**Course Syllabus**

## I. General Information

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|---|---|
| Course name | Internet applications development |
| Programme | Informatics |
| Level of studies (BA, BSc, MA, MSc, long-cycle MA) | BA |
| Form of studies (full-time, part-time) | Full-time |
| Discipline | Informatics |
| Language of instruction | English |

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| Course coordinator | Rafał Stęgierski, PhD |

| Type of class *(use only the types mentioned below)* | Number of teaching hours | Semester | ECTS Points |
|---|---|---|---|
| lecture | | | 5 |
| tutorial | 30 | IV | |
| classes | | | |
| laboratory classes | 30 | IV | |
| workshops | | | |
| seminar | | | |
| introductory seminar | | | |
| foreign language classes | | | |
| practical placement | | | |
| field work | | | |
| diploma laboratory | | | |
| translation classes | | | |
| study visit | | | |

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| Course pre-requisites | Basics of algorithms and programming |

## II. Course Objectives

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| C1 - Getting to know the basics of the PHP language |
| C2 - Getting acquainted with web application programming techniques |
| C3 - Familiarizing with the programming techniques of console applications |
| C4 - Getting to know the basic design patterns |
| C5 - Getting acquainted with the structure and the cycle of web application implementation |

## III. Course learning outcomes with reference to programme learning outcomes

| Symbol | Description of course learning outcome | Reference to programme learning outcome |
|---|---|---|
| KNOWLEDGE | | |
| W_01 | Has general knowledge of algorithmics, design and programming, operating systems, computer networks, software engineering, databases, artificial intelligence and computer graphics | K_W06 |
| SKILLS | | |
| U_01 | Is able to independently acquire and use information helpful in solving specific IT problems from technical documentation, help files as well as Internet resources and available literature | K_U02 |
| U_02 | Knows language which describes application developemnent process | K_U04 |
| SOCIAL COMPETENCIES | | |
| K_01 | Knows own limitations and knowledge which should be extended. | K_K01 |

## IV. Course Content

1. The WWW network
a. The http protocol
b. GET and POST requests
c. Processing on the client's side
d. Processing on the server side
e. REST
2. Syntax of the EcmaScript and Typescript language
b. Constants, variables, expressions and operators
c. Control instructions
d. Functions
e. Encoding standards
3. Object-oriented programming
a. Classes and objects
b. Constructors, destructors and cloning
c. Components
d. Inheritance
e. Specifications of component visibility
f. Static components
g. Permanent
h. Abstract classes
i. Interfaces
j. NodeJS and libraries
4. Design patterns
a. Basic information about design patterns
b. Selected design patterns
5. ORM software
6. Software framework

## V. Didactic methods used and forms of assessment of learning outcomes

| Symbol | Didactic methods<br>*(choose from the list)* | Forms of assessment<br>*(choose from the list)* | Documentation type<br>*(choose from the list)* |
|---|---|---|---|
| KNOWLEDGE | | | |
| W_01 | Conversational lecture, Guided practice | Exam | Protocol |
| SKILLS | | | |
| U_01 | Practical classes<br>design thinking | Preparation / implementation of the project | Project rating card |
| U_02 | Practical classes<br>design thinking | Preparation / implementation of the project | Project rating card |
| SOCIAL COMPETENCIES | | | |
| K_01 | Disscution<br>design thinking | Observation | Protocol |

## VI. Grading criteria, weighting factors.….

At grade 3, the student can:
W1 - can characterize the differences between the interpretation and compilation of the discuss the syntax of the EcmaScript and TypeScript language
U1 - run sample internet applications made in various frameworks
U2 - implement simple applications based on processing strings, arrays and files
K1 - can formulate opinions on basic ES and TS language constructs

At grade 4, the student can:
W1 - contrastively discuss the syntax of the ES and TS language in relation to any other language (eg C ++), exchange and briefly characterize the known design patterns
U1 - implement object-oriented libraries that solve more advanced tasks
U2 - use your own libraries to implement the application
K1 - work individually and in groups to plan work on the application

At grade 5 the student can:
W1 - give examples of the use of the discussed design patterns
U1 - use design patterns in practice to implement your own libraries
U2 - publish your own libraries as Open Source projects

## VII. Student workload

| Form of activity | Number of hours |
|---|---|
| Number of contact hours (with the teacher) | ***90*** |
| Number of hours of individual student work | ***50*** |

## VIII. Literature

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| Basic literature |
| Shelley Powers, Learning Node. Moving to the Server-Side. 2nd Edition., O’Reilly<br>David Flanagan, JavaScript The Definitive Guide: Master the World's Most-Used Programming Language, O’Reilly |
| Additional literature |
| https://nodejs.org/en/docs/ |