

Subject information sheet

University: Alexander Dubček University of Trenčín	
Faculty: Faculty of special technology	
Course unit code: KSTM/3-76/d/16	Course unit title: Technology of Material Processing II
Type, scope and method of educational activities: Types of education: Lecture / Practical / Laboratory practical Recommended duration of education (in hours): Per week: 0 / 0 / 2 For the whole period of study: 0 / 0 / 24 Study method: present	
Number of credits: 6	
Recommended semester/trimester of study:	
Degree of study: N	
Prerequisites:	
Conditions for the accomplishment of the course unit: 90% attendance at lectures, 100% attendance at laboratory exercises (max. With 2 excused absences), individual work for absence at lectures and laboratory exercises, demonstration of knowledge of the content of the subject in written and oral exam during the trial period. Final testing in the written and oral form. Of the total number of 100% points, at least (E) - 55%, (D) - 65%, (C) / 75%, (B) - 85%, (A) - 95%.	
Learning outcomes: To acquaint Erasmus students with basic principles, kinematics, and application in practice of individual chip machining technologies, using conventional and CNC machining machines, with cutting materials and cutting tools (with monolithic and interchangeable cutting plates), with clamping tools, finishing machining methods, unconventional machining technologies. Furthermore, with conventional chisel machining and so- "HSC, HPC, HM, DM" machining. Practical as well as the calculation of the cutting conditions, the decomposition of the individual components of the cutting forces, the calculation of the main machine and secondary machining times and the total machining power. Getting acquainted with the heat phenomena of machining and the qualitative indicators of machining technology. Create the technological process of machining parts.	
Brief course unit content: Basic phenomena and definitions of machining, kinematics of individual machining processes. Basic shape of the cutting tool, geometry of the cutting wedge, tool and working angles. Mechanics of chip formation - deformation processes in the cutting zone, formation and transformation of chips, types of chips, formation of growth. Cutting, cutting tools and cutting materials - use in practice. Dynamics of the cutting process - cutting forces, cutting work, heat cutting phenomena, machining cooling. Cutting performance and productivity. Stability of the cutting process, interrupted rust, machining. Wear and durability, tool life. Machining of materials used in the engineering industry, classes and machining groups. Cutting materials and CVD / PVD coatings used in machining. Basic machining technologies (turning, milling, drilling, grinding), finishing and unconventional machining methods. Automation of the machining process, principle and types of NC and CNC machine tools, FANUC, HEIDENHAIN control systems. Technology of construction.	

Creation of production and technological processes. Calculation of Cutting Parameters and Main Machining Times.

Recommended Literature:

[1] KALPAKIJAN, S.: Manufacturing, engineering and technology. ADDISON WESLEY PUBLISHING Co. USA, 1995.

[2] TRENT, E.M., WRIGHT, P.K.: Metal Cutting. Copyright © 2000 by Butterworth–Heinemann. 439 pages. ISBN 0-7506-7069-X.

[3] KLOCKE, F.: Manufacturing Processes 1 - Cutting. Springer Heidelberg Dordrecht London New York. 497 pages. ISBN 978-3-642-11978-1.

[4] KLOCKE, F.: Manufacturing Processes 2 - Grinding. Springer Heidelberg Dordrecht London New York. 431 pages. ISBN 978-3-540-92258-2.

Language which is necessary for accomplishment of the course unit:

english

Notes:

The subject is provided to Erasmus students. The subject is selective.

Course evaluation passed/failed

Number of evaluated students: 25

A	B	C	D	E	Fx
56.0	40.0	4.0	0.0	0.0	0.0

Teachers: doc. Ing. Jozef Majerík, PhD.

Last modification date: 27.09.2022

Approved by: