UNIVERSITY OF TUZLA UNIVERZITET U TUZLI

SYLLABUS

1. Course title:

METAL FORMING TOOLS

2. Code:

3. Cycle of study:

1

4. ECTS credits:

5

5. Type of course:

Mandatory

6. Prerequisites:

7. Class restrictions:

8. Duration / semester(s):

1 | 7

9. Weekly contact hours and student workload:

	Semester (1)	Semester (2)	(for two-semester courses)	Workload: (hours)	
	7				
9.1. Lectures	3			Classes:	45
9.2. Seminars	1			Individual work:	104
9.3. Laboratory / Practice classes	0			In total:	149

10. Faculty:

Faculty of Mechanical Engineering Tuzla

11. Department/study program:

Manufacturing Mechanical Engineering

12. Lecturer:

prof. Emir Šarić, PhD

13. Course aims:

It is to understand and apply the results of metal forming process analyze to the dimensioning tool components and be capable to design press tools for blanking, fine blanking, extrusion, drawing, deep drawing and bending.

14. Learning outcomes:

On successful completion of this course students will gain knowledge and skills an will be able to:
- classify the metal forming tools,
- design and dimensioning forming tool components for various processes,
- design the forming tool for given technical documentation and technological phases,
- make technical documentation and select materials for tool components.

15. Course content:

1. Introduction, Forming Presses - Classification and Characteristics,
2. Classfication of press tools, Types of tooling in the deformation system,
3-4. Forming tool components (plates, pillars, stripers, holders, pins ...),
5. Blanking tools design, Types of Punches, Punch Holders, Die Plates and Inserts,
6. Stripper plates, calculation of springs,
7. Strip layout, Economic layout, Bridge size, Press center calculation, Clearance between punch and die,
8. Compound and Progresive Tools, Midterm Exam
9. Bending Tools, Bending Theory, Blank Development, Spring-back,
10. Combination of blanking/forming tools,
11. Deep drawing tools, Drawing Theory,
12. Construction of Drawing Dies for Rectangular Components, draw beeds,
13. Tools for Ironing, Ironing Theory
14. Tools for extrusion,
15. FE in the tool design, (second part) Exam

16. Learning methods:

Lecture and Discussions: voice and Power point lecture notes
Practice: Numerical examples and homework handout problems
Seminar paper - summarized in report,
Consultations,
Independent learning - reading and assignment preparation.

17. Assessment methods:

• Lectures – theoretical lectures, active two-way communication between student and professor, compulsory attendance of students;
• Theory tests - solving tests;
• Tests with tasks - solving tests;
• Seminar/graphic works – independent work of the student to solve the problem;
• Oral final exam - interactive conversation with the student in order to validate the acquired knowledge;
• Consultations – clarification of any ambiguities related to the topic of the studied subject.

The condition for signing is the student's attendance at a minimum of 70% of lectures and exercises.
Grading Scale:

Grade	Descriptive	Letter	Points
5 (five)	Does not meet minimum criteria	F, FX	<54
6 (six)	Meets minimum criteria	E	54÷64
7 (seven)	Generally good, but with significant shortcomings	D	65÷74
8 (eight)	Average, with noticeable errors	C	75÷84
9 (nine)	Above average, with occasional errors	B	85÷94
10 (ten)	Exceptional success with no errors or with minor errors	A	95÷100.

18. Assessment components:

Individual and group activities 20 bod.
Semestral work 30 bod.
Written and/or oral exam 50 bod,
Total 100 bod.

19. Mandatory reading list:

1. Handbook of Die Design, McGraw-Hill, Ivana Suchy, 1998
2. E.Šarić, Autorizovana Predavanja

20. Additional reading list:

1.M. Jovičić; LJ. Marković, Priručnik za konstruisanje alata za obradu deformacijom I, MF Beograd 1984
2. M. Šljivić, Alati U obradi deformisanjem, MF Banja Luka, 1990

21. Web sources:

22. Applicable from the academic year:

2025/2026

23. Adopted in the Faculty/Academy session:

25.04.2025