| 1. | **Field of study** | **Computer Science** |
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| 2. | Faculty | Faculty of Science and Technology |
| 3. | Academic year of entry | 2019/2020 (summer term) |
| 4. | Level of qualifications/degree | second-cycle studies |
| 5. | Degree profile | general academic |
| 6. | Mode of study | full-time |
| 7. | ISCED code | 0719 (Engineering and engineering trades, not elsewhere classified) |
| 8. | Connection between the field of study and university development strategy, including the university mission | Information Technology faculty fully conform with development strategy and mission of the university included in the document Strategia Rozwoju Uniwersytetu Śląskiego w Katowicach na lata 2012-2020. (Strategy for the University of Silesia Development in the Years 2012-2020)<br>Information Technology faculty offers 3 semester, 2nd level education which aims at educating a graduate especially proficient in IT knowledge use as well theoretically as practically. The graduate, who is prepared to undertake a profession in the field of IT in various industries in the country or abroad. Besides the practical aspect, the graduate should have a deep theoretical knowledge to be able to carry out scientific research contributing to It development. The offered faculty enhances relations between education, research and economy within the frame of knowledge triangle. Wide range of subjects to choose from offered to IT faculty students gives possibilities of creating such an educational path, that corresponds to the students' scientific interests and professional plans. It fulfills the strategy assumptions, which puts special emphasis on improving the programs flexibility. Special attention should be paid to employers co-operation in creating educational programs for IT faculty, contributing to building a system of innovative education. Thanks to such practices, the graduate is competitive at the labor market. The realized faculty also refer to the university mission, especially to basic tasks of university, which are shaping moral attitudes in society both on scientific and everyday life foundations. |
| 9. | Number of semesters | 3 |
| 10. | Degree | magister (Master's Degree) |
| 11. | Specializations | Computer Graphics and Visualization<br>Intelligent Information Systems<br>Internet Engineering<br>Software Quality Engineering |
| 12. | The semester from which the specializations starts | 2 |
| 13. | Percentage share of scientific or artistic disciplines in education (along with the indication of the leading discipline) | • *[leading discipline]* information and communication technology (engineering and technology): 100% |
| 14. | Percentage of the ECTS credits for each of the scientific or artistic disciplines to which the learning outcomes are related to the total number of ECTS credits (along with the indication of the leading discipline) | Computer Graphics and Visualization:<br>• *[leading discipline]* information and communication technology (engineering and technology): 100%<br><br>Intelligent Information Systems:<br>• *[leading discipline]* information and communication technology (engineering and technology): 100%<br><br>Internet Engineering:<br>• *[leading discipline]* information and communication technology (engineering and technology): 100% |

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| | | Software Quality Engineering:<br>• *[leading discipline]* information and communication technology (engineering and technology): 100% |
| 15. | Number of ECTS credits required to achieve the qualification equivalent to the level of study | Computer Graphics and Visualization: 90,<br>Intelligent Information Systems: 90,<br>Internet Engineering: 90,<br>Software Quality Engineering: 90 |
| 16. | Percentage of the ECTS credits for optional modules in relation to the total number of ECTS credits | Computer Graphics and Visualization: 55%,<br>Intelligent Information Systems: 55%,<br>Internet Engineering: 55%,<br>Software Quality Engineering: 55% |
| 17. | Total number of ECTS credits that a student must obtain in the modules taught | Computer Graphics and Visualization: 50,<br>Intelligent Information Systems: 50,<br>Internet Engineering: 50,<br>Software Quality Engineering: 50 |
| 18. | Number of ECTS credits that a student must obtain in modules assigned to disciplines within the humanities or social sciences (not less than 5 ECTS) - in the case of fields of study assigned to disciplines within the fields other than, respectively, humanities or social sciences | Computer Graphics and Visualization: 8,<br>Intelligent Information Systems: 8,<br>Internet Engineering: 8,<br>Software Quality Engineering: 8 |
| 19. | Graduation requirements for a particular specialization | Computer Graphics and Visualization<br>The conditions required to complete studies in the field of IT are:<br>1. Obtaining the required learning outcomes, including obtaining credits and passing exams from all modules and obtaining the required number of ECTS points provided for in the study plan and the education program throughout the course of education.<br>2. Positive grade of master's thesis defense in front of the examination board.<br>Completing Information Technology faculty is certified by diploma.<br><br>Intelligent Information Systems<br>The conditions required to complete studies in the field of IT are:<br>1. Obtaining the required learning outcomes, including obtaining credits and passing exams from all modules and obtaining the required number of ECTS points provided for in the study plan and the education program throughout the course of education.<br>2. Positive grade of master's thesis defense in front of the examination board.<br>Completing Information Technology faculty is certified by diploma.<br><br>Internet Engineering<br>The conditions required to complete studies in the field of IT are:<br>1. Obtaining the required learning outcomes, including obtaining credits and passing exams from all modules and obtaining the required number of ECTS points provided for in the study plan and the education program throughout the course of education.<br>2. Positive grade of master's thesis defense in front of the examination board.<br>Completing Information Technology faculty is certified by diploma.<br><br>Software Quality Engineering |

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| | | The conditions required to complete studies in the field of IT are:<br>1. Obtaining the required learning outcomes, including obtaining credits and passing exams from all modules and obtaining the required number of ECTS points provided for in the study plan and the education program throughout the course of education.<br>2. Positive grade of master's thesis defense in front of the examination board.<br>Completing Information Technology faculty is certified by diploma. |
| 20. | Organization of the process of obtaining a degree | §1<br>The following statute is refinement of §§ 29, 30, 31, 32, 33, 34 study regulations binding in the University of Silesia which is an annex to the University of Silesia Rector announcement of 14th of May 2013.<br>§2<br>1.Student declares the supervisor's choice in the term fixed by the Dean, while the deadline is specified not later than till the end of the first semester.<br>2.The supervisor agrees with the student subject of diploma thesis taking into account conditions specified by §30, act. 5 of the study regulations.<br>§3<br>1.After submitting the thesis by the graduate student, accepted by the supervisor, the supervisor and the reviewer elaborate the review in the term 3 days before designated term of Master's exam at the latest.<br>2.Reviews contain suggestions of the thesis grade.<br>3.Reviews may be made available to the graduate student at his request.<br><br>§4<br>Conditions for thesis defense and diploma exam approval<br><br>1.Obtaining required education effects including obtaining credits and passing exams of all the modules and obtaining required number of ECTS points provided by studies plan and in education program during the whole course of education for Information Technology faculty ;<br>2.Submitting the index book with all the signatures for the last semester crediting;<br>3.Submitting the appropriate number of Master thesis copies and required documents according to current requirements of diploma theses submission at the Faculty of Computer Science and Materials;<br>4.Positive grades of two reviews – thesis supervisor and reviewer.<br><br>§ 5<br>Diploma exam – Master's<br><br>1.Master's exam is held in the term and in front of the examination board decided by the Dean according to principles recorded in study regulations. The examination board can be widened by specialists of specialization subjects and a representative of workplace and/or local authority interested in the Master thesis subject.<br>2.Diploma exam consists of two parts:<br>a.Diploma thesis defense,<br>b.Answering questions by the graduate student.<br>3.The first part of diploma exam is dedicated to Master thesis and it covers:<br>a.Short presentation of the thesis in multimedia form (duration time about 8 to 10 minutes), |

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| | | b.Commenting remarks contained in reviews,<br>c.Answering potential questions from the reviewer, supervisor and/or members of examination board;<br>4.The second part is dedicated to answering questions concerning the issues of faculty and in covers:<br>a.Drawing of three examination questions. The questions concern the range agreed for the given academic year which coincide with study program content.<br>b.Possible preparation for answering the questions (time about 5 minutes),<br>c.Giving answers on the drawn questions – each question is graded separately.<br>5.At the end of the exam:<br>a.The supervisor and the reviewer announce their final thesis grades, taking into account the course of the diploma defense. Both parties are recorded in examination protocol.<br>b.The examination board determines partial grades of subsequent exam questions.<br>c.The examination board determines the final grade of diploma exam on the basis of partial grades obtained there.<br>d.The examination board determines the final diploma grade according to principles decided in § 34, act 2of the study regulations.<br>6.Directly after the grades determination, the exam board announces them to the graduate student. |
| 21. | Internships (hours and conditions) in the case of practical programmes and in general university programme - if such requires internship | Computer Graphics and Visualization<br>not applicable<br>Intelligent Information Systems<br>not applicable<br>Internet Engineering<br>not applicable<br>Software Quality Engineering<br>not applicable |
| 22. | Total number of ECTS credits that a student must obtain in internships | Computer Graphics and Visualization: 0,<br>Intelligent Information Systems: 0,<br>Internet Engineering: 0,<br>Software Quality Engineering: 0 |
| 23. | Number of ECTS credits - higher than 50% of the total number of credits - that a student must obtain:<br>• in general university programmes within a module connected with research carried out in the scientific or artistic disciplines to develop his/her knowledge and research skills;<br>• in practical programmes within a module to develop practical skills | Computer Graphics and Visualization: 82,<br>Intelligent Information Systems: 82,<br>Internet Engineering: 82,<br>Software Quality Engineering: 82 |
| 24. | General description of the programme | Information Technology faculty offers 3 semester 2nd level studies, which aim is to educate the graduate exhibiting special proficiency in IT knowledge use both in theoretical and practical aspects. The graduate, who is prepared to undertake a profession in the field of IT in various industries both in the country or abroad.<br>2nd level graduate from Information Technology faculty:<br>1.Possesses grounded knowledge and skills in advanced IT fields; |

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| | | 2.Possesses skills of analytic and synthetic thinking allowing non-standard approaches to various practical problems solving requiring analysis, developing or adapting advanced IT technologies;<br>3.Possesses the skill of developing IT solutions on the basis of mathematical models and is able to evaluate these solutions, test them and ensure their security;<br>4. Is aware of importance and results of IT engineer professional activities and understands the meaning of intellectual honesty;<br>5.Can present advanced IT content in verbal and written forms and rationally discuss them;<br>6. Possesses the skill of individual knowledge widening and deepening within the frames of current IT trends.<br>7.Possesses high qualifications and skills in the field of IT, which cause him to be competitive on labor market. |
| 25. | General description of the specialization | Computer Graphics and Visualization<br>Students of this specialization will acquire knowledge and skills in the use of computational geometry and design algorithms, specialized systems of data visualization, application of video processing techniques and creation of non-photorealistic graphics, intelligent computer graphics and graphics dedicated to mobile devices, as well as the use of parallel computations using GPUs and 3D graphics engines. Students will implement complex specialization projects during two semesters.<br>A graduate's career prospects:<br>- Mobile devices programmer<br>- Designer of interaction and intelligence in computer graphics<br>- GIS system designer and data visualization<br><br>Intelligent Information Systems<br>The educational path of Intelligent Information Systems includes courses increasing knowledge and skills in two major directions. The first one includes skills related to designing and developing desktop-class software, web-based applications and mobile application. The second path is focus on solving non-trivial problems using methods and tools based on artificial intelligence. A combination of high competence in the field of software developing and the ability to use artificial intelligence techniques is to provide the graduate with specialization in skills allowing the creation of modern software that meets the requirements of both business and entertainment industry.<br><br>Internet Engineering<br>As part of the specialization, student becomes acquainted with the methods of developing both software and hardware. Student is provided with knowledge about the mechanisms of data exchange in computer networks, both stationary and wireless. Another topic of interest is the optimization of network traffic and designing hardware solutions for communication, both local and global. Student familiarize themselves with specialized programming languages, TCP/IP stack and its configuration on different levels of hardware and software.<br>The graduate has industry-proven knowledge how to deal with control and measurement equipment, where acquisition and data control takes place remotely using Internet connections. The graduate can diagnose |

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| | | network damages and optimize network traffic. The acquired knowledge allows for the independent construction of electronic devices equipped with wired and wireless communication modules based on ethernet technology.<br><br>Software Quality Engineering<br><br>A graduate in the field of Software Quality Engineer is able to design, implement and analyze complex IT systems in business, engineering and scientific applications. A graduate can be hired as a software designer, a manager of programming teams and as a consultant in reliability, performance and security of information systems. |