Curriculum

Field of study: Mechatronic Engineering with English as instruction language

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General characteristics of the field of study

Basic information

Faculty name:	Faculty of Mechanical Engineering and Robotics
Field of study:	Mechatronic Engineering with English as instruction language
Level:	First-cycle (engineer) programme
Profile:	General academic
Form:	Full-time studies
ISCED classification:	0714
Number of ECTS credits necessary to complete studies at a given level:	210
Professional title awarded to graduates:	inżynier
Cycle start date:	2026/2027, winter semester
Duration of studies (number of semesters):	7

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
Mechanical engineering	68%	143
Automation, electronic, electrical engineering and space technologies	23%	48
Technical computing and telecommunications	9%	19

Relationship between the field of study and the development strategy and mission of the university

In the Mission Statement of the University, there is emphasis placed on the creation of modern education courses, which follow worldwide trends and which support the national economy through the supply of highly-qualified engineers. Mechatronic Engineering is such a course as defined in our educational objectives. Program educational objectives are aimed at preparation of graduates for work in industry, design offices as well as research and development.
The education system in AGH is aimed at educating students in logical, constructive and forward thinking skills, making reasonable decisions and fast and accurate conclusions, and is in full accordance with the aims of education accepted for Mechatronic Engineering, and can be seen in the social skills and competencies set in the program objectives.
The next point of the current mission of the University and the objectives of Mechatronic Engineering is cooperation with other educational and industrial institutions in the country and abroad, which is consistent with all of the program educational objectives.
The next issue is scientific research and its use in education, as mentioned in both the AGH Mission Statement and in the educational objectives of Mechatronic Engineering.

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

In the national economy of Poland, a stronger emphasis is put on a development of the high technology industry. In the country, and especially in the Małopolska region, branches of the largest global corporations are established, and domestic enterprises are created, in which there is a need for engineering staff having knowledge of modern mechanical and electronic systems design, control and programming, as well as a synergistic combination of these systems. It is in the public interest to provide this type of professionals. In

the mechatronic engineering program, students learn about the latest trends in mechatronic design using computer aided tools. They are taught the solutions used in the high technology industry.

Education paths – scope in Polish and in English

Graduation paths – scope in Polish and in English

The names of the majors in Polish and in English

Name [pl]	Name [en]

General information about the curriculum

Field of study: Mechatronic Engineering with English as instruction language

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

Mechatronic engineering is the interdisciplinary program composed of basic courses (e.g. mathematics, physics), major courses (e.g. mechanics, control theory, computer science, electronics) as well as of specialty courses.
Contents of major and specialty courses comprise techniques of computer aided engineering, problems of virtual prototyping, elements of modern control and basics of robotics. Students learn about methods and tools for analysis and synthesis of mechatronic systems and integration in mechatronics.
The aim of the Mechatronics engineering first cycle study program is to build the students' engineering knowledge considered as theoretical background and practical engineering problems. The study comprises laboratory and project classes where students gather practical engineering skills.
The study in Mechatronic engineering prepares to work in interdisciplinary teams that design, manufacture and/or utilize various mechatronic systems. The interdisciplinary knowledge helps the program graduates to communicate with other engineers in the course of solving the practical, complex engineering problems.
The graduates of the program are prepared to work in: design units, research and development institutions as well as in companies that manufacture or use mechatronic devices.
The graduates are also prepared to continue study at the Master level both at home University (Faculty of Mechanical Engineering and Robotics offers second level Mechatronic engineering program) and at other faculties or universities in Poland or abroad.
Program Educational Objectives:
* Progress to a Master's studies.
* Be employed by industry in design offices focused on mechanical or mechatronic systems.
* Be employed by industry or academia in research and development, experimentation and testing of mechanical, mechatronic or control systems.
* Increase their level of leadership within their respective organizations.
* Communicate effectively and work collaboratively in multidisciplinary work environments.
* Be committed to lifelong learning to enhance their professionalknowledge.

The program is accredited by the the Engineering Accreditation Commission of ABET, https://www.abet.org. As such, it results in the following Student Outcomes:
1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. an ability to communicate effectively with a range of audiences.
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

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

The careers of graduates are constantly monitored by the AGH Career Center. A Unit of Monitoring of Graduates Professional Development operates within the Centre aimed at job market analysis and research activities including monitoring of graduates career paths (first destination surveys). AGH UST graduates are interviewed several times after completing their studies. From these surveys, reports are prepared containing information such as the distribution of graduate employment, the strengths and weaknesses of

graduates, and respondents' comments on suggested changes in the programs. These reports are then annually submitted to the authorities of the university and faculties. Based on them, changes in the particular programs and subjects are proposed. These may include the introduction of new subjects or changes to the existing ones, e.g. a change to CAD modeling software.

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

Mechatronic engineering in English is accredited by ABET. The accreditation commission did not recommend changes to the study program, but ordered to increase the emphasis on student outcome monitoring. According to the recommendations, a suitable system was developed and implemented.

Information on including examples of good practice in the curriculum

The Mechatronic engineering program uses combining objects into large modules, so that students would learn comprehensively and carry out multidisciplinary projects.

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

Within the Faculty of Mechanical Engineering and Robotics, there is a Social Board, which gathers several dozen representatives of the management staff of enterprises associated with AGH. Board members are annually surveyed for the needs and requirements of graduates of Mechatronics Engineering. The results of these surveys are then analyzed and taken into account in the creation and modification of study programs.

Duration, rules and form of the practical placement

As part of the studies, the student is required to complete a 4-week professional apprenticeship, during the summer break in the sixth semester of study. Each student implements the apprenticeship individually in a company of his choice, which activity is related to mechanical engineering, mechatronics or manufacturing engineering. The most important companies with which the department cooperates include KGHM Polska Miedź, PZL Sp. z o.o., KHW S.A., WOLFRAM, CDM Smith Sp. z o.o., EMT-Systems Sp. z o.o., KIRCHHOFF Polska Sp. z o.o.

Admission criteria, rules and policies

Field of study: Mechatronic Engineering with English as instruction language

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

Finished secondary school with certificate sufficient to enrol in any university in the country where the certificate was issued.

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: 60

Learning outcomes

Field of study: Mechatronic Engineering with English as instruction language

Knowledge

KEU symbol	Learning outcomes prescribed to a field of study	CEU symbol
IMA1A_W01	extensive knowledge of mathematics, including algebra, analysis, probabilistic and elements of discrete and applied mathematics, including numerical and mathematical methods, necessary for formulating and solving complex problems in mechatronics	P6S_WG_A
IMA1A_W02	knowledge of physics, including oscillating and wave motion, thermodynamics, optics, electricity and magnetisms and solid state physics, including the knowledge necessary for understanding basic physical phenomena occurring in mechatronic systems and components and their surroundings	P6S_WG_A
IMA1A_W03	knowledge of chemistry necessary for understanding basic chemical phenomena occurring in mechatronic systems and components and their surroundings and knowledge of properties of materials used in mechatronics	P6S_WG_A
IMA1A_W04	elementary knowledge of electronics and electrical engineering	P6S_WG_A_Inz, P6S_WG_A
IMA1A_W05	basic knowledge of robotics	P6S_WG_A_Inz, P6S_WG_A
IMA1A_W06	basic knowledge of actuators and sensors, including vision systems used in mechatronic systems and devices	P6S_WG_A_Inz, P6S_WG_A
IMA1A_W07	basic knowledge of metrology, knowledge and understanding of the methods of measuring basic physical quantities, knowledge of computational methods and IT tools necessary to analyse experiment results	P6S_WG_A_Inz, P6S_WG_A
IMA1A_W08	well-ordered and theory-based knowledge of technical mechanics necessary for formulating and solving problems in mechatronics	P6S_WG_A_Inz, P6S_WG_A
IMA1A_W09	well-ordered and theory-based knowledge of basic automatics and control theory	P6S_WG_A_Inz, P6S_WG_A
IMA1A_W10	well-ordered knowledge of microprocessor systems, basics of IT science, programming methods and techniques	P6S_WG_A_Inz, P6S_WG_A
IMA1A_W11	well-ordered and theory-based knowledge of the construction of precise machinery, including the theory of machines and mechanisms necessary for formulating and solving problems in mechatronics	P6S_WG_A_Inz, P6S_WG_A
IMA1A_W12	knowledge and understanding of the methodology of designing mechatronic devices and methods and techniques used for the design, including the artificial intelligence method; knowledge of computer tools for the design and simulation of mechatronic devices	P6S_WG_A_Inz, P6S_WG_A
IMA1A_W13	knowledge of the current state and recent development trends of mechatronics	P6S_WG_A_Inz, P6S_WG_A
IMA1A_W14	elementary knowledge of the life cycle of mechatronic devices and systems	P6S_WG_A_Inz, P6S_WG_A
IMA1A_W15	elementary knowledge to understand non-technical aspects of engineering; knowledge of basic health and safety rules in the industries of mechatronics	P6S_WK_A
IMA1A_W16	elementary knowledge of the protection of intellectual property and patent laws	P6S_WK_A
IMA1A_W17	elementary knowledge of management, including quality management and business activity	P6S_WK_A
IMA1A_W18	knowledge of the general rules for creation and development of individual entrepreneurship	P6S_WK_A, P6S_WK_A_Inz

Skills

KEU symbol	Learning outcomes prescribed to a field of study	CEU symbol
IMA1A_U01	ability to acquire information from literature, databases and other sources, integrate, select and interpret the information, draw conclusions, formulate and justify opinions	P6S_UW_A
IMA1A_U02	ability to work individually or in team, to estimate the time needed to complete an assigned task; able to develop and complete a schedule of works and meet the deadlines	P6S_UO_A
IMA1A_U03	ability to develop documentation related to the completion of an engineering task and prepare text discussing the results of the task	P6S_UK_A
IMA1A_U04	ability to prepare and give a brief presentation of the results of the engineering task completed	P6S_UK_A
IMA1A_U05	English language skills sufficient to communicate and read data sheets, application notes, manuals of the components of mechatronic systems, IT tools and other similar documents at the B2 level of the Common European Framework of Reference for Languages.	P6S_UK_A
IMA1A_U06	competence in independent study, also to improve professional qualifications	P6S_UU_A
IMA1A_U07	ability to use methods and mathematical models and computer simulations to analyse and assess the operation of mechatronic equipment and systems	P6S_UW_A_Inz_01 , P6S_UW_A
IMA1A_U08	ability to use properly selected programming environments, simulators and computer aided design tools for the simulation, design and verification of components of mechatronic devices and systems	P6S_UW_A_Inz_01 , P6S_UW_A
IMA1A_U09	ability to plan and carry out experiments, including measurements and computer simulations, interpret the results and draw conclusions	P6S_UW_A_Inz_01 , P6S_UW_A
IMA1A_U10	ability to formulate the specification of simple mechatronic systems at the level of functions being performed	P6S_UW_A_Inz_01 , P6S_UW_A
IMA1A_U11	ability to perform critical analysis of the performance and assess the existing technical solutions in mechatronic devices and systems	P6S_UW_A_Inz_01 , P6S_UW_A
IMA1A_U12	ability to design simple mechatronic devices or systems for various applications, taking into consideration the required operating and economic criteria, using proper methods, techniques and tools	P6S_UW_A_Inz_02 , P6S_UW_A
IMA1A_U13	ability to use data sheets and application notes to select appropriate components of the mechatronic device or system being designed	P6S_UW_A_Inz_02 , P6S_UW_A_Inz_01 , P6S_UW_A
IMA1A_U14	ability to formulate an algorithm; to use high-level programming languages and proper IT tools to develop programs and software for microcontrollers and microprocessors used in a mechatronic system	P6S_UW_A_Inz_02 , P6S_UW_A
IMA1A_U15	ability to select a kinematic structure and design a mechanical structure for it with the aim of performing specified functions using properly selected computer aided design (CAD) and engineering (CAE) software	P6S_UW_A_Inz_02 , P6S_UW_A
IMA1A_U16	ability to perform a synthesis, stability analysis and simulation testing of a continuous or a discrete control algorithm for a given single- or multi-dimensional, linear or non-linear object	P6S_UW_A_Inz_02 , P6S_UW_A_Inz_01 , P6S_UW_A
IMA1A_U17	ability to design, build, start up and test a simple combinational and sequential electronic circuit	P6S_UW_A_Inz_02 , P6S_UW_A_Inz_01 , P6S_UW_A
IMA1A_U18	ability, while formulating and solving tasks, including the design of mechatronic components and systems, to perceive their non-technical aspects, including the environmental, economic and legal aspects	P6S_UW_A_Inz_02 , P6S_UW_A_Inz_01 , P6S_UW_A
IMA1A_U19	observing health and safety rules	P6S_UW_A_Inz_01 , P6S_UW_A

KEU symbol	Learning outcomes prescribed to a field of study	CEU symbol
IMA1A_U20	ability to evaluate the usefulness of routine methods and tools for solving simple engineering tasks typical for mechatronics and select and apply proper methods and tools	P6S_UW_A_Inz_02 , P6S_UW_A_Inz_01 , P6S_UW_A

Social competence

KEU symbol	Learning outcomes prescribed to a field of study	CEU symbol
IMA1A_K01	understanding of the need and knowledge of the possibility of constant individual learning (MA, PhD, postgraduate studies, courses) to improve professional, personal and social competence	P6S_KR_A
IMA1A_K02	awareness of the importance and understanding of the non-technical aspects and consequences of the activity of a mechatronic engineer, including its environmental impact and the resultant responsibility for decisions made	P6S_KO_A
IMA1A_K03	awareness of the importance of professional conduct, observing professional ethics and respect of different standpoints and cultures	P6S_KR_A
IMA1A_K04	awareness of the responsibility for own work and readiness to comply with the rules of team work and accepting responsibility for tasks performed collectively	P6S_KO_A
IMA1A_K05	ability to correctly set priorities in meeting own or external objectives	P6S_KO_A
IMA1A_K06	ability to think and act in an enterprising manner	P6S_KR_A
IMA1A_K07	awareness of the social role of a graduate of technical studies, especially as regards the need to formulate and communicate to society, via the media, information and opinions regarding the achievements of mechatronics and other aspects of the activity of a mechatronic engineer; striving to convey such information and opinions in a commonly understandable manner	P6S_KO_A, P6S_KR_A
IMA1A_K08	Readiness to critical assessment of own knowledge and perceived content, acknowledge of knowledge importance in problem solving and readiness to consult experts	P6S_KK_A

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

Major: Mechatronic Engineering with English as instruction language

Knowledge

CEU symbol	Learning outcomes for qualifications including engineering competence	KEU references
P6S_WG_A_Inz	knowledge of basic processes taking place in the life cycle of technical devices, facilities and systems	IMA1A_W04, IMA1A_W05, IMA1A_W06, IMA1A_W07, IMA1A_W08, IMA1A_W09, IMA1A_W10, IMA1A_W11, IMA1A_W12, IMA1A_W13, IMA1A_W14
P6S_WK_A_Inz	knowledge of basic principles of creating and developing various forms of individual entrepreneurship	IMA1A_W18

Skills

CEU symbol	Learning outcomes for qualifications including engineering competence	KEU references
P6S_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;	IMA1A_U07, IMA1A_U08, IMA1A_U09, IMA1A_U10, IMA1A_U11, IMA1A_U13, IMA1A_U16, IMA1A_U17, IMA1A_U18, IMA1A_U19, IMA1A_U20
P6S_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	IMA1A_U12, IMA1A_U13, IMA1A_U14, IMA1A_U15, IMA1A_U16, IMA1A_U17, IMA1A_U18, IMA1A_U20

Field of study-prescribed outcomes coverage matrix

Field of study: Mechatronic Engineering with English as instruction language

2026/2027/S/Ii/IMiR/IMA/all

Course	Code	Semestr	IMA1A_W01	IMA1A_W02	IMA1A_W03	IMA1A_W04	IMA1A_W05	IMA1A_W06	IMA1A_W07	IMA1A_W08	IMA1A_W09	IMA1A_W10	IMA1A_W11	IMA1A_W12	IMA1A_W13	IMA1A_W14	IMA1A_W15	IMA1A_W16	IMA1A_W17	IMA1A_W18	IMA1A_U01	IMA1A_U02	IMA1A_U03	IMA1A_U04	IMA1A_U05	IMA1A_U06	IMA1A_U07	IMA1A_U08	IMA1A_U09	IMA1A_U10	IMA1A_U11	IMA1A_U12	IMA1A_U13	IMA1A_U14	IMA1A_U15	IMA1A_U16	IMA1A_U17	IMA1A_U18	IMA1A_U19	IMA1A_U20	IMA1A_K01	IMA1A_K02	IMA1A_K03	IMA1A_K04	IMA1A_K05	IMA1A_K06	IMA1A_K07	IMA1A_K08
Introduction to programming	RIMAS.Ii1.19229.26	1s										x																					x							x				x	x			
Algebra	RIMAS.Ii1.00371.26	1s	x																		x	x					x														x							
Object-oriented programming and algorithmics	RIMAS.Ii1.19230.26	1s										x										x	x	x									x										x	x				x
Mathematical Analysis 1	RIMAS.Ii1.03160.26	1s	x																		x	x					x														x							
Chemistry	RIMAS.Ii1.01361.26	1s			x																x	x																						x				
Physics 1	RIMAS.Ii1.03161.26	1s		x						x											x	x				x					x									x	x				x			x
Basics of Informatics	RIMAS.Ii1.19989.26	1s										x																					x											x	x			
Tools and strategies for learning	RIMAS.Ii1.19231.26	1s	x												x		x		x		x	x	x	x		x														x			x		x	x			x
Physics 2	RIMAS.Ii2.01434.26	2s		x		x			x												x	x	x			x			x											x				x	x		x	x
German B2 - Module 1	RIMAS.Ii2.19962.26	2s																							x																							
Mathematical Analysis 2	RIMAS.Ii2.03163.26	2s	x																		x	x					x																x							
Russian B2 - Module 1	RIMAS.Ii2.19961.26	2s																							x																							
French B2 - Module 1	RIMAS.Ii2.19960.26	2s																							x																							
Mechanics 1	RIMAS.Ii2.01401.26	2s		x			x														x	x	x	x			x														x				x			
Fundamentals of Material Science	RIMAS.Ii2.01397.26	2s		x	x																x	x	x																			x							

Course	Code	Semestr	IMA1A_W01	IMA1A_W02	IMA1A_W03	IMA1A_W04	IMA1A_W05	IMA1A_W06	IMA1A_W07	IMA1A_W08	IMA1A_W09	IMA1A_W10	IMA1A_W11	IMA1A_W12	IMA1A_W13	IMA1A_W14	IMA1A_W15	IMA1A_W16	IMA1A_W17	IMA1A_W18	IMA1A_U01	IMA1A_U02	IMA1A_U03	IMA1A_U04	IMA1A_U05	IMA1A_U06	IMA1A_U07	IMA1A_U08	IMA1A_U09	IMA1A_U10	IMA1A_U11	IMA1A_U12	IMA1A_U13	IMA1A_U14	IMA1A_U15	IMA1A_U16	IMA1A_U17	IMA1A_U18	IMA1A_U19	IMA1A_U20	IMA1A_K01	IMA1A_K02	IMA1A_K03	IMA1A_K04	IMA1A_K05	IMA1A_K06	IMA1A_K07	IMA1A_K08
Spanish B2 - Module 1	RIMAS.li2.19959.26	2s																						x																							
English B2 - Module 1	RIMAS.li2.19958.26	2s																						x																							
Practical Basics of Mechatronics	RIMAS.li2.19268.26	2s											x	x	x											x			x		x	x												x			
Strength of Materials	RIMAS.li4.01406.26	3s	x	x						x				x																x	x											x		x				x
German B2 - Module 2	RIMAS.li4.19963.26	3s																						x																							
Engineering Drawing	RIMAS.li4.01400.26	3s							x	x			x	x									x	x							x												x		x			
Russian B2 - Module 2	RIMAS.li4.19964.26	3s																						x																							
French B2 - Module 2	RIMAS.li4.19965.26	3s																						x																							
Mechanics 2	RIMAS.li4.01403.26	3s	x	x					x	x											x	x	x	x																x	x			x	x	x	x	
Spanish B2 - Module 2	RIMAS.li4.19966.26	3s																						x																							
Signals and Systems	RIMAS.li4.02342.26	3s	x						x		x										x	x	x				x	x	x							x				x				x		x
Numerical Methods and Statistics	RIMAS.li4.01408.26	3s	x						x																								x							x							
Manufacturing technology and processes	RIMAS.li4.19232.26	3s			x																x					x															x				x		
English B2 - Module 2	RIMAS.li4.19967.26	3s																						x																							
English B2 - Module 3	RIMAS.li8.19968.26	4s																						x																							
Electronics and electrical engineering	RIMAS.li8.19235.26	4s		x		x															x		x			x	x	x				x									x			x			

Course	Code	Semestr	IMA1A_W01	IMA1A_W02	IMA1A_W03	IMA1A_W04	IMA1A_W05	IMA1A_W06	IMA1A_W07	IMA1A_W08	IMA1A_W09	IMA1A_W10	IMA1A_W11	IMA1A_W12	IMA1A_W13	IMA1A_W14	IMA1A_W15	IMA1A_W16	IMA1A_W17	IMA1A_W18	IMA1A_U01	IMA1A_U02	IMA1A_U03	IMA1A_U04	IMA1A_U05	IMA1A_U06	IMA1A_U07	IMA1A_U08	IMA1A_U09	IMA1A_U10	IMA1A_U11	IMA1A_U12	IMA1A_U13	IMA1A_U14	IMA1A_U15	IMA1A_U16	IMA1A_U17	IMA1A_U18	IMA1A_U19	IMA1A_U20	IMA1A_K01	IMA1A_K02	IMA1A_K03	IMA1A_K04	IMA1A_K05	IMA1A_K06	IMA1A_K07	IMA1A_K08
Introduction to signal processing in wave phenomena and imaging	RIMAS.li8.19233.26	4s		x				x	x	x					x											x	x	x					x							x				x			x
Basics of AI and Deep Learning	RIMAS.li8.17167.26	4s						x				x		x	x						x								x									x		x	x	x					x	x
Intelligent Engineering Data Processing and Vision Methods	RIMAS.li8.17222.26	4s						x				x		x												x	x	x												x	x					x	x
Applications of digital signal processing	RIMAS.li8.19234.26	4s							x																	x																		x				
French B2 - Module 3	RIMAS.li8.19969.26	4s																							x																							
German B2 - Module 3	RIMAS.li8.19970.26	4s																							x																							
Russian B2 - Module 3	RIMAS.li8.19971.26	4s																							x																							
Fundamentals of mechanisms design	RIMAS.li8.19265.26	4s								x			x	x	x						x	x	x	x	x	x	x			x	x	x								x	x	x	x	x			x
Theory of Machines and Mechanisms	RIMAS.li8.15216.26	4s								x			x										x	x			x	x													x			x	x			
Spanish B2 - Module 3	RIMAS.li8.19972.26	4s																							x																							
Mechatronic Systems	RIMAS.li10.01385.26	5s				x		x	x			x		x	x		x				x	x	x	x	x				x			x		x			x		x				x	x			
Tutoring in engineering and technology	RIMAS.li10.19238.26	5s																			x			x		x			x																			x
Industrial Robots	RIMAS.li10.01423.26	5s					x	x		x		x	x		x						x	x	x		x			x			x	x	x	x	x				x		x	x	x	x			
Service Robots	RIMAS.li10.01424.26	5s					x	x	x	x			x	x								x	x			x	x						x							x				x				
Creative approaches to problem solving	RIMAS.li10.19239.26	5s															x																										x	x	x	x		x

Course	Code	Semestr	IMA1A_W01	IMA1A_W02	IMA1A_W03	IMA1A_W04	IMA1A_W05	IMA1A_W06	IMA1A_W07	IMA1A_W08	IMA1A_W09	IMA1A_W10	IMA1A_W11	IMA1A_W12	IMA1A_W13	IMA1A_W14	IMA1A_W15	IMA1A_W16	IMA1A_W17	IMA1A_W18	IMA1A_U01	IMA1A_U02	IMA1A_U03	IMA1A_U04	IMA1A_U05	IMA1A_U06	IMA1A_U07	IMA1A_U08	IMA1A_U09	IMA1A_U10	IMA1A_U11	IMA1A_U12	IMA1A_U13	IMA1A_U14	IMA1A_U15	IMA1A_U16	IMA1A_U17	IMA1A_U18	IMA1A_U19	IMA1A_U20	IMA1A_K01	IMA1A_K02	IMA1A_K03	IMA1A_K04	IMA1A_K05	IMA1A_K06	IMA1A_K07	IMA1A_K08
Design Thinking for Mechatronics	RIMAS.li10.19240.26	5s												x	x		x		x		x	x	x	x		x					x						x		x	x	x	x	x	x			
Control Theory Fundamentals	RIMAS.li10.01404.26	5s									x														x			x		x	x																
Virtual Prototyping in Design	RIMAS.li10.01421.26	5s												x													x			x					x						x				x				
Control Theory	RIMAS.li20.01416.26	6s	x							x	x										x	x					x	x	x	x	x	x	x			x		x					x						
Object Oriented Programming and Software Engineering	RIMAS.li20.01442.26	6s										x																		x			x											x	x				
Programming of microcontrollers and embedded systems	RIMAS.li20.19242.26	6s										x													x			x		x		x	x	x							x		x	x				x
Practical Placement	RIMAS.li20.18710.26	6s															x					x																						x	x				
Mechatronic Design	RIMAS.li20.01386.26	6s					x							x	x			x			x	x		x				x					x											x				
Industrial controller programming	RIMAS.li20.19243.26	6s						x			x																					x				x								x				
Computer Networks and Databases	RIMAS.li20.01449.26	6s										x									x																							x					
Diploma Project	RIMAS.li40.18709.26	7s													x						x	x	x	x		x					x								x			x	x	x			x
Enterprise	RIMAS.li40.01458.26	7s																x	x	x	x	x		x																				x	x	x		
Composite Structures and Their Applications	RIMAS.li40.01459.26	7s			x									x							x		x				x	x			x													x	x			
Management Engineering	RIMAS.li40.01393.26	7s	x				x	x											x								x																					
Python for Machine Learning and Data Science	RIMAS.li40.08311.26	7s							x			x		x									x	x	x								x							x				x				x

Course	Code	Semestr	IMA1A_W01	IMA1A_W02	IMA1A_W03	IMA1A_W04	IMA1A_W05	IMA1A_W06	IMA1A_W07	IMA1A_W08	IMA1A_W09	IMA1A_W10	IMA1A_W11	IMA1A_W12	IMA1A_W13	IMA1A_W14	IMA1A_W15	IMA1A_W16	IMA1A_W17	IMA1A_W18	IMA1A_U01	IMA1A_U02	IMA1A_U03	IMA1A_U04	IMA1A_U05	IMA1A_U06	IMA1A_U07	IMA1A_U08	IMA1A_U09	IMA1A_U10	IMA1A_U11	IMA1A_U12	IMA1A_U13	IMA1A_U14	IMA1A_U15	IMA1A_U16	IMA1A_U17	IMA1A_U18	IMA1A_U19	IMA1A_U20	IMA1A_K01	IMA1A_K02	IMA1A_K03	IMA1A_K04	IMA1A_K05	IMA1A_K06	IMA1A_K07	IMA1A_K08
Computer and Machine Vision Systems	RIMAS.li40.08310.26	7s						x	x															x																							x
Computer Aided Manufacturing	RIMAS.li40.01443.26	7s												x									x					x				x								x		x	x				
Systems of Mechatronic Devices Monitoring	RIMAS.li40.01455.26	7s						x	x			x													x																			x				
Critical Thinking	RIMAS.li40.19245.26	7s																		x						x					x										x		x	x				x
Personal growth and career choices	RIMAS.li40.19246.26	7s																	x	x	x	x																			x				x	x		x
Diploma Seminar	RIMAS.li40.01432.26	7s													x						x		x	x																		x						x
Sum (obligatory):			9	7	3	3	2	2	6	7	4	3	4	8	7	0	2	1	1	0	20	16	14	10	3	6	11	7	6	3	7	7	3	5	1	2	2	1	3	7	13	4	5	19	10	3	2	8
Sum (elective):			1	1	1	0	3	8	6	3	0	9	2	6	4	0	3	1	4	3	7	7	6	6	19	4	6	5	4	2	3	3	2	8	1	0	0	2	0	5	8	4	7	15	9	4	2	11
Sum:			10	8	4	3	5	10	12	10	4	12	6	14	11	0	5	2	5	3	27	23	20	16	22	10	17	12	10	5	10	10	5	13	2	2	2	3	3	12	21	8	12	34	19	7	4	19

Characteristics matrix of learning outcomes in relation to modules

Major: Mechatronic Engineering with English as instruction language

2026/2027/S/Ii/IMiR/IMA/all

Course	Code	Semestr	P6S_WG_A	P6S_WG_A_Inz	P6S_WK_A	P6S_WK_A_Inz	P6S_UW_A	P6S_UO_A	P6S_UK_A	P6S_UU_A	P6S_UW_A_Inz_01	P6S_UW_A_Inz_02	P6S_KR_A	P6S_KO_A	P6S_KK_A
Introduction to programming	RIMAS.Ii1.19229.26	1s	x	x			x					x	x	x	
Algebra	RIMAS.Ii1.00371.26	1s	x				x	x			x		x		
Object-oriented programming and algorithmics	RIMAS.Ii1.19230.26	1s	x	x			x	x	x			x	x	x	x
Mathematical Analysis 1	RIMAS.Ii1.03160.26	1s	x				x	x			x		x		
Chemistry	RIMAS.Ii1.01361.26	1s	x				x	x						x	
Physics 1	RIMAS.Ii1.03161.26	1s	x	x			x	x		x	x	x	x	x	x
Basics of Informatics	RIMAS.Ii1.19989.26	1s	x	x			x					x		x	
Tools and strategies for learning	RIMAS.Ii1.19231.26	1s	x	x	x		x	x	x	x	x		x	x	x
Physics 2	RIMAS.Ii2.01434.26	2s	x	x			x	x	x	x	x		x	x	x
German B2 - Module 1	RIMAS.Ii2.19962.26	2s							x						
Mathematical Analysis 2	RIMAS.Ii2.03163.26	2s	x				x	x			x		x		
Russian B2 - Module 1	RIMAS.Ii2.19961.26	2s							x						
French B2 - Module 1	RIMAS.Ii2.19960.26	2s							x						
Mechanics 1	RIMAS.Ii2.01401.26	2s	x	x			x	x	x		x	x		x	
Fundamentals of Material Science	RIMAS.Ii2.01397.26	2s	x				x	x	x				x		

Course	Code	Semestr	P6S_WG_A	P6S_WG_A_Inz	P6S_WK_A	P6S_WK_A_Inz	P6S_UW_A	P6S_UO_A	P6S_UK_A	P6S_UU_A	P6S_UW_A_Inz_01	P6S_UW_A_Inz_02	P6S_KR_A	P6S_KO_A	P6S_KK_A
Spanish B2 - Module 1	RIMAS.Ii2.19959.26	2s							x						
English B2 - Module 1	RIMAS.Ii2.19958.26	2s							x						
Practical Basics of Mechatronics	RIMAS.Ii2.19268.26	2s	x	x			x				x	x		x	
Strength of Materials	RIMAS.Ii4.01406.26	3s	x	x			x				x	x		x	x
German B2 - Module 2	RIMAS.Ii4.19963.26	3s							x						
Engineering Drawing	RIMAS.Ii4.01400.26	3s	x	x			x		x			x	x	x	
Russian B2 - Module 2	RIMAS.Ii4.19964.26	3s							x						
French B2 - Module 2	RIMAS.Ii4.19965.26	3s							x						
Mechanics 2	RIMAS.Ii4.01403.26	3s	x	x			x	x	x		x	x	x	x	
Spanish B2 - Module 2	RIMAS.Ii4.19966.26	3s							x						
Signals and Systems	RIMAS.Ii4.02342.26	3s	x	x			x	x	x		x	x		x	x
Numerical Methods and Statistics	RIMAS.Ii4.01408.26	3s	x	x			x				x	x			
Manufacturing technology and processes	RIMAS.Ii4.19232.26	3s	x				x			x			x		
English B2 - Module 2	RIMAS.Ii4.19967.26	3s							x						
English B2 - Module 3	RIMAS.Ii8.19968.26	4s							x						
Electronics and electrical engineering	RIMAS.Ii8.19235.26	4s	x	x			x		x		x	x	x	x	
Introduction to signal processing in wave phenomena and imaging	RIMAS.Ii8.19233.26	4s	x	x			x				x	x	x	x	x
Basics of AI and Deep Learning	RIMAS.Ii8.17167.26	4s	x	x			x				x	x	x	x	x
Intelligent Engineering Data Processing and Vision Methods	RIMAS.Ii8.17222.26	4s	x	x			x				x		x	x	x

Course	Code	Semestr	P6S_WG_A	P6S_WG_A_Inz	P6S_WK_A	P6S_WK_A_Inz	P6S_UW_A	P6S_UO_A	P6S_UK_A	P6S_UU_A	P6S_UW_A_Inz_01	P6S_UW_A_Inz_02	P6S_KR_A	P6S_KO_A	P6S_KK_A
Applications of digital signal processing	RIMAS.Ii8.19234.26	4s	x	x			x				x			x	
French B2 - Module 3	RIMAS.Ii8.19969.26	4s							x						
German B2 - Module 3	RIMAS.Ii8.19970.26	4s							x						
Russian B2 - Module 3	RIMAS.Ii8.19971.26	4s							x						
Fundamentals of mechanisms design	RIMAS.Ii8.19265.26	4s	x	x			x	x	x	x	x	x	x	x	x
Theory of Machines and Mechanisms	RIMAS.Ii8.15216.26	4s	x	x			x		x		x			x	
Spanish B2 - Module 3	RIMAS.Ii8.19972.26	4s							x						
Mechatronic Systems	RIMAS.Ii10.01385.26	5s	x	x	x		x	x	x		x	x		x	
Tutoring in engineering and technology	RIMAS.Ii10.19238.26	5s					x		x	x	x				x
Industrial Robots	RIMAS.Ii10.01423.26	5s	x	x			x	x	x		x	x	x	x	
Service Robots	RIMAS.Ii10.01424.26	5s	x	x			x	x	x	x	x	x		x	
Creative approaches to problem solving	RIMAS.Ii10.19239.26	5s			x								x	x	x
Design Thinking for Mechatronics	RIMAS.Ii10.19240.26	5s	x	x	x		x	x	x	x	x	x	x	x	
Control Theory Fundamentals	RIMAS.Ii10.01404.26	5s	x	x			x		x		x				
Virtual Prototyping in Design	RIMAS.Ii10.01421.26	5s	x	x			x				x	x	x	x	
Control Theory	RIMAS.Ii20.01416.26	6s	x	x			x	x			x	x		x	
Object Oriented Programming and Software Engineering	RIMAS.Ii20.01442.26	6s	x	x			x				x	x		x	
Programming of microcontrollers and embedded systems	RIMAS.Ii20.19242.26	6s	x	x			x		x		x	x	x	x	x
Practical Placement	RIMAS.Ii20.18710.26	6s			x			x					x	x	

Course	Code	Semestr	P6S_WG_A	P6S_WG_A_Inz	P6S_WK_A	P6S_WK_A_Inz	P6S_UW_A	P6S_UO_A	P6S_UK_A	P6S_UU_A	P6S_UW_A_Inz_01	P6S_UW_A_Inz_02	P6S_KR_A	P6S_KO_A	P6S_KK_A
Mechatronic Design	RIMAS.Ii20.01386.26	6s	x	x	x		x	x	x		x	x		x	
Industrial controller programming	RIMAS.Ii20.19243.26	6s	x	x			x				x	x		x	
Computer Networks and Databases	RIMAS.Ii20.01449.26	6s	x	x			x								
Diploma Project	RIMAS.Ii40.18709.26	7s	x	x			x	x	x	x	x	x	x	x	x
Enterprise	RIMAS.Ii40.01458.26	7s			x	x	x	x	x				x	x	
Composite Structures and Their Applications	RIMAS.Ii40.01459.26	7s	x	x			x		x		x			x	
Management Engineering	RIMAS.Ii40.01393.26	7s	x	x	x		x				x				
Python for Machine Learning and Data Science	RIMAS.Ii40.08311.26	7s	x	x			x		x		x	x		x	x
Computer and Machine Vision Systems	RIMAS.Ii40.08310.26	7s	x	x					x						x
Computer Aided Manufacturing	RIMAS.Ii40.01443.26	7s	x	x			x		x		x	x	x	x	
Systems of Mechatronic Devices Monitoring	RIMAS.Ii40.01455.26	7s	x	x					x					x	
Critical Thinking	RIMAS.Ii40.19245.26	7s			x	x	x			x	x		x	x	x
Personal growth and career choices	RIMAS.Ii40.19246.26	7s			x	x	x	x					x	x	x
Diploma Seminar	RIMAS.Ii40.01432.26	7s	x	x			x		x				x		x
Sum (obligatory):			30	24	3	0	30	16	16	6	23	18	16	21	8
Sum (elective):			16	16	7	3	18	7	26	4	14	10	13	19	11
Sum:			46	40	10	3	48	23	42	10	37	28	29	40	19

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

Major: Mechatronic Engineering with English as instruction language

2026/2027/S/Ii/IMiR/IMA/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
Introduction to programming	Lectures, Laboratory classes, Project classes	Test, Activity during classes, Test, Oral answer, Completion of laboratory classes, Execution of a project, Involvement in teamwork, Presentation	IMA1A_W10, IMA1A_U14, IMA1A_K01, IMA1A_K04, IMA1A_K05
Algebra	Lectures, Auditorium classes, Seminars	Activity during classes, Examination, Activity during classes, Test, Examination	IMA1A_W01, IMA1A_U07, IMA1A_U01, IMA1A_U02, IMA1A_K01
Object-oriented programming and algorithmics	Lectures, Laboratory classes, Project classes	Activity during classes, Participation in a discussion, Activity during classes, Participation in a discussion, Execution of exercises, Report, Execution of a project, Presentation	IMA1A_W10, IMA1A_U02, IMA1A_U14, IMA1A_U03, IMA1A_U04, IMA1A_K04, IMA1A_K08, IMA1A_K03
Mathematical Analysis 1	Lectures, Auditorium classes, Seminars	Activity during classes, Activity during classes, Test, Activity during classes	IMA1A_W01, IMA1A_U07, IMA1A_U01, IMA1A_U02, IMA1A_K01
Chemistry	Lectures, Laboratory classes	Test, Examination, Test, Examination, Report	IMA1A_W03, IMA1A_U01, IMA1A_U02, IMA1A_K04
Physics 1	Lectures, Auditorium classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Test	IMA1A_W02, IMA1A_W08, IMA1A_U01, IMA1A_U02, IMA1A_U06, IMA1A_U11, IMA1A_U20, IMA1A_K01, IMA1A_K05, IMA1A_K08
Basics of Informatics	Lectures, Laboratory classes	Activity during classes, Execution of laboratory classes, Test	IMA1A_W10, IMA1A_U14, IMA1A_K04, IMA1A_K05
Tools and strategies for learning	Lectures, Workshop classes	Activity during classes, Participation in a discussion, Test results, Activity during classes, Participation in a discussion, Report	IMA1A_W15, IMA1A_W01, IMA1A_W13, IMA1A_W17, IMA1A_U01, IMA1A_U02, IMA1A_U19, IMA1A_U03, IMA1A_U04, IMA1A_U06, IMA1A_K01, IMA1A_K03, IMA1A_K04, IMA1A_K08
Physics 2	Lectures, Auditorium classes, Laboratory classes	Activity during classes, Participation in a discussion, Execution of laboratory classes, Test, Examination, Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Execution of laboratory classes, Test, Report, Involvement in teamwork	IMA1A_W02, IMA1A_W04, IMA1A_W07, IMA1A_U01, IMA1A_U02, IMA1A_U06, IMA1A_U03, IMA1A_U09, IMA1A_U19, IMA1A_K04, IMA1A_K05, IMA1A_K01, IMA1A_K07, IMA1A_K08

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
German B2 - Module 1	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Essays written during classes, Presentation, Oral answer	IMA1A_U05
Mathematical Analysis 2	Lectures, Auditorium classes, Seminars	Activity during classes, Examination, Activity during classes, Test, Examination	IMA1A_W01, IMA1A_U07, IMA1A_U01, IMA1A_U02, IMA1A_K01
Russian B2 - Module 1	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Essays written during classes, Presentation, Oral answer	IMA1A_U05
French B2 - Module 1	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Essays written during classes, Presentation, Oral answer	IMA1A_U05
Mechanics 1	Lectures, Auditorium classes, Laboratory classes	Test results, Activity during classes, Execution of exercises, Test, Test results, Execution of a project, Report, Presentation	IMA1A_W02, IMA1A_W05, IMA1A_U01, IMA1A_U02, IMA1A_U07, IMA1A_U20, IMA1A_U03, IMA1A_U04, IMA1A_K04
Fundamentals of Material Science	Lectures, Laboratory classes	Activity during classes, Examination, Activity during classes, Examination	IMA1A_W02, IMA1A_W03, IMA1A_U01, IMA1A_U02, IMA1A_U03, IMA1A_K01
Spanish B2 - Module 1	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Essays written during classes, Presentation, Oral answer	IMA1A_U05
English B2 - Module 1	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Essays written during classes, Presentation, Oral answer	IMA1A_U05
Practical Basics of Mechatronics	Lectures, Laboratory classes, Project classes	Project, Activity during classes, Execution of a project, Project, Involvement in teamwork, Presentation, Activity during classes, Execution of a project, Project, Involvement in teamwork, Presentation	IMA1A_W11, IMA1A_W12, IMA1A_W13, IMA1A_U10, IMA1A_U07, IMA1A_U11, IMA1A_U12, IMA1A_K05
Strength of Materials	Lectures, Auditorium classes, Laboratory classes	Activity during classes, Examination, Oral answer, Activity during classes, Execution of exercises, Execution of laboratory classes, Test, Examination, Report, Oral answer, Activity during classes, Execution of exercises, Execution of laboratory classes, Test, Examination, Report, Oral answer	IMA1A_W01, IMA1A_W02, IMA1A_W08, IMA1A_W12, IMA1A_U11, IMA1A_U12, IMA1A_K02, IMA1A_K04, IMA1A_K08
German B2 - Module 2	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Essays written during classes, Presentation, Oral answer	IMA1A_U05
Engineering Drawing	Lectures, Project classes	Execution of exercises, Execution of a project, Test, Project, Execution of exercises, Execution of a project	IMA1A_W08, IMA1A_W11, IMA1A_W12, IMA1A_W07, IMA1A_U03, IMA1A_U04, IMA1A_U12, IMA1A_K04, IMA1A_K06

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
Russian B2 - Module 2	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Essays written during classes, Presentation, Oral answer	IMA1A_U05
French B2 - Module 2	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Essays written during classes, Presentation, Oral answer	IMA1A_U05
Mechanics 2	Lectures, Auditorium classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Examination, Scientific paper, Case study, Involvement in teamwork, Test results, Activity during classes, Participation in a discussion, Execution of exercises, Test, Examination, Scientific paper, Case study, Involvement in teamwork, Test results	IMA1A_W01, IMA1A_W02, IMA1A_W07, IMA1A_W08, IMA1A_U01, IMA1A_U02, IMA1A_U03, IMA1A_U04, IMA1A_U20, IMA1A_K01, IMA1A_K04, IMA1A_K05, IMA1A_K06, IMA1A_K07
Spanish B2 - Module 2	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Essays written during classes, Presentation, Oral answer	IMA1A_U05
Signals and Systems	Lectures, Laboratory classes	Examination, Oral answer, Completion of laboratory classes	IMA1A_W01, IMA1A_W07, IMA1A_W09, IMA1A_U01, IMA1A_U02, IMA1A_U03, IMA1A_U07, IMA1A_U09, IMA1A_U08, IMA1A_U16, IMA1A_U20, IMA1A_K04, IMA1A_K05, IMA1A_K08
Numerical Methods and Statistics	Lectures, Auditorium classes, Laboratory classes	Activity during classes, Activity during classes, Execution of exercises, Test results, Activity during classes, Execution of exercises, Execution of laboratory classes, Test results	IMA1A_W01, IMA1A_W07, IMA1A_U14, IMA1A_U20
Manufacturing technology and processes	Lectures, Laboratory classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Test	IMA1A_W03, IMA1A_U01, IMA1A_U06, IMA1A_K01, IMA1A_K06
English B2 - Module 2	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Essays written during classes, Presentation, Oral answer	IMA1A_U05
English B2 - Module 3	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Examination, Essays written during classes, Presentation, Oral answer	IMA1A_U05
Electronics and electrical engineering	Lectures, Laboratory classes, Auditorium classes, Project classes	Test, Examination, Oral answer, Activity during classes, Test, Report, Involvement in teamwork, Oral answer, Completion of laboratory classes, Activity during classes, Test, Examination, Case study, Oral answer, Activity during classes, Participation in a discussion, Execution of a project, Report, Case study, Involvement in teamwork, Presentation	IMA1A_W02, IMA1A_W04, IMA1A_U01, IMA1A_U08, IMA1A_U13, IMA1A_U07, IMA1A_U09, IMA1A_U03, IMA1A_K01, IMA1A_K04
Introduction to signal processing in wave phenomena and imaging	Lectures, Project classes, Workshop classes	Activity during classes, Project, Report, Presentation, Report, Test results, Oral answer	IMA1A_W02, IMA1A_W06, IMA1A_W07, IMA1A_W13, IMA1A_W08, IMA1A_U07, IMA1A_U14, IMA1A_U08, IMA1A_U09, IMA1A_K01, IMA1A_K08, IMA1A_K05

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
Basics of AI and Deep Learning	Lectures, Laboratory classes	Test, Activity during classes, Project, Report, Completion of laboratory classes	IMA1A_W10, IMA1A_W12, IMA1A_W06, IMA1A_W13, IMA1A_U01, IMA1A_U09, IMA1A_U20, IMA1A_U18, IMA1A_K01, IMA1A_K08, IMA1A_K02, IMA1A_K07
Intelligent Engineering Data Processing and Vision Methods	Lectures, Laboratory classes	Activity during classes, Report, Completion of laboratory classes, Activity during classes, Project, Report, Test results, Completion of laboratory classes	IMA1A_W06, IMA1A_W10, IMA1A_W12, IMA1A_U07, IMA1A_U08, IMA1A_U09, IMA1A_K08, IMA1A_K01, IMA1A_K02, IMA1A_K07
Applications of digital signal processing	Lectures, Project classes, Workshop classes	Test, Activity during classes, Execution of a project, Activity during classes, Execution of exercises	IMA1A_W07, IMA1A_U07, IMA1A_K04
French B2 - Module 3	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Examination, Essays written during classes, Presentation, Oral answer	IMA1A_U05
German B2 - Module 3	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Examination, Essays written during classes, Presentation, Oral answer	IMA1A_U05
Russian B2 - Module 3	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Examination, Essays written during classes, Presentation, Oral answer	IMA1A_U05
Fundamentals of mechanisms design	Lectures, Auditorium classes, Project classes, Seminars	Test, Test results, Activity during classes, Participation in a discussion, Execution of exercises, Test, Test results, Project, Involvement in teamwork, Presentation, Activity during classes, Participation in a discussion	IMA1A_W11, IMA1A_W12, IMA1A_W13, IMA1A_W08, IMA1A_U01, IMA1A_U05, IMA1A_U07, IMA1A_U12, IMA1A_U13, IMA1A_U06, IMA1A_U11, IMA1A_U02, IMA1A_U03, IMA1A_U04, IMA1A_K01, IMA1A_K03, IMA1A_K04, IMA1A_K05, IMA1A_K02, IMA1A_K08
Theory of Machines and Mechanisms	Lectures, Laboratory classes, Project classes	Activity during classes, Activity during classes, Execution of laboratory classes, Test, Activity during classes, Execution of a project, Test	IMA1A_W11, IMA1A_W08, IMA1A_U03, IMA1A_U04, IMA1A_U07, IMA1A_U08, IMA1A_K02, IMA1A_K04, IMA1A_K05
Spanish B2 - Module 3	Foreign language classes	Activity during classes, Participation in a discussion, Execution of exercises, Test, Examination, Essays written during classes, Presentation, Oral answer	IMA1A_U05
Mechatronic Systems	Lectures, Laboratory classes, Workshop classes	Execution of a project, Execution of laboratory classes, Test, Examination, Execution of laboratory classes, Test, Report, Execution of a project, Test	IMA1A_W06, IMA1A_W07, IMA1A_W13, IMA1A_W04, IMA1A_W10, IMA1A_W12, IMA1A_W15, IMA1A_U02, IMA1A_U17, IMA1A_U19, IMA1A_U20, IMA1A_U01, IMA1A_U05, IMA1A_U12, IMA1A_U14, IMA1A_U03, IMA1A_U04, IMA1A_U09, IMA1A_K04, IMA1A_K05
Tutoring in engineering and technology	Workshop classes	Activity during classes, Report, Essay, Case study, Presentation, Preparation and conduct of scientific research	IMA1A_U06, IMA1A_U04, IMA1A_U01, IMA1A_U09, IMA1A_K08

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
Industrial Robots	Lectures, Laboratory classes, Project classes	Execution of a project, Execution of laboratory classes, Examination, Report, Execution of a project, Execution of laboratory classes, Examination, Report, Presentation, Activity during classes, Execution of a project, Execution of laboratory classes, Examination, Report, Presentation	IMA1A_W05, IMA1A_W06, IMA1A_W11, IMA1A_W13, IMA1A_W10, IMA1A_W08, IMA1A_U01, IMA1A_U05, IMA1A_U08, IMA1A_U20, IMA1A_U02, IMA1A_U14, IMA1A_U03, IMA1A_U11, IMA1A_U12, IMA1A_U13, IMA1A_U15, IMA1A_K02, IMA1A_K04, IMA1A_K05, IMA1A_K03
Service Robots	Lectures, Laboratory classes, Project classes	Test, Examination, Execution of laboratory classes, Test, Execution of a project	IMA1A_W05, IMA1A_W06, IMA1A_W07, IMA1A_W08, IMA1A_W11, IMA1A_W12, IMA1A_U02, IMA1A_U03, IMA1A_U07, IMA1A_U14, IMA1A_U06, IMA1A_U20, IMA1A_K04
Creative approaches to problem solving	Workshop classes	Activity during classes, Participation in a discussion, Essay, Case study, Involvement in teamwork	IMA1A_W15, IMA1A_K03, IMA1A_K04, IMA1A_K08, IMA1A_K05, IMA1A_K06
Design Thinking for Mechatronics	Workshop classes	Project	IMA1A_W12, IMA1A_W13, IMA1A_W15, IMA1A_W17, IMA1A_U01, IMA1A_U02, IMA1A_U03, IMA1A_U04, IMA1A_U06, IMA1A_U12, IMA1A_U18, IMA1A_U20, IMA1A_K01, IMA1A_K02, IMA1A_K03, IMA1A_K04, IMA1A_K05, IMA1A_K06
Control Theory Fundamentals	Lectures, Auditorium classes, Laboratory classes	Activity during classes, Test, Activity during classes, Execution of exercises, Test, Report, Activity during classes, Execution of exercises, Execution of laboratory classes, Test, Report	IMA1A_W09, IMA1A_U10, IMA1A_U11, IMA1A_U08, IMA1A_U05
Virtual Prototyping in Design	Lectures, Laboratory classes	Activity during classes, Participation in a discussion, Test, Activity during classes, Participation in a discussion, Test	IMA1A_W12, IMA1A_U15, IMA1A_U07, IMA1A_U09, IMA1A_K01, IMA1A_K04
Control Theory	Lectures, Auditorium classes, Laboratory classes	Activity during classes, Examination, Activity during classes, Execution of exercises, Test, Examination, Report, Involvement in teamwork, Activity during classes, Execution of laboratory classes, Examination, Report, Involvement in teamwork	IMA1A_W08, IMA1A_W09, IMA1A_W01, IMA1A_U01, IMA1A_U02, IMA1A_U12, IMA1A_U16, IMA1A_U18, IMA1A_U10, IMA1A_U07, IMA1A_U08, IMA1A_U09, IMA1A_U11, IMA1A_U13, IMA1A_K02, IMA1A_K04
Object Oriented Programming and Software Engineering	Lectures, Laboratory classes, Project classes	Test, Test, Test results, Completion of laboratory classes, Execution of a project, Execution of laboratory classes, Test, Test results	IMA1A_W10, IMA1A_U14, IMA1A_U10, IMA1A_K05, IMA1A_K04
Programming of microcontrollers and embedded systems	Lectures, Project classes, Workshop classes	Participation in a discussion, Project, Report, Presentation, Activity during classes, Execution of exercises, Involvement in teamwork	IMA1A_W10, IMA1A_U05, IMA1A_U12, IMA1A_U14, IMA1A_U08, IMA1A_U10, IMA1A_U13, IMA1A_K03, IMA1A_K04, IMA1A_K08, IMA1A_K01
Practical Placement	Practical placement	Report on completion of a practical placement, Confirmation of completion of practical placement programme	IMA1A_W15, IMA1A_U02, IMA1A_K04, IMA1A_K03

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
Mechatronic Design	Lectures, Laboratory classes, Project classes, Seminars	Activity during classes, Execution of laboratory classes, Project, Report, Presentation, Case study, Presentation	IMA1A_W05, IMA1A_W12, IMA1A_W13, IMA1A_W16, IMA1A_U01, IMA1A_U02, IMA1A_U04, IMA1A_U08, IMA1A_U14, IMA1A_K04
Industrial controller programming	Lectures, Laboratory classes	Participation in a discussion, Execution of exercises	IMA1A_W09, IMA1A_W06, IMA1A_U14, IMA1A_U17, IMA1A_K04
Computer Networks and Databases	Lectures, Laboratory classes	Activity during classes, Execution of laboratory classes, Report, Test results	IMA1A_W10, IMA1A_U01
Diploma Project	Diploma Thesis	Diploma thesis preparation	IMA1A_W13, IMA1A_U04, IMA1A_U03, IMA1A_U01, IMA1A_U02, IMA1A_U06, IMA1A_U11, IMA1A_U20, IMA1A_K03, IMA1A_K04, IMA1A_K05, IMA1A_K08
Enterprise	Lectures, Seminars	Activity during classes, Execution of a project, Project, Test results, Activity during classes, Execution of a project, Project, Involvement in teamwork, Test results	IMA1A_W17, IMA1A_W18, IMA1A_U01, IMA1A_W16, IMA1A_U02, IMA1A_K04, IMA1A_U04, IMA1A_K05, IMA1A_K06
Composite Structures and Their Applications	Lectures, Laboratory classes	Execution of laboratory classes, Test, Execution of laboratory classes, Test	IMA1A_W03, IMA1A_W12, IMA1A_U01, IMA1A_U07, IMA1A_U03, IMA1A_U11, IMA1A_U08, IMA1A_K04, IMA1A_K05
Management Engineering	Lectures, Seminars	Test, Project, Scientific paper, Test, Project, Scientific paper	IMA1A_W01, IMA1A_W17, IMA1A_W05, IMA1A_W06, IMA1A_U07
Python for Machine Learning and Data Science	Lectures, Laboratory classes, Project classes	Participation in a discussion, Test, Participation in a discussion, Execution of laboratory classes, Test, Participation in a discussion, Execution of a project, Project, Report, Involvement in teamwork, Presentation	IMA1A_W07, IMA1A_W10, IMA1A_W12, IMA1A_U14, IMA1A_U20, IMA1A_U04, IMA1A_U05, IMA1A_U03, IMA1A_K04, IMA1A_K08
Computer and Machine Vision Systems	Lectures, Laboratory classes, Project classes	Activity during classes, Execution of a project, Report, Activity during classes, Execution of laboratory classes, Report, Involvement in teamwork, Test results, Oral answer, Activity during classes, Execution of a project, Report, Involvement in teamwork, Presentation	IMA1A_W06, IMA1A_W07, IMA1A_U04, IMA1A_K08
Computer Aided Manufacturing	Lectures, Laboratory classes, Project classes	Execution of laboratory classes, Activity during classes, Execution of laboratory classes, Report, Involvement in teamwork, Test results, Activity during classes, Execution of laboratory classes, Report, Involvement in teamwork, Test results	IMA1A_W12, IMA1A_U12, IMA1A_U08, IMA1A_U03, IMA1A_K01, IMA1A_K03, IMA1A_K04
Systems of Mechatronic Devices Monitoring	Lectures, Project classes, Seminars	Activity during classes, Presentation, Activity during classes, Presentation, Presentation	IMA1A_W07, IMA1A_W10, IMA1A_W06, IMA1A_U05, IMA1A_K04

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
Critical Thinking	Workshop classes	Activity during classes, Case study	IMA1A_W18, IMA1A_U06, IMA1A_U11, IMA1A_K01, IMA1A_K03, IMA1A_K04, IMA1A_K08
Personal growth and career choices	Workshop classes	Activity during classes, Test, Involvement in teamwork, Presentation, Oral answer	IMA1A_W17, IMA1A_W18, IMA1A_U01, IMA1A_U02, IMA1A_K01, IMA1A_K05, IMA1A_K06, IMA1A_K08
Diploma Seminar	Seminars	Activity during classes, Participation in a discussion, Diploma thesis preparation, Presentation	IMA1A_W13, IMA1A_U01, IMA1A_U03, IMA1A_U04, IMA1A_K03, IMA1A_K08

ECTS credits calculations

Field of study: Mechatronic Engineering with English as instruction language

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	113
core science classes relevant to a given major	55
practical classes, developing practical skills, including laboratory, design, practical and workshop classes	78
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)	64
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	6
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)	144
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)	

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

Field of study: Mechatronic Engineering with English as instruction language

Enrollment rules for the next semester

The rules of registration for the semester are specified in paragraph 17 of the AGH UST Study Regulations

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 semester 4th and 5th – 15 ECTS
When entering the 6th semester – 9 ECTS
When entering the 7th semester – 0 ECTS

ECTS credits debt ceiling

15

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)

In the first-cycle studies of Mechatronic engineering, there are no blocks

Monitoring semesters

6

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

The rules for granting, serving and crediting an individual organisation of studies are described in paragraph 9th of the AGH University of Krakow Study Regulations.

Implementation of practical placements including monitoring system and completion rules

The rules for student practical placement are described in paragraph 16a of the AGH University of Krakow Study Regulations

Rules of elective modules taking

The principles of electivity of the subjects are defined in the Syllabus of Mechatronic Engineering program

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

In the first-cycle studies of Mechatronic engineering, there are no paths, profiles and specialties.

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

The final thesis preparation and diploma awarding process is carried out in accordance with the paragraphs 25, 26 and 27 of the AGH of Krakow Study Regulations.

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

The general result of graduation is calculated as the sum of: 0.6 * the average of grades obtained during studies + 0.3 * final grade of the diploma thesis + 0.1 * grade of the diploma exam.

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