GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

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|---|---|---|---|
| Subject name and code | Circuits and Signals - laboratory, PG_00048807 | | |
| Field of study | Electronics and Telecommunications | | |
| Date of commencement of studies | October 2025 | Academic year of realisation of subject | 2026/2027 |
| Education level | first-cycle studies | Subject group | Obligatory subject group in the field of study<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 | 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 Signals And Systems -> Faculty Of Electronics Telecommunications And Informatics -> Wydziały Politechniki Gdańskiej | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr inż. Kamil Stawiarski | |
| | Teachers | dr inż. Kamil Stawiarski | |

**Lesson types and methods of instruction**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 0.0 | 0.0 | 15.0 | 0.0 | 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**

Equipping a student with knowledge and skills acquired in studying the basics of analogue circuits and signals. The knowledge is sought to be useful in further professional studies and practice.

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [K6_U03] can design, according to required specifications, and make a simple 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 - uses Fourier series for the analysis of circuits stimulated by periodic waveforms, - decomposes and assembles periodic waveforms for the purpose of analyzing circuits stimulated by periodic waveforms, - measures the parameters of electrical components and circuits, - linearizes nonlinear elements, - uses computer programs to analyze circuits. | [SU1] Assessment of task fulfilment<br>[SU4] Assessment of ability to use methods and tools |

**Subject contents**

Periodic signal spectrum.
Spectrum modification by passing a periodic signal through a linear and nonlinear circuit.
Transmission line.
Attenuator.
Resonant circuit.
Nonlinear cuircuit.
Passive lowpass Butterworth,
Chebyshev and Bessell filters, and active filters.
Time-domain and frequency domain characteristics.

**Prerequisites and co-requisites**

No requirements

**Assessment methods and criteria**

| Subject passing criteria | Passing threshold | Percentage of the final grade |
|---|---|---|
| Midterm short tests | 51.0% | 40.0% |
| Reports | 51.0% | 60.0% |

**Recommended reading**

| | |
|---|---|
| Basic literature | J. Osiowski i J. Szabatin: Podstawy teorii obwodów, tomy I-III. WNT Warszawa 1993 (tom I i tom II) i 1995 (tom III) i wydania kolejne. |
| Supplementary literature | No requirements |

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|---|---|---|
| | eResources addresses | Adresy na platformie eNauczanie: |
| Example issues/ example questions/ tasks being completed | | |
| Work placement | Not applicable | |

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