SYLLABUS [1]

THIS COURSE UNIT IS TAUGHT IN ROMANIAN LANGUAGE

1. Information about the program

1.1 Higher education institution	Poliutehnica University Timisoara
1.2 Faculty[2]/ Department [3]	Mechanical/Material and Manufacturing Engineering
1.3 Chair	—
1.4 Field of study (name/code[4])	Industrial Engineering/20.70.10 (HG185/2018 and HG 1588/2018)
1.5 Study cycle	Bachelor
1.6 Study program (name/code/qualification)	Machine Building Technology

2. Information about the discipline

2.1 Name of discipline/ formative category[5]			Construction and Exploitation of Cutting Tools				
2.2 Coordinator (holder) of course activities			Stef Dorian				
2.3 Coordinator (holder) of applied activities[6]			Stef Dorian				
2.4 Year of study[7]	4	**2.5** Semester	7	**2.6** Type of evaluation	E	**2.7** Type of discipline[8]	DD

3. Total estimated time – hours / semester: direct teaching activities (fully assisted or partly assisted) and individual training activities (unassisted) [9]

3.1 Number of fully assisted hours / week	4 of which:	**3.2** course	2	**3.3** seminar / laboratory / project	2
3.1* Total number of fully assisted hours / semester	56 of which:	**3.2*** course	28	**3.3*** seminar / laboratory / project	28
3.4 Number of hours partially assisted / week	4 of which:	**3.5** training	4	**3.6** hours for diploma project elaboration	
3.4* Total number of hours partially assisted / semester	56 of which:	**3.5*** training	56	**3.6*** hours for diploma project elaboration	
3.7 Number of hours of unassisted activities / week	2 of which:	additional documentary hours in the library, on the specialized electronic platforms and on the field			0.5
		hours of individual study after manual, course support, bibliography and notes			0.5
		training seminars / laboratories, homework and papers, portfolios and essays			1
3.7* Number of hours of unassisted activities / semester	28 of which:	additional documentary hours in the library, on the specialized electronic platforms and on the field			7
		hours of individual study after manual, course support, bibliography and notes			7
		training seminars / laboratories, homework and papers, portfolios and essays			14
3.8 Total hours / week [10]	10				
3.8* Total hours /semester	140				
3.9 Number of credits	4				

4. Prerequisites (where applicable)

4.1 Curriculum	•

[1] The form corresponds to the Discipline File promoted by OMECTS 5703 / 18.12.2011 and to the requirements of the ARACIS Specific Standards valid from 01.10.2017.
[2] The name of the faculty which manages the educational curriculum to which the discipline belongs
[3] The name of the department entrusted with the discipline, and to which the course coordinator/holder belongs.
[4] The code provided in HG no.140 / 16.03.2017 or similar HGs updated annually shall be entered.
[5] Discipline falls under the educational curriculum in one of the following formative disciplines: Basic Discipline (DF), Domain Discipline (DD), Specialist Discipline (DS) or Complementary Discipline (DC).
[6] Application activities refer to: seminar (S) / laboratory (L) / project (P) / practice/training (Pr).
[7] Year of studies in which the discipline is provided in the curriculum.
[8] Discipline may have one of the following regimes: imposed discipline (DI), optional discipline (DO) or optional discipline (Df).
[9] The number of hours in the headings 3.1 *, 3.2 *, ..., 3.8 * is obtained by multiplying by 14 (weeks) the number of hours in headings 3.1, 3.2, ..., 3.8. The information in sections 3.1, 3.4 and 3.7 is the verification keys used by ARACIS as: (3.1) + (3.4) ≥ 28 hours / wk. and (3.8) ≤ 40 hours / wk.
[10] The total number of hours / week is obtained by summing up the number of hours in points 3.1, 3.4 and 3.7.

4.2 Competencies	• Material Strength, Technical Drawing, Heat treating

5. Conditions (where applicable)

5.1 of the course	•
5.2 to conduct practical activities	• Cutting Tools Laboratory

6. Specific competencies acquired through this discipline

Specific competencies	• Description of the theories, methods, and fundamental principles of designing technological processes specific to machine building technology • Use of basic knowledge to explain and interpret different types of technological manufacturing processes specific to machine building technology • Application of basic principles and methods for the design of technological manufacturing processes, on classic and / or CNC machines with well-defined input data, under conditions of qualified assistance. • Adequate use of standard evaluation criteria and methods to assess the quality, advantages, and limitations of technological manufacturing processes on conventional and / or CNC machines and flexible manufacturing systems
Professional competencies ascribed to the specific competencies	• Performing calculations, demonstrations, and applications to solve tasks specific to industrial engineering based on knowledge from basic sciences. • Associating knowledge, principles, and methods in the technical sciences of the field with graphical representations for solving specific tasks. • Elaboration of technological manufacturing processes. • Design and operation of manufacturing equipment. • Planning, management, and quality assurance of manufacturing processes.
Transversal competencies ascribed to the specific competencies	• Applying the values and ethics of the engineering profession and responsible execution of complex professional tasks in conditions of professional autonomy and independence; promoting logical, convergent, and divergent reasoning, practical applicability, evaluation, and self-evaluation in decision making. (Responsible execution of complex professional tasks). • Carrying out activities with the exercise of specific roles of teamwork on different hierarchical levels and with the assumption of leadership roles; promoting the spirit of initiative, dialogue, cooperation, positive attitude and respect for others, diversity and multiculturalism and the continuous improvement of one's activity

7. Objectives of the discipline (based on the grid of specific competencies acquired - pct.6)

7.1 The general objective of the discipline	• Acquiring and implementing knowledge related to the construction and exploitation of cutting tools
7.2 Specific objectives	• Understanding the industrial environment • Understanding the different types of cutting tools • Approaches, methods, and systems of product manufacturing using different cutting tools • Design of cutting tools and cutting technologies •

8. Content [11]

8.1 Course	Number of hours	Teaching methods [12]
History	2	Lecture / exemplification / case study / debate
Generalities	2	
Cutting parameters	4	
Design of cutting inserts	4	
Cinematic reference system (tool machine)	2	
Cinematic constructive system (cutting tool)	2	
Cutting tool materials	2	
Construction and exploitation of turning cutting tools	2	

[11] It details all the didactic activities foreseen in the curriculum (lectures and seminar themes, the list of laboratory works, the content of the stages of project preparation, the theme of each practice stage). The titles of the laboratory work carried out on the stands shall be accompanied by the notation "(*)".

[12] Presentation of the teaching methods will include the use of new technologies (e-mail, personalized web page, electronic resources etc.).

Construction and exploitation of drilling cutting tools	2	
Construction and exploitation of milling cutting tools	2	
Construction and exploitation of boring cutting tools	2	
Construction and exploitation of tool holding	2	

Bibliography [13]

Pop I., Grozav I. - 1990Proiectarea Sculelor Aschietoare, editura Politehnica
I. Grozav, E. Pamintas., 1994. Teoria si proiectarea asistata a sculelor aschietoare. Timisoara: Editura Politehnica .
Lăzărescu, I. D. sa, 1994. Proiectarea si practica sculelor aschietoare. Sibiu: Editura Universităţii din Sibiu.
Sandvik Coromant Academy, 2019. Metal Cutting Technology, Tehnical Handbook. s.l.:Sandvik Coromant.

8.2 Applied activities [14]	Number of hours	Teaching methods
Cutting parameters	4	Debate/ case of study/ Exemplification/ Practical work/ Teamwork
Design of cutting inserts	6	
Cinematic reference system (tool machine)	2	
Cinematic constructive system (cutting tool	4	
Cutting tool materials	4	
Construction and exploitation of turning cutting tools	2	
Construction and exploitation of drilling cutting tools	2	
Construction and exploitation of boring cutting tools	2	
Construction and exploitation of tool holding	2	

Bibliography [15]

Pop I., Grozav I. - 1990Proiectarea Sculelor Aschietoare, editura Politehnica
I. Grozav, E. Pamintas., 1994. Teoria si proiectarea asistata a sculelor aschietoare. Timisoara: Editura Politehnica .
Lăzărescu, I. D. sa, 1994. Proiectarea si practica sculelor aschietoare. Sibiu: Editura Universităţii din Sibiu.
Sandvik Coromant Academy, 2019. Metal Cutting Technology, Tehnical Handbook. s.l.:Sandvik Coromant

9. Corroboration of the content of the discipline with the expectations of the main representatives of the epistemic community, professional associations and employers in the field afferent to the program

- In order to sketch the contents, choosing the teaching / learning methods, the head of the discipline organized a series of meetings with the business environment in the western part of the country, in the industrial field, as well as with other teachers who have concerns in the field. The meetings aimed at identifying the needs and expectations of employers in the field and coordinating with similar programs within other higher education institutions.

10. Evaluation

Type of activity	**10.1** Evaluation criteria [16]	**10.2** Evaluation methods	**10.3** Share of the final grade
10.4 Course	Grade 5 is given for 50% knowledge of each subject, and grade 10 for 100% knowledge of each subject	Written exam	60%
10.5 Applied activities	**S:**		
	L: A grade of 5 is given for answering 50% of the questions and a grade of 10 for answering all the questions	"Topic" questions asked during the laboratory sessions	40%
	P[17]**:**		
	Pr:		
10.6 Minimum performance standard (minimum amount of knowledge necessary to pass the discipline and the way in which this knowledge is verified [18])			

[13] At least one title must belong to the discipline team and at least one title should refer to a reference work for discipline, national and international circulation, existing in the UPT library.
[14] Types of application activities are those specified in footnote 5. If the discipline contains several types of applicative activities then they are sequentially in the lines of the table below. The type of activity will be in a distinct line as: "Seminar:", "Laboratory:", "Project:" and / or "Practice/training".
[15] At least one title must belong to the discipline team.
[16] Syllabus must contain the procedure for assessing the discipline, specifying the criteria, methods and forms of assessment, as well as specifying the weightings assigned to them in the final grade. The evaluation criteria shall be formulated separately for each activity foreseen in the curriculum (course, seminar, laboratory, project). They will also refer to the forms of verification (homework, papers, etc.)
[17] In the case where the project is not a distinct discipline, this section also specifies how the outcome of the project evaluation makes the admission of the student conditional on the final assessment within the discipline.

- • Promoting the discipline requires knowledge of a minimum volume of knowledge of 50% of the total volume of knowledge taught
- • Verification of the minimum volume of knowledge is done by summative evaluation and periodic testing

Date of completion	**Course coordinator (signature)**	**Coordinator of applied activities (signature)**
	……	……
Head of Department (signature)	**Date of approval in the Faculty Council [19]**	**Dean (signature)**
……		……

[18] It will not explain how the promotion mark is awarded.
[19] The endorsement is preceded by the discussion of the board's view of the study program on the discipline record.