University POLITEHNICA of Bucharest

Faculty of Industrial Engineering & Robotics

Study programme: Industrial Engineering

Form of study: Bachelor

COURSE SPECIFICATION

Course title	Machine Elements	Semester	4
Course code	UPB.06.D.04.O.005	ECTS	5

Course structure	Lecture	Seminar	Laboratory	Project	Total hours
No. of hours/ week	2	0	1	2	5
No. of hours/ semester	28	0	14	28	70

Lecturer	Lecture	Seminar	Laboratory	Project
Name, academic degree	Prof. dr. ing. Alexandru Valentin Radulescu		Conf. dr. ing. Irina Radulescu	Conf. dr. ing. Irina Radulescu
Contact (E-mail, location)	Faculty of Mechanical Engineering and Mechatronics alexandru.radulescu@upb.ro		Faculty of Mechanical Engineering and Mechatronics irina.radulescu@upb.ro	Faculty of Mechanical Engineering and Mechatronics irina.radulescu@upb.ro

Course description (max: 200 words) *The course aims to initiate in design, product development and training skills and expertise of mechanical components for operation of machinery. It highlights the design concept technically and economically optimized, leading to the development of efficient and competitive products, in compliance with ergonomic design and environmentally friendly.*

Seminar description (max: 200 words)

Laboratory description (max. 200 words) Applications aimed at substantiating knowledge of major construction machine elements, forming habits of choice of materials and the use of specific standards and correct understanding of the basic loads of machine elements.

Project decsription (max. 200 words) Design of a mechanical transmission composed by: three-phase asynchronous electric motor, V-belt drive, gear reducer and elastic coupling. The project includes the summary with technical calculations (kinematics, energetics, dimensioning and check-up, economical calculus – costs and prices) and assembly and executions drawings using AutoCAD software.

Assessment methods	Percentage of the final grade	Minimal requirements for award of credits

Written exam	**40%**	**To be able to complete in terms of construction and functional machine elements studied, in order to obtain maximum performance**
Report/ Project	**30%**	**Attending all project meetings and correct solving the asked problems**
Semester work – written work without discharge	**15%**	**Correct solving half of the problem**
Laboratory	**15%**	**Correct processing of the experimental results, discussion and interpretation of the experimental measurements**

References

1. **Hamrock, B., et al., Fundamental of machine elements, Mc Graw Hill, 1999**
2. **Robert L. N., Machine Design: An Integrated Approach, Prentice Hall, 2010**
3. **Rădulescu, A.V. *Machine Elements – Problems and solutions*, Editura PRINTECH, 2014**
4. **Rădulescu, A.V. *Machine Elements – Course support*, electronic course, https://curs.upb.ro/2021/course/view.php?id=6647**
5. **Rădulescu, I., Rădulescu, A.V. "*achine Elements – Laboratory Guide*" Editura PRINTECH, 2019**
6. **Rădulescu, A.V. *Machine Elements – Project guide*, electronic guide, https://curs.upb.ro/2021/course/view.php?id=6647**

Prerequisites	**Co-requisites (courses to be taken in parallel as a condition for enrolment)**
Technical mechanics **Mechanics of materials** **Technical drawing**	**Materials science** **Computer aided design** **Tolerances design**

Additional relevant information:

Date: **17.05.2022**