MECHANICS 1, STATICS

Syllabus and subject requirements

Course Code:	***MSE256MN***
Allotment of Hours per Week[1]:	***1/3/0***
Number of Credits:	***5***
Program type[2]:	***Civil Engineering / Architect / C***
School[3]:	***F** – full-time*
Requirement[4]:	***E** - exam*
Semester[5]:	***2019/2020/1***
Language:	***English***
Pre-studies:	-
Responsible Department:	***Department of Civil Engineering***
Instructors:	***Dr. Pomezanski Vanda***

Aims:
The course provides basic knowledge in the design and production of building equipment for static calculations.

Syllabus:
This course aims at teaching the basics of mechanics and covers the following topics: equilibrium states and conditions of equilibrium; resultant and balance of plane force systems; defining load-bearing structures, their types and loads. This theme is also expanded through the calculation of support reactions, simple hinged structures, loads on structures, calculation of loads, types of structural systems, definition and calculation of internal forces and internal force diagrams, definition of support and internal forces of joint structures, three-joint girders, Gerber girders and compound joint structures. The definition and types of truss is also covered and the forces influencing them.

Methodology:
The course is based on individual engineering skills with regular consultations and presentations.

Studio Culture:
The course is based on through collaboration, participation and discussions trough lessons. This is an interaction between Students and Faculty; used the teaching methods like 'Problem-based learning' and 'learning-by-doing'. The communication and work should be reflect a respect for fellow students and their desire to work with regard to noise levels, noxious fumes, etc – from each site of participants.

Attendance:
Attending is required all classes, and will impact the grade (max. 10%). Unexcused absences will adversely affect the grade, and in case of absence from more than 30% of the total number of lesson will be grounds for failing the class. To be in class at the beginning time and stay until the scheduled end of the lesson is required, tardiness of more than 20 minutes will be counted as an absence. In the case of an illness or family emergency, the student must present a valid excuse, such as a doctor's note.

---

[1] Subject course types: L - lecture, pr - practice, lab - lab
[2] C - compulsory, CO – compulsory optional, O - optional (optional)
[3] Full-time, Part-time, E-learning
[4] S - signature, Sm - semester mark, E - exam, Fe - final exam
[5] /1 - autumn, /2 – spring semester

Requirements for the course period:

Writing of the thematic midterm tests (2) at the given time, preparation of the required homework (3) and timely submission is obligatory. If the result of a Midterm Test is below 50%, the test must be repeated at a given out of lecture time.
At the end of the semester the result of the final test is taken into consideration (here the 50% threshold is no longer required).

Minimum score required for mid-term work is 76 points! If the student does not achieve this, at the beginning of the exam period, on the first or on second week, we provide a correction possibility.

Components of the score:

1. Midterm Test.	= 60 point
2. Midterm Test.	= 60 point
3 HomeWorks	3× 10 = 30 point
==========	
Sum:	= 150 point

Requirements for the exam period:

The written exam is based on semester material. The maximum score for the exam is 150 points, the **minimum is 76 points**. **Minimum score on the exam and semester is 151 points**!

Grading Scale:

0-150 points = failed (1)
151-188 points = pass (2)
189-225 points = medium/average (3)
226-263 points = good (4)
264-300 points = excellent (5)

Students with Special Needs:

Students with a disability and needs to request special accommodations, please, notify the Deans Office. Proper documentation of disability will be required. All attempts to provide an equal learning environment for all will be made.

References:

Lecture notes, tutorials, example books

Required literature:

ENGINEERING MECHANICS STATICS, R.C.Hibbeler
ISBN:-13: 978-0-13-291554-0

Recommended literature:

J.L. Meriam, L.G. Kraige, Engineering mechanics.—7th ed.
D. Gross, ·W. Hauger, J. Schröder, W.A. Wall, N. Rajapakse, Engineering Mechanics 1 Statics
A. Pytel, J. Kiusalaas, Mechanics of Materials, Second Edition
P. Block, · J. Schwartz, Structural Design I

Detailed program of the subject

Week	Lecture (even weeks: Monday 11.15-12.00)	HW	Test	Practice Course dependent
1.	Registration			Registration
	Basic Concepts. Power, power systems, constraints. Plane forces with common intersection. Resulting, components.			Balancing of a force system with common intersection. Examples of 3 force system.
3.	Moment, pair of forces, parallel forces.			The resultant and equilibrium of a planar power system. Balancing with one, two and three forces.
	Parallel forces in a plane system. General Power Systems in Plane. Resolution of force into 3 components coinciding with force.	**1.**		Balancing of planar supports, determination of reaction forces. Truss type structures.
5.	Structure Types, reactions, balance of supports. Examination of 2D truss structures, determination of the beam forces.			Calculation of trusses by node method and triple section method.
				Internal force diagrams.
7.	**1 TEST**			Internal force diagrams of cantilevered beam structures.
		2.		Internal force diagrams of Multiaxial structures (by 90 °).
9.	ŐSZI SZÜNET			SZÜNET
	Internal forces, representation of them. Structures with straight line axes, balance, internal force diagrams. Balance and internal force diagrams of multiaxial structures. 3-pined frame structure		**I. TEST**	Internal force diagrams of broken and branched supports
11.				Internal force diagrams of structures with an inclines axes.
	Analysis of 2D structures connected by pins.			Internal force diagrams of Gerber-structures.
13.	Statically determinate multisupported beams. (Gerber structures)			Internal force diagrams of 3-pined structures
		3.		Internal force diagrams of cantilevered 3-pined structures
15.	**2. TEST**		**II. TEST**	Semester assessment, Consultation, supplements

TESTS:
- resulting force, balancing, trusses
- Internal force diagrams

HW:
- Balancing with 1, 2 or 3 forces.
- Internal forse diagrams of structures with a straight line axes.
- 3-pined structure

Pécs, September 2019.

Vanda Olimpia Pomezanski Dr.
Associate Professor