

Basic data of the subject			
Academic Unit:	Faculty of Management		
Subject title:	CNC Technologies		
Study level:	Bachelor		
Subject status:	Elective		
Years of study:	III		
Number of hours per week:	4		
Value of credits - ECTS:	5		
Lecturer of the subject:	Prof.As.Dr.Muhamet Ymeri		
Contact details:	muhamet.ymeri@ushaf.net		
Subject description:			
		During the course(subject), students will be able to analyze the elementary dimensions of products, make their comparison by raising complex nature problems. They will be able to do basic programming using CNC machine software. They will know how to put in place the necessary data on the ArtCam and Vectric Aspire programs to work from controllers to practical work through the Mach3 program. Apart from these, the possibilities of importing engineering vectors from AutoCad and other programs will be taught, which will be converted to the CNC machine	
Purpose of subject:			
		The purpose of this subject is to provide the student with general knowledge on the methodology and concepts for designing CNC machines in order to achieve high precision production of modern products. Through this subject, students will develop their skills in product preparation that will go through CNC machine operations, such as Drilling, Milling, Cutting etc.	
Expected learning outcomes:			
		After completion of this module, students will be able to: <ul style="list-style-type: none"> • Learn main design principles with CNC machines; • Improve the performance and reliability of the machine; • Design high-precision systems; • Program machines for production etc. • Lead the application of the works from the starting point to the end of the product. 	
Contribution to student workload (which should correspond to the students learning outcomes)			
Activity	Hours	Days/week	Total
Lectures	2	15	30
Theoretical / laboratory exercises	2	10	20
Practical work	5	3	15
Contacts to the Lecturer /	1	3	3

Consultations			
Field exercises	1	5	5
Tests, student seminars	2	3	6
Home work	1	15	15
Time of self-study (in the library or home)	2	10	20
Final preparation for the exam	3	2	6
Time spent in assessment (tests, quiz, final exam)	2		2
Projects, presentations, etc.	3	1	3
Total			125
Teaching methodology:	Lectures, Teamwork, Lab. work, Practical visits (work)		
Assessment methods:	Final exam 50% Project 50%		
Literature			
Basic literature:	<ul style="list-style-type: none"> ➤ KTH V. Stenberg Student CNC Guide; ➤ Steve K.& Arthur G. Computer Numerical Control CNC; ➤ Dr. Tamer M. CNC Hardwer and Tooling Basics 		
Designed plan of teaching:			
Weeks	Lecture to be held		
First week:	History of Computer Numerical Control (CNC)		
Second week:	Benifits of CNC machines		
Third week:	Required space for developing work with CNC machines		
Fourth week:	Safety rules for CNC machines		
Fifth week:	Electrical requirements for normal work in CNC machine		
Sixth week:	Total management of the process in the CNC machine		
Seventh week:	Machine tools, knowledge for their selection		
Eighth week:	CNC Machine Components (Controller, Working Bank, Axles, Cutting Parameters)		
Ninth week:	Identification of machines based on adjustion of tables in CNC machine (X, Y machines; Pendulum		
Tenth week:	CNC Machine Software (G-Codes, Post Processors)		
Eleventh week:	The basics of programming		
Twelfth week:	Cartesian system of coordinates		
Thirteenth Week:	Application of CAD / CAM software, Vectric Aspire, ArtCam, Mach3		

	Application of software work to practical work
Fifteen week:	Presentation of seminars from students
Academic Policies and Rules of Conduct:	
<i>Regular attendance, keeping calm and active engagement in dialogue during lectures and exercises is mandatory.</i>	