Effects of teaching

Symbol	Assumed effects of teaching
Study course name: Engineering physics	
Level of education: **BSc**	
Teaching profile: **practical**	
Symbol	Assumed effects of teaching
Knowledge: the graduate knows and understands	
K1P_W01	basic laws and theories of physics necessary for analysing physical phenomena and describing selected physical systems including creation of their models
K1P_W02	basics of mathematical analysis to a degree enabling its application for describing, understanding and modelling of physical phenomena and selected technical processes
K1P_W03	basics of engineering graphics and selected methods of computer aided design
K1P_W04	selected methods and approaches of mathematical modelling of physical phenomena and engineering problems, as well as selected numerical methods applied in science and technology
K1P_W05	selected topics in solid state physics, nuclear physics and theoretical physics
K1P_W06	physical basics of principles of functioning of electronic and optoelectronic devices and their potential practical applications
K1P_W07	methods of statistical analysis of measurement results and principles of their reporting
K1P_W08	selected topics in automation of physical measurements and data acquisition
K1P_W09	physical and engineering aspects of design of high vacuum systems used in measurement and technological devices
K1P_W10	basics of computer programming, selected programming languages and their typical applications
K1P_W11	laws and theories of selected areas of physics that form the basis of measurement methods and design of scientific instruments
K1P_W12	methodology of conducting physical research and selected measurement methods applied in science, technology, medicine and environmental sciences
K1P_W13	design of selected instruments and measurement systems
K1P_W14	basics of measurements in high vacuum and vacuum technology
K1P_W15	selected topics in material engineering
K1P_W16	selected topics in practical computer science
K1P_W17	selected topics concerning devices used in designing automated production and measurement systems
K1P_W18	practical examples of implementation of methods used in solving typical problems in engineering physics
K1P_W19	basic processes taking pace in the lifecycle of devices, objects and technical systems characteristic for the area of engineering physics
K1P_W20	social, economic, ethical, legal and non-technical aspects of research, teaching, engineering and implementation activities and general principles of creating and developing forms of individual entrepreneurship
K1P_W21	principles of management, including quality management, and general principles of creating and conducting business activity
K1P_W22	principles of intellectual property, patent and industrial law, standardisation, health and safety and principles of workplace organisation

Abilities: the graduate is able to	
K1P_U01	analyse and solve physical and engineering problems using the acquired knowledge and information retrieved from scientific and engineering literature in Polish and English, databases and other sources
K1P_U02	plan and conduct measurements, experiments and computer simulations concerning physical quantities and phenomena; analyse and interpret obtained results and draw conclusions, including the approximation of uncertainties of physical measurements; present measurement results in an understandable manner
K1P_U03	perform analyses of theoretical, experimental and simulation results and technical solutions, formulate on their basis relevant conclusions and justify opinions, either in individual work or in teamwork
K1P_U04	apply methods and principles of physics for solving typical problems in engineering physics and engineering tasks, as well as formulate and solve complex and non-typical physical problems and conduct tasks in not fully predictable conditions through: − appropriate selection of sources and information contained therein, perform assessment, critical analysis and synthesis of information, − selection and application of appropriate methods and tools, also advanced information and communication technologies
K1P_U05	identify and formulate specification of practical engineering tasks using the acquired knowledge, select and apply analytical, simulation and, experimental methods as well as computing technology, and perceive their systemic and non-technical aspects, including performing an initial economical assessment of proposed solutions and undertaken engineering tasks
K1P_U06	by combining basic and technical knowledge, conduct an analysis and critical assessment of existing technical and technological solutions implemented in companies and propose improvement solutions
K1P_U07	design and execute a simple measurement system using computer control and data acquisition according to an earlier designed and defined specification
K1P_U08	utilise basic software packages supporting the work of an engineer and used for presenting results and analysing data
K1P_U09	independently prepare documentation of an engineering task, prepare a text and presentation which describe the results of realising the task, in Polish and English
K1P_U10	be able to use engineering standards and norms, technical documentation and requirements concerning quality, reliability and safety when solving practical engineering tasks with the application of technologies relevant to engineering physics with the application of experience gained during apprenticeship
K1P_U11	apply experience gained during apprenticeships, advanced and specialist laboratories connected with maintenance of devices, objects and systems used in engineering physics
K1P_U12	communicate using various technologies, also modern communication technologies, using scientific- engineering terminology
K1P_U13	participate in a debate, deliver presentations of physical and engineering problems, assess various opinions and stands, discuss them in Polish and English
K1P_U14	use the English language at the B2 level of the Common European Framework of

	Reference for Languages using specialist terminology
K1P_U15	plan and organise individual and team work concerning solving science and engineering problems
K1P_U16	independently plan and realise the student's own learning throughout their lifetime in order to improve their professional competence
Social competences: the graduate is ready to	
K1P_K01	critically assess their knowledge
K1P_K02	appreciate the importance of knowledge in solving cognitive and practical problems
K1P_K03	fulfil social obligation, co-organise activities for the social environment
K1P_K04	initiate actions for public interest
K1P_K05	entrepreneurial thinking and acting
K1P_K06	responsible fulfilment of professional role, including: − following professional ethics and requiring it from others, − care for achievements and tradition of a profession