



Subject card

| | | | | | | | |
|---|--|--|--|-------------------------------------|---|------------|-----|
| Subject name and code | Multiaccess Data Structures, PG_00047623 | | | | | | |
| Field of study | Automatic Control, Cybernetics and Robotics | | | | | | |
| Date of commencement of studies | October 2024 | | Academic year of realisation of subject | | 2026/2027 | | |
| Education level | first-cycle studies | | Subject group | | Optional 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 | 3 | | Language of instruction | | Polish | | |
| Semester of study | 6 | | ECTS credits | | 3.0 | | |
| Learning profile | general academic profile | | Assessment form | | assessment | | |
| Conducting unit | Department of Biomedical Engineering -> Faculty of Electronics, Telecommunications and Informatics | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr inż. Adam Bujnowski | | | | |
| | Teachers | | dr inż. Adam Bujnowski | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 15.0 | 0.0 | 15.0 | 15.0 | 0.0 | 45 |
| | 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 | 45 | | 3.0 | | 27.0 | 75 |
| Subject objectives | Main goal of the subject is to familiarize students with basic databases techniques. During course student meets basic database terms - such as data, database , DBMS, data model etc. Student gets knowledge about various data models and learns how to design data structure - especially within relational database. Additionally student learns how to use selected DBMS and learns the SQL language. Student learns how to use transactions, SQL functions, triggers and learns how to use SQL within another programming language to create data interface. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [K6_U04] can apply knowledge of programming methods and techniques as well as select and apply appropriate programming methods and tools in computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study | | Student uses SQL language to manage relational database Student uses SQL language inside other language Student analyses data using SQL language | | [SU4] Assessment of ability to use methods and tools [SU1] Assessment of task fulfilment | | |
| | [K6_W04] knows and understands, to an advanced extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, and organisation of systems using computers or such devices | | Student knows basic database terms Student knows and identifies data models Student designs realtional databases | | [SW3] Assessment of knowledge contained in written work and projects [SW1] Assessment of factual knowledge | | |

| | | | |
|---------------------------------|--|--|-------------------------------|
| Subject contents | Principal terms - data, information, knowledge, database, DBMS, data model. Lauered model of database system, Datamodel vs data structure, Flat databases, Relatron between entites, hierarchical model, network data model, XML as a hierarchical database, Relational data model - structure of the data, Data integrity in relational databases, Graphical notations of the RDB structure, Normalisation, Designing of the relational databases, SQL - genesis, usage of the SQL, classification. Data definition language, Data types in SQL, Data manipulation language, tuple selection statements, SELECT - data retrieval, SQL - privileges , user and database management, Aggregate functions, User defined functions, triggers, transactions, additional SQL forms - comments , Backup copies of the data, Data access methods - using procedural languages. Object data model. | | |
| Prerequisites and co-requisites | Basic skills in computing. Programming in C/C++ | | |
| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
| | exam | 50.0% | 40.0% |
| | laboratory achievements | 50.0% | 60.0% |
| Recommended reading | Basic literature | Davies, Database systems Matthews Stones, Databases and PostgreSQL Rumiński, Bujnowski, Skrypt do przedmiotu Bazy Danych | |
| | Supplementary literature | Rogulski , Bazy danych dla studentów. Podstawy projektowania i języka SQL, Witkom, 2012 | |
| | eResources addresses | Adresy na platformie eNauczanie: | |
| | Example issues/ example questions/ tasks being completed | | |
| Work placement | Not applicable | | |