

International Faculty of Engineering IFE



Lodz University of Technology



International Faculty of Engineering (IFE)

- IFE is an interfaculty unit that implements, in cooperation with the faculties of Lodz University of Technology, study programmes in English/French.
- IFE is the only unit of its kind among universities in Poland.
- Language is not a goal, but a tool for creating innovative educational experiences with the participation of foreign experts.



INNOVATIVE EDUCATIONAL PROGRAMMES



Lodz University of Technology



BSc programmes

- Advanced Biobased and Bioinspired Materials
- Biomedical Engineering and Technologies
- Business, Society and Technology
- Business, Society and Technology – bilingual (English/French)
- Business Studies
- Computer Science
- Electronic and Telecommunication Engineering
- Industrial Biotechnology
- Information Technology
- Mathematical Methods in Data Analysis
- Mechanical Engineering
- Modelling and Data Science

INNOVATIVE EDUCATIONAL PROGRAMMES



Lodz University of Technology



MSc programmes in English:

- Computer Science and Information Technology
- Human-Computer Interaction
- Industrial Biotechnology
- Master in Mechanical Engineering
- Master of Business Studies
- Smart Manufacturing and Management

Modern and useful space for students



IFE in numbers

- approx. **400** admissions every year
- over **1200** students, **12%** of whom are foreign students
- nearly **4500** graduates
- foreign students from **39** countries
- approximately **300** IFE students yearly on a one or two-semester exchange programme at foreign universities
- nearly **600** lectures/tutorials conducted in foreign languages
- approx. **250** universities in over **40** countries where IFE students can complete their Mobility Semester

Why are IFE programs innovative and unique?

FLIPPED TUL CONCEPT



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- **Flipped Classroom** – The Flipped Education model is a fundamental pillar in the structure of the Student-Centered Learning system. It is based on a complete conversion of the involvement and activity of students and teachers in the learning process. The Flipped model reveals the proper dimension of studying (as opposed to being taught). The most important thing is for the student during the classes with the teacher to work on what makes it difficult for him to work independently, which is not easily accessible. The Flipped model moves away from classical education, such as a lecture for 200 people or exercises involving repetitive tasks, in favor of methods that require complex thinking. In such a model, soft competences are naturally developed, such as the ability to work in a group, communicate effectively (including in different languages), peer learning, creative problem-solving skills, etc. In this model, the student is the main actor of the learning process, rather than a teacher, which significantly increases the student's sense of responsibility for the effectiveness and quality of the learning process.

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- **European Project Semester (EPS)** – a specially designed, international programme implemented in 19 universities from 12 European countries. EPS is dedicated to students who have completed at least 2 years of study at a technical university, and its premise is to work in international groups on interdisciplinary projects in English. Some of the projects are created in cooperation with companies and enterprises, others are strictly academic.
- **Problem Based Learning (PBL)** – a method in which students solve a specific, real problem, defined by a company or other socio-economic entity. However, at the beginning they do not receive any theoretical support in the form of lectures or exercises. They have to acquire all the knowledge necessary to solve the problem themselves, and then learn to share it during meetings with the project group, so that the whole team can use it. Thanks to this, in addition to professional competences, young people develop the ability to communicate and work in a group. The teacher is only a mentor supporting the group in the learning process.

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- **Design Thinking (DT)** – a method of creating innovative projects, products and services based on a deep understanding of the problems and needs of users. The first step in operating with the DT method is to build an interdisciplinary team, which then carries out, step by step, subsequent stages using a set of tools and techniques, in order to develop a solution that can be implemented. Due to its universal nature, it is applicable wherever we deal with the so-called „wicked problems“, problems that do not have one obvious solution.
- **Research-Based Learning** – a model of education based on the acquisition of competences through research practice. It assumes the use of strategies that combine research with education. The inclusion of research in the education process significantly increases the effectiveness of the activities undertaken in the process and benefits all students, academic staff and the university. Students involved in research groups also become co-authors of scientific publications. This increases their motivation and satisfaction, which, in turn, results in better academic performance.

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- **Challenge-Based Learning** – a model of education in which students face challenges in line with the needs of the society which are linked to the local or global environment. In the process of completing the task, students apply their subject knowledge. By demonstrating self-discipline and commitment, they consequently take responsibility for their own learning. It takes place with the support of an academic teacher.
- **Dice Dilemma** – the concept developed by Waldemar Olbryk, a long-time lecturer at IFE and a business man, the symbol of which is a dice. A model supporting the analysis of every issue, both as a team and as an individual. Looking at the dice, the student can adopt the perspective of the whole team, or his/her own point of view.

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- **Business Engagement** – corporate social responsibility involves, among other things, engaging the business community in the education process. Cooperation between universities and businesses takes place at many levels. In order for education to respond to the needs of the labour market, competences which university graduates should possess, such as critical thinking, problem-solving skills, creativity and communication, are jointly defined. Engagement of business in research activities at the university, formulating problem tasks and research topics or enabling students to participate in internships and placements, indirectly impact the education process and the development of the desired competences previously defined.
- **Study Skills for University** – a course included in the IFE study programs, which is a kind of "survival" for students, preparing them for real academic studying. Students, when they come to university, are in the habit of being taught, which is contrary to real studying. During the first week of Study Skills for University an attempt is made to change their mentality towards greater involvement in the process of studying, to familiarise them with the academic culture, to prepare them to study in line with flipped education model and to take responsibility for the quality and effectiveness of their learning process.

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- **Case Teaching** – a case-based approach, which is one of the most effective ways of learning through experience. Case Teaching is used to generate knowledge and conclusions by studying impact factors, creating solutions, evaluating decisions and actions taken. It allows the analysis of real phenomena, situations and human activities.
- **Civic Knowledge and Engagement** – a subject which is designed to develop students' competences beyond the directional learning outcomes, which are essential for an informed and well-educated citizen of Poland, Europe and the world. Students within this subject may pursue various activities for their own development or the good of Lodz University of Technology. These can be, among others: participation in additional trainings, conferences, in the choir, orchestra, work for the Żak Radio, participation in scientific clubs and other student organizations or volunteering for the university.

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MOBILITY SEMESTER

MECHANICAL ENGINEERING and CO			GESTION et TECHNOLOGIE			
The graduates receive an engineering title which is equivalent to the European Qualifications Framework for Higher Education (EQF) level 6 4-year BSc degrees in English			Les études se terminent par le diplôme d'ingénieur ce qui correspond au niveau 6 du cadre des certifications de l'espace européen de l'enseignement supérieur diplôme d'ingénieur - études en français			
III YEAR						
I semestre	V semestre	Computer Aided Design	3	II ANNEE		
		Computer Graphics	5	anglais commercial 2	2	
		Computer Networks	6	gestion et organisation	5	
		Embedded Systems	5	production aux finances	5	
		GUI-Programming	3	anglais 2	4	
		Economics	2	mathématiques 3	6	
		Operating Systems	6	microéconomie	3	
II semestre	VI semestre	Mobility Semester		30	thermodynamique et conversion d'	5
					énergie	1
					robotisation de processus industriels	5
					anglais 3	4
					anglais - examen	0
					gestion de la production	5
					microéconomie	3
V semestre	VIII semestre				objet en groupe	10
					statistique et les bases de l'économétrie	3
					port	1
				IV ANNEE		
					calcul des coûts pour ingénieurs	5
					génierie de production et documentation industrielle	5
					génierie d'Innovation	3
VI semestre		VIII semestre				Logistique
				Management de la qualité et de la sécurité	5	
				Méthodes des recherches en business	3	
				Processus de fabrication	4	
			Projet de fin d'études		15	
			Séminaire		2	
			Stage professionnel - minimum 4 mois		13	
Total			243 ECTS			

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