

				ÓBUDA UNIVERSITY BÁNKI DONÁT FACULTY OF MECHANICAL AND SAFETY ENGINEERING		Institute: Institute of Material and Manufacturing Science			
Name of the subject: Mechatronics of Manufacturing Systems BAWGME6BNE Credit: 4									
Full time course		Term: 2021/2022 II.							
Programme: Mechatronics Engineering BSc III				Mo. 13:30-15:10 - 110/136					
Teacher responsible for the subject:		Mikó Balázs (PhD; ass. prof.)		Teachers:		Dr.Czifra György (1-4) Dr Mikó Balázs (5-9) Oláh Ferenc (10-14)			
Prerequisites:		-							
Hours per week:		Lecture: 2		Practice.: 0		Labs: 2		Consultation:	
Way of closing the semester:		Exam							
Curriculum									
<i>Aim of the subject</i> <i>The aim of the subject is to present modern machining methods and CNC technology. The first part (w1-4) of the subject focuses on the build up of the CNC machine tools and investigates them as a typical mechatronic system. The second part (w5-9) presents the manual CNC coding and shows typical examples in the field of milling and turning. The third part (w10-14) shows the application of CAD/CAM solutions integrated in the system Solid-Edge/EdgeCAM.</i>									
Schedule									
week no.		Topics							
1		Fundamentals of CNC technology and machines, Industrial robotics in machining, Industry 4.0							
2		Classification of modern CNC machines, types, and their variations Building blocks of CNC machines,							
3		Drives used in CNC machines, PLC Controllers of CNC machines, Measuring systems							
4		Control systems, Coordinates in CNC machining and their transformations							
5		CNC programming – Milling example 1 (HW1)							
6		Education break / Holiday							
7		CNC programming – Milling example 2							
8		CNC programming – Milling example 3							
9		CNC programming – Milling example 4							
10		CAD/CAM lab (CAD) – Part modelling							
11		Education break / Holiday							
12		CAD/CAM lab (CAM) – 2.5D milling							
13		CAD/CAM lab (CAM) – 3D milling							
14		CAD/CAM lab (CAM) - Machining							
Requirements: 1 test in the Moodle at the 14th week (max 40 points), 1 homework – CNC programming (max 10 points) 1 CAD/CAM testwork (max 10 points) 0-59 % – 1 (fail) 60-69 % – 2 (pass) 70-79 % – 3 (satisfactory) 80-89 % – 4 (good) 90-100 % – 5 (excellent)									
Literature: 1. Moodle 2. Alen Overby: CNC machining handbook; McGraw-Hill New York, 2011 3. Peter Smid: CNC programming handbook (2nd ed.); Industrial Press New York; 2003 4. NCT programming guides: www.nct.hu									

.....
Dr Mikó Balázs

