Course description

Department/Unit /	KTO / PANC2		**Academic Year**	2023/2024
Title	Automat. of NC Machine-Tool Program. 2		**Type of completion**	Pre-Exam Credit
Long Title	Automatically of NC Machine-Tool Programming 2			
Accredited/Credits	Yes, 5 Cred.		**Type of completion**	Combined
Number of hours	Tutorial 4 [Hours/Week]			

Occ/max	Status A	Status B	Status C		**Course credit prior to**	NO
Summer semester	3 / -	0 / -	0 / -		**Counted into average**	NO
Winter semester	0 / -	0 / -	0 / -		**Min. (B+C) students**	5
Timetable	Yes				**Repeated registration**	NO
Language of instruction	Czech				**Semester taught**	Summer semester
Optional course	Yes				**Internship duration**	0
Evaluation scale	S|N					
No. of hours of on-premise						
Auto acc. of credit	Yes in the case of a previous evaluation 4 nebo nic.					
Periodicity	K					
Substituted course	None					
Preclusive courses	N/A					
Prerequisite courses	N/A					
Informally recommended courses	N/A					
Courses depending on this Course	N/A					

Course objectives:

The aim of the subject is to master and practice multi-axis machining techniques, to get acquainted with the influence of postprocessors on creating and simulating NC data, to learn how to use the extensions of the most widely used CNC control systems

Requirements on student

- successful debugging of NC program
- pass the seminar project

Content

- practice the knowledge acquired in previous subjects
- preparation of NC data for turning in CAM system
- preparation of NC data for milling in 2 1/2D and 3D
- preparation of NC data for multi-axis milling
- individual work on the seminar project
- preparation of a technological documentation through CAM system
- NC machine alignment and program debugging

Fields of study

Guarantors and lecturers

- **Guarantors:** Ing. Aneta Jirásko, Ph.D. (100%)
- **Tutorial lecturer:** Ing. Jan Hnátík, Ph.D. (25%), Ing. Luboš Kroft, Ph.D. (25%)

Literature

- **Basic:** Štulpa, Miloslav. *CNC : programování obráběcích strojů*. První vydání. 2015. ISBN 978-80-247-5269-3.
- **Recommended:** Dillinger, Josef. *Moderní strojírenství pro školu i praxi*. Vyd. 1. Praha : Europa-Sobotáles, 2007. ISBN 978-80-86706-19-1.

Time requirements

All forms of study

Activities	Time requirements for activity [h]
Practical training (number of hours)	20
Presentation preparation (report) (1-10)	10
Undergraduate study programme term essay (20-40)	40
Contact hours	52
Total:	122

assessment methods

Knowledge - knowledge achieved by taking this course are verified by the following means:

Seminar work

Skills demonstration during practicum

Individual presentation at a seminar

Skills - skills achieved by taking this course are verified by the following means:

Seminar work

Skills demonstration during practicum

Individual presentation at a seminar

Competences - competence achieved by taking this course are verified by the following means:

Seminar work

Individual presentation at a seminar

prerequisite

Knowledge - students are expected to possess the following knowledge before the course commences to finish it successfully:

- describe creation of NC programs by workshop programming systems

- describe the basic principles of a NC machine tool

- describe the basic methods of machining and finishing processes

Skills - students are expected to possess the following skills before the course commences to finish it successfully:

- build NC program in selected workshop programming system

- select a suitable cutting tool and select cutting conditions

Competences - students are expected to possess the following competences before the course commences to finish it successfully:

N/A

teaching methods

Knowledge - the following training methods are used to achieve the required knowledge:

Practicum

Task-based study method

Self-study of literature

Skills - the following training methods are used to achieve the required skills:

Seminar

Skills demonstration

Task-based study method

Competences - the following training methods are used to achieve the required competences:

Practicum

Task-based study method

learning outcomes

Knowledge - knowledge resulting from the course:

- in description of basic functions of CAD / CAM system

- in multi-axis and indexed machining

- explain the function of the postprocessor and understand its importance

Skills - skills resulting from the course:

- create NC program using CAM system

- prepare the NC machine tool and debug the corresponding NC program

Competences - competences resulting from the course:

N/A

Course is included in study programmes:

Study Programme	Type of	Form of	Branch	Stage	St. plan v.	Year	Block	Status	R.year	R.
Engineering	Bachelor	Full-time	Programming of NC Machines	1	2020	2023	Povinné předměty 4. ročníku	A	4	LS