



Developing pedagogies as means for improving quality:

Learning and Teaching as a European priority

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Lodz University of Technology is situated in the **centre of Lodz – one of Poland’s biggest cities**

- Lodz has **742** thousand citizens
- The city was established in **1423**
- Lodz developed as a town of textile industry
- Lodz is a **Polish Academic Centre** with 6 public Universities



Fourth best technical university in Poland
(Perspektywy university ranking)

PROStudent University

(The title was awarded by the Student Parliament of the Republic of Poland in 2011)

Fourth most frequently selected university according to Ministry of Science and Higher Education report

The most creative and innovative university in Poland in increasing student employability

(The title was awarded by The Academic Information Centre)





- Mechanical Engineering
- Electrical, Electronic, Computer and Control Engineering
- Chemistry
- Material Technologies and Textile Design
- Biotechnology and Food Sciences
- Civil Engineering, Architecture and Environmental Engineering
- Technical Physics, Information Technology and Applied Mathematics
- Organization and Management
- Process and Environmental Engineering



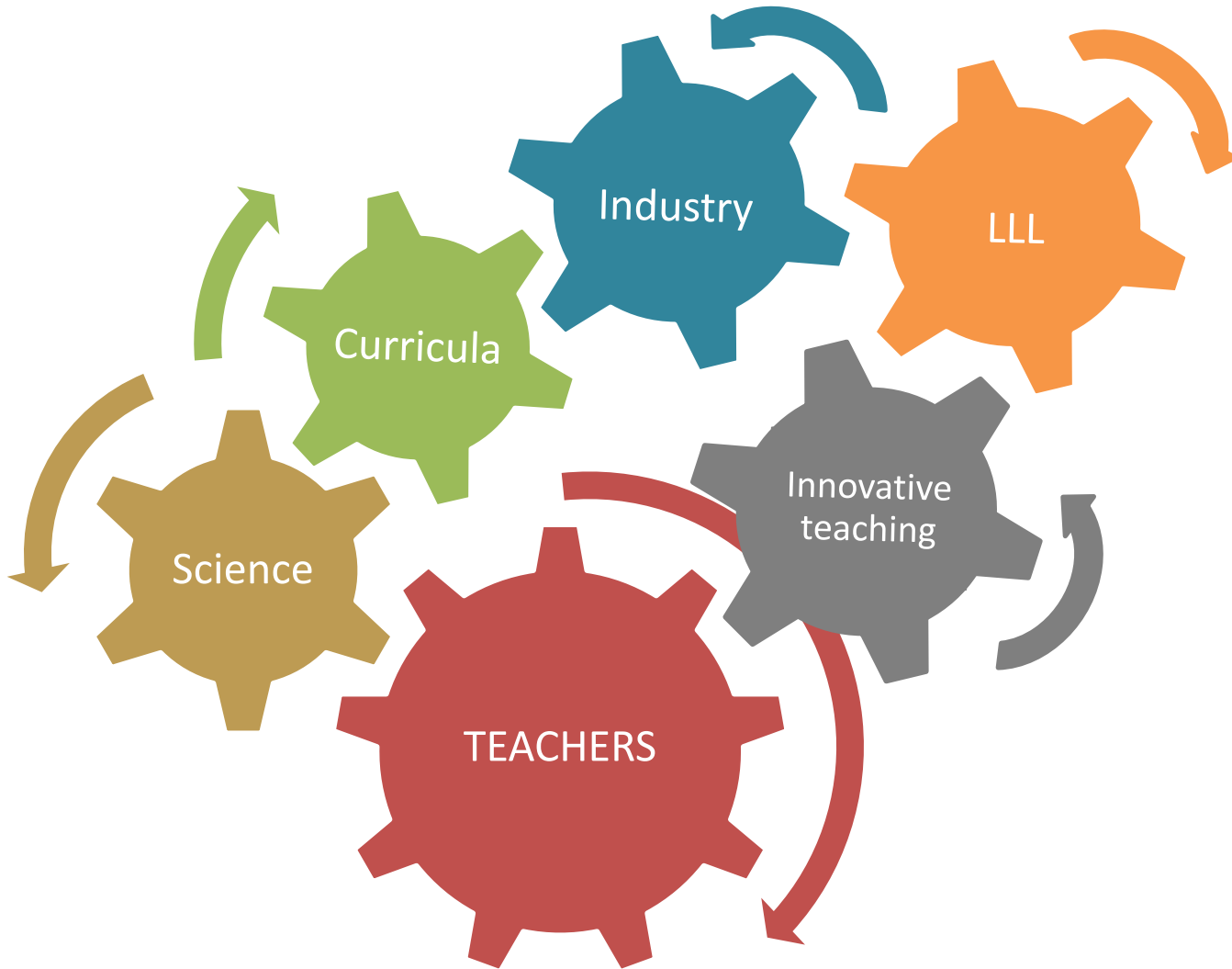


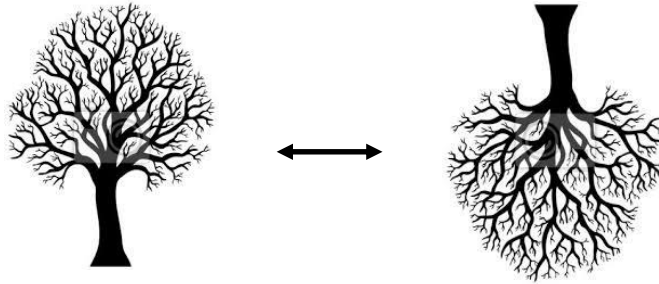
- Long and reach educational tradition – Jagiellonian University in Kraków 1384
- From XIV to XX model of education was centred on teachers and based on the idea that best scientists are also best teachers
- After the II WW university teaching was highly politicized and strongly influenced by the idea of building a communist society.
- 90's - development of just-recovered democracy
- After the collapse of the Polish industry in the 90s foreign companies entered domestic market - other requirements for job applicants
- In 2003 Polish accession to the EU and the European Higher Education Area quickly resulted in changing the way we understood the quality of education. Transformation from teacher to student centred system
- Reform of the education system has resulted in considerable changes and variation in the level of education
- Until 2014 population and „educational” boom provided a large number of students. From 1997 demographic trend has been negative and its effect is starting to be felt by Polish universities.
- Significant amendment to the Law on Higher Education – National Accreditation Committee
- !The financial support from Ministry of Science and High Education depended and still depends on number of students.



- Dual (or even triple) management system
- University management and finances have been decentralized 1995
- The University recruitment system has been changed in 2005
- 2015 - new strategy focus on regional and international recognition, quality of education, research, and services - **but quality defined by the means of quantitative descriptors**

- **The reluctance of university staff to Bologna process**
- **Poor understanding of NQF idea –e.g. What does it mean for University? What is the impact of NQF on assuring the quality of education or transparency and comparability between degrees?**
- **The belief that the introduction of learning outcomes did not solve key problems (like duplication of courses or recognition of prior learning)**





How do we support teaching enhancement in practice ?

TEACHERS:

- Trainings in formulation and verification of learning outcomes, pedagogies, languages, leadership skills, virtual platform using etc.
 - **some trainings are obligatory**
 - **most efficient way – to train leaders who trains teachers at the faculties**
- New strategy of internationalization – from among the teachers natural leaders and most active persons are chosen for professional and international training
- New questionnaire introduced last year - students evaluate teachers
 - **feedback is given to teacher, to vicedean and to students**
- New project has been run this year: modernization of our centre of lifelong learning
 - **professional training center for teachers, partially for students, business and local society**
 - **mixed groups: teachers, students and partners from industry**
- New system of evaluation of academic teachers - the emphasis will be shifted from quantitative to qualitative indicators
 - **not defined yet**



SCIENTIFIC ACTIVITY OF TEACHERS AND STUDENTS:

- Academic career is strongly connected to scientific activity, teachers are also supported by Rector's annual awards for: the best publication, the publication with higher number of citation
- We offer to the best students few possibilities to be involved in scientific research: volunteering scientific research, individual program of study (individual tutoring), short fast track to degree, students scientific organizations
- According to polish legal regulations we are obliged to involve master students in scientific research



QUALITY OF CURRICULA:

- flexible study programs

Semester 2										
Course unit code	Course unit title	ECTS	L	T	Lab	P	S	O	Exam	
03 22 0255 00	Research and Development Project	30								360
				Total of credits 30.0 Total of teaching hours 360						

Nanotechnology master programme, DD with Twente University

- well defined learning outcomes and assessment methods
- more than 50% of our courses at bachelor level are practical – labs, projects, seminars
(expensive!!!!!!)
- innovative curricula (Chemistry of Building Materials)
- joint programs

Additional sources of financing are difficult to find



COOPERATION WITH INDUSTRY

- academic teachers are trained by partners from industry
- curricula and learning outcomes are evaluated by business partners
- courses led by industrial partners
- projects and diploma projects in industry
- some grassroots initiatives: certification of managers, ICT cluster

At the Faculty of Management:

50-80% of diploma project are completed with cooperation with business

80 academic teachers and 25 tutors from industry

LOGLIFE LEARNING

- children's and senior's universities,
- courses and postgraduate studies



INNOVATIVE T&L

What we consider as innovative T&L?

- International Faculty of Engineering – established 15 years ago to organize, support and market English and French taught programs and courses, slowly transforming to innovative T&L centre
- E-learning – slow developing of e-learning tools and methods, teachers are not well motivated and supported
- WIKAMP (Virtual Campus – tool for teachers and students to organize courses, distribute materials, communicate)
- PBL/Design Thinking
- Informal methods provided by individual teachers (good practices) – according to increasing diversity of student body teachers have to decide how to teach.



- PBL completed in 2015:

How to make scientific experiment more exciting for the youngsters?

How to assist elderly people in sit-to-stand motion?

Can yeast produce surfactants?

Where is my smartphone?

Computationally modeling human emotion.

i-environment

Fall detection for people with balance disorders using mobile technology.

- **Design Thinking Method** has been used in problem-based projects conducted at the International Faculty of Engineering for several years. It has first concerned the Computer Science (CS) program conducted within 5-year MSc scheme and later implemented into Problem Based Learning (PBL) Team Projects at the first cycle study.



- The one of the initiatives associated with the implementation of the methodology of design thinking in education programs is an Erasmus Intensive Project entitled DESTINE (DESIGN Thinking in EngINERING). DESTINE is implemented jointly by the International Faculty of Engineering and the Institute of Applied Computer Science and involve 6 partner institutions from Spain, France, Germany, Cyprus, Scotland and Sweden. The project was run on 2014.
- DT4U - a group of university people, who are representing various faculties at Lodz University of Technology. All of them share their extraordinary interdisciplinary and creativity in common. DT4U group integrates researchers, PhD students and students. DT4U serves TUL since February, 2014 when few Top 500 Innovators Polish Government programme alumni decided to bring their Silicon Valley experiences to polish academic environment.



DT4U focuses on training new unique practical skills by designing and introducing the implementation of Design Thinking (DT) methodology into existing education path.

- making students more open to creative and innovative thinking formed by the DT process which is implemented in the project realization stages (employers feedback);
- increasing the competences of academic staff in the field of DT (trainings on DT for academic teachers and administrative staff result in implementation of DT methodology to project courses)
- development of the infrastructural and tool facilities for the purpose of realizing education processes using DT methodology (difficult due to financial and space limitation!!!)
- enhancement of the cooperation between business and industrial parties (students solve the real problems - solution as well as students team work is assessed by joint boards) ;
- providing a spectrum of possible applications of the developed innovation in order to increase the attractiveness of conducted teaching forms and thereby breaking the existing stereotypes in this regard (not evaluated yet);
- preparing professional teaching materials, helpful in academic staff training as well as a handbook of good practice in teaching and learning using Design Thinking methodology.



- Institutional strategy has to be improved
- What does it mean for the main stakeholders: **the quality of teaching – broad discussion is necessary**
- We need new vision of teaching - individual improvement for teachers is our priority
- We need to balance importance of teaching and scientific activity (both are part of institutional strategy)
- How we can motivate teachers? And students?
- How to create friendly environment for T&L?
- How to close Deming cycle for continuing improvement?
- How to estimate the costs of quality?



Thank You!