

# Aspect-Oriented Software Development

ac. year 2008/2009

<http://fiit.stuba.sk/~vranic/aovs/>

Taught by:	Ing. Valentino Vranić, PhD.
Study type:	master
Study Program:	Software Engineering
Semester:	fall
Weekly hours (lectures–exercises):	2–2
Completion:	e
Number of credits:	5

The objective of this course is to master basics of aspect-oriented software development, which enables a higher degree of the separation of concerns through crosscutting concern modularization. The course gives an overview of aspect-oriented approaches to software development throughout all of its stages, as well as programming languages connected with these approaches. The course also covers the relationship of aspect-oriented software development and software product lines. Students will gain experience with AspectJ, which is the most important aspect-oriented programming language of today.

## Syllabus

1. Crosscutting concerns and aspect-oriented programming. The notion of a join point.
2. Basic approaches to aspect-oriented programming.
3. Aspect-oriented elements in the AspectJ programming language: aspects, join points, advice, and inter-type declarations.
4. Aspect-oriented analysis and design. The Theme approach.
5. Idioms and patterns in aspect-oriented programming.
6. Aspect-oriented use cases.
7. Other important aspect-oriented languages.
8. Aspect-oriented software development and software product lines.

## Literature

- Ramnivas Laddad. *AspectJ in Action*. Manning, 2003.
- Valentino Vranić. Objektovo-orientované programovanie: Objekty, Java a aspekty. Slovenská technická univerzita, 2008.
- Robert E. Filman et al. *Aspect-Oriented Software Development*. Addison-Wesley, 2004.
- Siobhán Clarke and Elisa Baniassad. *Aspect-Oriented Analysis and Design: The Theme Approach*. Addison-Wesley, 2005.
- Ivar Jacobson and Pan-Wei Ng. *Aspect-Oriented Software Development with Use Cases*. Addison-Wesley, 2004.
- Krzysztof Czarnecki and Ulrich Eisenecker. *Generative Programming: Methods, Tools, and Applications*. Addison-Wesley, 2000.
- Jan Bosch. *Design and Use of Software Architectures*. Addison-Wesley, 2000.

## Podmienky absolvovania

The general regulations for courses that end with credit and examination apply to this course.

For a credit to be granted, a project has to be realized and submitted in an acceptable condition according to the assignment not later than in the last week of the term.

Hodnotenie predmetu má tieto zložky:

- term project — 40 %
- term test — 15 %
- exam — 45 %

The term test will be held in the eight week of the term.

Bratislava, September 18, 2008