University of Gdańsk

Subject card

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|---|---|---|---|---|---|---|---|
| Subject name and code | Front-end Frameworks, PG_00178488 | | | | | | |
| Field of study | Informatics and Econometrics | | | | | | |
| Date of commencement of studies | October 2026 | | Academic year of realisation of subject | | 2027/2028 | | |
| Education level | Bachelor's studies | | Subject group | | Obligatory subject group in the field of study<br>Optional subject group<br>Subject group related to scientific research in the field of study | | |
| Mode of study | part-time studies | | Mode of delivery | | at the university | | |
| Year of study | 2 | | Language of instruction | | Polish | | |
| Semester of study | 4 | | ECTS credits | | 7.0 | | |
| Learning profile | academic | | Assessment form | | credit | | |
| Conducting unit | | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr hab. Michał Kuciapski | | | | |
| | Teachers | | | | | | |
| Lesson types | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 8.0 | 0.0 | 32.0 | 0.0 | 0.0 | 40 |
| | E-learning hours included: 0.0 | | | | | | |
| Learning activity and number of study hours | Learning activity | Participation in didactic classes included in study plan | | Participation in consultation hours | | Self-study | SUM |
| | Number of study hours | 40 | | 2.0 | | 133.0 | 175 |
| Subject objectives | • To learn about the design, programming and implementation of dynamic business websites based on popular front-end frameworks such as React and Vue.<br>• Acquire skills in programming logic and creating highly interactive web applications using modern programming mechanisms available in front-end frameworks, such as binding, reactivity, dynamic styles, components, watch-e, enumerated fields, directives, routing, Single Page Application, global state management or scaling methods. | | | | | | |

## Learning outcomes

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [IiEL3_U12] The student can design and implement IT systems to enhance business operations and effectively utilize modern ICT technologies for management and business communication. | is able to extend the business capabilities of websites with elements of interactivity and modularity available in front-end frameworks,<br>implements solutions that take into account data access security mechanisms through authentication and authorization. | [SU2] presentation/project/paper/ report |
| [IiEL3_W06] To an advanced degree, the student knows and understands the processes and methods of creating, developing, and providing appropriate conditions for using informatics or statistics tools, particularly those that improve human and organizational functioning. | knows the syntax of key front-end frameworks for preparing fully functional web applications, | [SW2] presentation/project/paper/ report |
| [IiEL3_U02] Students can select or construct econometrics, informatics or statistics tools and apply them to describe and solve economic and social problems. | is able to indicate the differences between key front-end frameworks, • designs modern business websites using the latest front-end framework mechanisms, designs scalable business websites through routing and state management mechanisms,<br>is proficient in using front-end framework mechanisms to optimize the performance of web applications, | [SU2] presentation/project/paper/ report |

## Subject contents

Lecture1. The Concept, Role, and History of Front-End Frameworks2. Overview and Comparison of Front-End Visualization Frameworks3. Overview and Comparison of Front-End Interaction Frameworks4. Designing the Front-End Visualization Layer5. Designing the Front-End Interaction Layer6. Integrating the Front-End with the BackendLab ExercisesI. Vue:1. Basics of Building Vue Applicationsa. Conditional Rendering and Stylesb. Directivesc. Eventsd. Computed Propertiese. Components2. Vue SPA:a. Vue CLI and Vite Environmentsb. Composition APIc. TypeScript3. Building Scalable Solutionsa. Routingb. State Management in Piniac. Implementing Large Nuxt Projects4. Building a Highly Interactive User Interface in Vuetifya. Installing the Frameworkb. Basic ControlsII: React:1. Types of Componentsa. Classb. Functional2. Components and Propertiesa. JSXb. Conditional Renderingc. Composition and Inheritance3. Rendering Elementsa. State and Lifecycleb. Lists and Keysc. Event Handlingd. Moving State Upe. Forms4. Hooksa. State Hooksb. Effect Hooksc. Creating Your Own Hooks

## Prerequisites and co-requisites

Introduction to Programming, Web Design

## Assessment methods and criteria

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| Final project | 51.0% | 100.0% |

## Recommended reading

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|---|---|
| Basic literature | • Mezzalira M. (2022), Front-End Reactive Architectures: Explore the Future of the Front-End using Reactive JavaScript Frameworks and Libraries, Apress<br>• Ribeiro H. (2022), Vue.js 3 Cookbook, Packt<br>• Griffiths David, Griffiths Dawn (2022) React. Receptury. Poradnik dla zaawansowanych, Helion |
| Supplementary literature | • Ribeiro H. (2022), Vue.js 3 Cookbook, Packt<br>• Porcello E., Banks A. (2021) React od podstaw. Nowoczesne wzorce tworzenia aplikacji, Helion |
| eResources addresses | |

## Example issues/ example questions/ tasks being completed

Design a business information portal using one of the popular front-end frameworks.

## Work placement

Not applicable

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