

UP Faculty of Sciences		Course description	Page: 1/2
1. Name of course: Systems Engineering (BSc)			
3. Code:		4. Type (lecture, lab etc.): lecture+lab	
5. Weekly hours: 4		6. Credits: 5	
/7. Course precondition (max. 3): –			
8. Frequency of announcement: <input type="checkbox"/> Fall semester, <input checked="" type="checkbox"/> Spring semester, <input type="checkbox"/> Both semesters			
9. Maximal number of students: 24 per group			
10. Responsible lecturer (faculty, institute, department): Dr. Kilián Imre (Faculty of Sciences, Institute of Mathematics and Informatics, Department of Information Technology and Biorobotics)			
11. Lecturers and procentual rates:		Dr. Kilián Imre	100%
12. Language: Hungarian			
<p>13. Learning outcomes: The purpose of the course is to explain the paradigm of „programming in large”. Students may get a view of the software production and project management technologies, with special emphasis on the UML/RUP methodology. They are expected to be able standalone to design a medium size software. Students completing the course:</p> <p><i>know</i> the basic concepts of software design, they own the concerned word and concept sets. <i>able</i> to design steps and phases of software production, and to supervise such a software project <i>able</i> to create the necessary products and diagrams, expressed in OMG UML graphic design language <i>able to lead</i> an industry project that applies the RUP methodology for software design</p>			
<p>14. Course program divided to 13 weeks:</p> <ol style="list-style-type: none"> 1: Models and phases of software development 2: Basic elements of UML. Historical overview. 3: Requirement analysis. Domain model. 4: Requirement analysis. Activity diagrams. 5: Requirement analysis. Use case model. 6: Analysis. Architectural analysis. Component and deployment diagrams 7: Static and dynamic modelling by UML. 8: Analysis: Implementation of use cases. 9: Elements of UML class diagrams. Properties, associations and methods. 10: Fine design. Designing of software components. State machines. 11: Fine design. Database design. Real-time design. 12: Analysis and design patterns. 13: The Gang of Four design pattern collection 			
15. Special tasks during the semester:			
<p>16. Method of evaluation:</p> <ul style="list-style-type: none"> • students write a summary control-work (written exam) in week 11 that contains the complete design of a software. This is the basis of their closing mark. 			
<p>17. Required reading:</p> <p>[1] Rumbaugh-Jacobson-Booch: Unified Modelling Language Reference Manual, Second Edition Addison-Wesley Inc. 2005.</p> <p>[2] Jim Arlow-Ila Neustadt: UML2 and the Unified Process. Second Edition. Practical Object-Oriented Analysis</p>			

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and Design Pearson Education, 2002			
18. Proposed reading: [2] R. G. G. Cattell-D. Barry et al.: The Object Data Standard: ODMG 3.0 Morgan Kaufmann publishers San Francisco, USA 1999.			
This course description has been made:	15-March-2017.	Created by:	
			Dr. Kilián Imre lecturer
Approved by:			