastered the basic modern software development techniques and gained some experience in their application and teamwork.

Course content:

- The problem of software development. Overview of contemporary software development methodologies. UML. Agile software development. Extreme programming.
- C ++ Programming Language. Distinctive characteristics, standard library, templates.
- Modern software development techniques. Design patterns. Refactoring. Unit testing. Test driven development. Concurrent programming. User interface design principles.
- Software architecture and software design. Cohesion and coupling. Principles of software design. Event driven architectures. Software metrics.
- Software tools and development environments. Qt. Version control systems. Systems for tracking tasks and problems.

Literature:

1. Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides, Design Patterns: Elements of Reusable Object Oriented Software, Addison-Wesley, 1995. [CET, 2002]
2. Martin Fowler, Refactoring: Improving the Design of Existing Code, Addison-Wesley, 1999. [CET, 2003]
3. Stanley B. Lippman, Josee Layoie, Barbara Moo, C++ Primer, 4th ed., Addison-Wesley, 2005.
4. Robert C. Martin, Agile Software Development: Principles, Patterns and Practices, Prentice Hall, 2003.
5. Shari L. Pfleeger, Joanne M. Atlee: Software Engineering: Theory and Practice, 3.ed, Prentice Hall, 2009. [CET,2006]
6. Saša Malkov, OOP - C++ through examples, Faculty of Mathematics, Belgrade, 2007.

(The lecturer can choose another relevant current literature)

Number of hours: 5	**Lectures: 2**	**Tutorials: 3**	**Laboratory: -**	**Research: -**

Teaching and learning methods: Frontal lectures, group and individual tutorials and exercises.

Assessment (maximal 100 points)

Course assignments	points	Final exam	points
Lectures	-	Written exam	-
Exercises / Tutorials	-	Oral exam	-
Colloquia	25	Written-oral exam	55
Essay / Project	20 (group project)		