



Curriculum

Field of study: Raw Materials Value Chain

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General characteristics of the field of study

Basic information

Faculty name:	Faculty of Civil Engineering and Resource Management
Field of study:	Raw Materials Value Chain
Level:	Second-cycle (engineer) programme
Profile:	General academic
Form:	Full-time studies
ISCED classification:	0788
Number of ECTS credits necessary to complete studies at a given level:	120
Professional title awarded to graduates:	magister inżynier
Cycle start date:	2024/2025, winter semester
Duration of studies (number of semesters):	4

Field of science to which the field of study is assigned:

Field engineering and technical sciences

Discipline of science to which the field of study is assigned:

Discipline	Percentage	ECTS
Environmental engineering, mining and energy	78%	94
Material Engineering	22%	26

Relationship between the field of study and the AGH University development strategy and the AGH University mission

The main aim of AGH UST is to work in the spirit of the university motto "Knowledge-Passion -Bond". With this in mind, at the Faculty of Civil Engineering and Resource Management would like to establish a new field of study entitled "Raw Materials Value Chain" (hereinafter: RaVeN). The main objective of opening this faculty is to educate students and develop scientific staff in the field of sustainable extraction, processing of raw materials and their use in finished products. The RaVeN program aims to develop students' ability to acquire logical knowledge, constructive and forward-looking thinking, quick and accurate inference and making optimal decisions. The opening of the above-mentioned faculty will increase AGH UST's activity in the field of foreign and domestic cooperation in the educational and industrial area.

The new faculty fully fits into the AGH UST development strategy, by:

- creating new fields of study, the curriculum of which is adapted to the changing expectations of the labor market, through the implementation of the curriculum in cooperation with employers and the development of a system of student internships – as part of their studies, students will undergo internships in enterprises, research institutes and scientific units operating in the field of extraction and processing of raw materials in the country and abroad,
- further internationalization of education within the European Higher Education Area – RaVeN will be implemented as part of an international consortium consisting of four universities, as: AGH University of Science and Technology, TU Bergakademie Freiberg, Universidad Politecnica de Madrid, Technická univerzita v Košiciach and two research

institutes, as: the Institute of Non-Ferrous Metals in Gliwice and the Research Centre LaPalma, which will result in the issuance of joint diplomas.

- expanding the educational offer of faculties conducted in a foreign language – all forms of teaching will be conducted in English – which will also have effect in the increase in the offer of studies addressed to foreign students,
- participation in economic programs using the Structural Funds planned in the EU agenda, i.e. EIT RawMaterials Strategic Agenda 2021-2027 in the field of securing the supply of raw materials, designing new solutions for closing gaps in the circulation of raw materials,
- shaping creative innovative attitudes among employees and students and the development of academic entrepreneurship – the theoretical and practical knowledge gained resulting from internships in enterprises operating in the field of obtaining raw materials may result in the creation of, for example, startups that will achieve the goal of closing gaps in the circulation of natural and recycled raw materials, thus inscribed in the policy of maximum waste reduction, the so-called "zero waste",
- increasing the mobility of research and teaching staff by establishing cooperation with scientific units and foreign enterprises, allowing for new contacts establishing, which may give the possibility of internships in worldwide industrial companies,
- introduction of new subjects, which will be taught by outstanding scientists from Poland and abroad, as well as specialists from industry and business, as well as the creation of inter-unit and interdisciplinary teams,
- improving the university and faculty quality assurance system of education through the introduction of a system of student surveys and the development of education through the implementation of the curriculum with the support of online tools (e-learning).

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

Direction Raw Materials Value Chain (acrc. RaVeN) was created to meet the current socio-economic needs such as:

- the shortage of engineers who have a wide view of issues related to the mineral resources management in each of the stages of shaping the value chain,
- the lack of engineers with a solid theoretical and practical basis in the field of sustainable extraction,
- processing of raw materials and their use in finished products.

The study program is based on a comprehensive combination of academic and expert knowledge, which will translate into creating awareness and care for sectors related to the extraction, processing and utilization of mineral resources in European countries. The curriculum includes an active approach to the acquisition of knowledge, close cooperation with a wide spectrum of stakeholders, including practitioners from large and medium-sized business entities. The study program was created in such a way as to be a platform for creating new technologies, as well to become the inspiration for student to set up their own companies, including start-ups.

The curriculum throughout the entire cycle of studies will emphasize the orientation of students towards issues related to the circular economy. The study program includes subjects that will indicate the directions of proceedings aimed at closing the gap between the primary extraction of mineral raw materials and their secondary recovery, as well as directions for achieving the assumptions of the "zero waste" policy. The curriculum will also cover the topics related to the UN Strategy for Sustainable Development Goals, mainly in the areas of "Clean and Accessible Energy", "Economic Growth and Decent Work", "Innovation, Industry, Infrastructure", "Sustainable Cities and Infrastructure", "Responsible Consumption and Production", "Action in the Childhood of climate", "Life on land", "Partnerships for goals".

The aim of the studies is to educate engineers who will enable the competitiveness of the European mineral sector throughout the value chain. Graduates of this faculty in the future will become the creators of modern business conducted in a responsible manner.

RaVeN study programme also reflects social needs in terms of the potential to create social innovation, taking into account environmental and socio-economic dimensions. The activities provide for the implementation of good practices (in the national and international dimension) by providing learning by doing, participation in specialized training / courses of students and employees, joint learning and continuous professional development in the field of innovation and entrepreneurship education.

Education paths - scope in Polish and in English

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Graduation paths - scope in Polish and in English

A student of Raw Materials Value Chain will be able to choose one of four diploma paths, each of which will concern all or individual elements of the mineral value chain. The first track will deal with issues related to economics, the second will concern issues related to the environment, the third will concern issues related to the implementation of sustainable development assumptions, the fourth will concern technical issues.

The names of the majors in Polish and in English

Name [pl]

Name [en]

General information about the curriculum

Field of study: Raw Materials Value Chain

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

The aim of the Raw Materials Value Chain Majors's is to fill a gap in the mining engineering curriculum. The study program includes a comprehensive approach to natural resources with an emphasis on the holistic value chain and bridging the gap between the exploitation of mineral resources and the reuse of these raw materials. The goal will be pursued through an active learning path, where students will be engaged in the search for unconventional solutions that move towards achieving circularity and sustainable development. The cooperation of four university partners, representing a wide geographical and cultural spectrum, with the support of business entities such as mines, manufacturing companies, research institutes, etc., ensures the combination of expertise along with issues related to widely understood innovations and a highly entrepreneurial way of thinking. The aim of learning is to provide students from innovation is to approach new technologies used throughout the life cycle of value chain, which will be implemented by maintaining close contacts with industries related to the mineral value chain. Graduates of Raw Materials Value Chain Major will be able to find employment in domestic and foreign entities related to the mineral, metallurgical, fuel and energy or electromechanical industries.

Information on including the conclusions from the students and graduates careers monitoring in the curriculum

The study program takes into account the conclusions of the analysis of career monitoring of AGH UST students and absolvents conducted by the AGH UST Career Center. In the labor market, both domestic and foreign, engineers are in demand. In the country, the AGH UST brand itself informs that an engineer educated in a given field of study has the appropriate knowledge and appropriate competences to take up a managerial position related to the learned direction. According to the data of the AGH UST Central Commission, every year, within 6 months of graduation, 87% of students of the then present Faculty of Mining and Geoengineering (currently the Faculty of Civil Engineering and Resource Management) found a job. Mainly the graduates are employed in companies related to mining, energy, automotive or electronics. Among the companies, which employ the WILGZ graduates, can be distinguished: Aptive, Philip Morris, Jacobs, Cisco, Valeo, Nokia, Motorola Solutions, PGE Energia Ciepła, Columbus Energy, KGHM Polska Miedź, Samsung, Shell, IBM, ABB, Newag, etc. Most of these companies want to create their image as a socially responsible company. The new field of study as Raw Materials Value Chain Major will deliver graduates - engineers - who will be able able to navigate both the domestic and foreign markets, who will already have strongly instilled responsible attitudes, and especially in the entire value chain of mineral resources.

Information on including the requirements and recommendations of the accreditation committees, in particular the Polish Accreditation Committee and industry accreditation committees in the curriculum

The Faculty has a valid institutional accreditation for the years 2016-2022 - Resolution No. 428/2016 of the Presidium of the Polish Commission Accreditation of September 1, 2016 on institutional evaluation at the Faculty of Mining and Geoengineering of the AGH University of Science and Technology .

In all scopes, the requirements were "fully" met. Based on a PKA report from 2016 institutional accreditation at the Faculty of Mining and Geoengineering, the following recommendations were taken into account: on a regular basis the most frequently searched literature items are supplemented in the Faculty's library, the system has been reorganized supervision of apprenticeships, the participation of students in questionnaires on modules of classes and instructors.

Moreover, the Raw Materials Value Chain study programme is an international program. Teaching will take place in English,

and the students will come from Poland and abroad. Classes will take place in four different Universities in Europe. Already here the standards for the internationalization of education in the field of study, teaching in foreign languages and mobility have been met.

The RaVeN study programme is built on the basis of the quality standards of the Polish Accreditation Committee.

The concept and objectives of education are consistent with the strategy of the AGH University of Science and Technology, and also fall within the discipline "Environmental Engineering, Mining and Energy" to which the Faculty of Civil Engineering and Resource Management is assigned and "Material Engineering" to which the Faculty of Non Ferrous Metals is assigned. Each of the subjects in the study plan contains educational outcomes consistent with the content of the curriculum, as well as with the concept and objectives of education at the AGH University of Science and Technology, at the Faculty of Civil Engineering and Resource Management and at the Faculty of Non Ferrous Metals. These effects are also closely related to the seventh level of the Polish Qualifications Framework. In addition, it should also be noted that the study programme has been developed in close cooperation with the socio-economic environment, including secondary employers.

The schedule of the study programme and the forms and organisation of classes, the number of semesters, the total number of contact hours and own working hours measured by ETCS points enable students to achieve all learning outcomes. The program uses student-oriented methods of education, each of the subjects shows theoretical content on real examples (field classes, meetings with business representatives, etc.).

The recruitment process is strictly formalized. The conditions for admission to studies have been constructed in such a way to select a group of students who will be interested in expanding knowledge in the field of the value chain of mineral resources, as well as in the future they will want to work in the industry related to mineral resources (mining, processing, production of products, disposal). At the start of recruitment, each candidate will be familiar with the terms of admission and the recruitment process. Students who are qualified will be required to participate in the RaVeN educational process described in the study plan.

The system of verification of learning outcomes enables monitoring of progress in learning and reliable assessment of the degree of achievement of learning outcomes by students.

All students will get general support. It will be substantive support (consultations with lecturers), and organizational support (a special unit will be established, where the student will be able to address organizational and existential problems), as well as financial support that will be provided by scholarships (AVSA grants).

Information on including examples of good practice in the curriculum

The RaVeN Master's degree program has been built on the basis of good practices resulting from the study programs in force at AGH UST as well from international study programs conducted by EIT Raw Materials. This major will foster the active education of students in the field of mineral resources by providing learning from innovative products and better cooperation with the mineral industry and with professionals from the sector, to promote educational best practices and build entrepreneurship skills. The RaVeN program will offer to students an interesting and motivating didactic activities and practical laboratories. Students will be involved in scientific experiences, will take part in field activities organized in innovative enterprises. They will become responsible promoters of knowledge in the field of sustainability and circular

economy.

As part of the study program, students will be provided with knowledge on how to build a start-up and how to lead it. The study program includes meetings with organizations supporting the start-ups in the initial phases of its life cycle, i.e. Business Incubator, Business Angels. In addition, meetings with the creators of start-ups are planned, i.e. InnoAGH, MineMaster, MedApp.

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

The study program is created in cooperation with universities and research institutes. Six units state the project consortium – four universities AGH University of Science and Technology, TU Bergakademie, Universidad Politecnica de Madrid, TUKE Technical University of Košice and two research institutes Institute of Non-Ferrous Metals in Gliwice and Research Centre LaPalma.

Duration, rules and form of the practical placement

As part of the studies, four-week internship is provided (20 working days, 160 hours). Internship can take place in scientific units, research institutes and in attractive and leading industrial enterprises with complex structures and diversified economic activities, with which RaVeN's consortium partners conduct long-term cooperation or have signed agreements on internships. Students will complete their professional practice in a period that does not interfere with compulsory classes and exam dates at the university. The internship should take a place at latest in the semester in which, according to the study plan, it should be passed. The place of professional practice should enable the implementation of the learning outcomes provided for a given internship, taking into account the specificity of the field of study. The Dean of the Faculty, at the request of the student(s) or employees of the Faculty, concludes an agreement to conduct this practice with external entities in which students undergo professional practice, in the event of a positive consideration of the application by an external entity. On the basis of the agreement, the student is directed to practice. During the internship, the student is obliged to have an insurance policy against the consequences of unfortunate accidents.

Admission criteria, rules and policies

Field of study: Raw Materials Value Chain

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

A candidate applying for admission to studies in an advanced range, knows selected facts, objects and phenomena as well as methods and theories concerning them explaining the complex relationships between them, constituting basic general knowledge in the field of environment, energy and mining.

The candidate also knows and understands the fundamental dilemmas of modern civilization regarding to the basic economic regulations in the field of mineral resources management, as well as legal dilemmas regarding to the issues related to the environment. He knows the basic assumptions of the 2030 Agenda for Sustainable Development.

He knows English-language specialist terminology in the field of Environmental Engineering, Mining and Energy, and can also use it properly. He is able to solve problems or tasks set for him using his knowledge. He can properly select sources and information and can properly select methods and tools leading to the solution of a problem or task. It tends to expand its knowledge on its own.

The candidate is ready to critically evaluate the knowledge and content received, recognizing the importance of knowledge in solving cognitive and practical problems. In solving the problem he is able to consult with experts in case of difficulties.

In addition, the candidate should demonstrate thinking and acting in an entrepreneurial way.

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 conducted in accordance with the annual Resolution of the Senate.

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

Minimum number of students: 15 Maximum number of students: 30

Learning outcomes

Field of study : Raw Materials Value Chain

Knowledge

KEU symbol	Learning outcomes prescribed to a field of study	CEU symbol
RVN2A_W01	The graduate has in-depth and up-to-date knowledge in the field of exact sciences, necessary to conduct research and practical work in the context of searching, obtaining, processing and disposing of mineral resources	P7S_WG_A_Inz, P7S_WG_A
RVN2A_W02	The graduate knows typical tools and IT techniques used in each stage of creating the value chain of mineral resources	P7S_WG_A_Inz, P7S_WG_A
RVN2A_W03	The graduate has a deep degree of knowledge about the theoretical assumptions and main issues regarding the circular economy. He also knows examples of practical use of this knowledge	P7S_WG_A
RVN2A_W04	The graduate knows advanced methods and theories, as well as innovative technologies and technologies used in industries directly or indirectly related to mineral resources	P7S_WG_A_Inz, P7S_WK_A, P7S_WG_A
RVN2A_W05	The graduate knows the current trends regarding the elements of the mineral value chain, as well as the knowledge about the currently conducted research and development work in this area	P7S_WK, P7S_WG, P7S_WG_A_Inz
RVN2A_W06	The graduate has well-established knowledge in the field of entrepreneurship and knows the market mechanisms, as well as the prevailing realities	P7S_WK_A_Inz, P7S_WK_A, P7S_WG_A
RVN2A_W07	The graduate has well-established knowledge in the field of issues related to sustainable development, mainly in the context of exploration, exploitation, processing and utilization of mineral resources	P7S_WG_A_Inz, P7S_WK_A, P7S_WG_A

Skills

KEU symbol	Learning outcomes prescribed to a field of study	CEU symbol
RVN2A_U01	The graduate is able to use the acquired theoretical knowledge in practice	P7S_UW_A_Inz_0 2, P7S_UW_A, P7S_UW_A_Inz_0 1
RVN2A_U02	The graduate is able to independently plan and improve his competences, skills, knowledge, as well as direct other people in this area	P7S_UW_A_Inz_0 1, P7S_UU_A
RVN2A_U03	The graduate is able to create, conduct scientific research and settle projects, while taking on the role of project manager	P7S_UW_A_Inz_0 2, P7S_UW_A_Inz_0 1, P7S_UU_A, P7S_UO_A
RVN2A_U04	The graduate is able to work in a team taking on various roles in it and bear responsibility for jointly implemented tasks, he can properly determine the priorities for the implementation of a task specified by himself or others	P7S_UU_A, P7S_UO_A
RVN2A_U05	The graduate has the ability to conduct oral speeches in a foreign language regarding the presentation of research results, technical analyzes, projects and reports, especially in the field of the mineral value chain	P7S_UK_A

Social competence

KEU symbol	Learning outcomes prescribed to a field of study	CEU symbol
RVN2A_K01	The graduate is aware of the need to constantly update technical and scientific knowledge and is able to use this knowledge practically	P7S_KK_A
RVN2A_K02	The graduate is aware of his theoretical knowledge and practical skills and critical evaluation of them. He is ready to independently search for solutions to theoretical and practical issues, consult experts. Appreciates the role of scientific research in the development and implementation of innovative techniques and technologies in industries related to mineral resources	P7S_KK_A, P7S_KR_A
RVN2A_K03	The graduate feels an internal commitment to meet the goals for society, the environment and the economy resulting from the assumptions of the 2030 Agenda for Sustainable Development	P7S_KO_A

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

Major : Raw Materials Value Chain

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	RVN2A_W01, RVN2A_W02, RVN2A_W04, RVN2A_W05, RVN2A_W07
P7S_WK_A_Inz	knowledge of basic principles of creating and developing various forms of individual entrepreneurship	RVN2A_W06

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;	RVN2A_U01, RVN2A_U02, RVN2A_U03
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	RVN2A_U01, RVN2A_U03

Field of study-prescribed outcomes coverage matrix

Field of study: Raw Materials Value Chain

2024/2025/S/III/GiG/RVN/all

Course	Code	Semestr	RVN2A_W01	RVN2A_W02	RVN2A_W03	RVN2A_W04	RVN2A_W05	RVN2A_W06	RVN2A_W07	RVN2A_U01	RVN2A_U02	RVN2A_U03	RVN2A_U04	RVN2A_U05	RVN2A_K01	RVN2A_K02	RVN2A_K03
Social effectivity in raw materials management	GRVNS.IIi1HS.62cfd64f372d5.24	1s						x	x	x			x			x	x
Business models for sustainable market	GRVNS.IIi1K.62cfd6530b88b.24	1s	x		x							x	x			x	
Environmental Engineering	GRVNS.IIi1K.62cfd6b7211f3.24	1s	x		x	x	x		x	x	x	x		x	x	x	x
Business training and general trends in the raw materials value chain	GRVNS.IIi1K.62cfd64740ee9.24	1s	x		x					x			x		x	x	
Social aspects of sustainable development	GRVNS.IIi1HS.62cfd6500531e.24	1s			x	x			x		x	x			x		x
Structures and organizational aspects of lean production	GRVNS.IIi1K.62cfd6518beb3.24	1s		x		x				x		x		x	x	x	
Sustainable effectivity of processes in circular economy	GRVNS.IIi1K.62cfd653ba8cf.24	1s	x		x		x			x				x		x	
Sustainable explorations of deposits and modern geological technologies for their identification	GRVNS.IIi1K.62cfd6481d0a3.24	1s	x	x		x	x			x				x	x	x	
The challenges of mining activities in the world	GRVNS.IIi1K.62cfd6491b3ee.24	1s	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
New trends in the mining technologies and mineral processing	GRVNS.IIi1K.62cfd649eaf89.24	1s	x		x		x					x	x	x	x	x	x
Problems on post mining area - water management, reclamation, revitalization	GRVNS.IIi1K.62cfd64ab57f5.24	1s	x		x	x	x	x	x	x	x	x	x	x	x	x	x

Course	Code	Semestr	RVN2A_W01	RVN2A_W02	RVN2A_W03	RVN2A_W04	RVN2A_W05	RVN2A_W06	RVN2A_W07	RVN2A_U01	RVN2A_U02	RVN2A_U03	RVN2A_U04	RVN2A_U05	RVN2A_K01	RVN2A_K02	RVN2A_K03
Energy efficiency - sustainable sources of energy under renewables requirements	GRVNS.Ili1K.62cfd64b6fbcb.24	1s	x						x	x	x		x		x	x	
Modern and innovative machines and mining methods used in raw materials excavation	GRVNS.Ili1K.62cfd64c32a8e.24	1s	x	x		x				x	x	x			x	x	x
Economics and managerial finance in raw materials	GRVNS.Ili1K.62cfd64d00d34.24	1s	x		x							x	x				x
Statistical tools and data exploration for digitalization	GRVNS.Ili1P.62cfd64db3997.24	1s	x	x				x		x				x	x	x	
Lean production in advanced material development	GRVNS.Ili2K.62cfd65b5b880.24	2s	x					x		x	x	x	x		x	x	
Language B+ English	GRVNS.Ili2JO.62cfd65fba7d7.24	2s												x			
Eco designing products for circular economy	GRVNS.Ili2K.62cfd65d88a86.24	2s	x					x			x	x	x		x		
Innovative processes for circular economy in the non-ferrous metals industry	GRVNS.Ili2K.62cfd656473d1.24	2s	x		x	x			x	x					x	x	
The quality management of production processes	GRVNS.Ili2K.62cfd65c18268.24	2s				x		x		x			x		x	x	
Reporting on the SDGs	GRVNS.Ili2K.62cfd65e4ada0.24	2s	x	x	x					x	x		x		x		
Language B+ German	GRVNS.Ili2JO.62cfd6607e5b2.24	2s												x			
Modern technologies in mineral processing	GRVNS.Ili2K.62cfd65702d6c.24	2s	x			x	x		x			x					x
Metallurgical industry development	GRVNS.Ili2K.62cfd657b1917.24	2s	x		x	x			x	x		x					x
Materials science and engineering innovation	GRVNS.Ili2K.62cfd6586d8f5.24	2s	x			x	x			x		x			x		
Innovation management and entrepreneurship	GRVNS.Ili2K.62cfd6592ae45.24	2s						x		x							x
Summer school	GRVNS.Ili2K.62cfd659dc16d.24	2s	x		x	x	x		x		x	x		x	x	x	x

Course	Code	Semestr	RVN2A_W01	RVN2A_W02	RVN2A_W03	RVN2A_W04	RVN2A_W05	RVN2A_W06	RVN2A_W07	RVN2A_U01	RVN2A_U02	RVN2A_U03	RVN2A_U04	RVN2A_U05	RVN2A_K01	RVN2A_K02	RVN2A_K03
Management and finance of mining operations along the life cycle	GRVNS.Ili4K.62cfd666610d9.24	3s						x	x	x		x	x				x
Licensing, stakeholder involvement and expectation management	GRVNS.Ili4K.62cfd6671ed68.24	3s						x	x	x		x	x				x
Hydrogeology for GW-management	GRVNS.Ili4K.62cfd662d7044.24	3s	x	x	x					x		x					x
Project and contract management	GRVNS.Ili4K.62cfd667cfe62.24	3s	x					x	x	x							x
Radioactivity	GRVNS.Ili4K.62cfd6639405b.24	3s	x		x	x				x		x					x
Reclamation	GRVNS.Ili4K.62cfdc1d46980.24	3s	x		x	x	x			x	x						x
Environmental geotechnics	GRVNS.Ili4K.62cfd6649eb8d.24	3s	x		x	x	x			x	x						x
Industrial practices	GRVNS.Ili8K.62cfd66a315be.24	4s	x	x	x	x	x			x					x		x
Data reporting spreadsheets with SQL queries	GRVNS.Ili8K.62cfd66bca6ce.24	4s	x	x						x					x	x	x
Business management and economic efficiency	GRVNS.Ili8K.62cfd66c87bd7.24	4s	x		x			x		x		x					x
Diploma Thesis	GRVNS.Ili8K.ab3e922d9b4d6cde0044868fa552361b.24	4s	x	x						x	x	x				x	x
Sum (obligatory):			20	7	13	13	10	4	7	17	8	12	6	7	15	16	8
Sum (elective):			9	3	6	4	2	8	6	12	5	9	8	6	10	10	3
Sum:			29	10	19	17	12	12	13	29	13	21	14	13	25	26	11

Characteristics matrix of learning outcomes in relation to modules

Major: Raw Materials Value Chain

2024/2025/S/III/GiG/RVN/all

Course	Code	Semestr	P75_WG_A_Inz	P75_WG_A	P75_WK_A	P75_WK	P75_WG	P75_WK_A_Inz	P75_UW_A_Inz_02	P75_UW_A	P75_UW_A_Inz_01	P75_UU_A	P75_UO_A	P75_UK_A	P75_KK_A	P75_KR_A	P75_KO_A
Social effectivity in raw materials management	GRVNS.IIi1HS.62cfd64f372d5.24	1s	x	x	x			x	x	x	x	x	x		x	x	x
Business models for sustainable market	GRVNS.IIi1K.62cfd6530b88b.24	1s	x	x					x		x	x	x		x	x	
Environmental Engineering	GRVNS.IIi1K.62cfd67211f3.24	1s	x	x	x	x	x		x	x	x	x	x	x	x	x	x
Business training and general trends in the raw materials value chain	GRVNS.IIi1K.62cfd64740ee9.24	1s	x	x					x	x	x	x	x		x	x	
Social aspects of sustainable development	GRVNS.IIi1HS.62cfd6500531e.24	1s	x	x	x				x		x	x	x		x		x
Structures and organizational aspects of lean production	GRVNS.IIi1K.62cfd6518beb3.24	1s	x	x	x				x	x	x	x	x	x	x	x	
Sustainable effectivity of processes in circular economy	GRVNS.IIi1K.62cfd653ba8cf.24	1s	x	x		x	x		x	x	x			x	x	x	
Sustainable explorations of deposits and modern geological technologies for their identification	GRVNS.IIi1K.62cfd6481d0a3.24	1s	x	x	x	x	x		x	x	x			x	x	x	
The challenges of mining activities in the world	GRVNS.IIi1K.62cfd6491b3ee.24	1s	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
New trends in the mining technologies and mineral processing	GRVNS.IIi1K.62cfd649eaf89.24	1s	x	x		x	x		x		x	x	x	x	x	x	x
Problems on post mining area - water management, reclamation, revitalization	GRVNS.IIi1K.62cfd64ab57f5.24	1s	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Course	Code	Semestr	P7S_WG_A_Inz	P7S_WG_A	P7S_WK_A	P7S_WK	P7S_WG	P7S_WK_A_Inz	P7S_UW_A_Inz_02	P7S_UW_A	P7S_UW_A_Inz_01	P7S_UU_A	P7S_UO_A	P7S_UK_A	P7S_KK_A	P7S_KR_A	P7S_KO_A	
Energy efficiency - sustainable sources of energy under renewables requirements	GRVNS.IIi1K.62cfd64b6fbc.24	1s	x	x	x				x	x	x	x	x		x	x		
Modern and innovative machines and mining methods used in raw materials excavation	GRVNS.IIi1K.62cfd64c32a8e.24	1s	x	x	x				x	x	x	x	x		x	x	x	
Economics and managerial finance in raw materials	GRVNS.IIi1K.62cfd64d00d34.24	1s	x	x					x		x	x	x		x	x		
Statistical tools and data exploration for digitalization	GRVNS.IIi1P.62cfd64db3997.24	1s	x	x	x			x	x	x	x			x	x	x		
Lean production in advanced material development	GRVNS.IIi2K.62cfd65b5b880.24	2s	x	x	x			x	x	x	x	x	x		x	x		
Language B+ English	GRVNS.IIi2JO.62cfd65fba7d7.24	2s												x				
Eco designing products for circular economy	GRVNS.IIi2K.62cfd65d88a86.24	2s	x	x	x			x	x		x	x	x		x			
Innovative processes for circular economy in the non-ferrous metals industry	GRVNS.IIi2K.62cfd656473d1.24	2s	x	x	x				x	x	x				x	x		
The quality management of production processes	GRVNS.IIi2K.62cfd65c18268.24	2s	x	x	x			x	x	x	x	x	x		x	x		
Reporting on the SDGs	GRVNS.IIi2K.62cfd65e4ada0.24	2s	x	x					x	x	x	x	x		x			
Language B+ German	GRVNS.IIi2JO.62cfd6607e5b2.24	2s												x				
Modern technologies in mineral processing	GRVNS.IIi2K.62cfd65702d6c.24	2s	x	x	x	x	x		x		x	x	x		x	x		
Metallurgical industry development	GRVNS.IIi2K.62cfd657b1917.24	2s	x	x	x				x	x	x	x	x		x	x		
Materials science and engineering innovation	GRVNS.IIi2K.62cfd6586d8f5.24	2s	x	x	x	x	x		x	x	x	x	x		x			
Innovation management and entrepreneurship	GRVNS.IIi2K.62cfd6592ae45.24	2s		x	x			x	x	x	x				x	x		

Course	Code	Semestr	P7S_WG_A_Inz	P7S_WG_A	P7S_WK_A	P7S_WK	P7S_WG	P7S_WK_A_Inz	P7S_UW_A_Inz_02	P7S_UW_A	P7S_UW_A_Inz_01	P7S_UU_A	P7S_UO_A	P7S_UK_A	P7S_KK_A	P7S_KR_A	P7S_KO_A
Summer school	GRVNS.IIi2K.62cfd659dc16d.24	2s	x	x	x	x	x		x		x	x	x	x	x	x	x
Management and finance of mining operations along the life cycle	GRVNS.IIi4K.62cfd666610d9.24	3s	x	x	x			x	x	x	x	x	x		x	x	
Licensing, stakeholder involvement and expectation management	GRVNS.IIi4K.62cfd6671ed68.24	3s	x	x	x			x	x	x	x	x	x		x	x	
Hydrogeology for GW-management	GRVNS.IIi4K.62cfd662d7044.24	3s	x	x					x	x	x	x	x		x		
Project and contract management	GRVNS.IIi4K.62cfd667cfe62.24	3s	x	x	x			x	x	x	x				x		
Radioactivity	GRVNS.IIi4K.62cfd6639405b.24	3s	x	x	x				x	x	x	x	x		x		
Reclamation	GRVNS.IIi4K.62cfdc1d46980.24	3s	x	x	x	x	x		x	x	x	x			x		x
Environmental geotechnics	GRVNS.IIi4K.62cfd6649eb8d.24	3s	x	x	x	x	x		x	x	x	x					x
Industrial practices	GRVNS.IIi8K.62cfd66a315be.24	4s	x	x	x	x	x		x	x	x			x	x	x	
Data reporting spreadsheets with SQL queries	GRVNS.IIi8K.62cfd66bca6ce.24	4s	x	x					x	x	x			x	x	x	
Business management and economic efficiency	GRVNS.IIi8K.62cfd66c87bd7.24	4s	x	x	x			x	x	x	x	x	x		x		
Diploma Thesis	GRVNS.IIi8K.ab3e922d9b4d6cde0044868fa552361b.24	4s	x	x					x	x	x	x	x		x	x	x
Sum (obligatory):			20	21	16	10	10	4	21	17	21	16	14	7	20	16	8
Sum (elective):			15	15	11	2	2	8	15	12	15	12	12	6	15	10	3
Sum:			35	36	27	12	12	12	36	29	36	28	26	13	35	26	11

Matrix of learning outcomes prescribed to a field of study with related forms of classes and the method of testing

Major: Raw Materials Value Chain

2024/2025/S/III/GiG/RVN/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
Social effectivity in raw materials management	Lectures, Auditorium classes, Project classes, Fieldwork	Activity during classes, Participation in a discussion, Activity during classes, Participation in a discussion, Execution of exercises, Case study, Oral answer, Project, Oral answer, Activity during classes	RVN2A_W06, RVN2A_W07, RVN2A_U01, RVN2A_U04, RVN2A_K03, RVN2A_K02
Business models for sustainable market	Lectures, Auditorium classes, Fieldwork	Test, Test, Oral answer	RVN2A_W01, RVN2A_W03, RVN2A_U04, RVN2A_U03, RVN2A_K02
Environmental Engineering	Lectures, Project classes, Fieldwork, Workshop classes	Activity during classes, Test, Activity during classes, Execution of a project, Activity during classes, Case study, Activity during classes, Presentation	RVN2A_W03, RVN2A_W07, RVN2A_W05, RVN2A_W04, RVN2A_U01, RVN2A_U01, RVN2A_U03, RVN2A_U02, RVN2A_U05, RVN2A_K01, RVN2A_K02, RVN2A_K03
Business training and general trends in the raw materials value chain	Lectures, Seminars	Report, Activity during classes, Report, Case study, Presentation	RVN2A_W01, RVN2A_W03, RVN2A_U01, RVN2A_U04, RVN2A_K01, RVN2A_K02
Social aspects of sustainable development	Lectures, Auditorium classes, Project classes, Fieldwork	Activity during classes, Presentation, Execution of a project, Project, Activity during classes	RVN2A_W03, RVN2A_W07, RVN2A_W04, RVN2A_U03, RVN2A_U02, RVN2A_K01, RVN2A_K03
Structures and organizational aspects of lean production	Lectures, Auditorium classes, Fieldwork, Laboratory classes	Presentation, Presentation, Presentation, Presentation	RVN2A_W02, RVN2A_W04, RVN2A_U01, RVN2A_U03, RVN2A_U05, RVN2A_K01, RVN2A_K02
Sustainable effectivity of processes in circular economy	Lectures, Auditorium classes, Seminars	Test, Activity during classes, Test, Presentation, Report, Presentation	RVN2A_W01, RVN2A_W03, RVN2A_W05, RVN2A_U05, RVN2A_U01, RVN2A_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
Sustainable explorations of deposits and modern geological technologies for their identification	Lectures, Laboratory classes	Test, Project, Project	RVN2A_W01, RVN2A_W02, RVN2A_W04, RVN2A_W05, RVN2A_U01, RVN2A_U05, RVN2A_K01, RVN2A_K02
The challenges of mining activities in the world	Lectures, Auditorium classes, Laboratory classes, Fieldwork	Examination, Execution of exercises, Execution of a project, Report, Case study	RVN2A_W01, RVN2A_W02, RVN2A_W03, RVN2A_W04, RVN2A_W05, RVN2A_W06, RVN2A_W07, RVN2A_U01, RVN2A_U02, RVN2A_U03, RVN2A_U04, RVN2A_U05, RVN2A_K01, RVN2A_K02, RVN2A_K03
New trends in the mining technologies and mineral processing	Lectures, Auditorium classes, Laboratory classes, Fieldwork	Test, Presentation, Execution of a project, Test	RVN2A_W01, RVN2A_W05, RVN2A_W03, RVN2A_U04, RVN2A_U05, RVN2A_U03, RVN2A_K02, RVN2A_K03, RVN2A_K01
Problems on post mining area - water management, reclamation, revitalization	Lectures, Auditorium classes, Practical classes, Fieldwork	Activity during classes, Participation in a discussion, Activity during classes, Participation in a discussion, Project, Report, Report	RVN2A_W01, RVN2A_W04, RVN2A_W07, RVN2A_W05, RVN2A_W03, RVN2A_W06, RVN2A_U01, RVN2A_U02, RVN2A_U03, RVN2A_U05, RVN2A_U04, RVN2A_K01, RVN2A_K02, RVN2A_K03
Energy efficiency - sustainable sources of energy under renewables requirements	Lectures, Laboratory classes	Activity during classes, Participation in a discussion, Completion of laboratory classes, Activity during classes, Participation in a discussion, Report, Involvement in teamwork, Oral answer, Completion of laboratory classes	RVN2A_W01, RVN2A_W07, RVN2A_U01, RVN2A_U02, RVN2A_U04, RVN2A_K01, RVN2A_K02
Modern and innovative machines and mining methods used in raw materials excavation	Lectures, Seminars, Fieldwork, Control and transitional thesis	Activity during classes, Participation in a discussion, Activity during classes, Presentation, Oral answer, Activity during classes, Participation in a discussion, Report, Essay, Test, Test results, Oral answer	RVN2A_W01, RVN2A_W02, RVN2A_W04, RVN2A_U01, RVN2A_U02, RVN2A_U03, RVN2A_K01, RVN2A_K03, RVN2A_K02
Economics and managerial finance in raw materials	Lectures, Project classes, Seminars, Fieldwork	Examination, Project, Test, Test	RVN2A_W01, RVN2A_W03, RVN2A_U04, RVN2A_U03, RVN2A_K02
Statistical tools and data exploration for digitalization	Lectures, Laboratory classes	Test, Test, Report	RVN2A_W01, RVN2A_W06, RVN2A_W02, RVN2A_U01, RVN2A_U05, RVN2A_K01, RVN2A_K02
Lean production in advanced material development	Lectures, Auditorium classes	Test, Activity during classes, Case study, Presentation	RVN2A_W01, RVN2A_W06, RVN2A_U03, RVN2A_U04, RVN2A_U01, RVN2A_U02, RVN2A_K01, RVN2A_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
Language B+ English	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Examination, Report, Scientific paper, Test results, Essays written during classes, Presentation	RVN2A_U05
Eco designing products for circular economy	Lectures, Project classes	Test, Test, Report, Presentation	RVN2A_W01, RVN2A_W06, RVN2A_U03, RVN2A_U04, RVN2A_U02, RVN2A_K01
Innovative processes for circular economy in the non-ferrous metals industry	Practical classes	Presentation	RVN2A_W01, RVN2A_W03, RVN2A_W04, RVN2A_W07, RVN2A_U01, RVN2A_K01, RVN2A_K02
The quality management of production processes	Lectures, Project classes, Seminars	Test, Execution of a project, Presentation	RVN2A_W04, RVN2A_W06, RVN2A_U01, RVN2A_U04, RVN2A_K01, RVN2A_K02
Reporting on the SDGs	Lectures, Auditorium classes	Presentation, Presentation	RVN2A_W01, RVN2A_W02, RVN2A_W03, RVN2A_U01, RVN2A_U04, RVN2A_U02, RVN2A_K01
Language B+ German	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Examination, Report, Scientific paper, Test results, Essays written during classes, Presentation	RVN2A_U05
Modern technologies in mineral processing	Lectures, Project classes	Examination, Report	RVN2A_W01, RVN2A_W07, RVN2A_W05, RVN2A_W04, RVN2A_U03, RVN2A_K02
Metallurgical industry development	Lectures, Laboratory classes, Seminars	Test, Report on completion of a practical placement, Presentation	RVN2A_W01, RVN2A_W03, RVN2A_W04, RVN2A_W07, RVN2A_U01, RVN2A_U03, RVN2A_K02
Materials science and engineering innovation	Lectures, Project classes	Activity during classes, Participation in a discussion, Test, Participation in a discussion, Project, Involvement in teamwork, Presentation	RVN2A_W01, RVN2A_W04, RVN2A_W05, RVN2A_U01, RVN2A_U03, RVN2A_K01
Innovation management and entrepreneurship	Lectures, Auditorium classes	Test, Examination, Report on completion of a practical placement, Case study	RVN2A_W06, RVN2A_U01, RVN2A_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
Summer school	Lectures, Project classes, Workshop classes, Fieldwork	Activity during classes, Activity during classes, Execution of a project, Project, Involvement in teamwork, Activity during classes, Participation in a discussion, Case study, Presentation, Oral answer	RVN2A_W01, RVN2A_W03, RVN2A_W04, RVN2A_W05, RVN2A_W07, RVN2A_U02, RVN2A_U05, RVN2A_U03, RVN2A_K01, RVN2A_K02, RVN2A_K03
Management and finance of mining operations along the life cycle	Lectures, Auditorium classes	Examination, Examination	RVN2A_W06, RVN2A_W07, RVN2A_U01, RVN2A_U03, RVN2A_U04, RVN2A_K02
Licensing, stakeholder involvement and expectation management	Lectures, Seminars	Examination, Examination	RVN2A_W06, RVN2A_W07, RVN2A_U01, RVN2A_U03, RVN2A_U04, RVN2A_K02
Hydrogeology for GW-management	Lectures, Laboratory classes, Fieldwork	Examination, Participation in a discussion, Project, Report	RVN2A_W01, RVN2A_W02, RVN2A_W03, RVN2A_U01, RVN2A_U03, RVN2A_K01
Project and contract management	Lectures, Project classes, Seminars	Examination, Project, Case study	RVN2A_W01, RVN2A_W07, RVN2A_W06, RVN2A_U01, RVN2A_K01
Radioactivity	Lectures, Seminars, Practical classes, Fieldwork	Examination, Participation in a discussion, Project, Report	RVN2A_W01, RVN2A_W03, RVN2A_W04, RVN2A_U01, RVN2A_U03, RVN2A_K01
Reclamation	Lectures, Auditorium classes, Fieldwork	Examination, Participation in a discussion, Activity during classes	RVN2A_W01, RVN2A_W03, RVN2A_W04, RVN2A_W05, RVN2A_U01, RVN2A_U02, RVN2A_K01, RVN2A_K03
Environmental geotechnics	Lectures	Examination	RVN2A_W01, RVN2A_W03, RVN2A_W04, RVN2A_W05, RVN2A_U01, RVN2A_U02, RVN2A_K03
Industrial practices	Practical placement	Report	RVN2A_W01, RVN2A_W02, RVN2A_W03, RVN2A_W04, RVN2A_W05, RVN2A_U01, RVN2A_U05, RVN2A_K02
Data reporting spreadsheets with SQL queries	Laboratory classes	Participation in a discussion, Test	RVN2A_W01, RVN2A_W02, RVN2A_U01, RVN2A_U05, RVN2A_K01, RVN2A_K02
Business management and economic efficiency	Lectures, Project classes	Execution of a project, Test results, Execution of exercises, Execution of a project	RVN2A_W01, RVN2A_W03, RVN2A_W06, RVN2A_U01, RVN2A_U03, RVN2A_K01
Diploma Thesis	Diploma Thesis	Diploma thesis	RVN2A_W02, RVN2A_W01, RVN2A_U01, RVN2A_U02, RVN2A_U03, RVN2A_K01, RVN2A_K02, RVN2A_K03

ECTS credits calculations

Field of study: Raw Materials Value Chain

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	37
practical classes, developing practical skills, including laboratory, design, practical and workshop classes	86
classes subject to choice by the student (in the amount of not less than 30% of the number of ECTS credits necessary to obtain qualifications corresponding to the level of education)	36
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	5
foreign language classes	2
practical placements	4
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 credits 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)	81
classes shaping practical skills in the amount greater than 50% of the number of ECTS credits required to complete studies at a given level (applies only to studies with a practical profile)	N/A

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

Field of study: Raw Materials Value Chain

Enrollment rules for the next semester

The condition for entry for the next semester is to obtain credits in all compulsory subjects within a given semester. Passing the semester of studies and confirmation of obtaining an entry for the next semester of studies is made in the University's ICT system no later than within a week from the beginning of the next semester of studies. In relation to a student who does not pass the semester of studies or did not obtain an entry for a given semester the Dean of the Faculty makes decisions about the student repeating the semester of studies, about granting leave or deleting from the list of students, depending on the current course of studies.

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

The allowed deficiency of ECTS is:

When entering the 2nd semester - 7 ECTS

When entering the 3rd semester - 9 ECTS

When entering the 4th semester - 12 ECTS

ECTS credits debt ceiling

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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)

As part of the RaVeN studies, two blocks of classes are envisaged. First block "Innovative processes for circular economy in the non-ferrous metals industry", which will be conducted by the Institute of Non-Ferrous Metals in Gliwice. It will last two weeks.

The second block "Summer school", which will be organized by the Polytechnic University of Madrid in Spain. Classes in this subject will take place within 4 weeks. It will be a series of lectures, auditorium exercises and field activities.

Monitoring semesters

Semester 2nd and 4th

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

A student of the Faculty of Civil Engineering and Resource Management, meeting the conditions set out in the Regulations of Studies, may study according to an individual study program, including a study plan, with the consent of the Dean of the Faculty. The student submits an application for granting an individual study program to the Deputy Dean for Education appropriate to the field of study, together with a justification, by the end of the semester preceding the proposed changes in the study program. The student's application for individual study programme (ISP) must be accompanied by documents confirming the reason for applying for ISP. In the case of ISP involving the selection of coursework modules, methods and Detailed rules of the implementation of the study programme established by the Dean of the Faculty (the so-called Study Rules)

forms of education and the modification of the number of ECTS credits required to pass the semester of studies, the Vice-Dean for Education appoints a scientifically didactic tutor. The scientific and didactic supervisor may be an employee of the University who has at least a doctoral degree.

Implementation of practical placements including monitoring system and completion rules

After industrial internship student has to write a report. The person responsible for the internship will conduct an audit of the internship, which is tantamount to random checking of the students on internship in the places of internship.

Rules of elective modules taking

The student will be allowed to choose subjects from two/ three thematic blocks offered as part of the studies. In total student has to select 36 ECTS. During follow semesters student has to choose:

- in first semester 11 ECTS,
- in second 10 ECTS,
- in third 12 ECTS,
- in fourth 3 ECTS.

The modules will contain a limited number of seats.

Rules of education paths, graduation paths, major choice/eligibility

As part of RaVeN Major, four diploma paths will be available. The choice of the diploma path is made by choosing a topic in the USOS system.

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

The conditions for the preparation of diploma theses and the implementation of the diploma process are in accordance with regulations of the Faculty of Civil Engineering and Resource Management. The subject of the diploma thesis should be taken up by the student no later than one year before the scheduled date of graduation. A list of diploma subjects together with their tutors is made available to students in the semester preceding the diploma semester. Registration on a given subject takes place in the USOS system at least in the semester before the diploma semester. To enter to the last semester student has to choose the diploma subject. Further changes of subject or supervisor is possible at the request of the tutor with the written consent of the Dean.

Submission of a diploma thesis is possible after passing all subjects provided in the study programme, including the internships and positive assessment of the diploma thesis by the supervisor and reviewer.

After submitting the diploma thesis, the student may proceed to defend the diploma thesis.

The defence of the diploma thesis takes place before the Examination Board, composed of:

- a. Chairman: Dean of the Faculty or a person authorized by him,
- b. Supervisor of engineering work,
- c. Reviewer of engineering work.

The graduate presents the main theses of his work (in about 10-15 minutes), and the members of the Commission can ask questions concerning the issues contained in the engineering work.

The assessment of the diploma exam is determined by the Examination Board. The evaluation is announced to the student as soon as the Commission's work has been completed. For the preparation and submission of the diploma project, confirmed obtaining a positive final assessment of the diploma project and a positive assessment of the diploma exam, student receives in the last semester of second-cycle studies 20\ ECTS credits.

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

The result of completing higher education entered in the diploma and the supplement is determined as the weighted average the following ratings:

60% - average grade from the studies;

20% - the grade for the diploma examination;

20% - the final grade for the diploma dissertation (evaluation of the diploma thesis by the promoter, reviewer, evaluation of the presentation).

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

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