**SYLLABUS**

**regarding the qualification cycle FROM 2024TO 2025**

1. Basic Course/Module Information

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| --- | --- |
| Course/Module title | **CONTEMPORARY ELECTROTECHNICS** |
| Course/Module code \* |  |
| Faculty (name of the unit offering the field of study) | *College of Natural Sciences* |
| Name of the unit running the course | *Institute of Materials Engineering* |
| Field of study | **MECHATRONICS** |
| Qualification level  | FIRST-CYCLE STUDIES |
| Profile | *PRACTICAL* |
| Study mode | *FULL-TIME STUDIES* |
| Year and semester of studies | *YEAR 2, SEMESTER 4* |
| Course type | *LABORATORIES* |
| Language of instruction | ENGLISH |
| Coordinator | *ANNA KOZIOROWSKA, PhD, DSc., Eng.* |
| Course instructor | *ANNA KOZIOROWSKA, PhD, DSc., Eng.* |

\* - as agreed at the faculty

1.1.Learning format – number of hours and ECTS credits

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Semester(n0.) | Lectures | Classes | Colloquia | Lab classes | Seminars | Practical classes | Internships | others | **ECTS credits**  |
| 4 |  |  |  | 30 |  |  |  |  | 5 |

1.2. Course delivery methods

~~- conducted in a traditional way~~

- involving distance education methods and techniques

1.3. Course/Module assessment (exam, pass with a grade, pass without a grade)

Exam

2. Prerequisites

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| Basics of physics, Basics of algebra and analysis. |

3. Objectives, Learning Outcomes, Course Content, and Instructional Methods

3.1. Course/Module objectives

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| O1 | Acquaintance students with the basic laws of electrical engineering, with the construction and principle of operation of basic electrical meters, systems and devices. |
| O2 | Developing the ability to design, analyze and measure basic parameters in electrical circuits. |

3.2. Course/Module Learning Outcomes (to be completed by the coordinator)

|  |  |  |
| --- | --- | --- |
| Learning Outcome | The description of the learning outcome defined for the course/module | Relation to the degree programme outcomes |
| LO\_01 | KNOWLEDGE: Defines basic electrical quantities and knows the methods of their measurement, knows the basic laws of AC and DC flow. Recognizes the basic active and passive elements of electrical systems, the principles of their operation in DC and AC circuits , knows the structure and principle of operation of basic electrotechnical devices. Has knowledge of electrical engineering necessary to formulate and solve simple technical problems. |  |
| LO\_02 | SKILLS: Analyzes, designs and measures electrical circuits. |  |
| LO\_03 | SOCIAL COMPETENCES: Define priorities for the implementation of tasks, can work in a group. |  |

**3.3. Course content (to be completed by the coordinator)**

1. Classes, tutorials/seminars, colloquia, laboratories, practical classes

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| Content outline  |
| Measurement research in the field of direct, alternating and three-phase current circuits. Measurement of electromagnetic fields emitted by devices in the laboratory. PP presentation of a selected topic from contemporary electrical engineering. |

3.4. Methods of Instruction

LABORATORY - WORK IN GROUPS, CONNECTING CIRCUITS AND TAKING MEASUREMENTS, ANALYSIS OF EXAMPLES, DISCUSSION.

4. Assessment techniques and criteria

4.1 Methods of evaluating learning outcomes

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| Learning outcome | Methods of assessment of learning outcomes (e.g. test, oral exam, written exam, project, report, observation during classes) | Learning format (lectures, classes,…) |
| LO-01 | *OBSERVATION, DISCUSSION, PP PRESENTATION (WRITTEN EXAM)* | LABORATORY |
| LO-o2 | *OBSERVATION DURING LABORATORIES, REPORT (TEST)* | LABORATORY |
| LO-o3 | *OBSERVATION DURING LABORATORIES, RAPORT (TEST)* | LABORATORY |

4.2 Course assessment criteria

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| Laboratory: positive evaluation of tests and assessment of homework (raports) and activity during classes. |

5. Total student workload needed to achieve the intended learning outcomes

– number of hours and ECTS credits

*OBSERVATION DURING CLASSES*

|  |  |
| --- | --- |
| Activity | Number of hours |
| Scheduled course contact hours | 30 |
| Other contact hours involving the teacher (consultation hours, examinations) | 10 |
| Non-contact hours - student's own work (preparation for classes or examinations, projects, etc.) | 85 |
| Total number of hours | 125 |
| Total number of ECTS credits | 5 |

\* One ECTS point corresponds to 25-30 hours of total student workload

6. Internships related to the course/module

|  |  |
| --- | --- |
| Number of hours |  |
| Internship regulations and procedures |  |

7. Instructional materials

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| Compulsory literature: * + - 1. Wai Chen The Electrical Engineering Handbook, 2004, eBook ISBN: 9780080477480
			2. Fundamentals of Electrical Engineering I, open texbooks, The Open University of Hong Kong (pdf available on the internet)
 |
| Complementary literature: Materials sent by the teacher during the classes. |

Approved by the Head of the Department or an authorised person