#### card of course

|  |  |
| --- | --- |
| Subject name | Internet technologies |

1. Location of the subject in the system of studies

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| --- | --- |
| 1.1. Programme | Computer science |
| 1.2. Mode of study | Full time studies |
| 1.3. Level of degree | Bachelor degree |
| 1.4. Profile | Practical |

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| --- | --- |
| 1.5. Speciality | - |
| 1.6. Lecturer responsible for the subject  | **Patrycjusz Omiotek** |

2. General characteristic of the subject

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| --- | --- |
| 2.1. Connection with a subject group | Directional/practical |
| 2.2. Total credits (ECTS) | 5 |
| 2.3. Language of instruction | English |
| 2.4. Semesters in which the subject is carried out | VI |
| 2.5. Criterion for selection of listeners | - |

1. Learning outcomes and method of conducting classes

	1. Aim of the subject

|  |  |
| --- | --- |
| Lp. | Aim of the subject |
| C1 | Practical knowledge about building frontend and backend web applications |
| C2 | Practical knowledge about communication between frontend and backend using REST API |
| C3 | Practical knowledge how to read and write data to the database |
| C4 | Practical knowledge how to use TypeScript, React and Next.js to build web applications |

* 1. Learning outcomes, divided into KNOWLEDGE, SKILLS AND COMPETENCIES, with reference to learning outcomes for an area(s) and a field of study

|  |  |  |  |
| --- | --- | --- | --- |
| Lp. | Description of learning outcomes | Reference to the learning outcomes (symbols) | Form of teaching (mark with a „X”) |
| ST | NST | NST PUW |
| Classes at the University | Classes on a platform | Classes at the University | Classes on a platform | Classes at the University | Classes on a platform |
| After completing the subject, student in the range of **KNOWLEDGE**,know and understand |
| W1 | Knowledge about frontend applications | INF\_W20INF\_W21INF\_W21 |  | x |  |  |  |  |
| W2 | Knowledge about backend applications |  | x |  |  |  |  |
| W3 | Knowledge REST API communication |  | X |  |  |  |  |
| After completing the subject, student in the range of **SKILLS**, can |
| U1 | How to gain knowledge from documentation | INF\_U01 INF\_U08 INF\_U12INF\_U19INF\_U20INF\_U23 | x |  |  |  |  |  |
| U2 | How to gain knowledge from free online materials | x |  |  |  |  |  |
| U3 | How to gain knowledge from online courses | x |  |  |  |  |  |
| After completing the subject, student in the field of **SOCIAL COMPETENCES**, is able to |
| K1 | Ability to find proper solutions and make technical tradeoffs | INF\_K02 INF\_K05 | x |  |  |  |  |  |
| K2 | Ability to find good and efficient solutions  | x |  |  |  |  |  |

3.3. Type of classes and number of hours - full time studies (ST), part time studies (NST)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Mode of study | Lecture | Exercises | Project | Workshops | Lab | Seminar | Lectorate | Using distance learning methods and techniques in the form of ................... | Others | **ECTS** |
| **ST** | 15 |  |  |  | 40 |  |  |  |  | 5 |
| **NST** |  |  |  |  |  |  |  |  |  |  |
| **NST PUW** |  |  |  |  |  |  |  |  |  |  |

3.4. Curriculum content (separately for each type of classes). Mark (X) how the content will be implemented (classes at the university or classes on the platform conducted using distance learning methods and techniques)

TYPE OF CLASSES: LECTURE

|  |  |  |
| --- | --- | --- |
| Lp. | Content of classes | Form of teaching (mark with a „X”) |
| ST | NST | NST PUW |
| **Classes at the University** | **Classes on a platform** | **Classes at the University** | **Classes on a platform** | **Classes at the University** | **Classes on a platform** |
| 1. | **Introduction to web applications** |  | **x** |  |  |  |  |
| 2. | **Using React and Next to build web applications** |  | **x** |  |  |  |  |
| 3. | **Advanced web applications** |  | **X** |  |  |  |  |

TYPE OF CLASSES: LAB

|  |  |  |
| --- | --- | --- |
| Lp. | Content of classes | Form of teaching (mark with a „X”) |
| ST | NST | NST PUW |
| **Classes at the University** | **Classes on a platform** | **Classes at the University** | **Classes on a platform** | **Classes at the University** | **Classes on a platform** |
| 1. | **Introduction to web applications** | **x** |  |  |  |  |  |
| 2. | **TypeScript - introduction** | **x** |  |  |  |  |  |
| 3. | **Web Applications with TypeScript** | **x** |  |  |  |  |  |
| 4. | **Next.js applications** | **x** |  |  |  |  |  |
| 5. | **UI in Next.js** | **x** |  |  |  |  |  |
| **6.** | **Working on Next.js applications** | **x** |  |  |  |  |  |
| **7.** | **Communication with REST API** | **x** |  |  |  |  |  |
| **8.** | **Testing web applications** | **x** |  |  |  |  |  |

3.5. Methods of evaluation of learning outcomes (describe the methods of teaching and verification of learning outcomes):

Methods of teaching:

Exercises:
- creating new application structure

* basics of React.js
* Use of REST API
* Embed REST API data to React application
* Use Next.js to fetch data from API
* Create user-friendly interface

Methods of verification of learning outcomes:

To verify outcome Students create their own applications and verify requirements

3.6. Criteria for assessing the achieved learning outcomes

|  |  |  |  |
| --- | --- | --- | --- |
| Learning outcome | For a grade of 3 student knows and understands/can/is able to: | For a grade of 4 student knows and understands/can/is able to: | For a grade of 5 student knows and understands/can/is able to: |
| W | Knowledge how infrastructure of web application works | Knowledge how communication between web applications works | Knowledge how to create advanced web applications |
| U | Knowledge how to setup Next.js application | Knowledge how to fetch data from REST API | Knowledge how to send data to REST API |
| K | Knowledge where to find documentation | Knowledge how to find code examples | Knowledge how to ask proper technical quesions |

3.7. Literature

**Basic**

* <https://react.dev/>
* <https://nextjs.org/>
* **https://en.wikipedia.org/wiki/Representational\_state\_transfer**

4. Student’s workload – balance of credits (ects)

|  |  |
| --- | --- |
| **Student’s activity** | **Student’s workload** |
| **ST** | **NST** | **NST PUW** |
| **CONTACT HOURS (activities that require direct participation of an academic teacher)** | **70** |  |  |
| Classes provided by the study plan | 55 |  |  |
| Consultation (min. 10% of hours provided for any form of classes) | 15 |  |  |
| **STUDENT’S OWN WORK** | **40** |  |  |
| Preparation for class, preparation of project work/presentations/etc | 20 |  |  |
| Preparation for passing the classes | 20 |  |  |
| **TOTAL STUDENT WORKLOAD** | **110** |  |  |
| **Credits (ECTS) for a subject** | **5** |  |  |

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| --- | --- |
| Date of last change  | 19.03.2023 |
| Changes introduced | Patrycjusz Omiotek |
| Changes approved | Dr inż. Michalina Grynieicz-Jaworska  |