University: University of Žilina	
Faculty: Faculty of Mechanical Engineering	
Course ID: 2Y019	**Course name:** CAx Systems (CAxS_E)
Povinnosť predmetu: Electorial; **Ukončenie:** Exam	
Profile course: - **Core course:** -	
Form, extent and method of teaching activities:	
Number of classes per week in the form of lectures, laboratory exercises, seminars or clinical practice	Lectures: 2 classes Seminars: 0 classes Lab.exercises: 2 classes
Methods by which the educational activity is delivered	Present form of education
Applied educational activities and methods suitable for achieving learning outcomes	Lectures: problem-based lectures, interactive lectures with discussion, lectures supported by multimedia and audiovisual means Examination: presentation and defence of the project, oral examination
Number of credits: 5	
Study workload: 130 hours in total; of which 52 hours are direct teaching, 72 hours are independent study of the student and his/her individual creative work.	
Recommended semester/term of study: winter	
Study degree: 4	
Required subsidiary courses: Prerequisites: - Co-requisites: -	
Course requirements: Continuous assessment / evaluation: - active participation in exercises, project presentation Final assessment /evaluation: - Written and oral exam The resulting classification of the subject: A: 93 – 100 points B: 85 – 92 points C: 77 – 84 points D: 69 – 76 points E: 61 – 68 points FX: Less than 61 points Minimálny počet bodov pre prihlásenie na skúšku nie je zadaný	

Forms and methods of assessment	Predetermined weight %	Area of knowledge, skills and competence
Student portfolio (1 x semester project)	50%	practical skills, application of expertise, activities and correctness of solving tasks during the semester, working with various information sources, self-study
Exam (test / oral)	50%	Theoretical knowledge

Course outcomes:

After completing the course the student:

- knows and can characterize the philosophy of computer integrated manufacturing (CIM), groups of computer support systems and corresponding professional terminology,

- understood the reasons and methods of their deployment and use in engineering companies as tools for achieving the required efficiency and quality of preparatory processes,
- knows the basic representatives of individual groups of CAx systems and examples of their applications,
- understand how to use selected CAx systems and apply this knowledge to the independent creation of simple digital outputs,

Course scheme:

Lectures:

- Introduction to automation and computer support in mechanical engineering,
- Overview of CA systems in engineering practice,
- Overview of methods used in CA systems,
- Overview of protocols, standards and interfaces for CA systems,
- Methods and techniques in CAD systems,
- Methods and techniques in CAPP systems,
- Methods and techniques in CAM systems,,
- CAD/CAM systems,
- CAPE systems,
- CAQ systems,
- Integrated CA systems,
- PDM, PLM systems,
- Pyramid model of business systems - ERP, MES, SCADA systems.

Lab.exercises:

- laboratory work with selected CA systems.

Literature:

KURIC, I. – GROZAV, S. – ČUBOŇOVÁ, N. – KUMIČÁKOVÁ, D. – CÍSAR, M. – BULEJ, V. – et al.: Mechanization and automation equipment for processing. - Cluj-Napoca: Publishing House Alma Mater, 2015. - ISBN 978-606-504-188-2. - p. 482. (book)

COTETIU, R. – KURIC, I. – MARCINCIN, J. – UNGUREANU, N.: New Trend in Mechanical Design and Technologies. ISBN 973-751-084-4, 2005, RISOPRINT Cluj Napoca Publisher, 210p., (book)

KURIC, I. – MATUSZEK, J. – DEBNÁR, R.: Computer Aided Process Planning in Machinery Industry. Politechnika Lodzka, Bielsko Biala, 1999, ISBN 83-87087-00-9, 139s. (book)

KURIC, I.- KOŠTURIAK, J. – JANÁČ, A. – PETERKA, J. – MARCINČIN, J.: Computer Aided Systems in Mechanical Engineering (in Slovak). - Žilina : Žilinská univerzita, 2002. - 351 s. - ISBN 80-7100-948-2 (book)

KURIC, I. - KUBA, J. Počítačová podpora návrhu technologickej dokumentácie. - Žilina : Žilinská univerzita, Strojnícka fakulta, 2002. - 128 s., grafy, sch., tab. - ISBN 80-7100-925-3

CÍSAR, M. - BULEJ, V. - ZAJAČKO, I. - ČUBOŇOVÁ, N. Basics of CNC machine tools programming with the Sinumerik 840D control system: support in the development of multi-criteria diagnostics (in Slovak). - Vyd. 1. - V Žiline : Žilinská univerzita, Strojnícka fakulta, 2018. - 164 s., fotografie, ilustrácie, schémy. - ISBN 978-80-554-1529-1.

ČUBOŇOVÁ, N. – BULEJ, V. – NÁPRSTKOVÁ, N. – DODOK, T. - TLACH, V. Automation of Mechanical Production (in Slovak). 1st ed. – EDIS Žilina : University of Žilina, 2021. – p. 259, - ISBN 978-80-554-1836-0.

Instruction language: english

Notes:

Course evaluation:

Total number of evaluated students: 0

A	B	C	D	E	FX
00.00 %	00.00 %	0.00 %	0.00 %	0.00 %	0.00 %

Course teachers:

Lecture: prof. Ing. Ivan Kuric, Dr.
Lab.exercises: prof. Ing. Ivan Kuric, Dr.
Lab.exercises: Assoc.-prof. Ing. Miroslav Císar, PhD.
Lab.exercises: Ing. Tomáš Dodok, PhD.

Last updated:
Approved by: prof. Ing. Nadežda Čuboňová, PhD.