



Subject card

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|---|---|--|--|-------------------------------------|---|------------|-----|
| Subject name and code | Modelling the NET, PG_00048251 | | | | | | |
| Field of study | Informatics | | | | | | |
| Date of commencement of studies | February 2026 | | Academic year of realisation of subject | | 2025/2026 | | |
| Education level | second-cycle studies | | Subject group | | Optional subject group Specialty subject group Subject group related to scientific research in the field of study | | |
| Mode of study | Full-time studies | | Mode of delivery | | at the university | | |
| Year of study | 1 | | Language of instruction | | Polish | | |
| Semester of study | 1 | | ECTS credits | | 4.0 | | |
| Learning profile | general academic profile | | Assessment form | | exam | | |
| Conducting unit | Department Of Algorithms And Systems Modelling -> Faculty Of Electronics Telecommunications And Informatics -> Wydziały Politechniki Gdańskiej | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr inż. Krzysztof Manuszewski | | | | |
| | Teachers | | dr inż. Krzysztof Manuszewski | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 30.0 | 0.0 | 0.0 | 0.0 | 0.0 | 30 |
| | 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 | 30 | | 8.0 | | 62.0 | 100 |
| Subject objectives | An analysis of the social networks based on the graph model. | | | | | | |
| | Implementation of the selected elements of a web search. | | | | | | |
| | Implementation of some algorithms for clustering or categorization.Ability to apply hidden Markov models. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [K7_W03] knows and understands, to an increased extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum | | The student gets acquainted with the models of communication on the Internet and its social aspects. | | [SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge | | |
| | [K7_W01] knows and understands, to an increased extent, mathematics to the extent necessary to formulate and solve complex issues related to the field of study | | A student can develop and implement a simple search engine of online resources, including a web robot. | | [SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge | | |

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| Subject contents | Introduction to social networks | | |
| | Web graph | | |
| | Introduction to search engines | | |
| | Analysis of the content of document | | |
| | Information extraction, categorization and clustering | | |
| | Link analysis | | |
| | Modeling and understanding human behaviour on the Web | | |
| | Hidden Markov models | | |
| Prerequisites and co-requisites | | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | Lecture | 50.0% | 100.0% |
| Recommended reading | Basic literature | P. Baldi, P. Frasconi, P. Smyth: Modeling the Internet and the Web, Wiley 2003. Mark Stamp, Revealing Introduction to Hidden Markov Models, Department of Computer Science, San Jose State University (2012) Andrew Y. Ng, Alice X. Zheng, Michael I. Jordan, Stable Algorithms for Link Analysis, Computer Science Division U.C. Berkeley | |
| | Supplementary literature | Lawrence R. Rabiner, A tutorial on hidden markov models and selected applications in speech recognition, Proc. of the IEEE, vol. 77, no. 2, (1989) | |
| | eResources addresses | Adresy na platformie eNauczanie: | |
| Example issues/ example questions/ tasks being completed | - | | |
| Work placement | Not applicable | | |

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