



Subject card

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|---|--|---|--|-------------------------------------|--|------------|-----|
| Subject name and code | Radio Sensor Networks and Internet of things - Project, PG_00056862 | | | | | | |
| Field of study | Electronics and Telecommunications | | | | | | |
| Date of commencement of studies | February 2024 | Academic year of realisation of subject | | | 2024/2025 | | |
| Education level | second-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 | 2 | Language of instruction | | | Polish | | |
| Semester of study | 3 | ECTS credits | | | 1.0 | | |
| Learning profile | general academic profile | Assessment form | | | assessment | | |
| Conducting unit | Department of Radiocommunication Systems and Networks -> Faculty of Electronics, Telecommunications and Informatics | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr hab. inż. Jarosław Sadowski | | | | |
| | Teachers | | dr hab. inż. Jarosław Sadowski | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 0.0 | 0.0 | 0.0 | 15.0 | 0.0 | 15 |
| 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 | 15 | | 1.0 | | 9.0 | 25 |
| Subject objectives | Verification of radio network design skills based on wireless sensor network project. | | | | | | |
| Learning outcomes | Course outcome | | Subject outcome | | Method of verification | | |
| | [K7_U03] can design, according to required specifications, and make a complex device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment | | Student can design radio sensor network according to defined guidelines. | | [SU1] Assessment of task fulfilment | | |
| [K7_U09] can carry out a critical analysis of the functioning of existing technical solutions and assess these solutions, as well as apply experience related to the maintenance of advanced technical systems, devices and facilities typical for the field of studies, gained in the professional engineering environment | | Student can analyse radio network taking into account both the services provided by network and the maintenance, and select network elements for defined application. | | [SU1] Assessment of task fulfilment | | | |
| Subject contents | <ul style="list-style-type: none">• Requirements specification for radio sensor network• Communication range and measurement range• Calculation of required number of nodes• Physical layer design• Data link layer• Network layer issues• Energy consumption and power supply• Radio network traffic analysis• Presentation of designed network | | | | | | |
| Prerequisites and co-requisites | Need to participate in radio sensor networks lecture (2nd semester) | | | | | | |

| Assessment methods and criteria | Subject passing criteria | Passing threshold | Percentage of the final grade |
|--|--------------------------|--|-------------------------------|
| | | Radio sensor network project | 50.0% |
| Recommended reading | Basic literature | <ol style="list-style-type: none"> 1. Zhao, Gibas: Wireless Sensor Networks – An Information Processing Approach, Elsevier 2004 2. Karl, Willig: Protocols and Architectures for Wireless Sensor Networks, Wiley 2005 3. Callaway: Wireless Sensor Networks – Architectures and Protocols, Auerbach Publications 2004 | |
| | Supplementary literature | Cayirci, Rong: Security In Wireless Ad Hoc and Sensor Networks, Wiley 2009 | |
| | eResources addresses | Adresy na platformie eNauczanie: | |
| Example issues/ example questions/ tasks being completed | | | |
| Work placement | Not applicable | | |