POLITEHNICA University of Bucharest (**UPB**)
Faculty of Industrial Engineering and Robotics (**IIR**)
Study Programme: Industrial Engineering (**IE**)
Form of study: Licence (Bachelor)


# COURSE SPECIFICATION

| *Course title:* | Technical Mechanics | *Semester:* | 1 |
|---|---|---|---|
| *Course code:* | UPB.06.D.01.O.001 | *Credits (ECTS):* | 5 |

| *Course structure* | Lecture | Seminar | Laboratory | Project | Total hours |
|---|---|---|---|---|---|
| *Number of hours per week* | 2 | | 2 | | 4 |
| *Number of hours per semester* | 28 | | 28 | | 56 |

| *Lecturer* | Lecture | Seminar / Laboratory / Project |
|---|---|---|
| *Name, academic degree* | Adrian Motomancea, Ph. D., Associate Professor | Adrian Motomancea, Ph. D., Associate Professor |
| *Contact (email, location)* | motom@deltainfo.ro | motom@deltainfo.ro |

| *Course description:* |
|---|

The course demands to earn solid knowledge's concerning the mechanics of rigid body systems in accordance with the academic engineering level in order to use these knowledge's for solving technical problems. The goal is to built a logic system of analyze for concrete situations, to use the theorems and principles in specific situations and to model by mathematical algorithms in a way that the solution of the problem and the results have minimum errors with respect to the reality. The course contents the 3 divisions of classical mechanics, Statics, Kinematics and Dynamics, each division including general theorems and specific principles for study phenomena such as repose or motion.The main analytical methods are presented in the study of mechanical phenomena, and certain graphic-analytical methods, suggestive in some cases regarding the qualitative side of the expected results.

| *Seminar / Laboratory / Project description:* |
|---|

The applications have the aim to posses all the mechanical methods and principles as well as the fundamental theorems in order to apply them for solving the problems concerning bodies and systems of bodies. The challenge is that the students earn by this way a logic common sense for different situations starting from mechanical fundaments applied in all the possible directions.

## Intended learning outcomes:

The course aim is to prepare an analytical thinking and a correct approach and interpretation of mechanical phenomena, preparing the ground for acquiring knowledge of Strength of Materials and Machine Parts.

| Assessment method: | % of the final grade | Minimal requirements for award of credits |
|---|---|---|
| Written exam | 40 | 20 |
| Report / project | - | - |
| Homework | 25 | 12 |
| Laboratory | 20 | 10 |
| Other | 15 | 8 |

## References:

1. Voinea, R., Voiculescu, D., Simion, F. P., Introducere *in Mecanica Solidului cu Aplicatii in Inginerie*, EdituraAcademiei Romane, Bucuresti, 1989.
2. Radoi, M., Deciu, E., *Mecanica*, Editura Tehnica, Bucuresti, 1983.
3. Motomancea, A., Elemente de dinamica, Editura BREN, Bucuresti, 2001.
4. Stroe, I., Motomancea, A., Bugaru, M. s.a., *Probleme de Statica pentru studentii din invatamantul superior tehnic*, Editura PRINTECH, Bucuresti, 2000.
5. Stroe, I., Bugaru, M. s.a., *Probleme de Cinematica pentru studentii din invatamantul superior tehnic*, Editura PRINTECH, Bucuresti, 2000.
6. Stroe, I., Motomancea, A., Bugaru, M. s.a., *Probleme de Dinamica pentru studenti*
7. Ceausu, V. , Enescu, N. , Probleme de Mecanica, Statica si Cinematica, Editura Corifeu, Bucuresti.
8. Ceausu, V. , Enescu, N. , Probleme de Mecanica, Dinamica si Mecanica Analitica, Editura Corifeu, Bucuresti.

| Prerequisites: | Co-requisites *(courses to be taken in parallel as a condition for enrolment)*: |
|---|---|
| *Mathematical analysis, Algebra* | |

## Additional relevant information:

Date: 18.07.2016

Ph. D. Adrian Motomancea
Associate Professor