

Study program: Electrical and Computer Engineering – Module: Remote Control			
Type and level of studies: Master studies (second level of studies)			
Course unit: Simulation and Process Modeling			
Teacher in charge: Urosevic Vlade			
Language of instruction: English			
ECTS: 6			
Prerequisites: -			
Semester: Winter			
Course unit objective			
- understanding human-engine interaction and basic principles of creating user interface and virtual reality - skills in implementation 3D computer graphics in real time			
Learning outcomes of Course unit			
After completing this course the students are able to develop theoretical and experimental knowledge of virtual reality in the simulations, experiments, education and games. They understand the human-engine interaction and basic principles of creating user interface and virtual reality. They are familiar with tools and services for implementation 3D computer graphics in real time. Also they know how to create user interface and a virtual reality scene.			
Course unit contents			
<i>Theoretical classes</i>			
The students are introduced to the basics of the modeling, simulation and animation, as well as on how to plan, analyze and do experiments. They are also introduced to software tools and services for monitoring and measurements in physical and technical experiments.			
The primary focus of this course is to develop theoretical and experimental knowledge of virtual reality in the simulations, experiments, education and games. Students will be introduced to the following topics: Human-engine interaction; The principles of creating user interface; Historical overview of virtual reality; Factors of humans' perceptions and technology; Input and output devices; 3D computer graphics in real time; Creation scene of virtual reality, simulation, tools and services for implementation.			
<i>Practical classes</i>			
Laboratory and computer sessions, web discussions via forum and e-mail, case study			
Literature			
1. Seila, A. F., V. Ceric, and P. Tadikamalla. 2003. Applied simulation modeling. Belmont, California: Brooks-Cole. Winston, W. L. 1996			
2. Laplante, P.A., Real-Time Systems Design and Analysis, 2nd edition, IEEE Computer Society, 1997. ISBN 0-7803-3400-0			
Number of active teaching hours			Other classes
Lectures: 2	Practice: 2	Other forms of classes: Mentoring system	
Teaching methods: consultations, independent individual work			
Examination methods (maximum 100 points)			
Exam prerequisites	No. of points:	Final exam	No. of points:
Student's activity during lectures		oral examination	50
Practical classes		written examination	
Seminars/homework	50	
Project			
Grading system			
Grade	No. of points	Description	
10	91-100	Excellent	
9	81-90	Exceptionally good	
8	71-80	Very good	
7	61-70	Good	
6	51-60	Passing	
5	less than 50	Failing	