

<b>Course title:</b> System modeling (ID011)		
<b>Lecturer(s):</b> Miloš A. Racković, Zoran D. Budimac, Srđan M. Škrbić		
<b>Status:</b> (obligatory/elective) elective		
<b>ECTS:</b> 7		
<b>Requirements:</b> none		
<b>Learning objectives</b> The aim of the course is a synthesis and taxonomy of many software systems modeling techniques - from formal to structural. Methodological aspects of modeling will be discussed within the techniques: architecture (styles, models and views), forms, methods of design, and so on.		
<b>Learning outcome</b> At the end of the course it is expected from a successful student to be able to: <ul style="list-style-type: none"> <li>- critically asses and research key concepts in modeling, architecture, design and patterns.</li> <li>- critically asses alternatives in modeling, dependant on the requirements</li> <li>- recognize and create an adequate model</li> <li>- apply research methods in the field of modeling and software architectures</li> </ul>		
<b>Syllabus</b> Review of research in the field: theoretical foundations, elements, styles and patterns, languages and description notations, the methodological procedures for system modeling, system modeling with unified modeling language (UML). Current trends in the research area, for example. models driven development (Model-Driven Architecture MDA), computer independent models, platform-independent and dependent models, formal models, relationship of formal models and of the final system performance, the formalization of UML, ...		
<b>Recommended literature</b> 1. Len Bass, Rick Kazman, Paul Clements, Software Architecture in Practice, Addison Wesley, second edition. 2. M. Shaw and D. Garlan, Software Architecture. Prentice Hall 1996 3. Erich Gamma, Richard Helm, Ralph Johnson, John M. Vlissides, Design Patterns: Elements of Reusable Object-Oriented Software, Addison Wesley. 4. H. Rumbaugh, M. Blaha, W. Premarlani, F. Eddy, W. Lorensen: Object-Oriented Modelling and Design, Prentice-Hall 5. G. Booch: Object-Oriented Analysis and Design with Applications, Addison-Wesley, 1994 (2nd ed.) 6. UML 2.1.1, <a href="http://www.omg.org/technology/documents/formal/uml.htm">http://www.omg.org/technology/documents/formal/uml.htm</a>		
<b>Weekly teaching load</b>	Lectures:3	Student research:0
<b>Teaching methodology</b> Lectures are organized using classic teaching methods with use of a projector. Students independently explore various research topics, present and discuss results with other students and the lecturer.		
<b>Grading method (maximal number of points 100)</b> Seminar paper 60 points, Oral examination 40 points		