

# Syllabus

Basic data of the subject			
University/Faculty:	University of Applied Sciences in Ferizaj		
	Faculty of Engineering and Informatics		
Academic unit:	Industrial Engineering		
Title of the subject:	Automatic Adjustment - Control		
Level:	Bachelor		
Course Status:	Core		
Year of studies:	3		
Number of hours per week:	4		
Value of Credits - ECTS:	5		
Time / location:			
Course lecturer:	As. Prof. Dr. Bashkim Çerkini		
Contact details:	Bashkim.Cerkini@ushaf.net		
<b>Course Description</b>			
	<p><i>The course provides students with fundamental knowledge of Automatic Adjustment, tools and their application in the development automation. Students are taught to design a sequential digital circuit, the mathematical approach of dynamic systems and the method of comparison, the application of Laplace transformations to the solution of differential equations, the application of computers to automatic. Examples of applying Automation to Machinery.</i></p>		
<b>Objectives of the course:</b>			
	<p><i>Familiarity with the basic principles of automatic regulation. Introducing analysis and synthesis methods, as well as elements of automation. Linking the theoretical approach to the real automatic systems that surround us.</i></p>		
<b>Expected learning outcomes:</b>			
	<p><i>Upon successful completion of this course, student will be able to:</i></p> <ul style="list-style-type: none"> <li>• <i>To know the analogy of different physical systems and their parts with adequate typical models</i></li> <li>• <i>Be capable of independently forming models of technical systems</i></li> <li>• <i>Be able to solve practical problems in the field of automatic regulation.</i></li> </ul>		
<b>Contribution to the student load (which must correspond with learning outcomes)</b>			
Activity	Hour	Day/Week	In total
Lectures	2	15	30
Theoretical exercises / laboratory	1	15	15
Internship	1	10	10

Contacts with teacher / consultations	1	1	1
Field exercises			
Midterm, seminars and projects.	2	1	2
Homework			
Self-learning time student (at the library or at home)	2	15	30
Final preparation for the exam	2	15	30
Time spent on evaluation (tests, quiz and final exam)	1	2	2
Projects and presentations	1	5	5
<b>Total</b>			125

<b>Teaching methodology:</b>	<i>The course lasts 15 weeks with 4 hours of individual and group weekly lectures and exercises. The exercises will be held in the form of individual and group work in which concrete examples will be discussed. Active participation is extremely important, so students are encouraged to attend lectures and exercises regularly and to contribute to the discussions that take place in the lectures. Lectures, coaching, individual work, discussions and group work.</i>
<b>Assessment methods:</b>	<i>First test 30% Second test 30% Workshop - 30% Attendance and Activity 10%. Score with Final Exam - 100%</i>
<b>Literature</b>	
<b>Basic Literature:</b>	<i>1. Shaban Shabani, Dirigjimi dhe rregullimi automatik, Universiteti i Prishtinës, Prishtinë, 2002 2. Shaban Shabani, Ramë Likaj, Teknika e rregullimit përmbledhje detyrash të zgjidhura, Prishtinë, 1998</i>
<b>Additional Literature:</b>	<i>1. H. Peter.J, "Regelungstechnik", Wien, 2000</i>
<b>The ratio of theory and practice:</b>	<i>70% theory with exercises and 30% laboratory work.</i>

<b>Designed learning plan</b>	
<b>Week:</b>	<b>Lectures and exercises to be held</b>
<b>Week one:</b>	<i>Introduction of syllabus, teaching methods and assessment methods.</i>
<b>Week two:</b>	<i>Introduction to automation, automation development, control, adjustment and management Automatic conduction and adjustment</i>
<b>Week three:</b>	<i>Numerical systems and mathematical operations</i>
<b>Week four:</b>	<i>Logical Functions, Bulb Algebra, Logical Elements, Logical Function Formulation and Minimization</i>
<b>Week five:</b>	<i>Combined circuits and sequence sequences, RS bistable, T bistable and D bistable</i>
<b>Week six:</b>	<i>Test I</i>

<b>Week seven:</b>	<i>Mathematical approach of dynamic systems and method of comparison System analysis in the field of complex variables and in time interval Laplace's transformation and its theorems</i>
<b>Week eight:</b>	<i>Applying Laplace to the solution of differential equations Frequency band systems analysis Transmission sinusoidal function</i>
<b>Week nine:</b>	<i>Block diagrams and actions with blocks Regulatory facilities and equipment Digital control systems</i>
<b>Week ten:</b>	<i>Systems stability criteria Modeling linear adjustment systems in the state space</i>
<b>Week eleven:</b>	<i>Regulatory action analysis Synthesis of regulatory actions Examples of applying automation to Machinery</i>
<b>Week twelve:</b>	Study visits to enterprises
<b>Week thirteen:</b>	Workshop presentations
<b>Week fourteen:</b>	Test II
<b>Week fifteen:</b>	Course summary and presentation of seminar papers

#### **Academic policies and rules of conduct**

*Regular attendance of lectures and exercises is necessary, as well as active participation with discussion and solution of tasks. Not impeding the progress required for learning using mobile phones turned off or in silent mode.*