



Diploma Thesis

Basic information

Field of study Renewable Energy and Energy Management Speciality All Department Faculty of Energy and Fuels Study level Second-cycle (engineer) programme Study form Full-time studies Education profile General academic		Didactic cycle 2021/2022 Subject code EiPEOZS.IIi4S.020527eb79105d40153428d063969161.2 1 Lecture languages English Mandatory Obligatory Block Major Modules Subject related to scientific research No	
Subject coordinator	Artur Wyrwa		
Lecturer	Artur Wyrwa		

Period Semester 3	Examination Assessment Activities and hours Diploma Thesis: 0	Number of ECTS points 20.0
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Subject learning outcomes

Code	Outcomes in terms of	Directional learning outcomes	Examination methods
Knowledge - Student knows and understands:			
W1	The student's knowledge enables him to prepare MSc thesis as a report of conducted advanced research.	EOZ2A_W04, EOZ2A_W05, EOZ2A_W06	Diploma thesis preparation

W2	Student is able to prepare presentation on his MSc thesis with the following elements: content methodology research or experiments results conclusions.	EOZ2A_W01, EOZ2A_W02, EOZ2A_W03, EOZ2A_W05, EOZ2A_W06	Diploma thesis preparation
Skills - Student can:			
U1	prepare reports from conducted research or experiments.	EOZ2A_U05, EOZ2A_U06, EOZ2A_U07, EOZ2A_U09	Diploma thesis preparation
Social competences - Student is ready to:			
K1	contribute to the development of the economy and the society.	EOZ2A_K01, EOZ2A_K02	Diploma thesis preparation

Programme content that ensure achieving learning outcomes for the module

Preparation and exam on the MSc thesis: Presentation and discussion of the MSc thesis, exam on general and specific knowledge of the subjects studied.

Calculation of ECTS points

Activity form	Average amount of hours* needed to complete each activity form
Participation in classes / practical placement	15
Contact hours	5
Preparation of project, presentation, essay, report	500
Student workload	Hours 520

* hour means 45 minutes

Study content

No.	Course content	Subject learning outcomes	Activities
1.	Preparation and exam on the MSc thesis: Presentation and discussion of the MSc thesis, exam on general and specific knowledge of the subjects studied.	W1, W2, U1, K1	Diploma Thesis

Course advanced

Teaching methods:

Multimedia presentation, Discussion, Diploma thesis

Activities	Examination methods	Credit conditions
Thesis	Diploma thesis preparation	

Requirements and method of completing particular forms of classes

According to the AGH Study Regulation.

Method of calculating the final grade

Final grade = grade from presentation

Method and procedure for compensating for missed coursework resulting from student absence from classes

According to the AGH Study Regulation.

Literature

Obligatory

1. Literature recommended by the supervisor.

Directional learning outcomes

Code	Content
EOZ2A_K01	Is aware of the need to critically assess the information received and knowledge acquired, recognizes the importance of knowledge in addressing cognitive and practical problems, in particular in the field of energy.
EOZ2A_K02	Is aware of responsibility for the tasks performed, is willing to think and act in an entrepreneurial and professional manner, is aware of compliance with the principles of professional ethics and the cultivation and dissemination of appropriate practices, as well as initiation of actions for the benefit of the social community and public interest, including the rational use of energy and provision of the national energy security.
EOZ2A_U05	Is able to carry out critical, from the technical, economic, environmental and social point of view - analysis of the functioning of any element of the energy system and develop a project of improvement in the construction and operation of renewable and classic energy equipment and installations.
EOZ2A_U06	Is able to develop a complete project involving machinery, equipment and energy installations, including also relevant automation, control, monitoring and process visualisation systems using a wide range of modern technical, IT and data transmission tools.
EOZ2A_U07	Is able also to assess the impact of energy systems on the global functioning of civilization, including society, natural environment, economic and social development and related issues, is able to present own point of view to a wide range of audiences, also using a foreign language and presentations illustrating advanced technical and non-technical problems in the field of energy.
EOZ2A_U09	Is able to plan self-learning using various forms of information acquisition, including professional publications (also in a foreign language) and to conduct self-learning by critical analysis of the information acquired.
EOZ2A_W01	Knows and understands the phenomena described in the basic sciences, methods of their thermodynamic description and modelling in connection with the use of materials in the power industry.
EOZ2A_W02	Knows and understands basic and advanced processes occurring during the operation and functioning of machines, networks and power and electrical systems that use renewable energy sources, the importance of automation and control of their operation, the importance of proper design and selection, forecasting and planning of their development and the impact of energy technologies on the environment.
EOZ2A_W03	Knows and understands development trends in fields related to renewable energy, such as processing of energy resources, co-generation, environmental protection technologies and modern information and optimization methods that broaden the application horizon of RES.
EOZ2A_W04	Knows and understands dilemmas related to the development of RES: ensuring energy security, environmental protection and sustainable energy development as well as rational utilization of energy and use of energy resources.
EOZ2A_W05	Knows and understands the norms and legal regulations applied in the power industry, the concepts in the field of industrial property protection, copyrights and patent information, the basis of economics and management in renewable energy and environmental protection.
EOZ2A_W06	Knows and understands the general principles for developing individual entrepreneurship, including: principles of business plan development and business management, economics and management in the energy sector and environmental protection.