



Study programme

Major: Energy and Environmental Engineering

Table of contents

General characteristics of the major	3
General information about the study programme	5
Admission criteria, rules and policies	7
Learning outcomes	8
Compliance table of engineering competence (Inz) with directional learning outcomes (KEU)	10
Directional outcomes coverage matrix	11
Characteristics matrix of learning outcomes in relation to modules	15
Matrix of directional learning outcomes with related forms of classes and the method of testing	19
ECTS credits calculations	26
Detailed rules of the implementation of the study programme established by the Dean of the Faculty (the so-called Study Rules)	27

General characteristics of the major

Basic information

Faculty name:	Faculty of Energy and Fuels
Major name:	Energy and Environmental Engineering
Level:	Second-cycle (engineer) programme
Profile:	General academic
Form:	Full-time studies
ISCED classification:	0713
Number of ECTS credits necessary to complete studies at a given level:	120
Professional title awarded to graduates:	magister inżynier
Cycle start date:	2021/2022
Duration of studies (number of semesters):	4

Field of science to which the major is assigned:

Field engineering and technical sciences

Discipline of science to which the major is assigned:

Discipline	Percentage	ECTS
Environmental engineering, mining and energy	100%	120

Relationship between the major and the AGH UST development strategy and the AGH UST mission

In accordance with the mission of the AGH University of Science and Technology, the course fulfills the postulate of service to the Polish economy, both in the energy and environmental protection sectors. Current adaptation of education programs at graduate level (level 7 of the PRK) conducted jointly by the AGH University of Science and Technology and Shibaura Institute of Technology, to meet national and international requirements, characterized in terms of learning outcomes (knowledge/skills/competencies) in the area of the Polish Qualifications Framework (PRK), closely fits into the University Development Strategy.

Information on taking into account the socio-economic demand while creating the study programme and indication of the assumed learning outcomes matching the identified demand

Undertaking studies in the field of Energy and Environmental Engineering conducted jointly by two universities of AGH University of Science and Technology, and Shibaura Institute of Technology guarantees to gain knowledge, skills, and competencies, which are consistent with the assumed learning outcomes, and take into account contemporary socio-economic needs. A student completing a graduate course (level 7 of the PRK) in the field of Energy and Environmental Engineering is fully aware of the role of energy engineering and its impact on the environment as well as the socio-economic development of the country. Energy and Environmental Engineering studies prepare graduates for work in all branches of the energy-related sectors as well as research and development. The main feature of the joint studies is the orientation and specialization towards the design and optimization of modern energy systems, the designing, and manufacturing techniques of contemporary energy materials, considering environmental protection that distinguishes the course is the focus on the global aspects of energy conversion, including the preparation of graduates to work in international teams to face global challenges of energy and environment. Satisfying the above skills, knowledge, and social competences is a coherent connection of socio-economic needs with the learning outcomes assumed in the field of Energy and Environmental Engineering.

Learning paths - scope in Polish and in English

Diploma paths - scope in Polish and in English

The names of the specialties in Polish and in English

Name [pl]

Name [en]

General information about the study programme

Major: Energy and Environmental Engineering

General information related to the study program (general learning objectives and employment opportunities, typical jobs and opportunities for graduate continuing education)

The course of Energy and Environmental Protection belongs to the area of knowledge that is related to both: engineering and sciences. Its practical reference in the economy is related to the conversion, storage, and efficient utilization of energy as well as the development and optimization of devices that fulfill these tasks. The scientific background of the course is thermodynamic, which is discipline located at the border of engineering and science. The aim of the study is:

1. Transfer of general knowledge necessary to pursue the profession of engineer and theoretical knowledge and practice in the field of energy engineering, enabling the independent problem solving that occurs in the implementation of processes related to conversion, storage, and effective utilization of energy, especially in the context of environmental protection.
2. Acquiring the ability to plan, model, and implement engineering tasks, especially in the field of energy engineering, using experimental methods, instrumental research and computational techniques, taking into account the principles of sustainable development and care for environmental protection.
3. Preparation of the graduate for professional work in the energy sector and other related branches as well as in the research facilities, developing the ability to work in an international team and in an interdisciplinary environment. Thanks to achieving the above educational goals, graduates of the Energy and Environmental Engineering will be perceived as valuable employees in the energy sector and scientific facilities, and research and development departments and other areas of the modern economy.
4. Student has the right to study at a specific level and profile according to the individual organization of studies with the consent of the Dean of the Faculty. Individual Organization of Studies may apply to classes lasting one or several semesters or the entire course of study. The rules of studying according to IOS are defined by the Dean of the Faculty.
5. Student chooses one language depending on whether the semester is conducted at AGH or at SIT.
6. Student is treated individually and is required to participate in research throughout the study period.
7. Student is assigned to a research group and has appointed tutors from AGH and SIT.

Information on the study programme including the conclusions from the students and graduates careers monitoring

The study program of Energy and Environmental Engineering takes into account the conclusions stemming from the analysis of the professional careers monitoring of students and graduates, which are conducted at the AGH Career Center. Current results show an excellent quality of education and a high percentage of employment in the energy sector.

Information on the study programme taking into account the requirements and recommendations of the accreditation committees, in particular the Polish Accreditation Committee and industry accreditation committees

The study program of the course Energy and Environmental Engineering takes into account all the requirements and recommendations of accreditation committees, including the Polish Accreditation Commission, and Peer Accreditation Commissions.

Information on including examples of good practice in the study program

Faculty of Energy and Fuels focus with great importance to collect, compile, and use good practices. Good practices implemented at the Energy and Environmental Engineering course are used to improve standards of teaching, learning, and gaining skills. Good practices are tools to improve social competences and to teach, how to expand knowledge using various sources and experience of specialists. Intensive cooperation with domestic and international academic institutions and companies leads to the improvement of the study program.

Examples of good practices:

- Cooperation with external parties.
- Appreciation of the best students.
- Support for student's research initiatives.

- Promotion of the E3 course.
- Inclusion of mandatory modules in the study program.

Information on cooperation in the preparation of the study programme with external stakeholders, in particular associations, professional and social organizations

The study program of the Energy and Environmental Engineering course is prepared in a way that allows students to develop their knowledge and improve their skills. This is realized by the proper design of the study program. The proposed study program is developed based on the longtime experience of academic staff from AGH-UST and SIT. The study program is inspired by the best Polish, Japanese and international study programs, as well as Polish and European Qualification Frameworks. Broad social consultations with top companies from the field of engineering, with academic staff, and with students also have an impact on the program. Faculty of Energy and Fuels emphasize the possibility of personal improvement of students by cooperation with other AGH-UST institutes and units as well as with SIT units. The study program is constantly improved.

Duration, rules and form of the apprenticeship

4 weeks of diploma practice, realized within diploma thesis.

Admission criteria, rules and policies

Major: Energy and Environmental Engineering

Description of competences expected from the candidate applying for admission to studies

Candidates are accepted within a students' limit during qualification procedure. Candidates are arranged in the ranking list based on Grade Point Average (GPA) of degrees from bachelor studies and results of the entrance exam. Candidates interested in energy engineering and environmental engineering are preferred. Candidates should also be enthusiastic about new technologies in energy and environmental engineering and group work.

Recruitment conditions, including the winners and finalists of the central level high school scientific Olympics, as well as winners of international and national contests

Recruitment is led within the framework of AGH-UST senate on rules of acceptance of candidates, including laureates and finalists of Olympiads as well as laureates of international or domestic science competitions.

The expected limit of admissions to studies along with an indication of the minimum number of admitted candidates required to successfully launch a study cycle

Minimal number of students: 8

Maximal number of students: 15

Learning outcomes

Major: Energy and Environmental Engineering

Knowledge

KEU symbol	Directional learning outcomes	CEU symbol
EEER2A_W01	knows and understands: the multidisciplinary nature of contemporary energy systems and knows how to apply mathematics, basic sciences, as well as engineering basics to solve complex energy and environmental engineering problems	P7S_WG_A
EEER2A_W02	knows and understands: how to demonstrate knowledge that belongs to the best disciplines in the field of sustainable energy and environment, selected from: thermodynamics, heat and mass transfer, mathematical modelling, CAD/CAM, sustainable development, alternative and renewable energy systems, low carbon footprint, monitoring, control and diagnosis of condition	P7S_WG_A
EEER2A_W03	knows and understands: methods of development and conducting appropriate experimentation, instrumentation, laboratory tests, analyse and interpret data and errors, and knows how to use engineering uncertainty to draw conclusions	P7S_WG_A
EEER2A_W04	knows and understands: how to apply numerical methods to common environmental and energy engineering problems, how to conduct scientific computations and is aware of the impact of computational progress on science	P7S_WG_A, P7S_WK_A
EEER2A_W05	knows and understands: how to design and supervise the construction of systems to convert, harvest, storage, transmit, control and use of energy	P7S_WG_A, P7S_WG_A_Inz
EEER2A_W06	knows and understands: how to integrate energy technologies and assess the impact of new technical developments that improve the sustainability, efficiency and environmental impact of energy systems	P7S_WG_A, P7S_WK_A
EEER2A_W07	knows and understands: basic kinds of intellectual property rights and rules of copyright protection, knows how to apply patents, standards and regulations to design appropriate energy and environmental systems	P7S_WK_A
EEER2A_W08	knows and understands: economical framework as well as rules of development, operation and management of individual entrepreneurship	P7S_WK_A, P7S_WK_A_Inz

Skills

KEU symbol	Directional learning outcomes	CEU symbol
EEER2A_U01	is able to: use knowledge to solve complex and unusual problems by formulating phenomenological, physical and mathematical models, conducting basic research, analysis and synthesis in order to solve contemporary energy and environmental problems	P7S_UW_A_Inz_0 1, P7S_UW_A, P7S_UW_A_Inz_0 2
EEER2A_U02	is able to: use knowledge from a range of directional engineering courses, selected from: thermodynamics, heat and mass transfer, fluid mechanics, dynamics, advanced mechanics, material properties, strength of materials, alternative energy systems, condition monitoring, modelling and forecasting, energy and propulsion systems	P7S_UW_A_Inz_0 1, P7S_UW_A, P7S_UW_A_Inz_0 2
EEER2A_U03	is able to: plan and conduct experiments on a laboratory and semi-technical scale, operate sensors, formulate and test hypotheses, make basic research, conclude about results taking into account measurement errors and measurement uncertainty	P7S_UW_A_Inz_0 1, P7S_UW_A, P7S_UW_A_Inz_0 2
EEER2A_U04	is able to: make effective use of information and communication technologies (ITC) that satisfy solutions of nonlinear problems by the use of numerical receipts	P7S_UW_A

KEU symbol	Directional learning outcomes	CEU symbol
EEER2A_U05	is able to: propose accurate mathematical model, analyse, design, develop and operate of energy and environmental systems: renewable energy systems, bioenergy, energy harvestings as waste-to-energy operation, smart grids, on/off systems, nuclear power heating/cooling systems, storage and energy conversion systems, energy efficiency, energy complexity, low-emission combustion	P7S_UW_A
EEER2A_U06	is able to: show a good ability to evaluate existing energy and environmental installations and solutions, as well as formulate, analyse and handle technical problems from a system point of view, with an appropriate material selection and an overview on their life-cycle assessment, from idea to implementation	P7S_UW_A_Inz_01, P7S_UW_A, P7S_UW_A_Inz_02
EEER2A_U07	is able to: communicate in a foreign language on the subject of energy and environment in order to report advanced problems, achievements and challenges	P7S_UK_A
EEER2A_U08	is able to: manage team and develop forecasts and plans for the development of energy and environmental systems at various levels of management	P7S_UO_A
EEER2A_U09	is able to: plan and implement personal lifelong learning, especially in the fields of energy and environment	P7S_UU_A

Social competence

KEU symbol	Directional learning outcomes	CEU symbol
EEER2A_K01	is ready to: constantly improve professional competences, as well as work effectively in a group, as a project leader or as a contractor, to achieve the goal within rational use of energy and ensuring energy security of the country	P7S_KR_A, P7S_KO_A
EEER2A_K02	is ready to: evaluate ethical issues and responsibilities which must consider the impact of different technical, organisational, economical, environmental and social activities in global and local scales	P7S_KK_A, P7S_KO_A

Compliance table of engineering competence (Inz) with directional learning outcomes (KEU)

Major: Energy and Environmental Engineering

Knowledge

CEU symbol	Learning outcomes for qualifications including engineering competence	KEU references
P7S_WG_A_Inz	knowledge of basic processes taking place in the life cycle of technical devices, facilities and systems	EEER2A_W05
P7S_WK_A_Inz	knowledge of basic principles of creating and developing various forms of individual entrepreneurship	EEER2A_W08

Skills

CEU symbol	Learning outcomes for qualifications including engineering competence	KEU references
P7S_UW_A_Inz_01	ability to plan and carry out experiments, including measurements and computer simulations as well as to interpret the obtained results and draw conclusions out of them. When identifying and formulating the specification of engineering problems and solving them, being able to: - use analytical, simulation and experimental methods; - recognize their systemic and non-technical aspects, including ethical connotations; - conduct a preliminary economic assessment of the proposed solutions and planned engineering activities; - perform a critical analysis of the functioning of existing technical solutions to further evaluate them;	EEER2A_U01, EEER2A_U02, EEER2A_U03, EEER2A_U06
P7S_UW_A_Inz_02	ability to design solutions in compliance with the given specification as well as being able to: create simple devices, facilities and systems typical for the study major or implement processes using skillfully chosen methods, techniques, tools and materials	EEER2A_U01, EEER2A_U02, EEER2A_U03, EEER2A_U06

Directional outcomes coverage matrix

Major: Energy and Environmental Engineering

2021/2022/S/III/AGH/EEE/all

Subject	Code	EEER2A_W01	EEER2A_W02	EEER2A_W03	EEER2A_W04	EEER2A_W05	EEER2A_W06	EEER2A_W07	EEER2A_W08	EEER2A_U01	EEER2A_U02	EEER2A_U03	EEER2A_U04	EEER2A_U05	EEER2A_U06	EEER2A_U07	EEER2A_U08	EEER2A_U09	EEER2A_K01	EEER2A_K02
Mathematical modeling	SEEE00S.IIi1P.b659ad0aa769206ebb53c517f55e0e73.21	x	x							x	x									x
Modern Solid State Physics	SEEE00S.IIi1P.603906795cb72.21	x	x							x	x									x
Advanced Fluid Mechanics	SEEE00S.IIi5PJO.603c9a7252677.21		x							x	x									x
Technical Thermodynamics	SEEE00S.IIi1P.603c99775a6e7.21		x				x				x				x					x
Fuel Utilization Technologies	SEEE00S.IIi5PJO.6039067c0846d.21					x	x							x	x					x
General and Sustainable Chemistry	SEEE00S.IIi1P.60390679e920d.21		x	x							x	x								x
Computational Fluid Dynamics in Energy Systems	SEEE00S.IIi5PJO.6039067c84487.21				x								x	x						x
How to Write and Publish a Scientific Paper at International Journal	SEEE00S.IIi1O.6039067a708d3.21							x								x			x	x
Resarch Guidance 1	SEEE00S.IIi1S.6039067ae9cf4.21								x							x	x			x
Hybrid Renewable Energy Systems	SEEE00S.IIi5PJO.6039067d86fec.21		x			x					x			x						x
Hydrides and hydrogen storage	SEEE00S.IIi5PJO.3ba48778821d544c2c7ada2c3795b29f.21		x							x	x									x
MATLAB programming	SEEE00S.IIi5PJO.60378dcbe0b37.21				x								x	x						x
Wind Turbines Modeling	SEEE00S.IIi5PJO.6039067e31a0a.21				x	x							x	x						x

Subject	Code	FEER2A_W01	FEER2A_W02	FEER2A_W03	FEER2A_W04	FEER2A_W05	FEER2A_W06	FEER2A_W07	FEER2A_W08	FEER2A_U01	FEER2A_U02	FEER2A_U03	FEER2A_U04	FEER2A_U05	FEER2A_U06	FEER2A_U07	FEER2A_U08	FEER2A_U09	FEER2A_K01	FEER2A_K02	
Environmental Analytical Chemistry	SEEE00S.Ili5PJO.6039067eaf83a.21	x								x	x									x	
Advanced Power Systems	SEEE00S.Ili5PJO.6039067f3e8ab.21					x	x							x	x					x	
Experimental Thermo-Fluid Engineering	SEEE00S.Ili5PJO.6039067fb988c.21			x						x		x								x	
Materials Characterization Methods	SEEE00S.Ili5PJO.603906804104e.21			x		x						x			x					x	
Materials Science for Engineering	SEEE00S.Ili5PJO.60390680bb461.21					x						x			x					x	
Nuclear Energy	SEEE00S.Ili5PJO.603c973d34b10.21					x	x							x	x					x	
High-Pressure Science	SEEE00S.Ili5PJO.6039068153a0b.21					x								x	x					x	
Superconducting Materials: Synthesis and Characterization	SEEE00S.Ili5PJO.60390681ce00c.21					x						x			x					x	
Energy Conversion Engineering	SEEE00S.Ili5PJO.6039068254a77.21					x	x							x	x					x	
Fractional Calculus and Its Applications in Energy and Environment	SEEE00S.Ili5PJO.6039068a3689b.21	x	x							x				x						x	
Heat and Cool Networks	SEEE00S.Ili2PJO.6039068929412.21					x	x							x	x					x	
Artificial Intelligence Methods	SEEE00S.Ili2PJO.60390689adc1f.21			x	x								x	x						x	
Polish Language	SEEE00S.Ili6JO.6039068ff3ce0.21															x				x	x
Advanced Heat and Mass Transfer	SEEE00S.Ili2K.60390684a30fe.21		x	x							x	x								x	
Japanese Language	SEEE00S.Ili6JO.6039069500741.21															x				x	x
Advanced Numerical Methods	SEEE00S.Ili2K.603906852b161.21				x					x			x							x	

Subject	Code	FEER2A_W01	FEER2A_W02	FEER2A_W03	FEER2A_W04	FEER2A_W05	FEER2A_W06	FEER2A_W07	FEER2A_W08	FEER2A_U01	FEER2A_U02	FEER2A_U03	FEER2A_U04	FEER2A_U05	FEER2A_U06	FEER2A_U07	FEER2A_U08	FEER2A_U09	FEER2A_K01	FEER2A_K02
Advanced Engineering Simulations	SEEE00S.IIi2PJO.6039068ab4063.21			x	x								x	x					x	
Advanced Applications of Fluid Engineering	SEEE00S.IIi2PJO.6039068b3cf27.21						x			x					x				x	
Advanced Project Based Learning 1	SEEE00S.IIi2S.60390685a664b.21							x	x							x	x		x	
Engineering Optimization	SEEE00S.IIi2PJO.6039068bbb52e.21				x		x						x		x				x	
Polish History and Culture	SEEE00S.IIi2HS.603906863005d.21															x			x	x
Research Guidance 2	SEEE00S.IIi2S.60390686b70c4.21								x								x	x	x	x
Topics in Data Engineering	SEEE00S.IIi2PJO.6039068c43e46.21				x		x						x	x					x	
Diploma Seminar 1	SEEE00S.IIi2S.6039068768d85.21								x							x	x		x	x
Advanced Spectroscopy	SEEE00S.IIi2PJO.6039068d280a0.21		x	x							x	x							x	
Basic Molecular Spectroscopy	SEEE00S.IIi2PJO.6039068ddb4cf.21		x	x							x	x							x	
Advanced Materials Science	SEEE00S.IIi2PJO.6039068e633b5.21		x			x					x				x				x	
Energy and Water Treatment Based on Chemical Engineering	SEEE00S.IIi2PJO.6039068f6814e.21						x					x			x				x	
Microcontrollers and PLC Programming	SEEE00S.IIi2PJO.6039067d0b754.21			x						x		x							x	
Modeling of Energy Systems	SEEE00S.IIi2PJO.60390684285b9.21					x	x							x	x				x	
Materials for Energy and Environment	SEEE00S.IIi2PJO.608d0e498adf8.21		x			x					x				x				x	
Advanced Project Based Learning 2	SEEE00S.IIi4S.60390691b9b9e.21								x							x		x	x	

Subject	Code	FEER2A_W01	FEER2A_W02	FEER2A_W03	FEER2A_W04	FEER2A_W05	FEER2A_W06	FEER2A_W07	FEER2A_W08	FEER2A_U01	FEER2A_U02	FEER2A_U03	FEER2A_U04	FEER2A_U05	FEER2A_U06	FEER2A_U07	FEER2A_U08	FEER2A_U09	FEER2A_K01	FEER2A_K02
		Japanese History and Culture	SEEE00S.IIi4HS.6039069241bd4.21															x		
Research Guidance 3	SEEE00S.IIi4S.60390692c0061.21								x								x	x	x	x
Students' Conference	SEEE00S.IIi4K.603906934728e.21							x	x							x		x	x	
Diploma Thesis	SEEE00S.IIi8S.606a634ff02e67f1c6a1cff71e8c4223.21	x					x									x		x	x	x
Diploma Seminar 2	SEEE00S.IIi8S.60390696cfd80.21								x							x	x		x	x
Research Guidance 4	SEEE00S.IIi8S.6039069758c9e.21								x								x	x	x	x
Sum:		5	13	9	8	14	12	3	9	10	13	10	8	15	16	12	7	6	51	11

Characteristics matrix of learning outcomes in relation to modules

Major: Energy and Environmental Engineering

2021/2022/S/III/AGH/EEE/all

Subject	Code	P7S_WG_A	P7S_WK_A	P7S_WG_A_Inz	P7S_WK_A_Inz	P7S_UW_A_Inz_01	P7S_UW_A	P7S_UW_A_Inz_02	P7S_UK_A	P7S_UO_A	P7S_UU_A	P7S_KR_A	P7S_KO_A	P7S_KK_A
Mathematical modeling	SEEE00S.IIi1P.b659ad0aa769206ebb53c517f55e0e73.21	x				x	x	x				x	x	
Modern Solid State Physics	SEEE00S.IIi1P.603906795cb72.21	x				x	x	x				x	x	
Advanced Fluid Mechanics	SEEE00S.IIi5PJO.603c9a7252677.21	x				x	x	x				x	x	
Technical Thermodynamics	SEEE00S.IIi1P.603c99775a6e7.21	x	x			x	x	x				x	x	
Fuel Utilization Technologies	SEEE00S.IIi5PJO.6039067c0846d.21	x	x	x		x	x	x				x	x	
General and Sustainable Chemistry	SEEE00S.IIi1P.60390679e920d.21	x				x	x	x				x	x	
Computational Fluid Dynamics in Energy Systems	SEEE00S.IIi5PJO.6039067c84487.21	x	x				x					x	x	
How to Write and Publish a Scientific Paper at International Journal	SEEE00S.IIi10.6039067a708d3.21		x						x			x	x	x
Resarch Guidance 1	SEEE00S.IIi1S.6039067ae9cf4.21		x		x				x	x		x	x	
Hybrid Renewable Energy Systems	SEEE00S.IIi5PJO.6039067d86fec.21	x		x		x	x	x				x	x	
Hydrides and hydrogen storage	SEEE00S.IIi5PJO.3ba48778821d544c2c7ada2c3795b29f.21	x				x	x	x				x	x	
MATLAB programming	SEEE00S.IIi5PJO.60378dcbe0b37.21	x	x				x					x	x	
Wind Turbines Modeling	SEEE00S.IIi5PJO.6039067e31a0a.21	x	x	x			x					x	x	
Environmental Analytical Chemistry	SEEE00S.IIi5PJO.6039067eaf83a.21	x				x	x	x				x	x	

Subject	Code													
		P7S_WG_A	P7S_WK_A	P7S_WG_A_Inz	P7S_WK_A_Inz	P7S_UW_A_Inz_01	P7S_UW_A	P7S_UW_A_Inz_02	P7S_UK_A	P7S_UO_A	P7S_UU_A	P7S_KR_A	P7S_KO_A	P7S_KK_A
Advanced Power Systems	SEEE00S.IIi5PJO.6039067f3e8ab.21	x	x	x		x	x	x				x	x	
Experimental Thermo-Fluid Engineering	SEEE00S.IIi5PJO.6039067fb988c.21	x				x	x	x				x	x	
Materials Characterization Methods	SEEE00S.IIi5PJO.603906804104e.21	x		x		x	x	x				x	x	
Materials Science for Engineering	SEEE00S.IIi5PJO.60390680bb461.21	x		x		x	x	x				x	x	
Nuclear Energy	SEEE00S.IIi5PJO.603c973d34b10.21	x	x	x		x	x	x				x	x	
High-Pressure Science	SEEE00S.IIi5PJO.6039068153a0b.21	x		x		x	x	x				x	x	
Superconducting Materials: Synthesis and Characterization	SEEE00S.IIi5PJO.60390681ce00c.21	x		x		x	x	x				x	x	
Energy Conversion Engineering	SEEE00S.IIi5PJO.6039068254a77.21	x	x	x		x	x	x				x	x	
Fractional Calculus and Its Applications in Energy and Environment	SEEE00S.IIi5PJO.6039068a3689b.21	x				x	x	x				x	x	
Heat and Cool Networks	SEEE00S.IIi2PJO.6039068929412.21	x	x	x		x	x	x				x	x	
Artificial Intelligence Methods	SEEE00S.IIi2PJO.60390689adc1f.21	x	x				x					x	x	
Polish Language	SEEE00S.IIi6JO.6039068ff3ce0.21									x		x	x	x
Advanced Heat and Mass Transfer	SEEE00S.IIi2K.60390684a30fe.21	x				x	x	x				x	x	
Japanese Language	SEEE00S.IIi6JO.6039069500741.21									x		x	x	x
Advanced Numerical Methods	SEEE00S.IIi2K.603906852b161.21	x	x			x	x	x				x	x	
Advanced Engineering Simulations	SEEE00S.IIi2PJO.6039068ab4063.21	x	x				x					x	x	
Advanced Applications of Fluid Engineering	SEEE00S.IIi2PJO.6039068b3cf27.21	x	x			x	x	x				x	x	

Subject	Code													
		P7S_WG_A	P7S_WK_A	P7S_WG_A_Inz	P7S_WK_A_Inz	P7S_UW_A_Inz_01	P7S_UW_A	P7S_UW_A_Inz_02	P7S_UK_A	P7S_UO_A	P7S_UU_A	P7S_KR_A	P7S_KO_A	P7S_KK_A
Advanced Project Based Learning 1	SEEE00S.IIi2S.60390685a664b.21		x	x					x	x		x	x	
Engineering Optimization	SEEE00S.IIi2PJO.6039068bbb52e.21	x	x			x	x	x				x	x	
Polish History and Culture	SEEE00S.IIi2HS.603906863005d.21								x			x	x	x
Research Guidance 2	SEEE00S.IIi2S.60390686b70c4.21		x	x						x	x	x	x	x
Topics in Data Engineering	SEEE00S.IIi2PJO.6039068c43e46.21	x	x				x					x	x	
Diploma Seminar 1	SEEE00S.IIi2S.6039068768d85.21		x	x					x	x		x	x	x
Advanced Spectroscopy	SEEE00S.IIi2PJO.6039068d280a0.21	x				x	x	x				x	x	
Basic Molecular Spectroscopy	SEEE00S.IIi2PJO.6039068ddb4cf.21	x				x	x	x				x	x	
Advanced Materials Science	SEEE00S.IIi2PJO.6039068e633b5.21	x		x		x	x	x				x	x	
Energy and Water Treatment Based on Chemical Engineering	SEEE00S.IIi2PJO.6039068f6814e.21	x	x			x	x	x				x	x	
Microcontrollers and PLC Programming	SEEE00S.IIi2PJO.6039067d0b754.21	x				x	x	x				x	x	
Modeling of Energy Systems	SEEE00S.IIi2PJO.60390684285b9.21	x	x	x		x	x	x				x	x	
Materials for Energy and Environment	SEEE00S.IIi2PJO.608d0e498adf8.21	x		x		x	x	x				x	x	
Advanced Project Based Learning 2	SEEE00S.IIi4S.60390691b9b9e.21		x	x					x		x	x	x	
Japanese History and Culture	SEEE00S.IIi4HS.6039069241bd4.21								x			x	x	x
Research Guidance 3	SEEE00S.IIi4S.60390692c0061.21		x	x						x	x	x	x	x
Students' Conference	SEEE00S.IIi4K.603906934728e.21		x	x					x		x	x	x	
Diploma Thesis	SEEE00S.IIi8S.606a634ff02e67f1c6a1cff71e8c4223.21	x	x						x		x	x	x	x

Subject	Code	P7S_WG_A	P7S_WK_A	P7S_WG_A_Inz	P7S_WK_A_Inz	P7S_UW_A_Inz_01	P7S_UW_A	P7S_UW_A_Inz_02	P7S_UK_A	P7S_UO_A	P7S_UU_A	P7S_KR_A	P7S_KO_A	P7S_KK_A
Diploma Seminar 2	SEEE00S.IIi8S.60390696cfd80.21		x		x				x	x		x	x	x
Research Guidance 4	SEEE00S.IIi8S.6039069758c9e.21		x		x					x	x	x	x	x
Sum:		37	28	14	9	30	36	30	12	7	6	51	51	11

Matrix of directional learning outcomes with related forms of classes and the method of testing

Major: Energy and Environmental Engineering

2021/2022/S/III/AGH/EEE/all

Name of the module	Activity	Method of verification and assessment of learning outcomes achieved by the student in individual forms of classes and activities for the entire module	KEU references
Mathematical modeling	Lecture, Auditorium classes	Activity during classes, Participation in a discussion, Examination, Activity during classes, Execution of exercises, Test, Oral answer	EEER2A_W01, EEER2A_W02, EEER2A_U01, EEER2A_U02, EEER2A_K01
Modern Solid State Physics	Lecture, Project classes	Activity during classes, Participation in a discussion, Examination, Activity during classes, Participation in a discussion, Execution of a project, Report, Presentation	EEER2A_W01, EEER2A_W02, EEER2A_U01, EEER2A_U02, EEER2A_K01
Advanced Fluid Mechanics	Lecture, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W02, EEER2A_U01, EEER2A_U02, EEER2A_K01
Technical Thermodynamics	Lecture, Laboratory classes, Conversation seminar	Activity during classes, Participation in a discussion, Examination, Activity during classes, Test, Report, Involvement in teamwork, Oral answer, Completion of laboratory classes, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W02, EEER2A_W06, EEER2A_U02, EEER2A_U06, EEER2A_K01
Fuel Utilization Technologies	Lecture, Project classes, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Project, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W05, EEER2A_W06, EEER2A_U05, EEER2A_U06, EEER2A_K01
General and Sustainable Chemistry	Lecture, Project classes	Activity during classes, Participation in a discussion, Examination, Activity during classes, Project, Presentation	EEER2A_W02, EEER2A_W03, EEER2A_U02, EEER2A_U03, EEER2A_K01
Computational Fluid Dynamics in Energy Systems	Lecture, Laboratory classes, Project classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Test, Report, Case study, Completion of laboratory classes, Activity during classes, Participation in a discussion, Project, Report, Presentation	EEER2A_W04, EEER2A_U04, EEER2A_U05, EEER2A_K01

Name of the module	Activity	Method of verification and assessment of learning outcomes achieved by the student in individual forms of classes and activities for the entire module	KEU references
How to Write and Publish a Scientific Paper at International Journal	Lecture, Project classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Case study, Coordination, conduct of a research project, preparation of a scientific paper, organization, organization of conferences, camps and scientific trips.	EEER2A_W07, EEER2A_U07, EEER2A_K01, EEER2A_K02
Resarch Guidance 1	Laboratory classes, Conversation seminar, Workshop classes	Participation in scientific research, conferences, additional internships and training courses, Preparation and conduct of scientific research, Activity during classes, Participation in a discussion, Presentation, Case study, Participation in scientific research, conferences, additional internships and training courses, Coordination, conduct of a research project, preparation of a scientific paper, organization, organization of conferences, camps and scientific trips.	EEER2A_W08, EEER2A_U07, EEER2A_U08, EEER2A_K01
Hybrid Renewable Energy Systems	Lecture, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W02, EEER2A_W05, EEER2A_U02, EEER2A_U05, EEER2A_K01
Hydrides and hydrogen storage	Lecture, Project classes, Workshop classes	Activity during classes, Participation in a discussion, Test, Case study, Activity during classes, Participation in a discussion, Project, Report, Preparation and conduct of scientific research, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W02, EEER2A_U01, EEER2A_U02, EEER2A_K01
MATLAB programming	Lecture, Laboratory classes, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Test, Completion of laboratory classes, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W04, EEER2A_U04, EEER2A_U05, EEER2A_K01
Wind Turbines Modeling	Lecture, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W05, EEER2A_W04, EEER2A_U04, EEER2A_U05, EEER2A_K01
Environmental Analytical Chemistry	Lecture, Workshop classes	Activity during classes, Participation in a discussion, Test, Project, Report, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W01, EEER2A_U01, EEER2A_U02, EEER2A_K01
Advanced Power Systems	Lecture, Laboratory classes, Conversation seminar, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Execution of laboratory classes, Report, Activity during classes, Participation in a discussion, Scientific paper, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W05, EEER2A_W06, EEER2A_U05, EEER2A_U06, EEER2A_K01

Name of the module	Activity	Method of verification and assessment of learning outcomes achieved by the student in individual forms of classes and activities for the entire module	KEU references
Experimental Thermo-Fluid Engineering	Lecture, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W03, EEER2A_U03, EEER2A_U01, EEER2A_K01
Materials Characterization Methods	Lecture, Laboratory classes, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Execution of laboratory classes, Report, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W03, EEER2A_W05, EEER2A_U03, EEER2A_U06, EEER2A_K01
Materials Science for Engineering	Lecture, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W05, EEER2A_U03, EEER2A_U06, EEER2A_K01
Nuclear Energy	Lecture, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W05, EEER2A_W06, EEER2A_U05, EEER2A_U06, EEER2A_K01
High-Pressure Science	Lecture, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W05, EEER2A_U05, EEER2A_U06, EEER2A_K01
Superconducting Materials: Synthesis and Characterization	Lecture, Workshop classes	Activity during classes, Participation in a discussion, Test, Examination, Oral answer, Activity during classes, Participation in a discussion, Examination, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W05, EEER2A_U03, EEER2A_U06, EEER2A_K01
Energy Conversion Engineering	Lecture, Workshop classes	Activity during classes, Participation in a discussion, Test, Examination, Activity during classes, Participation in a discussion, Examination, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W05, EEER2A_W06, EEER2A_U05, EEER2A_U06, EEER2A_K01
Fractional Calculus and Its Applications in Energy and Environment	Conversation seminar, Workshop classes	Activity during classes, Participation in a discussion, Test, Preparation and conduct of scientific research, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W01, EEER2A_W02, EEER2A_U01, EEER2A_U05, EEER2A_K01
Heat and Cool Networks	Lecture, Project classes, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Project, Report, Case study, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W05, EEER2A_W06, EEER2A_U05, EEER2A_U06, EEER2A_K01

Name of the module	Activity	Method of verification and assessment of learning outcomes achieved by the student in individual forms of classes and activities for the entire module	KEU references
Artificial Intelligence Methods	Lecture, Laboratory classes, Project classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Test, Completion of laboratory classes, Activity during classes, Participation in a discussion, Project, Report	EEER2A_W03, EEER2A_W04, EEER2A_U04, EEER2A_U05, EEER2A_K01
Polish Language	Foreign language classes	Activity during classes, Participation in a discussion, Test, Examination, Oral answer	EEER2A_U07, EEER2A_K01, EEER2A_K02
Advanced Heat and Mass Transfer	Lecture, Laboratory classes, Conversation seminar	Activity during classes, Participation in a discussion, Examination, Activity during classes, Participation in a discussion, Test, Report, Involvement in teamwork, Oral answer, Completion of laboratory classes, Preparation and conduct of scientific research, Activity during classes, Participation in a discussion, Examination	EEER2A_W02, EEER2A_W03, EEER2A_U02, EEER2A_U03, EEER2A_K01
Japanese Language	Foreign language classes, Workshop classes	Activity during classes, Participation in a discussion, Examination, Activity during classes, Participation in a discussion, Test, Essays written during classes	EEER2A_U07, EEER2A_K01, EEER2A_K02
Advanced Numerical Methods	Lecture, Laboratory classes, Workshop classes	Activity during classes, Participation in a discussion, Examination, Activity during classes, Participation in a discussion, Test, Report, Oral answer, Completion of laboratory classes, Case study	EEER2A_W04, EEER2A_U01, EEER2A_U04, EEER2A_K01
Advanced Engineering Simulations	Lecture, Laboratory classes, Project classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Test, Completion of laboratory classes, Activity during classes, Participation in a discussion, Project, Report, Presentation, Preparation and conduct of scientific research	EEER2A_W03, EEER2A_W04, EEER2A_U04, EEER2A_U05, EEER2A_K01
Advanced Applications of Fluid Engineering	Lecture, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W06, EEER2A_U01, EEER2A_U06, EEER2A_K01
Advanced Project Based Learning 1	Lecture, Project classes, Conversation seminar	Activity during classes, Participation in a discussion, Project, Report, Case study, Presentation, Activity during classes, Participation in a discussion, Presentation	EEER2A_W07, EEER2A_W08, EEER2A_U07, EEER2A_U08, EEER2A_K01
Engineering Optimization	Lecture, Workshop classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Oral answer, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W04, EEER2A_W06, EEER2A_U04, EEER2A_U06, EEER2A_K01
Polish History and Culture	Conversation seminar, Workshop classes, Fieldwork	Activity during classes, Participation in a discussion, Essay, Activity during classes, Participation in a discussion, Essay, Presentation, Activity during classes, Participation in a discussion, Essay	EEER2A_U07, EEER2A_K01, EEER2A_K02

Name of the module	Activity	Method of verification and assessment of learning outcomes achieved by the student in individual forms of classes and activities for the entire module	KEU references
Research Guidance 2	Laboratory classes, Conversation seminar, Workshop classes	Participation in scientific research, conferences, additional internships and training courses, Preparation and conduct of scientific research, Activity during classes, Participation in a discussion, Presentation, Case study, Participation in scientific research, conferences, additional internships and training courses, Coordination, conduct of a research project, preparation of a scientific paper, organization, organization of conferences, camps and scientific trips.	EEER2A_W08, EEER2A_U08, EEER2A_U09, EEER2A_K01, EEER2A_K02
Topics in Data Engineering	Lecture, Workshop classes	Activity during classes, Participation in a discussion, Test, Presentation, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W04, EEER2A_W06, EEER2A_U04, EEER2A_U05, EEER2A_K01
Diploma Seminar 1	Seminars, Workshop classes	Activity during classes, Participation in a discussion, Diploma thesis preparation, Presentation, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W08, EEER2A_U07, EEER2A_U08, EEER2A_K01, EEER2A_K02
Advanced Spectroscopy	Lecture, Project classes, Workshop classes	Activity during classes, Participation in a discussion, Test, Examination, Activity during classes, Participation in a discussion, Project, Report, Activity during classes, Participation in a discussion, Examination, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W02, EEER2A_W03, EEER2A_U02, EEER2A_U03, EEER2A_K01
Basic Molecular Spectroscopy	Lecture, Project classes, Workshop classes	Activity during classes, Participation in a discussion, Test, Examination, Activity during classes, Participation in a discussion, Project, Activity during classes, Participation in a discussion, Examination, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W02, EEER2A_W03, EEER2A_U02, EEER2A_U03, EEER2A_K01
Advanced Materials Science	Lecture, Project classes, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Test, Project, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W02, EEER2A_W05, EEER2A_U02, EEER2A_U06, EEER2A_K01
Energy and Water Treatment Based on Chemical Engineering	Lecture, Seminars, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Scientific paper, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W06, EEER2A_U03, EEER2A_U06, EEER2A_K01
Microcontrollers and PLC Programming	Conversation seminar, Project classes	Activity during classes, Participation in a discussion, Test, Oral answer, Activity during classes, Participation in a discussion, Project, Report	EEER2A_W03, EEER2A_U01, EEER2A_U03, EEER2A_K01

Name of the module	Activity	Method of verification and assessment of learning outcomes achieved by the student in individual forms of classes and activities for the entire module	KEU references
Modeling of Energy Systems	Lecture, Laboratory classes, Project classes	Activity during classes, Participation in a discussion, Test, Examination, Case study, Execution of laboratory classes, Examination, Report, Project, Report	EEER2A_W05, EEER2A_W06, EEER2A_U05, EEER2A_U06, EEER2A_K01
Materials for Energy and Environment	Lecture, Workshop classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W02, EEER2A_W05, EEER2A_U02, EEER2A_U06, EEER2A_K01
Advanced Project Based Learning 2	Lecture, Project classes, Conversation seminar, Fieldwork, Workshop classes	Activity during classes, Participation in a discussion, Project, Report, Case study, Presentation, Activity during classes, Participation in a discussion, Presentation, Participation in scientific research, conferences, additional internships and training courses, Preparation and conduct of scientific research, Participation in scientific research, conferences, additional internships and training courses, Preparation and conduct of scientific research	EEER2A_W08, EEER2A_U07, EEER2A_U09, EEER2A_K01
Japanese History and Culture	Lecture, Fieldwork	Activity during classes, Participation in a discussion, Essay, Presentation, Activity during classes, Participation in a discussion, Essay	EEER2A_U07, EEER2A_K01, EEER2A_K02
Research Guidance 3	Laboratory classes, Conversation seminar, Workshop classes	Participation in scientific research, conferences, additional internships and training courses, Preparation and conduct of scientific research, Activity during classes, Participation in a discussion, Presentation, Case study, Participation in scientific research, conferences, additional internships and training courses, Coordination, conduct of a research project, preparation of a scientific paper, organization, organization of conferences, camps and scientific trips.	EEER2A_W08, EEER2A_U08, EEER2A_U09, EEER2A_K01, EEER2A_K02
Students' Conference	Conversation seminar, Workshop classes	Activity during classes, Scientific paper, Involvement in teamwork, Presentation, Participation in scientific research, conferences, additional internships and training courses, Coordination, conduct of a research project, preparation of a scientific paper, organization, organization of conferences, camps and scientific trips., Activity during classes, Participation in a discussion, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W07, EEER2A_W08, EEER2A_U07, EEER2A_U09, EEER2A_K01
Diploma Thesis	Diploma Thesis	Diploma thesis, Preparation and conduct of scientific research	EEER2A_W01, EEER2A_W06, EEER2A_U07, EEER2A_U09, EEER2A_K01, EEER2A_K02
Diploma Seminar 2	Seminars, Workshop classes	Activity during classes, Participation in a discussion, Diploma thesis preparation, Presentation, Case study, Participation in scientific research, conferences, additional internships and training courses	EEER2A_W08, EEER2A_U07, EEER2A_U08, EEER2A_K01, EEER2A_K02

Name of the module	Activity	Method of verification and assessment of learning outcomes achieved by the student in individual forms of classes and activities for the entire module	KEU references
Research Guidance 4	Laboratory classes, Conversation seminar, Workshop classes	Participation in scientific research, conferences, additional internships and training courses, Preparation and conduct of scientific research, Activity during classes, Participation in a discussion, Presentation, Scientific paper, Case study, Participation in scientific research, conferences, additional internships and training courses, Coordination, conduct of a research project, preparation of a scientific paper, organization, organization of conferences, camps and scientific trips.	EEER2A_W08, EEER2A_U08, EEER2A_U09, EEER2A_K01, EEER2A_K02

ECTS credits calculations

Major: Energy and Environmental Engineering

The total number of ECTS credits the student needs to obtain in the form of:

classes conducted with the direct participation of academic teachers or other persons conducting classes	60
core science classes relevant to a given major	16
practical classes, developing practical skills, including laboratory, design, practical and workshop classes	53
classes subject to choice by the student (in the amount of not less than 30% of the number of ECTS points necessary to obtain qualifications corresponding to the level of education)	48
classes in the field of humanities or social sciences - in the case of fields of study assigned to disciplines within fields other than humanities or social sciences, respectively	8
foreign language classes	4
apprenticeships	0
classes related to the academic activity conducted at the University in the discipline or disciplines to which the field of study is assigned, in the amount greater than 50% of the number of ECTS points required to complete studies at a given level, taking into account the participation of students in classes preparing to conduct scientific activity or participate in this activity (applies only to studies with a general academic profile)	96
classes shaping practical skills in the amount greater than 50% of the number of ECTS points required to complete studies at a given level (applies only to studies with a practical profile)	

Detailed rules of the implementation of the study programme established by the Dean of the Faculty (the so-called Study Rules)

Major: Energy and Environmental Engineering

Enrollment rules for the next semester

Student enrolls for next semester after completion of credits from previous semester, according to study plan and programme.

Enrollment rules for the next semester as a part of the so-called ECTS credits debt ceiling

According to AGH's Study Regulations student could be enrolled for next semester with credits deficit no more than 15 ECTS.

ECTS credits debt ceiling

15 ECTS.

Organization of classes within the so-called blocks of classes (i.e. such organization of subjects or individual forms of classes that creates exceptions to the cyclical nature of classes in particular weeks of a given semester of studies)

With the dean's consent, in consultation with the instructors.

Monitoring semesters

2, 4

Study rules in case of the individual organization of studies approved for a specific student

A student has the right to study in a specific field of study according to the individual organization of studies (further as IOS) with the consent of the Dean. IOS at the Faculty of Energy and Fuels complies with the AGH's Study Regulations and the decisions of the Faculty Council

Dean's consent for IOS is designed for outstanding students and requires:

- student's average grade from studies above 4.25,
- detailed IOS programme approved by the supervisor and the head of the department,
- approval of the IOS programme by the Vice-Dean for Education.

Implementation of apprenticeships including monitoring system and completion rules

Program and scope of diploma practice is realized in accordance with supervisors.

Rules of elective modules taking

1st semester: one elective subject have to be chosen from EEE base of elective subjects.

2nd semester: students recruited by SIT have to choose Polish Language; one elective subject may be chosen from EEE base of elective subjects by students who realize individual study programme.

3rd semester: students recruited by AGH have choose Japanese Language; two elective subjects have to be chosen from EEE base of elective subjects.

Rules of study paths, diploma paths, specialty choice/eligibility

There are no diploma pathways, not applicable.

Rules related to the preparation of diploma projects and theses as well as the implementation of the degree granting

A compulsory element of the study programme is the completion of a diploma thesis. Conditions for submission of the diploma thesis are: completion of all courses and internships and a positive evaluation of the diploma thesis by supervisors

and reviewers.

Principles for determining the overall evaluation of graduation (the final grade)

Final grade (FG) is calculated as weighted mean: $FG = 0.6 \cdot A + 0.2 \cdot E + 0.2 \cdot T$, where: A - average grade, E - grade from diploma exam, T - thesis grade

Other requirements related to the implementation of the study programme resulting from the AGH UST Study Regulations or other regulations in force at the University

Agreement on Education within Joint Studies between AGH and SIT.