Fundamentals of Control Engineering IS-FEE-10072W

BIALYSTOK UNIVERSITY OF TECHNOLOGY
Faculty of Electrical Engineering

Field of study
Electrical and Electronics Engineering

Level of study
bachelor's degree, full-time programme

A group of modules
Electric and information engineering

Course name
Fundamentals of Control Engineering

Course type
elective

Course code
IS-FEE-10072W

Course form(s)

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<tr>
<th>L</th>
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<th>SW</th>
<th>FW</th>
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<td>30</td>
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The programme is valid from
2024/2025

Introductory courses
Introducing students to the structures, tasks and methods of analysis and synthesis of simple control systems. Analyzing dynamical system properties in time and frequency domain. Applying various methods of controller design for controlling simple processes.


Laboratory classes: Step responses measurements of various types of control plants. Fundamental methods of identification. Computer-aided control systems design. Industry PID controller configuration and tuning methods. Experiments with various types of control systems (water level control, water flow control, pressure control, temperature relay control).


Mathematical equations: dynamic equation, transfer function, state-space equation.


Frequency domain characteristics - analytical and numerical analysis (part II)

Transient responses of dynamic systems - analytical and numerical analysis (part II)

Mathematical models: dynamic equation, transfer function, state-space equation (part II)

Mathematical models: dynamic equation, transfer function, state-space equation (part I)

Mathematical models: dynamic equation, transfer function, state-space equation (part II)

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Expected learning outcomes defined for the field of study

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<th>Skills</th>
<th>Social competence</th>
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Methods of verification of learning outcomes

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<th>Outcome symbols</th>
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<tr>
<td>E1</td>
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<tr>
<td>E2</td>
<td>final exam, evaluation of reports</td>
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<tr>
<td>E3</td>
<td>final exam, evaluation of reports</td>
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<td>E4</td>
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<td>SW</td>
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<tr>
<td>E6</td>
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<td>LC</td>
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<td>E7</td>
<td>evaluation of reports, observation of work in classes</td>
<td>SW, LC</td>
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