

DESCRIPTION OF A STUDY COURSE – SYLLABUS

Title of a course	Systems and Process Control				
Head of course	Emil Prpić, Lecturer				
Study programme	Professional undergraduate study Telematics				
Status of a course	Obligatory				
Year of study	3.	Semester	V	ECTS credits	5
Teaching plan (L + E + S+ Pr)	2+2+0+0				
Goals of a course					
Introduce students to the practical aspects of automation systems in industrial and general applications.					
Conditions for enrolling course					
No conditions					
Learning outcomes on a level of a study programme which includes course					
<p>Outcome 2: Link mathematical methods, engineering principles and computer simulations from the signal and system theory with applications in telematics systems.</p> <p>Outcome 6: Design and implement desktop, web and mobile computer applications and computer programs for microcomputers and microcontrollers, with or without a database.</p> <p>Outcome 9: Explain the basic methods of automatic system control and apply them to telematics systems.</p> <p>Outcome 13: Design and develop solutions for components, circuits and software for application in regulation systems and production processes, with the preparation of supporting project documentation.</p> <p>Outcome 15: Participate in teamwork and independently present professional content in written and spoken form in Croatian and English.</p>					
Expected learning outcomes on a level of a course					
<ol style="list-style-type: none"> 1. Apply the basic principles of selecting the elements of automation and elaboration of program logic 2. Create partial elements of automation system documentation - P&ID, datasheets, program view 3. Independently create a simple LADDER PLC program according to a functional specification 4. In a team, wire and connect the hardware elements of a practical problem exercise. 5. In a team, create the assigned program of a practical problem exercise for specific development platforms. 					
Content of a course					
Introductory discussions and basic notions. Electrical engineering and electrical systems base. Consumer plants, systems, installations and devices. Structure and architecture of electrical systems management. Classification and formal presentation of electrical systems management. Mathematical modelling. Interface of system processes – binary, impulse, analogue and commands. System components for electrical systems management. Digital automatic control systems. Usage of programmable logic controllers. Examples of usage and system management.					
Teaching modes	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> auditory exercises <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> distance learning <input type="checkbox"/> field classes		<input checked="" type="checkbox"/> individual assignments <input type="checkbox"/> multimedia and network <input type="checkbox"/> laboratory <input type="checkbox"/> supervisor's work <input type="checkbox"/> other _____		
Comments					
Students' obligations					
Scores related to Outcomes 4 and 5 are earned solely in laboratory exercises where attendance is required.					
Grading, evaluation and monitoring of students' work continuously during lectures and exams					
Grading is based upon evaluation of adoption of course's learning outcomes. Grading is performed continuously					

during lectures and/or during exam, in compliance with the provisions of Regulation on the assessment of students.

Continuous check-up:

Outcomes	Interactive lectures	Pre-exam	Laboratory exercises	Threshold	Max
Outcome 1	25%	15%		12,5%	25%
Outcome 2	10%	10%		5%	10%
Outcome 3	25%	15%		12,5%	25%
Outcome 4			10%	5%	10%
Outcome 5			30%	15%	30%
Percentage of ECTS	3	2	2		5
Total	60%	40%	40%		100%

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Exam term:

Outcomes	Written exam	Oral exam	Max
Outcome 1			
Outcome 2			
Outcome 3			
Outcome 4			
Outcome 5			
Outcome 6			
Percentage of ECTS			
Total			100 %

A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.

Grading:

A student has passed the exam if he has acquired at least 50% of anticipated credits of a specific learning outcome.

If a student has passed learning outcomes of all courses, the accomplished credits (percentages) of all passed learning outcomes are being added, while the final grade is defined upon following table:

Range of credits (percentages)	Numerical grade	ECTS grade
90,00 – 100,00	Excellent (5)	A
75,00 – 89,99	Very good (4)	B
60,00 – 74,99	Good (3)	C
50,00 – 59,99	Sufficient (2)	D
0,00 – 49,99	Insufficient (1)	F

Obligatory literature

1. Authorized Lectures
2. Radni tekst udžbenika: E.Prpić "Automatizacija sustava i procesa"

Additional literature

1. Z.Vukić, Lj.Kuljača, "Automatsko upravljanje", Kigen, Zagreb 2004.
2. N.Perić, "Automatsko upravljanje", FER Sveučilišta u Zagrebu, 2005.
3. W.Bolton Newnes, "Programmable Logic Controllers", 2003.

