

Type & field of studies/ **B.Eng. in Mechanics and Machine Design**

Faculty/Department: Faculty of Mechanical Engineering

Duration 7 semesters

Erasmus subject code: 06.1

Duration: 3.5 Academic Years

ECTS credits: 210

Program description: Mechanics and Machine Design is the basis engineering course. In modern industry the need for an engineer is constantly growing. The modern engineer after this course will have skills in machine design and technology, based on the solid knowledge of engineering theory such as mechanics, material strength, thermodynamics etc. Also subjects in economical engineering analysis and basic automatics and robotics are within the frame of this course.

The aim of this B. Eng Programme in Mechanics and Machine Design is to provide the student with a solid engineering basis of modern engineering methods directed towards industrial applications. The programme includes compulsory lectures, tutorials, laboratories and practical exercises in most lectured subjects. The courses are constantly updated to meet modern engineering requirements from the industry. Full list of subjects is given below with training hours and ETCS points.

Program of studies:

	Hours	ETCS
A. GENERAL EDUCATION	315	14
1. Humanistic courses	60	4
1.1. Psychology and Sociology of Work	30	2
1.2. Economics/ Interpersonal Communication (1 of 2)	30	2
2. Intellectual Property Rights	15	1
3. Economics of Enterprises	30	3
4. Foreign Language	150	6
5. Physical Training	60	0
B. BASIC COURSES	660	61
1. Mathematics	150 E	15
2. Physics	60 E	6
3. Applied Mechanics, Fluid Mechanics	300	28
3.1. Theoretical Mechanics	105 E	10
3.2. Strength of Materials	150 E	13
3.3. Fluid Mechanics	45 E	5
4. Information Technology	30	2
5. Informatics	30	2
6. Computational Methods for Engineers	30	3
7. Introduction to FEM and its Engineering Applications	45	4
8. Work Safety and Ergonomics	15	1

C. FIELD COURSES	1 125	92
1. Machine Design and Operation, Engin. Graphics	315	27
1.1. Machine Design	135 E	10
1.2. Dynamics of Machines	45	4
1.3. Operation and Reliability of Machines (basic)	30	3
1.4. Engineering Graphics	45	4
1.5. Theory of Machines and Mechanisms	30	3
1.6. Hydraulic and Pneumatic Drive and Control	30	3
2. Materials Science	105	9
2.1. Basis of Materials Science	30	3
2.2. Engineering Materials	75 E	6
3. Technology Engineering	240	17
3.1. Manufacturing Technology, Proces. of Materials I	120	8
3.2. Manufacturing Technology, Proc. of Materials II	75	6
3.3. Manufacturing Process Planning	45	3
4. Technical Thermodynamics	90	8
4.1. Thermodynamics	60 E	6
4.2. Energy Sources and Conversion Systems	30	2
5. Electrotechnics and Electronics	75	5
5.1. Electrotechnics	45	3
5.2. Electronics	30	2
6. Automatics and Robotics	60	6
6.1. Introduction to Automatics	30 E	3
6.2. Industrial Robots and Manipulators	30	3
7. Metrology and Measurement Systems	60	5
7.1. Metrology	30	2
7.2. Thermal and Machine Measurement	30	3
8. Environment Administration and Ecology	60	6
8.1. Systems of Environment Administr. and Ecology	30	4
8.2. Environment Protection Systems and Facilities	30	2
9. Optional Subjects (1 of each set 9.1...9.4)	120	8
9.1. Biomechanical Engineering	30	2
Mechanics of Materials	30	2*
FEM in Modern Engineering Analysis	30	2*
Methods of Optimal Design	30	2*
9.2. Heavy Duty Machines and Transportation Devices	30	2
Automobile Vehicles	30	2*
Railway Transportation Means	30	2*
9.3. Refrigeration, Air Conditioning and Ventilation	30	2
Power Engineering Machinery	30	2*
Combustion Engines	30	2*
9.4. Hybrid Manufacturing	30	2
Coordinate Measurement Systems	30	2*
Applic. of Thermal Analysis Meth. in Technics	30	2*
Industrial Training	4 weeks	1

Web page: <http://www.mech.pk.edu.pl>

Eligibility/Admission: Applicants should have passed High School Diploma Examination (International Baccalaureate or equivalent)

Fees: 4000 Euro per year

Contact person: Professor Piotr Cyklis (48-12) 628 35 83;
e-mail: pcyklis@mech.pk.edu.pl

Application procedures

Completed application form should be sent to the following address:

& deadlines:

Cracow University of Technology
International Relations Office
31-155 Kraków
Ul. Warszawska 24
e-mail: pw@pk.edu.pl

Remarks:

Individual programme of studies in English is available.