EFFECTS OF EDUCATION THE MAJOR

Faculty of Computer Science and Management Study major – COMPUTER SCIENCE (INF) Degree of the studies - first Profile of the studies - general academic

| Symbol | EFFECTS OF EDUCATION | Reference to effects of education for the field of technical sciences |
|-----------|--|---|
| | Knowledge | |
| K1INF_W01 | Basic knowledge with regard to linear algebra, analytical geometry and mathematical analysis necessary for solving simple computational tasks of engineering nature from technical and nontechnical disciplines. | T1A_W01 |
| K1INF_W02 | Basic knowledge with regard to discrete mathematics, mathematical logic and mathematical statistics necessary for solving simple IT engineering problems. | T1A_W01 T1A_W03 |
| K1INF_W03 | Basic knowledge with regard to classical mechanics; wave motion; phenomenological thermodynamics; physics: quantum, nuclear; astrophysics | T1A_W01 |
| K1INF_W04 | Knows basic programming structures, algorithms, algorithmic strategies and data structures | T1A_W03 T1A_W04 T1A_W07 |
| K1INF_W05 | Knows basic set of good practices in software manufacturing | T1A_W03 T1A_W04 T1A_W07 |
| K1INF_W06 | Knows basic programming paradigms and sample languages utilising those paradigms | T1A_W03 T1A_W05 T1A_W07 |
| K1INF_W07 | Knows basic models of software life cycle, processes carried out as part of them and used methodologies, notations and support tools | T1A_W03 T1A_W04 T1A_W06 T1A_W07 |
| K1INF_W08 | Basic of knowledge with regard to construction, organisation and architecture of computers | T1A_W02 |

| | | T1A_W04 |
|-----------|--|---------|
| | | T1A_W05 |
| | | T1A_W07 |
| K1INF_W09 | Basic knowledge with regard to built-in systems and mobile equipment | T1A_W02 |
| | | T1A_W04 |
| | | T1A_W05 |
| | | T1A_W06 |
| | | T1A_W07 |
| K1INF_W10 | Basic of knowledge with regard to construction and operation of operating systems | T1A_W03 |
| _ | | T1A_W04 |
| K1INF_W11 | Basic knowledge with regard to data communication systems as well as computer networks | T1A_W03 |
| | | T1A_W04 |
| | | T1A_W05 |
| | | T1A_W07 |
| K1INF_W12 | Basic knowledge with regard to architecture of distributed systems and methods of multi-processor and distributed processing, | T1A_W03 |
| | | T1A_W04 |
| | | T1A_W05 |
| | | T1A_W07 |
| K1INF_W13 | Basic knowledge with regard to security of IT systems | T1A_W02 |
| | | T1A_W04 |
| | | T1A_W07 |
| K1INF_W14 | Basic knowledge with regard to architecture of the Internet and web systems | T1A_W03 |
| | | T1A_W04 |
| | | T1A_W05 |
| | | T1A_W07 |
| K1INF_W15 | Basic knowledge of modeling processes of various nature and knows methods and techniques used in decision support systems | T1A_W03 |
| | | T1A_W06 |
| | | T1A_W07 |
| K1INF_W16 | Knows basic methods and tools of collection, processing and searching for information and data mining | T1A_W03 |
| | | T1A_W04 |
| | | T1A_W07 |
| K1INF_W17 | Basic and a systematised knowledge of artificial intelligence, in particular in the field of knowledge representation and processing | T1A_W03 |
| | methods | T1A_W04 |
| | | T1A_W07 |
| K1INF W18 | Basic knowledge regarding management, including quality management of IT product and running business operations; knows | T1A_W09 |

| | general principles of establishment and development of individual forms of entrepreneurship using knowledge relevant for computer science | T1A_W11 |
|-------------|---|--------------------|
| K1INF_W19 | Basic knowledge with regard to intellectual property protection and patent law | T1A_W10 |
| K1INF_W20 | Basic knowledge related to humanities necessary to understand social and philosophical determinants of engineering activities | T1A_W08 |
| K1INF_W21 | Fundamental knowledge of real time IT systems | T1A_W02 |
| K1INF_W22 | Basic knowledge of architecture of database systems | T1A_W04 T1A_W04 |
| KIIINL_VVZZ | basic knowledge of architecture of database systems | T1A_W06 |
| K1INF_W23 | Basic knowledge of multimedia and multimedia systems | T1A_W02 |
| | | T1A_W04 |
| | | T1A_W05 |
| | | T1A_W06 |
| | Skills | |
| K1INF_U01 | Able to construct and implement algorithms, including distributed algorithms, using basic algorithmic strategies and data structures | T1A_U16 |
| K1INF_U02 | Able to select and assess the usefulness of programming paradigm to a problem and build an application using this paradigm | T1A_U13 |
| _ | | T1A_U15 |
| | | T1A_U16 |
| K1INF_U03 | Able to describe requirements and design – using the chosen modeling language – general software architecture and database | T1A_U11 |
| | scheme. | T1A_U14 |
| | | T1A_U16 |
| K1INF_U04 | Able to implement, in accordance with the design, software for simple, typical applications and build a database and verify | T1A_U11 |
| | correctness of solutions. | T1A_U15 |
| | | T1A_U16 |
| K1INF_U05 | Capable of self-education, for instance, to improve professional competences | T1A_U05 |
| K1INF_U06 | Able to select hardware and software components for designated scope of applications | T1A_U12 |
| | | T1A_U13 |
| K1INF_U07 | Able to use indicated analytical method as well as plan and carry out a simple engineering experiment and computer simulation, | T1A_U08 |
| | carry out measurements and analyse results, in particular for selected components of IT system. | T1A_U09 |
| | | T1A_U13 |
| | | T1A_U14 |
| K1INF_U08 | Able to configure basic devices and network software in computer networks | T1A_U14 |
| K1INF_U09 | Able to use indicated security techniques for a given IT system | T1A_U16 |
| K1INF_U10 | Able to plan and implement production of a simple IT system, pre-estimate its costs and select relevant components and/or | T1A_U10 |
| | technologies for this system; prepare and implement schedule of works and estimate the time needed for implementation of | T1A_U11 |

| | ordered task | T1A_U13 |
|-----------|--|---------|
| | | T1A_U14 |
| | | T1A_U15 |
| | | T1A_U16 |
| K1INF_U11 | Able to acquire information from literature, databases and other sources, also in English, among others, for the needs of self- | T1A_U01 |
| _ | education and to improve professional competences; able to integrate acquired information, interpret them, as well as draw | |
| | conclusions and formulate and justify opinions. | |
| K1INF_U12 | Able to work individually and in a team, communicate using various information and communication techniques in order to present | T1A_U02 |
| | results of project works and during seminar statements. | T1A_U07 |
| K1INF_U13 | Able to prepare documentation relating to implementation of engineering project in Polish and in English, prepare a text containing | T1A_U01 |
| | discussion of results of implementation of this task and present a short presentation in English devoted to results of | T1A_U03 |
| | implementation of engineering project | T1A_U04 |
| | | T1A-U07 |
| K1INF_U14 | Observes occupational health and safety rules | T1A_U11 |
| K1INF_U15 | Able to describe and analyse operation of a simple object using relevant IT tools as well as formulate a decision-making task for | T1A_U08 |
| | such object and suggest method of its solutions | T1A_U09 |
| K1INF_U16 | Able to effectively use methods and tools of collection, processing and searching for information and data mining | T1A_U07 |
| | | T1A_U09 |
| | | T1A_U15 |
| K1INF_U17 | Language skills with regard to science fields and scientific disciplines relevant for the study specialisation, consistent with the | T1A_U06 |
| | requirements specified for level B2 of the European Language Education Description System | |
| K1INF_U18 | Able to build a simple real time IT system | T1A_U16 |
| K1INF_U19 | Able to build a simple database system | T1A_U16 |
| | Social competences | |
| K1INF_K01 | Understands the need and knows possibilities of continuous additional education and raising own professional and social | T1A_K01 |
| | competences | |
| K1INF_K02 | Aware of importance and understanding of extra-technical aspects and effects of operations of engineer-computer scientist, | T1A_K02 |
| | including its impact on the environment and related responsibility for made decisions | |
| K1INF_K03 | Able to cooperate and work in a group, assuming various roles therein | T1A_K03 |
| K1INF_K04 | Able to accordingly specify priorities used for implementation of tasks determined by themselves or others | T1A_K04 |
| K1INF_K05 | Correctly identifies and solves dilemmas related to the profession | T1A_K05 |
| K1INF_K06 | Is able to think and act in an enterprising manner | T1A_K06 |
| K1INF_K07 | Aware of technical university graduate's social role, especially understands the need of formulation and communication – among | T1A_K07 |
| | others, by means of mass media – of information and opinions concerning accomplishments of computer science and other aspects | |
| | of activities of an engineer-computer scientist to the society; makes effort to transfer such information and opinions in a commonly | |

| | understandable manner | |
|-----------|---|---------|
| K1INF_K08 | Aware of indispensability of individual and team activities going beyond engineering activities | T1A_K01 |
| PE | | T1A_K04 |