SYLLABUS

Name: Renewable and non-renewable energy sources (elective course)
Name in Polish: Odnawialne i nieodnawialne źródła energii (przedmiot wybieralny)
Name in English: Renewable and non-renewable energy sources (elective course)

Information on course:

Course offered by department:	Faculty of Organisation and Management
Course for department:	Silesian University of Technology
Study level and form:	Bechelor's degree, Full-time
Term:	winter semester, academic year valid from 2019/2020, sem. VI
Coordinator of course edition:	Prof. dr hab. Grażyna Płaza

Default type of course examination report:

Course pass

Language:

English

Course homepage:

https://platforma.polsl.pl/roz/

ECTS

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Short description:

Familiarizing students with the types of energy sources currently used in Poland and in the world. Drawing attention to the world's energy problems, climate problems and the possibility of their partial solution through the use of renewable energy sources. Comparison of renewable energy sources with non-renewable sources and discussion of their impact on the natural environment. Presentation of the state of development of the sources and trends in this field in Poland, Europe and the world.

Description:

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Lectures - detailed program content:
• Strategic directions of energy sector development,
• Energetic safety,
• Non-renewable energy sources and their resources.
• Renewable energy sources and their impact on environmental protection.
• Biomass, energy crops, biofuels.
• Wind energy.
• Geothermal energy.
• Solar energy – solar collectors, photovoltaic cells.
• Hydropower.
• Prosumer energy.
• Methods of increasing energy efficiency.

Applied teaching methods, including distance learning methods and techniques: Multimedia presentation, Discussion, Remote Education Platform, Use of Zoom Communicator for distance learning

Lecture: 30 h
Individual student work: analysis of literature and preparation project work (presentation) - 30 h

Bibliography:

Płaza G. (2018) Green production – green industry: Bioeconomy and bio-based products Monografia, Wyd. Politechnika Śląska
Borgulat J., Ponikiewska K., Jałowiecki Ł., Strugała-Wilczek A., **Płaza G**. (2022) Are wetlands as an integrated bioremediation system applicable for the treatment of wastewater from underground coal gasification processes ? Energies 15, 4419. https://doi.org/10.3390/ en15124419
Lewandowski B.: Proekologiczne źródła energii odnawialnej. WNT, Warszawa 2002.
BP Statistical review of world energy-www.bp.com3.
Eurostat.
Jastrzębska G., Ogniwa słoneczne. Budowa, technologia i zastosowanie, Wydawnictwa Komunikacji i Łączności, Warszawa, 2013.
Wolańczyk F., Elektrownie wiatrowe, Wydawnictwo KaBe, Krosno, 2009.
Lewandowski W.: Proekologiczne źródła energii odnawialnej, WNT, Warszawa 2012.
Corkish R., Sproul A., and others, Applied Photovoltaics, 3rd Edition , Taylor&Francis eBooks, 2013.
Haberlin H, Photovoltaics system design and practice, Wiley, 2013.

Jenkins D., Renewable Energy Systems, Earthscan Expert, 2013.
White S., Solar Photovoltaic Basics, Taylor & Francis Ltd, 2015.

Learning outcomes:

Knowledge: knows and understands:
K1P_W20: fundamental dilemmas of modern civilization

Skills: can:
K1A_U08: make a critical analysis of how existing technical solutions work and evaluate these solutions
K1A_U16: take part in a debate - present, justify and evaluate different opinions and positions and discuss them
K1A_U19: independently plan and implement their own lifelong learning

Social competence: is ready to:
K1A_K06: cultivate and disseminate models of appropriate behavior in the work environment and beyond, independent decision-making and critical evaluation of his own actions, the actions of the teams he leads and the organizations in which he participates, and accept responsibility for the consequences of these actions

Assessment methods and assessment criteria:

Documented project work (presentation)
Passing criteria: providing and presenting the project work in accordance with the specified requirements of the project task

Practical placement:

Not applicable