

<b>University:</b> University of Žilina in Žilina	
<b>Faculty:</b> Faculty of Mechanical Engineering	
<b>Subject code:</b> 2Y003	<b>Subject name:</b> Machine Building
<b>Profile subject:</b> no	
<b>Type, scope and method of educational activities:</b>	
Weekly number of teaching hours in the form of lectures, exercises, seminars, clinical practice.	2 - 3 - 0 (lectures-exercises-laboratory exercises) hours
The method by which the educational activity is carried out	The teaching takes place in person.
Methods of achieving educational results	<b>Lectures:</b> systematic theoretical problem interpretation of the issue, problem-oriented teaching, consultations in connection with feedback <b>Exercises:</b> model examples, explanation, problem-based teaching,
<b>Number of credits:</b> 6.0	
<b>Student workload:</b> 5 h * 13 (full-time teaching) + 65 h (self-study) = 130 hours	
<b>Recommended semester / trimester study:</b> winter/ summer semester	
<b>Degree of study:</b> 2. degree	
<b>Prerequisites:</b>	
<b>Conditions for passing the subject:</b> 2 tasks performed during the semester as a team work with a clearly defined and stated share of the achieved result are used for the ongoing assessment. The overall level, the complexity of the work solution is evaluated based on Semester project.	
<b>Final rating:</b> Project and multimedia personal presentation of the project max. 60 points + discussion exam max. 20 points. In order to register for the exam, the student must prepare 2 written assignments completed during the semester in an independent study (minimum graded "sufficient"), for which he can use individual and group consultations.	
<b>The resulting classification of the subject:</b> Rating A: 93 - 100 points Rating B: 85 - 92 points Rating C: 77 - 84 points Rating D: 69 - 76 points Rating E: 61 - 68 points FX rating: less than 61 points.	
The specific method of evaluating the student's work during the semester and the exam will be specified at the beginning of the semester by the subject teacher. The final evaluation of the student's study results for	

completing the course - expressed by a grade - is governed by Art. 9 Directive no. 209 Study Regulations for the first Degree of University Studies at the University of Žilina in Žilina.

Learning Outcome Scoreboard:

Forms and methods of evaluation	Scale	Area of knowledge, skills, competences
2 tests	20	Professional knowledge, independent work with professional literature
Written semester project work	60	Professional knowledge, independent work with professional literature
Oral presentation	20	Professional knowledge

### Learning outcomes:

By completing the course Alternative energy sources, the student will be able to:

- Expanding and deepening the knowledge related to the subject of the bachelor study subject:
- "Machine Building I."
- The course is focused on application of knowledge of design processes technological mechanical systems.
- Check the safety of the basic machine elements and machine mechanisms.
- It deals with appropriate solution in terms of design, production and economic use in achieving maximum reliability and environmental protection.

### Course contents:

#### Lectures

- General rules for the dimension calculation and the strength control of the machine elements.
- Static and dynamic safety of the machine elements.
- Introduction and theoretical description of Gears and selected components.
- Gears—General, Types of Gear, Nomenclature, Fundamentals.
- Shafts Material, Shafts Layout,
- Shaft design for stress, bending, torsion.
- Detachable joints. Screw connections.
- Shaft and hub joints.
- Selected types of couplings.
- Fixed joints. Riveted and welded joints.
- Fundamentals of power transfer theory.
- Mechanical transmissions. Bearing types, Bearing Life,
- Load Reliability, Lubrication, Mounting,
- Bearing force Analysis.

#### Exercises

- The content of the exercises is the elaboration of a semester project focused on the design, construction of machine parts.

- Design of machinery using knowledge information from the design of components and assembly units
- Design of Gears.
- Design and control examples from the lectured topics of machine parts and mechanisms.

**Recommended reading:**

[1] Shigley's : Mechanical Engineering Design  
 [2] Anton van Beek: Advanced engineering design +  
 [3] www.engineering-abc.com

**A language whose knowledge is required to complete the course:** english

**Notes:**

**Course evaluation**

Total number of evaluated students: 45

A	B	C	D	E	FX
70.00%	25.00%	5.00%	0.00%	0.00%	0.00%

**Person securing the subject (subject guarantor):**

prof. Ing. Marián Dzimko, PhD.

**Teaching:**

Name and surname of the teacher, titles	Organizational form provided by the university teacher (Lectures, exercises, laboratory work, field exercises)
prof. Marián Dzimko, M.Sc., PhD.	Lectures
prof. Marián Dzimko, M.Sc., PhD.	exercises

**Date of last change:** 16.11.2021 10:05

**Approved:** prof. Dr. Ing. Ivan Kuric