Curriculum

Field of study: Computer Science for Embedded Systems

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General characteristics of the field of study

Basic information

Faculty name:	Faculty of Computer Science, Electronics and Telecommunications
Field of study:	Computer Science for Embedded Systems
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
Automation, electronic, electrical engineering and space technologies	71%	149
Technical computing and telecommunications	29%	61

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

The Computer Science for Embedded Systems (CSE) programme aligns with AGH’s strategic focus on modern digital technologies, automation and intelligent systems for a knowledge-based economy. The curriculum integrates core computer science with embedded-systems engineering, reflecting the growing importance of digitalisation of devices and infrastructure (IoT, robotics, automation,) and the need for secure, reliable real-time data processing.

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

The programme was designed to meet socio-economic needs related to the development of next-generation complex embedded systems and their integration with data analytics and selected AI methods. The intended learning outcomes focus on designing, implementing, testing and deploying embedded solutions, with attention to reliability, security and energy efficiency. Graduates are prepared for R&D and product teams in areas such as IoT, automation/robotics, automotive, industry, digital health and consumer electronics, as well as for continuing their education in second-cycle studies.

Education paths – scope in Polish and in English

not applicable

Graduation paths – scope in Polish and in English

not applicable

The names of the majors in Polish and in English

Name [pl]	Name [en]

General information about the curriculum

Field of study: Computer Science for Embedded Systems

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

The proposed Computer Science for Embedded Systems programme (first- and second-cycle) provides knowledge and skills in designing embedded systems and modern data-processing methods. The curriculum covers, among others, low- and high-level programming, firmware development, digital systems, real-time operating systems, communication protocols, compute acceleration (FPGA, GPGPU) and fundamentals of system security. The computer-science part includes data analysis, pattern recognition, and image and audio processing, enabling students to build intelligent embedded systems capable of real-time perception and decision-making.

Graduates may work as embedded software/firmware engineers, test and validation engineers, systems engineers, FPGA/GPU engineers, embedded security specialists, or IoT solution engineers. The programme also prepares students for work in interdisciplinary project teams and for further academic or professional development.

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

The programme incorporates feedback from quality-assurance processes and graduate career tracking (including data collected by AGH units supporting students' careers). This analysis enables periodic updates of the curriculum, especially with regard to engineering tools, programming languages, testing methods and currently used embedded technologies.

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 programme is developed and improved with due consideration of requirements and recommendations of relevant accreditation bodies. This includes systematic review of learning outcomes, course content and assessment methods, as well as continuous improvement of laboratory infrastructure and the organisation of the teaching process.

Information on including examples of good practice in the curriculum

The curriculum incorporates proven good teaching practices, in particular: research-oriented laboratory classes, team projects, software-engineering elements (version control, testing, code review), and the use of simulation, debugging and profiling tools. A key component is assignments that integrate hardware and software and address non-functional requirements (reliability, security, energy consumption). Soft skills (communication, teamwork, time management, responsibility) are developed in an integrated manner within major courses, primarily through labs and projects.

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

The development and periodic updates of the programme are supported by cooperation with external stakeholders, including industry and R&D organisations related to embedded systems, IoT and data processing. This cooperation may take the form of consulting learning outcomes, involving experts in teaching (guest lectures, workshops), proposing practice-inspired project topics, and enabling internships and thesis projects in collaboration with stakeholders.

Duration, rules and form of the practical placement

The programme includes a work placement aimed at gaining experience in the design and development of embedded systems. The placement takes place in an industrial or research and development environment, and its scope may include, amongst other things, firmware programming, testing and validation, hardware-software integration, working with CI/CD tools, and documenting solutions. The assessment criteria usually include the completion of practical tasks and the submission of a report and/or presentation on the course of the placement, in accordance with the requirements of the module within the degree programme.

Admission criteria, rules and policies

Field of study: Computer Science for Embedded Systems

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

The prerequisite for admission to first-cycle studies is a secondary school leaving certificate. Candidates for first-cycle studies in Computer Science for Embedded Systems should have competences in mathematics or physics typical for secondary school graduates, in particular those who have completed a mathematics and physics course.

The programme is also addressed to graduates of technical schools with a specialisation in electronics and related fields. In the recruitment process, in addition to the results of the secondary school leaving examination, the results of the vocational examination are also taken into account.

More information: https://rekrutacja.agh.edu.pl/

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

The rules and conditions of recruitment are specified in the relevant Resolutions and Regulations posted on the website: https://rekrutacja.agh.edu.pl/

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: 36
Maximum number of students: 48

Learning outcomes

Field of study: Computer Science for Embedded Systems

Knowledge

KEU symbol	Learning outcomes prescribed to a field of study	CEU symbol
CSE1A_W01	He has a solid knowledge of mathematics (linear algebra, mathematical analysis, differential equations, probability theory, statistics, discrete mathematics, numerical methods), used in algorithm analysis, signal processing, embedded systems modelling and machine learning, with particular emphasis on optimisation and computational complexity analysis.	P6S_WG_A
CSE1A_W02	Has structured knowledge of physics (mechanics, thermodynamics, optics, electricity and magnetism, photonics, solid state physics), enabling understanding of physical phenomena occurring in electronic circuits, sensors and embedded systems.	P6S_WG_A
CSE1A_W03	Knows the principles of physical and electronic measurements, methods of processing results and identifying and determining measurement uncertainties, as well as the use of IT tools for the analysis of measurement data.	P6S_WG_A_Inz, P6S_WG_A
CSE1A_W04	Has structured knowledge of algorithms, data structures and computational complexity analysis, with particular emphasis on systems with limited resources (time, memory, energy).	P6S_WG_A_Inz, P6S_WG_A
CSE1A_W05	He has structured and theoretically grounded knowledge of embedded systems architecture, including microcontrollers, microprocessors, peripheral circuits, power supply circuits, analogue circuits, communication interfaces and hardware-software cooperation.	P6S_WG_A_Inz, P6S_WG
CSE1A_W06	Has knowledge of operating systems used in embedded systems (RTOS, Embedded Linux), including process management, task scheduling, synchronisation, interprocess communication, interrupt handling, and system configuration and construction.	P6S_WG_A_Inz, P6S_WG_A
CSE1A_W07	Has knowledge of Internet of Things (IoT) and Embedded AI systems, including system architecture, communication protocols, security, and the basics of machine learning in resource-constrained systems (TinyML), including model inference.	P6S_WG_A_Inz, P6S_WG_A
CSE1A_W08	He has knowledge of programming and software engineering methodologies and non-technical aspects of engineering, including health and safety, intellectual property protection, quality management, and the basics of entrepreneurship.	P6S_WK_A_Inz, P6S_WK_A

Skills

KEU symbol	Learning outcomes prescribed to a field of study	CEU symbol
CSE1A_U01	Uses mathematical and logical methods and simulation tools to model, analyse and optimise algorithms and embedded systems; assesses their computational complexity, energy efficiency and determinism.	P6S_UW_A
CSE1A_U02	Analyses physical and technical phenomena occurring in electronic circuits and embedded systems; plans and carries out measurements, processes results using IT tools, determines measurement uncertainties and interprets results in the context of engineering tasks.	P6S_UW_A_Inz_01, P6S_UU_A, P6S_UW_A
CSE1A_U03	Designs and implements algorithms and data structures taking into account the time, memory and energy constraints of embedded systems; performs a comparative analysis of solutions in terms of functionality and economy.	P6S_UW_A_Inz_01, P6S_UU_A, P6S_UW_A
CSE1A_U04	Programs embedded systems in high- and low-level languages, using real-time operating system (RTOS) mechanisms and the Embedded Linux environment; integrates software with hardware, configures communication interfaces and diagnoses system errors.	P6S_UW_A_Inz_02, P6S_UW_A
CSE1A_U05	Designs and implements IoT systems and Embedded AI solutions, including data acquisition, communication, information processing and integration with master systems; optimises machine learning models to work on devices with limited resources.	P6S_UW_A_Inz_02, P6S_UK_A
CSE1A_U06	Uses mathematical methods, computer simulations and experimental tests to evaluate the performance of embedded systems; analyses signals and data processing; presents results in numerical and graphical form and formulates justified engineering conclusions.	P6S_UW_A

KEU symbol	Learning outcomes prescribed to a field of study	CEU symbol
CSE1A_U07	Independently obtains information from technical literature, manufacturer documentation (data sheets, application notes), standards and scientific resources; integrates it, performs critical analysis and formulates justified conclusions; develops technical documentation, project reports and presentations; uses English at B2 CEFR level in technical communication.	P6S_UW_A_Inz_01 , P6S_UU_A
CSE1A_U08	Designs complete embedded systems – from functional specifications to testing and implementation – taking into account environmental, economic and legal factors as well as health and safety rules; plans and organises individual and team work, estimates task completion times, develops schedules and ensures that deadlines are met.	P6S_UW_A_Inz_02 , P6S_UO_A

Social competence

KEU symbol	Learning outcomes prescribed to a field of study	CEU symbol
CSE1A_K01	Understands the need for continuous improvement of professional, personal and social competences and critical evaluation of existing knowledge, including the use of expert opinions and self-education.	P6S_KK_A
CSE1A_K02	Understands the professional responsibility of an embedded systems engineer, including the impact of designed systems (in particular those using AI) on user safety, the environment and society.	P6S_KO_A
CSE1A_K03	Works effectively individually and in a team, plans and organises work, shows initiative and entrepreneurship, and adheres to professional ethics and good engineering practices.	P6S_KR_A

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

Major: Computer Science for Embedded Systems

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	CSE1A_W03, CSE1A_W04, CSE1A_W05, CSE1A_W06, CSE1A_W07
P6S_WK_A_Inz	knowledge of basic principles of creating and developing various forms of individual entrepreneurship	CSE1A_W08

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	CSE1A_U02, CSE1A_U03, CSE1A_U07
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	CSE1A_U04, CSE1A_U05, CSE1A_U08

Field of study-prescribed outcomes coverage matrix

Field of study: Computer Science for Embedded Systems

2026/2027/S/Ii/IEiT/CSE/all

Course	Code	Semestr	CSE1A_W01	CSE1A_W02	CSE1A_W03	CSE1A_W04	CSE1A_W05	CSE1A_W06	CSE1A_W07	CSE1A_W08	CSE1A_U01	CSE1A_U02	CSE1A_U03	CSE1A_U04	CSE1A_U05	CSE1A_U06	CSE1A_U07	CSE1A_U08	CSE1A_K01	CSE1A_K02	CSE1A_K03
Algebra	ICSES.Ii1.00371.26	1s	x								x								x		
CAD and 3D modeling	ICSES.Ii1.05424.26	1s								x	x									x	
Basic Microcontroller Programming	ICSES.Ii1.19842.26	1s					x							x					x		
Introduction to Mechanics	ICSES.Ii1.05423.26	1s								x	x									x	
Fundamentals of Computer Science	ICSES.Ii1.19831.26	1s	x			x		x	x	x	x					x			x		
Fundamentals of Data Transmission	ICSES.Ii1.19841.26	1s	x				x		x						x						
Mathematical Analysis 1	ICSES.Ii1.03160.26	1s	x								x								x		
Operating Systems Configuration and Administration	ICSES.Ii1.19844.26	1s						x	x					x							x
Principles of Programming	ICSES.Ii1.19843.26	1s				x		x		x			x						x		
Algorithms and data structures	ICSES.Ii2.07042.26	2s				x							x						x		
Fundamentals of Digital Electronics	ICSES.Ii2.19849.26	2s	x								x						x				x
Introduction to Academic English	ICSES.Ii2.18495.26	2s															x				
Mathematical Analysis 2	ICSES.Ii2.03163.26	2s	x								x								x		
Metrology	ICSES.Ii2.19837.26	2s			x							x					x	x	x	x	x
Object-Oriented and Functional Programming Paradigms	ICSES.Ii2.19845.26	2s				x			x	x			x	x		x			x		
Basics of Interpersonal Skills	ICSES.Ii2.19925.26	2s								x								x	x		

Course	Code	Semestr	CSE1A_W01	CSE1A_W02	CSE1A_W03	CSE1A_W04	CSE1A_W05	CSE1A_W06	CSE1A_W07	CSE1A_W08	CSE1A_U01	CSE1A_U02	CSE1A_U03	CSE1A_U04	CSE1A_U05	CSE1A_U06	CSE1A_U07	CSE1A_U08	CSE1A_K01	CSE1A_K02	CSE1A_K03
Physics 1	ICSES.li3.03161.26	1s lub 2s	x	x								x							x		
Cybersecurity Fundamentals	ICSES.li4.19850.26	3s							x				x	x	x	x			x		
Digital Systems Architecture and Design	ICSES.li4.19847.26	3s					x					x	x					x			x
Fundamentals of Electronics	ICSES.li4.01405.26	3s	x	x			x					x				x	x		x	x	x
Numerical Modeling and Statistics in Engineering	ICSES.li4.19988.26	3s	x	x	x	x				x	x	x	x			x	x		x		x
Physics 2	ICSES.li4.01434.26	3s		x								x					x	x	x	x	x
Software Design and Development	ICSES.li4.19851.26	3s								x			x	x		x	x		x		x
Team-Based Software Development Project	ICSES.li4.19852.26	3s					x	x	x	x							x	x	x	x	x
Computer Networks	ICSES.li8.03175.26	4s					x		x					x	x		x	x	x		
Core Concepts of Artificial Intelligence	ICSES.li8.19861.26	4s	x						x		x		x		x					x	x
Communication and Team Building	ICSES.li8.19927.26	4s								x								x			x
Effective Self-Management	ICSES.li8.19928.26	4s								x								x	x		x
Digital Signal Processing	ICSES.li8.03172.26	4s	x								x		x			x	x		x		
Electronic Circuits I	ICSES.li8.19846.26	4s		x			x				x	x				x		x	x	x	
Microprocessor Architecture and Programming	ICSES.li8.19857.26	4s					x							x			x	x	x	x	
Network Programming	ICSES.li8.19859.26	4s					x		x					x	x				x		x
Parallel and Concurrent Computing	ICSES.li8.19858.26	4s						x	x					x							x
Advanced Digital Systems Design	ICSES.li10.19862.26	5s	x			x	x						x		x	x		x	x		
Design of Systems and Networks	ICSES.li10.20030.26	5s							x					x	x			x	x	x	x
Computer Vision and Graphics	ICSES.li10.19864.26	5s				x				x			x	x		x			x		

Course	Code	Semestr	CSE1A_W01	CSE1A_W02	CSE1A_W03	CSE1A_W04	CSE1A_W05	CSE1A_W06	CSE1A_W07	CSE1A_W08	CSE1A_U01	CSE1A_U02	CSE1A_U03	CSE1A_U04	CSE1A_U05	CSE1A_U06	CSE1A_U07	CSE1A_U08	CSE1A_K01	CSE1A_K02	CSE1A_K03
Applied Speech Technology	ICSES.li10.20031.26	5s							x				x		x					x	x
Applied Radio Frequency Engineering	ICSES.li10.20032.26	5s		x			x					x			x	x			x	x	x
Data Analysis and Pattern Recognition	ICSES.li10.19125.26	5s				x							x							x	
Design of Digital Systems	ICSES.li10.20033.26	5s				x	x				x		x	x		x			x	x	x
Efficient Microcontroller Programming	ICSES.li10.19865.26	5s					x	x	x	x				x	x			x		x	x
Design of Microprocessor Applications	ICSES.li10.20034.26	5s					x						x	x	x				x	x	x
Electronic Circuits II	ICSES.li10.19853.26	5s					x					x				x		x	x	x	
Applied Sensor Technology	ICSES.li10.20035.26	5s		x	x	x	x					x	x			x			x	x	x
Embedded Operating Systems	ICSES.li10.19929.26	5s				x		x						x							x
Embedded Systems with Artificial Intelligence	ICSES.li10.19863.26	5s				x			x						x				x	x	x
Wireless Techniques and Systems	ICSES.li10.03246.26	5s					x									x					x
Fundamentals of Economics, Finance and Business Law	ICSES.li20.03247.26	6s								x							x	x	x	x	x
Advanced Embedded Systems Programming	ICSES.li20.19869.26	6s					x	x	x	x				x							x
Fundamentals of management	ICSES.li20.06760.26	6s								x							x	x			
Designing and Creating High-Level Object-Oriented Applications	ICSES.li20.12884.26	6s								x			x	x				x			x
Sensor Technology	ICSES.li20.07587.26	6s		x	x		x					x				x	x		x	x	
Thin Film Photovoltaics	ICSES.li20.12885.26	6s		x														x	x	x	
Multimedia Information Processing and Communications	ICSES.li20.07578.26	6s	x			x					x		x			x			x		
Switching nodes for telecommunication and computer networks	ICSES.li20.07577.26	6s					x							x		x	x				x
Python in Research	ICSES.li20.19895.26	6s								x				x							x

Course	Code	Semestr	CSE1A_W01	CSE1A_W02	CSE1A_W03	CSE1A_W04	CSE1A_W05	CSE1A_W06	CSE1A_W07	CSE1A_W08	CSE1A_U01	CSE1A_U02	CSE1A_U03	CSE1A_U04	CSE1A_U05	CSE1A_U06	CSE1A_U07	CSE1A_U08	CSE1A_K01	CSE1A_K02	CSE1A_K03
Advanced Java Programming	ICSES.li20.07574.26	6s								x				x							
Professional practice	ICSES.li20.04872.26	6s								x								x			x
Speech Processing	ICSES.li40.07586.26	7s				x							x								
Applications of Digital Signal Processors	ICSES.li40.07585.26	7s	x											x	x	x	x			x	
MPLS Networks	ICSES.li40.07572.26	7s					x							x			x		x		x
Programming for Android	ICSES.li40.07571.26	7s					x	x	x					x	x			x	x		
Students Research Group	ICSES.li40.02166.26	7s	x	x	x	x	x	x	x	x		x					x	x	x		
Diploma Seminar	ICSES.li40.01432.26	7s									x					x		x	x	x	
Security of Embedded Systems	ICSES.li40.19123.26	7s					x	x	x					x	x	x				x	x
Final Project	ICSES.li40.01452.26	7s														x	x	x	x	x	x
Sum (obligatory):			12	5	2	10	14	8	13	11	10	8	12	13	8	14	12	14	28	13	19
Sum (elective):			3	5	3	5	10	3	5	10	4	4	7	11	7	8	7	9	13	13	14
Sum:			15	10	5	15	24	11	18	21	14	12	19	24	15	22	19	23	41	26	33

Characteristics matrix of learning outcomes in relation to modules

Major: Computer Science for Embedded Systems

2026/2027/S/Ii/IEiT/CSE/all

Course	Code	Semestr	P6S_WG_A	P6S_WG_A_Inz	P6S_WG	P6S_WK_A_Inz	P6S_WK_A	P6S_UW_A	P6S_UW_A_Inz_01	P6S_UU_A	P6S_UW_A_Inz_02	P6S_UK_A	P6S_UO_A	P6S_KK_A	P6S_KO_A	P6S_KR_A
Algebra	ICSES.Ii1.00371.26	1s	x					x						x		
CAD and 3D modeling	ICSES.Ii1.05424.26	1s				x	x	x							x	
Basic Microcontroller Programming	ICSES.Ii1.19842.26	1s		x	x			x			x			x		
Introduction to Mechanics	ICSES.Ii1.05423.26	1s				x	x	x							x	
Fundamentals of Computer Science	ICSES.Ii1.19831.26	1s	x	x		x	x	x						x		
Fundamentals of Data Transmission	ICSES.Ii1.19841.26	1s	x	x	x						x	x				
Mathematical Analysis 1	ICSES.Ii1.03160.26	1s	x					x						x		
Operating Systems Configuration and Administration	ICSES.Ii1.19844.26	1s	x	x				x			x					x
Principles of Programming	ICSES.Ii1.19843.26	1s	x	x		x	x	x	x	x				x		
Algorithms and data structures	ICSES.Ii2.07042.26	2s	x	x				x	x	x				x		
Fundamentals of Digital Electronics	ICSES.Ii2.19849.26	2s	x					x	x	x						x
Introduction to Academic English	ICSES.Ii2.18495.26	2s							x	x						
Mathematical Analysis 2	ICSES.Ii2.03163.26	2s	x					x						x		
Metrology	ICSES.Ii2.19837.26	2s	x	x				x	x	x	x		x	x	x	x
Object-Oriented and Functional Programming Paradigms	ICSES.Ii2.19845.26	2s	x	x		x	x	x	x	x	x			x		

Course	Code	Semestr	P6S_WG_A	P6S_WG_A_Inz	P6S_WG	P6S_WK_A_Inz	P6S_WK_A	P6S_UW_A	P6S_UW_A_Inz_01	P6S_UU_A	P6S_UW_A_Inz_02	P6S_UK_A	P6S_UO_A	P6S_KK_A	P6S_KO_A	P6S_KR_A
Basics of Interpersonal Skills	ICSES.li2.19925.26	2s				x	x				x		x	x		
Physics 1	ICSES.li3.03161.26	1s lub 2s	x					x	x	x				x		
Cybersecurity Fundamentals	ICSES.li4.19850.26	3s	x	x				x	x	x	x	x		x		
Digital Systems Architecture and Design	ICSES.li4.19847.26	3s		x	x			x	x	x	x		x			x
Fundamentals of Electronics	ICSES.li4.01405.26	3s	x	x	x			x	x	x				x	x	x
Numerical Modeling and Statistics in Engineering	ICSES.li4.19988.26	3s	x	x		x	x	x	x	x				x		x
Physics 2	ICSES.li4.01434.26	3s	x					x	x	x	x		x	x	x	x
Software Design and Development	ICSES.li4.19851.26	3s				x	x	x	x	x	x			x		x
Team-Based Software Development Project	ICSES.li4.19852.26	3s	x	x	x	x	x		x	x	x		x	x	x	x
Computer Networks	ICSES.li8.03175.26	4s	x	x	x			x	x	x	x	x	x	x		
Core Concepts of Artificial Intelligence	ICSES.li8.19861.26	4s	x	x				x	x	x	x	x			x	x
Communication and Team Building	ICSES.li8.19927.26	4s				x	x				x		x			x
Effective Self-Management	ICSES.li8.19928.26	4s				x	x				x		x	x		x
Digital Signal Processing	ICSES.li8.03172.26	4s	x					x	x	x				x		
Electronic Circuits I	ICSES.li8.19846.26	4s	x	x	x			x	x	x	x		x	x	x	
Microprocessor Architecture and Programming	ICSES.li8.19857.26	4s		x	x			x	x	x	x		x	x	x	
Network Programming	ICSES.li8.19859.26	4s	x	x	x			x			x	x		x		x
Parallel and Concurrent Computing	ICSES.li8.19858.26	4s	x	x				x			x					x
Advanced Digital Systems Design	ICSES.li10.19862.26	5s	x	x	x			x	x	x	x	x	x	x		

Course	Code	Semestr	P6S_WG_A	P6S_WG_A_Inz	P6S_WG	P6S_WK_A_Inz	P6S_WK_A	P6S_UW_A	P6S_UW_A_Inz_01	P6S_UU_A	P6S_UW_A_Inz_02	P6S_UK_A	P6S_UO_A	P6S_KK_A	P6S_KO_A	P6S_KR_A
Design of Systems and Networks	ICSES.li10.20030.26	5s	x	x				x			x	x	x	x	x	x
Computer Vision and Graphics	ICSES.li10.19864.26	5s	x	x		x	x	x	x	x	x			x		
Applied Speech Technology	ICSES.li10.20031.26	5s	x	x				x	x	x	x	x			x	x
Applied Radio Frequency Engineering	ICSES.li10.20032.26	5s	x	x	x			x	x	x	x	x		x	x	x
Data Analysis and Pattern Recognition	ICSES.li10.19125.26	5s	x	x				x	x	x					x	
Design of Digital Systems	ICSES.li10.20033.26	5s	x	x	x			x	x	x	x			x	x	x
Efficient Microcontroller Programming	ICSES.li10.19865.26	5s	x	x	x	x	x	x			x	x	x		x	x
Design of Microprocessor Applications	ICSES.li10.20034.26	5s		x	x			x	x	x	x	x		x	x	x
Electronic Circuits II	ICSES.li10.19853.26	5s		x	x			x	x	x	x		x	x	x	
Applied Sensor Technology	ICSES.li10.20035.26	5s	x	x	x			x	x	x				x	x	x
Embedded Operating Systems	ICSES.li10.19929.26	5s	x	x				x			x					x
Embedded Systems with Artificial Intelligence	ICSES.li10.19863.26	5s	x	x							x	x		x	x	x
Wireless Techniques and Systems	ICSES.li10.03246.26	5s		x	x			x								x
Fundamentals of Economics, Finance and Business Law	ICSES.li20.03247.26	6s				x	x		x	x	x		x	x	x	x
Advanced Embedded Systems Programming	ICSES.li20.19869.26	6s	x	x	x	x	x	x			x					x
Fundamentals of management	ICSES.li20.06760.26	6s				x	x		x	x	x		x			
Designing and Creating High-Level Object-Oriented Applications	ICSES.li20.12884.26	6s				x	x	x	x	x	x		x			x
Sensor Technology	ICSES.li20.07587.26	6s	x	x	x			x	x	x				x	x	
Thin Film Photovoltaics	ICSES.li20.12885.26	6s	x								x		x	x	x	

Course	Code	Semestr	P6S_WG_A	P6S_WG_A_Inz	P6S_WG	P6S_WK_A_Inz	P6S_WK_A	P6S_UW_A	P6S_UW_A_Inz_01	P6S_UU_A	P6S_UW_A_Inz_02	P6S_UK_A	P6S_UO_A	P6S_KK_A	P6S_KO_A	P6S_KR_A
Multimedia Information Processing and Communications	ICSES.li20.07578.26	6s	x	x				x	x	x				x		
Switching nodes for telecommunication and computer networks	ICSES.li20.07577.26	6s		x	x			x	x	x	x					x
Python in Research	ICSES.li20.19895.26	6s				x	x	x			x					x
Advanced Java Programming	ICSES.li20.07574.26	6s				x	x	x			x					
Professional practice	ICSES.li20.04872.26	6s				x	x				x		x			x
Speech Processing	ICSES.li40.07586.26	7s	x	x				x	x	x						
Applications of Digital Signal Processors	ICSES.li40.07585.26	7s	x					x	x	x	x	x			x	
MPLS Networks	ICSES.li40.07572.26	7s		x	x			x	x	x	x			x		x
Programming for Android	ICSES.li40.07571.26	7s	x	x	x			x			x	x	x	x		
Students Research Group	ICSES.li40.02166.26	7s	x	x	x	x	x	x	x	x	x		x	x		
Diploma Seminar	ICSES.li40.01432.26	7s						x			x		x	x	x	
Security of Embedded Systems	ICSES.li40.19123.26	7s	x	x	x			x			x	x			x	x
Final Project	ICSES.li40.01452.26	7s						x	x	x	x		x	x	x	x
Sum (obligatory):			30	28	14	11	11	35	24	24	27	8	14	28	13	19
Sum (elective):			13	14	10	10	10	20	15	15	19	7	9	13	13	14
Sum:			43	42	24	21	21	55	39	39	46	15	23	41	26	33

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

Major: Computer Science for Embedded Systems

2026/2027/S/Ii/IEiT/CSE/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
Algebra	Lectures, Auditorium classes	Test, Examination, Test, Examination, Oral answer	CSE1A_W01, CSE1A_U01, CSE1A_K01
CAD and 3D modeling	Lectures, Laboratory classes	Activity during classes, Completion of laboratory classes, Activity during classes, Completion of laboratory classes	CSE1A_W08, CSE1A_U01, CSE1A_K02
Basic Microcontroller Programming	Lectures, Laboratory classes, Workshop classes	Execution of laboratory classes, Execution of laboratory classes, Test, Execution of exercises	CSE1A_W05, CSE1A_U04, CSE1A_K01
Introduction to Mechanics	Lectures, Laboratory classes	Activity during classes, Completion of laboratory classes, Activity during classes, Completion of laboratory classes	CSE1A_W08, CSE1A_U01, CSE1A_K02
Fundamentals of Computer Science	Discussion seminars, Seminars	Test results, Presentation	CSE1A_W04, CSE1A_W08, CSE1A_W07, CSE1A_W01, CSE1A_W06, CSE1A_U01, CSE1A_U06, CSE1A_K01
Fundamentals of Data Transmission	Lectures, Laboratory classes	Test, Test	CSE1A_W05, CSE1A_W01, CSE1A_W07, CSE1A_U05
Mathematical Analysis 1	Lectures, Auditorium classes	Test, Examination, Test, Examination, Oral answer	CSE1A_W01, CSE1A_U01, CSE1A_K01
Operating Systems Configuration and Administration	Lectures, Laboratory classes	Work done within the framework of a practical placement, Test	CSE1A_W06, CSE1A_W07, CSE1A_U04, CSE1A_K03
Principles of Programming	Lectures, Laboratory classes	Completion of laboratory classes, Test, Completion of laboratory classes	CSE1A_W06, CSE1A_W04, CSE1A_W08, CSE1A_U03, CSE1A_K01
Algorithms and data structures	Lectures, Auditorium classes, Laboratory classes	Examination, Test, Oral answer, Activity during classes, Test	CSE1A_W04, CSE1A_U03, CSE1A_K01
Fundamentals of Digital Electronics	Lectures, Auditorium classes, Practical classes	Test, Activity during classes, Test, Activity during classes, Involvement in teamwork	CSE1A_W01, CSE1A_U01, CSE1A_U07, CSE1A_K03
Introduction to Academic English	Foreign language classes	Activity during classes, Participation in a discussion, Test, Examination, Involvement in teamwork, Presentation	CSE1A_U07
Mathematical Analysis 2	Lectures, Auditorium classes	Test, Examination, Test, Examination, Oral answer	CSE1A_W01, CSE1A_U01, CSE1A_K01

Name of the module	Activity	Method of verification and assessment of learning outcomes achieved by the student in individual forms of classes and activities for the entire module	KEU references
Metrology	Lectures, Laboratory classes	Activity during classes, Report, Test results, Activity during classes, Report, Test results	CSE1A_W03, CSE1A_U02, CSE1A_U07, CSE1A_U08, CSE1A_K01, CSE1A_K03, CSE1A_K02
Object-Oriented and Functional Programming Paradigms	Lectures, Laboratory classes, Project classes	Completion of laboratory classes, Execution of laboratory classes, Test, Project	CSE1A_W04, CSE1A_W08, CSE1A_W07, CSE1A_U03, CSE1A_U04, CSE1A_U06, CSE1A_K01
Basics of Interpersonal Skills	Lectures, Workshop classes	Execution of exercises, Execution of exercises	CSE1A_W08, CSE1A_U08, CSE1A_K01
Physics 1	Lectures, Auditorium classes, Laboratory classes	Activity during classes, Execution of exercises, Examination, Activity during classes, Execution of exercises	CSE1A_W02, CSE1A_W01, CSE1A_U02, CSE1A_K01
Cybersecurity Fundamentals	Lectures, Laboratory classes	Test, Report on completion of a practical placement, Test results	CSE1A_W07, CSE1A_U03, CSE1A_U04, CSE1A_U05, CSE1A_U06, CSE1A_K01
Digital Systems Architecture and Design	Lectures, Laboratory classes	Test, Examination, Execution of laboratory classes, Test, Examination, Involvement in teamwork	CSE1A_W05, CSE1A_U02, CSE1A_U03, CSE1A_U08, CSE1A_K03
Fundamentals of Electronics	Lectures, Laboratory classes, Auditorium classes	Activity during classes, Test, Activity during classes, Test, Participation in a discussion, Execution of exercises, Test, Oral answer	CSE1A_W05, CSE1A_W01, CSE1A_W02, CSE1A_U07, CSE1A_U02, CSE1A_U06, CSE1A_K01, CSE1A_K02, CSE1A_K03
Numerical Modeling and Statistics in Engineering	Lectures, Laboratory classes	Activity during classes, Execution of laboratory classes, Examination, Test results, Completion of laboratory classes, Activity during classes, Participation in a discussion, Involvement in teamwork, Test results, Oral answer, Completion of laboratory classes	CSE1A_W01, CSE1A_W02, CSE1A_W03, CSE1A_W04, CSE1A_W08, CSE1A_U01, CSE1A_U02, CSE1A_U03, CSE1A_U06, CSE1A_U07, CSE1A_K01, CSE1A_K03
Physics 2	Lectures, Auditorium classes, Laboratory classes	Activity during classes, Test, Examination, Report, Involvement in teamwork, Oral answer, Activity during classes, Test, Examination, Involvement in teamwork, Oral answer, Activity during classes, Test, Examination, Report, Involvement in teamwork, Oral answer	CSE1A_W02, CSE1A_U02, CSE1A_U08, CSE1A_U07, CSE1A_K01, CSE1A_K03, CSE1A_K02
Software Design and Development	Lectures, Laboratory classes, Project classes	Involvement in teamwork, Test results, Involvement in teamwork, Test results, Test results	CSE1A_W08, CSE1A_U03, CSE1A_U04, CSE1A_U06, CSE1A_U07, CSE1A_K03, CSE1A_K01
Team-Based Software Development Project	Project classes	Project	CSE1A_W08, CSE1A_W05, CSE1A_W06, CSE1A_W07, CSE1A_U07, CSE1A_U08, CSE1A_K01, CSE1A_K02, CSE1A_K03
Computer Networks	Lectures, Laboratory classes	Test, Examination, Case study, Activity during classes, Execution of laboratory classes, Test, Examination, Case study	CSE1A_W05, CSE1A_W07, CSE1A_U04, CSE1A_U05, CSE1A_U07, CSE1A_U08, CSE1A_K01

Name of the module	Activity	Method of verification and assessment of learning outcomes achieved by the student in individual forms of classes and activities for the entire module	KEU references
Core Concepts of Artificial Intelligence	Lectures, Laboratory classes	Execution of a project, Execution of laboratory classes, Test, Completion of laboratory classes, Activity during classes, Completion of laboratory classes	CSE1A_W01, CSE1A_W07, CSE1A_U01, CSE1A_U05, CSE1A_U03, CSE1A_K02, CSE1A_K03
Communication and Team Building	Lectures, Workshop classes	Activity during classes, Participation in a discussion, Involvement in teamwork	CSE1A_W08, CSE1A_U08, CSE1A_K03
Effective Self-Management	Lectures, Workshop classes	Activity during classes, Participation in a discussion, Involvement in teamwork	CSE1A_W08, CSE1A_U08, CSE1A_K01, CSE1A_K03
Digital Signal Processing	Lectures, Laboratory classes, Auditorium classes	Participation in a discussion, Execution of laboratory classes, Test, Examination, Participation in a discussion, Execution of laboratory classes, Test, Examination, Activity during classes, Test, Examination, Oral answer	CSE1A_W01, CSE1A_U01, CSE1A_U07, CSE1A_U03, CSE1A_U06, CSE1A_K01
Electronic Circuits I	Lectures, Laboratory classes	Test, Test	CSE1A_W02, CSE1A_W05, CSE1A_U01, CSE1A_U02, CSE1A_U06, CSE1A_U08, CSE1A_K01, CSE1A_K02
Microprocessor Architecture and Programming	Lectures, Laboratory classes, Project classes	Activity during classes, Participation in a discussion, Examination, Activity during classes, Participation in a discussion, Execution of laboratory classes, Test, Oral answer, Completion of laboratory classes, Participation in a discussion, Project, Presentation	CSE1A_W05, CSE1A_U04, CSE1A_U08, CSE1A_U07, CSE1A_K02, CSE1A_K01
Network Programming	Lectures, Laboratory classes	Test, Activity during classes, Test, Completion of laboratory classes	CSE1A_W05, CSE1A_W07, CSE1A_U04, CSE1A_U05, CSE1A_K01, CSE1A_K03
Parallel and Concurrent Computing	Lectures, Laboratory classes	Test, Test	CSE1A_W06, CSE1A_W07, CSE1A_U04, CSE1A_K03
Advanced Digital Systems Design	Lectures, Laboratory classes	Execution of laboratory classes, Project, Execution of laboratory classes, Project	CSE1A_W01, CSE1A_W04, CSE1A_W05, CSE1A_U03, CSE1A_U06, CSE1A_U08, CSE1A_U05, CSE1A_K01
Design of Systems and Networks	Project classes, Workshop classes	Project, Report, Presentation	CSE1A_W07, CSE1A_U04, CSE1A_U05, CSE1A_U08, CSE1A_K03, CSE1A_K02, CSE1A_K01
Computer Vision and Graphics	Lectures, Laboratory classes, Project classes	Test, Case study, Confirmation of completion of practical placement programme, Test, Project, Scientific paper, Case study, Presentation, Preparation and conduct of scientific research, Confirmation of completion of practical placement programme, Project, Scientific paper, Case study, Presentation	CSE1A_W04, CSE1A_W08, CSE1A_U03, CSE1A_U04, CSE1A_U06, CSE1A_K01
Applied Speech Technology	Project classes, Workshop classes	Project, Report, Presentation	CSE1A_W07, CSE1A_U03, CSE1A_U05, CSE1A_K03, CSE1A_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
Applied Radio Frequency Engineering	Project classes, Workshop classes	Project, Report, Presentation	CSE1A_W02, CSE1A_W05, CSE1A_U05, CSE1A_U02, CSE1A_U06, CSE1A_K03, CSE1A_K02, CSE1A_K01
Data Analysis and Pattern Recognition	Lectures, Laboratory classes	Activity during classes, Execution of laboratory classes, Report, Completion of laboratory classes, Activity during classes, Execution of laboratory classes, Project	CSE1A_W04, CSE1A_U03, CSE1A_K02
Design of Digital Systems	Project classes, Workshop classes	Project, Report, Presentation	CSE1A_W05, CSE1A_W04, CSE1A_U03, CSE1A_U04, CSE1A_U06, CSE1A_U01, CSE1A_K03, CSE1A_K01, CSE1A_K02
Efficient Microcontroller Programming	Lectures, Laboratory classes, Project classes	Participation in a discussion, Participation in a discussion, Execution of laboratory classes, Test, Oral answer, Completion of laboratory classes, Participation in a discussion, Project, Oral answer	CSE1A_W05, CSE1A_W06, CSE1A_W07, CSE1A_W08, CSE1A_U04, CSE1A_U08, CSE1A_U05, CSE1A_K02, CSE1A_K03
Design of Microprocessor Applications	Project classes, Workshop classes	Project, Report, Presentation	CSE1A_W05, CSE1A_U04, CSE1A_U03, CSE1A_U05, CSE1A_K03, CSE1A_K01, CSE1A_K02
Electronic Circuits II	Lectures, Laboratory classes	Test, Examination, Test, Examination	CSE1A_W05, CSE1A_U02, CSE1A_U06, CSE1A_U08, CSE1A_K01, CSE1A_K02
Applied Sensor Technology	Project classes, Workshop classes	Project, Report, Presentation	CSE1A_W02, CSE1A_W04, CSE1A_W05, CSE1A_W03, CSE1A_U02, CSE1A_U06, CSE1A_U03, CSE1A_K03, CSE1A_K02, CSE1A_K01
Embedded Operating Systems	Lectures, Laboratory classes, Project classes	Execution of laboratory classes, Test results, Execution of laboratory classes, Test results, Report	CSE1A_W06, CSE1A_W04, CSE1A_U04, CSE1A_K03
Embedded Systems with Artificial Intelligence	Lectures, Laboratory classes	Examination, Presentation, Test, Project, Report, Presentation	CSE1A_W07, CSE1A_W04, CSE1A_U05, CSE1A_K01, CSE1A_K02, CSE1A_K03
Wireless Techniques and Systems	Lectures, Laboratory classes	Examination, Examination, Completion of laboratory classes	CSE1A_W05, CSE1A_U06, CSE1A_K03
Fundamentals of Economics, Finance and Business Law	Lectures, Auditorium classes	Test, Project, Essay, Oral answer, Test	CSE1A_W08, CSE1A_U07, CSE1A_U08, CSE1A_K01, CSE1A_K02, CSE1A_K03
Advanced Embedded Systems Programming	Lectures, Laboratory classes, Project classes	Execution of laboratory classes, Test, Execution of laboratory classes, Test, Execution of a project	CSE1A_W05, CSE1A_W06, CSE1A_W07, CSE1A_W08, CSE1A_U04, CSE1A_K03
Fundamentals of management	Lectures, Auditorium classes	Test, Execution of exercises	CSE1A_W08, CSE1A_U07, CSE1A_U08

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
Designing and Creating High-Level Object-Oriented Applications	Lectures, Laboratory classes, Project classes	Confirmation of completion of practical placement programme, Test, Work done within the framework of a practical placement	CSE1A_W08, CSE1A_U08, CSE1A_U03, CSE1A_U04, CSE1A_K03
Sensor Technology	Lectures, Laboratory classes, Project classes	Activity during classes, Execution of laboratory classes, Test, Activity during classes, Execution of laboratory classes, Test, Report	CSE1A_W02, CSE1A_W05, CSE1A_W03, CSE1A_U02, CSE1A_U07, CSE1A_U06, CSE1A_K02, CSE1A_K01
Thin Film Photovoltaics	Lectures, Laboratory classes, Project classes	Activity during classes, Activity during classes, Execution of laboratory classes, Activity during classes, Execution of a project	CSE1A_W02, CSE1A_U08, CSE1A_K01, CSE1A_K02
Multimedia Information Processing and Communications	Project classes, Auditorium classes	Activity during classes, Test, Project, Activity during classes, Test, Project	CSE1A_W01, CSE1A_W04, CSE1A_U01, CSE1A_U03, CSE1A_U06, CSE1A_K01
Switching nodes for telecommunication and computer networks	Lectures, Auditorium classes	Execution of exercises, Activity during classes, Execution of exercises	CSE1A_W05, CSE1A_U04, CSE1A_U06, CSE1A_U07, CSE1A_K03
Python in Research	Lectures, Laboratory classes, Project classes	Project, Project, Project	CSE1A_W08, CSE1A_U04, CSE1A_K03
Advanced Java Programming	Lectures, Project classes	Activity during classes, Project, Execution of a project, Project	CSE1A_W08, CSE1A_U04
Professional practice	Practical placement	Report on completion of a practical placement, Confirmation of completion of practical placement programme	CSE1A_W08, CSE1A_U08, CSE1A_K03
Speech Processing	Lectures, Laboratory classes, Project classes	Test, Completion of laboratory classes, Completion of laboratory classes, Test	CSE1A_W04, CSE1A_U03
Applications of Digital Signal Processors	Lectures, Laboratory classes	Participation in a discussion, Execution of laboratory classes, Test, Test results, Completion of laboratory classes, Execution of laboratory classes, Test, Test results, Completion of laboratory classes	CSE1A_W01, CSE1A_U04, CSE1A_U05, CSE1A_U06, CSE1A_U07, CSE1A_K02
MPLS Networks	Laboratory classes, Project classes	Test, Case study, Test, Case study	CSE1A_W05, CSE1A_U04, CSE1A_U07, CSE1A_K01, CSE1A_K03
Programming for Android	Lectures, Project classes	Project, Project	CSE1A_W07, CSE1A_W05, CSE1A_W06, CSE1A_U04, CSE1A_U08, CSE1A_U05, CSE1A_K01
Students Research Group	Participation in a student research club	Coordination, conduct of a research project, preparation of a scientific paper, organization, organization of conferences, camps and scientific trips.	CSE1A_W01, CSE1A_W02, CSE1A_W03, CSE1A_W04, CSE1A_W05, CSE1A_W06, CSE1A_W07, CSE1A_W08, CSE1A_U07, CSE1A_U02, CSE1A_U08, CSE1A_K01

Name of the module	Activity	Method of verification and assessment of learning outcomes achieved by the student in individual forms of classes and activities for the entire module	KEU references
Diploma Seminar	Discussion seminars	Presentation	CSE1A_U08, CSE1A_U01, CSE1A_U06, CSE1A_K02, CSE1A_K01
Security of Embedded Systems	Lectures, Laboratory classes, Project classes	Execution of laboratory classes, Execution of a project	CSE1A_W05, CSE1A_W06, CSE1A_W07, CSE1A_U04, CSE1A_U05, CSE1A_U06, CSE1A_K02, CSE1A_K03
Final Project	Diploma project	Engineering project, Diploma thesis preparation, Presentation	CSE1A_U06, CSE1A_U08, CSE1A_U07, CSE1A_K01, CSE1A_K02, CSE1A_K03

ECTS credits calculations

Field of study: Computer Science for Embedded Systems

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	110
core science classes relevant to a given major	31
practical classes, developing practical skills, including laboratory, design, practical and workshop classes	60
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)	63
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	3
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)	118
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)	0

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

Field of study: Computer Science for Embedded Systems

Enrollment rules for the next semester

The AGH University of Science and Technology Study Regulations describe in detail the rules for passing a semester of study and the procedures in the event of failure to do so. According to the AGH University of Science and Technology Study Regulations, in order to be enrolled in semester 7 of first-cycle studies, all subjects from semesters 1-6 must be passed.

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

The AGH University of Science and Technology Study Regulations specify the rules for enrolment in the next semester within the so-called acceptable ECTS credit deficit. Applications in this regard should be submitted to the Vice-Dean for Education for the Electronics programme.

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)

The programme does not provide for classes to be conducted in blocks.

Monitoring semesters

6

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

The AGH University of Science and Technology Study Regulations define the rules for individualising the education process. The rules for undertaking such studies are determined by the Vice-Dean on the basis of a written application from the student. The application should specify the scope of individualisation and provide justification.

Implementation of practical placements including monitoring system and completion rules

Compulsory professional practice in full-time first-cycle studies lasts at least four weeks and is an integral part of the study plan. It takes place during the summer break, after the sixth semester of study. The exact time frame is specified each year by order of the AGH Rector and included in the document "Organisation of the academic year". Full-time students should complete their internship after the summer holidays, during the resit session.

Rules of elective modules taking

Students choose subjects from separate thematic blocks, with a specified number of compulsory subjects to choose from for each block.
Enrolment for elective subjects takes place for the following academic year before the start of the summer break in the preceding year. In the case of a limited number of places, admission to a given subject is determined by the order of academic achievement of students, in particular the average grade obtained in previous semesters.

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

The programme does not provide for educational paths, diplomas or specialisations.

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

First-cycle studies conclude with the student completing a diploma project. The project is carried out under the supervision of an authorised academic teacher (supervisor), who determines the procedure and schedule for its implementation.

The supervisor supports the student in completing the project on time, monitors the progress of the work and the presentation of the results, and provides guidance on both the substantive and formal aspects of the project and the thesis presentation.

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

The rules for determining the overall result of completing studies are specified in the AGH University of Science and Technology Study Regulations and specific regulations applicable at the Faculty of Computer Science, Electronics and Telecommunications.

The final assessment of the studies is a weighted average: the average of the studies, the diploma examination grade and the diploma project grade.

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

not applicable