#### card of course

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| Subject name | A team project of an IT system part 2 |

1. The placement of the subject in the study system

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| 1.1. Field of study | Computer science |
| 1.2. Form and path of study | Full-time/Part-time |
| 1.3. Level of education | First-cycle studies |
| 1.4. Study profile | Practical |

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| 1. 5. Specialty | - |
| 1.6. Subject Coordinator | Dr inż. Monika Kaczorowska |

2. General characteristics of the subject

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| 2.1. Belonging to a subject group | Directional/Practical |
| 2.2. Number of ECTS | 3 |
| 2.3. Language of lectures | Polish |
| 2.4. Semesters in which the subject is taught | VI |
| 2.5.Criteria for selecting course participants | - |

1. Learning outcomes and course delivery
   1. Subject Objectives

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| No. | Subject Objectives |
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| C1 | Practical application of knowledge and skills acquired during studies in the field of: software engineering, databases, programming. |
| C2 | Students practice all phases of creating an IT system in a real project, including design, implementation, testing and development of user documentation. |
| C3 | Students develop teamwork skills with a clear division of roles and responsibilities, planning and executing tasks. Learning the most important tools and methodologies used when working with IT projects. |

* 1. Subject-specific learning outcomes, divided into knowledge , skills and competences , with reference to the directional learning outcomes

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| No. | Description of subject  learning outcomes | Reference to  directional effects  learning (symbols) | Method of implementation  (mark "X") | | | |
| ST | | NST | |
| Classes at the University | Activities on  the platform | Classes at the University | Activities on  the platform |
| After passing the course, the student knows and understands **the knowledge** | | | | | | |
| W1 | issues of defining a team structure appropriate to the tasks assigned, within the selected project management methodology | INF\_W17  INF\_W20  INF\_W21 | X |  | X |  |
| W2 | the essence of the teamwork problem, knows how to distribute tasks within the chosen methodology | X |  | X |  |
| W3 | the importance of group work tools in the project, knows how to use these tools | X |  | X |  |
| After passing the course, the student is **able** to: | | | | | | |
| U1 | define the purpose and scope of the project and the tasks to be performed | INF\_U07 INF\_U08 INF\_U09 INF\_U10 INF\_U12 INF\_U15 INF\_U16 INF\_U21 INF\_U22 | X |  | X |  |
| U2 | effectively assign roles and responsibilities to individual team members; is able to skillfully specify and distribute project tasks among team members | X |  | X |  |
| U3 | define and establish system requirements | X |  | X |  |
| U4 | implement an IT system project using appropriate techniques; is able to select the appropriate technology to complete a specific design task | X |  | X |  |
| U5 | select the appropriate support tools to perform tasks; is able to develop design documentation using appropriate engineering tools | X |  | X |  |
| U6 | create clear and understandable design and operational documentation | X |  | X |  |
| U7 | create software in the selected technology | X |  | X |  |
| U8 | organize and implement software tests | X |  | X |  |
| U9 | complete a design task according to specifications, as a team leader or member | X |  | X |  |
| After completing the course, the student is ready to take part in **social competences.** | | | | | | |
| K1 | creative work and team management | INF\_K02  INF\_K03 | X |  | X |  |
| K2 | recognizing and solving social problems related to software development | X |  | X |  |
| K3 | taking responsibility for one's actions and carrying out one's tasks within the set deadlines | X |  | X |  |

3.3. Forms of teaching and their number of hours - Full-time studies (ST), Part-time studies (NST)

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| Path | Lecture | Exercises | Design | Workshop | Laboratory | Seminar | Lecturer | Classes conducted using distance learning methods and techniques in the form of ………………. | Other | **ECTS points** |
| **ST** |  |  | 40 |  |  |  |  |  |  | 3 |
| **NST** |  |  | 15 |  |  |  |  |  |  | 3 |

3.4. Content of education (separately for each form of classes: (W, ĆW, PROJ, WAR, LAB, LEK, OTHER). It should be marked (X) how the given content will be implemented (classes at the university or classes on the e-learning platform conducted using distance learning methods and techniques)

TYPE OF CLASS: PROJECT

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| No. | Content of the course | Reference to subject-specific learning outcomes | Method of implementation (mark "X") | | | |
| ST | | NST | |
| **Classes at the University** | **Activities on  the platform** | **Classes at the University** | **Activities on  the platform** |
| 1. | During the project work, team projects are carried out. Scheduling of activities and possible verification of requirements. The subject is a continuation of the subject from the previous semester. Students have preliminary project documentation. During classes, students implement applications, test and develop user documentation. | W1, W2, U1, U2, U3, K1, K2, K3 | X |  | X |  |
| 2. | Discussion of tools supporting the design process. Discussion and preparation of the implementation environment. Establishing the base software, specifying the functional and non-functional requirements of the IT system. | W1, W2, W3, U1, U2, U3, U5, K1, K2, K3 | X |  | X |  |
| 3. | Development of code repository. Implementation of IT system. Presentation of operation and verification. | W3, U5, U6, U7, U8, U9, K1, K2, K3 | X |  | X |  |
| 4. | IT system testing, corrections, editing, design. | W3, U5, U6, U7, U8, U9, K1, K2, K3 | X |  | X |  |
| 5. | Preparation of IT system documentation. Presentation of the developed IT systems and discussion. | W3, U1, U2, U3, U4, U5, U6, U7, U8, U9, K1, K2, K3 | X |  | X |  |
| 6. | Summary of classes and discussion of grades |  | X |  | X |  |

3.5. Methods of verifying learning outcomes (indication and description of methods of conducting classes and verification of achievement of learning outcomes and method of documentation)

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| Subject Effects | Teaching methods | Methods of verifying learning outcomes | Documentation methods |
| KNOWLEDGE | | | |
| W1-W3 | Discussion, analysis of ready-made solutions | Carrying out a practical project task in a group, consisting in creating an IT system in a selected technology, along with documentation. The topic of the IT system should be consistent with the topic from the first part of the subject. Detailed guidelines will be provided by the instructor during the classes.  Each Student will report on their participation in each stage of preparing the project and present their conclusions. Additionally, the instructor will start a discussion with the group, asking additional questions to check whether the student actively participated in preparing the work. This will allow to verify the contribution and commitment of each student to the work, as well as the level of cooperation between students. | Rated project |
| SKILLS | | | |
| U1-U9 | Discussing problems to be solved, working in a group, preparing a project of an IT system, reporting on the progress of work on projects during classes | Carrying out a practical project task in a group, consisting in creating an IT system in a selected technology, along with documentation. The topic of the IT system should be consistent with the topic from the first part of the subject. Detailed guidelines will be provided by the instructor during the classes.  Each Student will report on their participation in each stage of the project preparation and present their conclusions. Additionally, the instructor will start a discussion with the group, asking additional questions to check whether the student actively participated in the preparation of the work. This will allow to verify the contribution and commitment of each student to the work, as well as the level of cooperation between students. | About the appreciated project |
| SOCIAL COMPETENCES | | | |
| K1-K3 | Discussing problems to be solved, working in a group, preparing a project of an IT system, reporting on the progress of work on projects during classes | Carrying out a practical project task in a group, consisting in creating an IT system in a selected technology, along with documentation. The topic of the IT system should be consistent with the topic from the first part of the subject. Detailed guidelines will be provided by the instructor during the classes.  Each student will report on their participation in each stage of the project preparation and present their conclusions. Additionally, the instructor will engage in a discussion with the group, asking additional questions to check whether the student actively participated in preparing the work. This will allow for verification of the contribution and commitment of each student to the work, as well as the level of cooperation between students. | Rated project |

3.6. Assessment criteria for the achieved learning outcomes

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| Learning effect | For a grade of 3 or "pass."  the student knows and understands/is able to/is ready to | For a grade of 3.5, the student knows and understands/is able to/is ready to | For a grade of 4, the student knows and understands/is able to/is ready to | For a grade of 4.5, the student knows and understands/is able to/is ready to | For a grade of 5, the student knows and understands/is able to/is ready to |
| W | 51-60% of knowledge indicated in learning outcomes | 61-70% of knowledge indicated in learning outcomes | 71-80% of knowledge indicated in learning outcomes | 81-90% of knowledge indicated in learning outcomes | 91-100% of knowledge indicated in learning outcomes |
| U | 51-60% of skills indicated in learning outcomes | 61-70% of skills indicated in learning outcomes | 71-80% of skills indicated in learning outcomes | 81-90% of skills indicated in learning outcomes | 91-100% of skills indicated in learning outcomes |
| K | 51-60% of skills indicated in learning outcomes | 61-70% of skills indicated in learning outcomes | 71-80% of skills indicated in learning outcomes | 81-90% of skills indicated in learning outcomes | 91-100% of skills indicated in learning outcomes |

3.7. Literature

**Basic**

1. Vliet Hans van, Software engineering: Principles and practice, John Wiley, Chichester, 2008
2. Michał Śmiałek, Kamil Rybiński, "Inżynieria oprogramowania w praktyce. Od wymagań do kodu z językiem UML", Helion, 2023
3. Krzysztof Sacha, "Inżynieria oprogramowania", PWN, 2010
4. Kazimierz Frączkowski, "Zarządzanie projektem informatycznym: projekty w środowisku wirtualnym: czynniki sukcesu i niepowodzeń projektów", Oficyna Wydawnicza Politechniki Wrocławskiej, 2003

**Supplementary**

1. Michael J. Hernandez, "Projektowanie baz danych dla każdego. Przewodnik krok po kroku. Wydanie IV", Helion, 2022
2. Techniczna dokumentacja języka UML: https://www.omg.org/spec/UML/2.5.1/About-UML
3. Zdzisław Szyjewski, "Metodyki zarządzania projektami informatycznymi", Placet, 2004
4. Barbara Gocłowska, "Technologie tworzenia aplikacji Web Profile - JSF, JPA, EJB", Wydawnictwo Uniwersytetu Marii Curie-Skłodowskiej, 2012

4. Student workload - ECTS points balance

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| --- | --- | --- |
| **Types of student activity** | **Student Load** | |
| **ST** | **NST** |
| **Classes requiring direct contact between the student and the academic teacher at the university premises** | **40** | **15** |
| Classes included in the study plan | 40 | 15 |
| **Student's own work** | **35** | **60** |
| Ongoing preparation for classes, preparation of project work/presentations/etc. | 20 | 30 |
| Preparation for passing classes | 15 | 30 |
| **TOTAL STUDENT HOURLY LOAD** | **75** | **75** |
| **Number of ECTS points** | **3** | **3** |

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| Last change date | 30/09/2024 |
| The changes were introduced | INF Education Quality Team |
| The changes were approved | Arkadiusz Gwarda, M.A. |