

UNIVERSITY OF NYÍREGYHÁZA
Institute of Technical and Agricultural Sciences
Department of Transport Science and
Information Technology

Subject: **Science of machines BAI0074**
2024/2025. year II. semester
Mechanical engineer course I. year
Traffic engineer course I. year
Vehicle engineer course I. year

OCCUPATIONAL PLAN

Number of teaching weeks: 15
Lecture: 1 lesson weekly, 14 in the semester
semester
Lecturer: Balázs Bekő engineer teacher

Credit value of the subject: 3
Excercise: 2 lessons weekly, 28 in the
Excercise leader: Balázs Bekő engineer teacher

Basic of the grade: colloquium
Number of exams: 2
Number of homework tasks: 1

date of writing: 15. and 20. week
submission deadline: 19. week

Mandatory and recommended literature:

- HENRY T. BROWN: 507 Mechanical Movements, 2013.
- NEIL ARDLEY: Science Book of Machines, 1992.
- PARMLEY ROBERT O.: Machine Devices and Components Illustrated Sourcebook, 2017.

The requirements of the semester:

Active and disciplined attendance at the lessons. Writing two exams and submitting a homework task (in e-mail). Attendance at the exercises requires preparation, which the teacher checks each time. Maximum of 3 unexcused absences from exercises can be accepted.

Conditions for appearing at the colloquium:

Obtaining a minimum of 26 points during the semester.

Recording of the colloquium in the Neptun system.

The students' work is evaluated based on the following point system:

Can be obtained with the homework task:	10 p
Can be obtained with the first semester-exam:	20 p
Can be obtained with the second semester-exam:	20 p
<u>Colloquium:</u>	<u>50 p</u>
The maximum number of score	100 p

Nyíregyháza, 03. 02. 2025.

Dr. László Sikolya
subject manager

Dr. Ferenc Szigeti
head of department

FULL-TIME COURSE

Ca- lendar week	Lecture topic	Num- ber of lessons	Excercise topic	Num- ber of lessons
7. A	Marking of physical quantities used in mechanical science, units of measurement, basic concepts.	1-2	Discussion of the terms of the semester, issuance of homework tasks.	1-2
8. B		----	Marking of physical quantities used in mechanical science, units of measure, conversions.	3-4
9. A	Kinesiology. Energy, mechanical work, performance, efficiency	3-4	Solving tasks related to kinesiology.	5-6
10. B	.	----	Energy, mechanical work, solving related tasks.	7-8
11. A	Energy losses, efficiency of machines, questions of optimal load.	5-6	Efficiency calculation	9-10
12. B		----	Coriolis acceleration and force.	11-12
13. A	Coriolis acceleration and force. Rolling resistance, the operational effect of friction. Simple machines	7-8	Rolling resistance, the mechanical effect of friction	13-14
14. B		-----	Task solutions. Performance calculations	15-16
15. A	Internal combustion engines I-II	9-10	Exam I.	17-18
16. B		----	Engine characteristics calculation.	19-20
17. A	Spring break		Engine characteristics calculation.	-----
18. B		----	Hidraulikus rendszerekkel kapcsolatos feladatok.	21-22
19. A	Electric machines.	11-12	Tasks related to electrical machines.	23-24
20. B		----	Exam II.	25-26
21. A	Hydraulic energy converters. Energy transmission equipment	13-14	Preparation for the colloquium. Summary of the scores	27-28