

Óbuda University Bánki Donát Faculty of Mechanical and Safety Engineering		Insitute of Mechatronics and Vehicle Engineering			
Subject title and code: Full-time study		Introduction to the Mechatronics, <i>BMXMEE1BNE</i> 2024/25-1 ac. 1 semester year			Credits: 4
The course is available at:		mechatronical engineering			
Supervised by:		István Nagy		Instructors: István Nagy	
Prerequisite (neptun code):					
Weekly number of lessons					
Lecture: 2	Group seminar: 0	Lab: 0	Consultation: see on institute WEB-link		
Way of assessment: Midterm (Written) mark					
Online consultation (in case it's required): based on online reservation... (BBB link)					
Educational goal: <i>The aim of education is to give the students general information about MECHATRONIC system's classifications, basic definitions, key elements of mechatronic systems, basic calculations related to the key elements. At the end of semester Student's micro-conference about mechatronics. The aim of conference is get experience in conference paper writing and presentation's taking</i>					
Schedule					
Education week	Topics				
1.	Managing the semester- requirements for successful finishing of subject. Introduction to the subject: mechatronic definitions, key elements of mechatronic, main branches of mechatronics – <i>taste the subject</i> , through the examples				
2.	Interfacing and signal classifications (input/output interfaces; analogue, digital, stochastic signal classifications, main features).				
3.	signal processing (A/D, D/A – conversions, filtering, quantization, sampling rate, DAQ) -				
4.	Sensors (rotational, linear; optical sensors)				
5.	Sensors (US,IR, heat, pressure, torque, vision system – stereo camera)				
6.	Actuators (3 main types: switches, valves, motors);				
7.	1st Test Paper,				
8.	System modelling and analogies2 (mechanical, electrical, electro-mechanical parts modelling, Introduction to Control Engineering)				
9.	Control engineering (HW control elements, SW control programs, feed backed/non-feed backed control and PID control.)				
10.	Control (block) diagrams (control diagram's elements mathematics for simplification);				
11.	Rectory – holiday				
12.	Control System's examinations based on TIME and FREQUENCY domain.				
13.	2nd Test Paper				
14.	Preparing for IMSmC2024 Conference, submissions of semestral works.				
Mid-semester requirements					
Test		Assignment to be submitted		Lab measurement	
amount	dates	amount	deadlines	amount	dates
2	see schedule	1	14 th week	0	
<i>According to the Study and Examination regulations of Óbuda University attendance of group seminars and lab exercises are mandatory.</i>					
Other requirements for participation in sessions not covered by the regulations and restrictions on substitutions: The lectures are mandatory , 30% absence allowed, see “Study and Exam regulations”. The participation on IMSmC conference and presentation is also mandatory, one of the condition for getting the midterm mark, otherwise the good presentation increasing the grading earned by TPs.					
Test		Assignment to be submitted		Lab measurement	

maximum points available 100/TP...points	minimum score required to pass /test 40/TP...points	maximum points available 100points	minimum score required to pass / assignment 50points	maximum points available ...points	minimum score required to pass /lab ...points
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Total number of points achievable in semester: 300points				
Grading thresholds	satisfactory 50 % and above	average 65 % and above	good 75 % and above	excellent 90 % and above
Other evaluation criteria: During the semester 2TPs will be written, where the average has to be over 40%. The TPs with lower level has to be repeated. During the semester an assignment has to be submitted for the IMSmC2024 Conference The conference paper has to be presented on the IMSmC Conference – see conf. Link				
Receive a signature denied entry: over 30% absence;				
Required references: http://siva.bgk.uni-obuda.hu/jegyzetek/Mechatronikai_alapismeretek/English_Mechatr/IntroToMechatr/Literature/				
Recommended references: see, moodle				
Quality assurance methods of the subject:				

Things, that are not included, can be found within the regulations of Óbuda University.