GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Subject name and code | Integrated Circuits in Wireless Communications, PG_00048665 | | | | | | |
| Field of study | Electronics and Telecommunications | | | | | | |
| Date of commencement of studies | February 2026 | | Academic year of realisation of subject | 2026/2027 | | | |
| Education level | second-cycle studies | | Subject group | Optional subject group<br>Specialty subject group<br>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 | 2 | | ECTS credits | 1.0 | | | |
| Learning profile | general academic profile | | Assessment form | assessment | | | |
| Conducting unit | Department Of Microwave And Antenna Engineering -> Faculty Of Electronics Telecommunications And Informatics -> Wydziały Politechniki Gdańskiej | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr hab. inż. Krzysztof Nyka | | | | |
| | Teachers | | dr hab. inż. Krzysztof Nyka | | | | |
| 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 | | 2.0 | 8.0 | | 25 |
| Subject objectives | Gaining practical knowledge and skills relating to the design of selected integrated RF circuits used in modern wireless communication systems. | | | | | | |

## Learning outcomes

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [K7_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, making assessment and critical analysis of the prepared software as well as a synthesis and creative interpretation of information presented with it | Can prepare the scripts for simulation configuration and presentation of the results in an advanced CAD tool. | [SU4] Assessment of ability to use methods and tools |
| [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 | Can design selected microwave circuits using advanced CAD tools | [SU1] Assessment of task fulfilment |
| [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 | Knows the properties of operation of selected linear and nonlinear semiconductor microwave circuits | [SW3] Assessment of knowledge contained in written work and projects |
| [K7_W04] knows and understands, to an increased extent, the principles, methods and techniques of programming and the principles of computer software development or programming devices or controllers using microprocessors or other elements or programmable devices specific to the field of study, and organization of work of systems using computers or such devices | Knows rules of configuration of an advanced CAD for microwave circuits | [SW3] Assessment of knowledge contained in written work and projects |

## Subject contents

Design of a simple diode detector in selected microwave bands

Design of a microwave detector with bias compensation

Design of an ultra wide band travelling wave amplifier

## Prerequisites and co-requisites

Wireless Circuits Design, Integrated Active Circuits in Wireless Communication

## Assessment methods and criteria

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| Project | 50.0% | 100.0% |

## Recommended reading

| | |
|---|---|
| Basic literature | S.C. Cripps, Advanced Techniques in RF Power Amplifier Design, Artech House, 2002<br><br>C. W. Sayre, Complete Wireless Design (2nd ed.), McGraw Hill, 2008 |
| Supplementary literature | none |
| eResources addresses | Adresy na platformie eNauczanie: |

| | |
|---|---|
| Example issues/ example questions/ tasks being completed | |
| Work placement | Not applicable |

Document generated electronically. Does not require a seal or signature.