



Gas Technology and Renewable Energy

Field of study: Construction and Exploitation of Means of Transport



Course summary:

Semester 1

- Thermal Fluid Technology
- Thermodynamic Properties of Flammable Gases
- Management in Gas Industry
- Technical Thermodynamics
- Gas and Steam Turbines
- Gas Engines
- Environmental Protection Technologies
- Industrial Gas Technologies
- Materials Engineering
- Safety of Exploitation of Gas Fired Units
- Software Design and Modelling at Mechanical Engineering I

Semester 2

- Renewable Energy: Geothermal, Sun and Wind Energy
- Biomass and Gasification process
- Gas Storage and its Transportation
- Thermal and Electric Energy Storage
- Construction of Gas Industry Facilities
- Software Design and Modelling at Mechanical Engineering II
- Control Systems of Gas and Energy Processes

Semester 3

- Diploma Thesis
- Internship in Industry
- Energy Policy

Programme description

The most important direction of energy development in coming years is the one considered to be based on a significant increase in natural gas consumption. Particularly, in such countries as Poland, where 90% of electricity and 86% of heat is produced from the combustion of coal, increasing the use of natural gas is the most important economic activity for the next decades. From high-power engineering based on combined cycle gas turbine unit CCGT to the distributed cogeneration systems based on gas engines is the most important direction of development of energy, not only in Europe or Poland but also in other countries. Additionally, power based on natural gas can efficiently be supported by renewable energy such as: solar, wind and geothermal. Renewable energy sources are difficult to be used and expensive to operate, but in cooperation with natural gas technology are very promising.

Lectures, exercises and laboratories will be carried out by the staff associated with PUT – Laboratory of Gas Technology (LTG), whereas, internships will be given in modern industry natural gas companies. A significant part of the lectures will be conducted by employees of a major international research institutions such as the Technical University of Munich, Institute of Geology and Geophysics in Potsdam-Germany, the Royal Institute of Technology at Stockholm. Lectures will also be conducted by outstanding employees from the best Polish academic centers.

Gas Technology Laboratory in Poznan University of Technology has well-equipped research facilities. In the LTG lab gas technology processes are carried out for over 30 years now. Faculty staff of the laboratory have many years of experience in scientific and research centers in a very significant international-centers (the University of California, Gas Wärme Institute in Germany, the Royal Institut of Technology in Stockholm, National Laboratory in Switzerland). Due to a very wide international cooperation with Polish and international natural gas companies, the LTG is well-qualified for the good organization of studies in Gas Technologies and Renewable Energy.



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University	Poznan University of Technology Poznan, POLAND
Degree to be obtained	Master of Science
Programme website	https://www.put.poznan.pl/en
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Language of instruction	English
ECTS points	90
Duration	1.5 years (3 semesters)
Programme begins	end of February
Programme ends	end of June
Deadline for application	3 months before the course starts – end of November
Education requirements	English language – level B2 (Common European Framework), Bachelor's degree or its equivalent in engineering or applied sciences, with a qualification in mechanical engineering or heat engineering. Full list of the required documents is available at: https://www.put.poznan.pl/en
Mode of instruction	Lectures, classes, laboratory classes, projects, internships

