# *Plan studiów*

## Energetyka I stopnia stacjonarne. Siatka obowiązuje od roku akademickiego 2023/2024.

| | | Razem | | | | | | Semestr 1 | | | | | | Semestr 2 | | | | | | Semestr 3 | | | | | | Semestr 4 | | | | | | Semestr 5 | | | | | | Semestr 6 | | | | | | Semestr 7 | | | | | |
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| Symbol | Nazwa przedmiotu | Suma | W | C | L | P | ECTS | W | C | L | P | Egz | ECTS | W | C | L | P | Egz | ECTS | W | C | L | P | Egz | ECTS | W | C | L | P | Egz | ECTS | W | C | L | P | Egz | ECTS | W | C | L | P | Egz | ECTS | W | C | L | P | Egz | ECTS |
| EN-I-01A | Język angielski I | 30 | | 30 | | | 2 | | | | | | | | | | | | | | 2 | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-01B | Język niemiecki I | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-02A | Język angielski II | 30 | | 30 | | | 2 | | | | | | | | | | | | | | | | | | | | 2 | | | | 2 | | | | | | | | | | | | | | | | | | |
| EN-I-02B | Język niemiecki II | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-03A | Język angielski III | 30 | | 30 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | 2 | | | | | | | | | | | | |
| EN-I-03B | Język niemiecki III | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-04A | Język angielski IV | 30 | | 30 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | 2 | | | | | | |
| EN-I-04B | Język niemiecki IV | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-05 | Technologia informacyjna | 60 | 15 | | 45 | | 4 | 1 | | 3 | | | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-06 | Przysposobienie biblioteczne | 2 | | 2 | | | 0 | 2 godz. | | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-07H | Ochrona własności intelektualnej | 15 | 15 | | | | 1 | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Bezpieczeństwo i higiena pracy | 4 | 4 | | | | 0 | 4 godz. | | | | | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Wychowanie fizyczne | 60 | | 60 | | | 0 | | | | | | | | | | | | | | 2 | | | | 0 | | 2 | | | | 0 | | | | | | | | | | | | | | | | | | |
| EN-I-08H | Podstawy zrównoważonego rozwoju | 60 | 30 | 30 | | | 4 | 2 | 2 | | | | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-09H | Wprowadzenie na rynek pracy | 15 | 15 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | 1 |
| EN-I-10A | Ocena oddziaływania na środowisko | 30 | 30 | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | 2 |
| EN-I-10B | Prawne aspekty energetyki | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-11 | Gospodarka energetyczna | 15 | 15 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | 1 | | | | | | |
| EN-I-12 | Środowiskowa i ekonomiczna ocena efektywności inwestycji | 45 | 30 | 15 | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 1 | | | | 3 | | | | | | |
| EN-I-13H | Podstawy przedsiębiorczości | 15 | 15 | | | | 1 | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-14 | Ekonomika energetyki | 15 | | 15 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | 1 | | | | | | |
| EN-I-15 | Matematyka 1 | 60 | 30 | 30 | | | 4 | 2 | 2 | | | E | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-16 | Matematyka 2 | 60 | 30 | 30 | | | 4 | | | | | | | 2 | 2 | | | E | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-17A | Statystyka | 30 | 15 | 15 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | 2 | | | | | | | | | | | | |
| EN-I-17B | Planowanie i analiza eksperymentu | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-18 | Fizyka | 90 | 30 | 30 | 30 | | 7 | 2 | 2 | 2 | | E | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-19 | Podstawy chemii | 30 | 15 | 15 | | | 2 | 1 | 1 | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-20 | Chemia fizyczna | 45 | 15 | | 30 | | 3 | | | | | | | | | | | | | 1 | | 2 | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-21 | Mechanika i wytrzymałość materiałów | 75 | 30 | 30 | | 15 | 5 | | | | | | | 2 | 2 | | 1 | E | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-22 | Termodynamika techniczna | 45 | 30 | 15 | | | 3 | | | | | | | | | | | | | 2 | 1 | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-23A | Przepływ ciepła i masy | 30 | 15 | 15 | | | 2 | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | 2 | | | | | | | | | | | | | | | | | | |
| EN-I-23B | Fizyka budowli | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-24 | Pompy, turbiny i wentylatory | 45 | 15 | 30 | | | 4 | | | | | | | | | | | | | 1 | 2 | | | E | 4 | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-25 | Mechanika płynów z elementami hydrauliki | 45 | 15 | 30 | | | 3 | | | | | | | | | | | | | 1 | 2 | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-26 | Grafika inżynierska | 75 | 30 | 45 | | | 6 | 2 | 3 | | | E | 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-27 | Komputerowe wspomaganie projektowania 2D | 45 | 15 | | 30 | | 3 | | | | | | | 1 | | 2 | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-28 | Komputerowe wspomaganie projektowania 3D | 45 | 15 | | 30 | | 3 | | | | | | | | | | | | | 1 | | 2 | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-29 | Podstawy konstrukcji maszyn | 45 | 15 | | | 30 | 3 | | | | | | | | | | | | | | | | | | | 1 | | | 2 | | 3 | | | | | | | | | | | | | | | | | |
| EN-I-30 | Hydrologia i hydrotechnika | 15 | 15 | | | | 1 | | | | | | | | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | |
| EN-I-31A | Materiały konstrukcyjne i eksploatacyjne w energetyce | 45 | 30 | | 15 | | 3 | | | | | | | 2 | | 1 | | E | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-31B | Materiały w budownictwie energooszczędnym | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| EN-I-32 | Elektrotechnika | 90 | 30 | 30 | 30 | | 7 | | | | | | | 2 | 2 | 2 | | E | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-33 | Elektronika | 60 | 30 | | 30 | | 4 | | | | | | | | | | | | | 2 | | 2 | | E | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-34A | Modelowanie i symulacje komputerowe w energetyce | 75 | 30 | | 45 | | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | 3 | | | 5 | | | | | | | | | |
| EN-I-34B | Projektowanie systemów energetycznych wspomagane komputerowo | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-35A | Systemy informacji przestrzennej w energetyce | 45 | 15 | | 30 | | 3 | | | | | | | 1 | | 2 | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-35B | Bazy danych w energetyce | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-36 | Podstawy automatyki | 30 | 15 | | 15 | | 2 | | | | | | | 1 | | 1 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-37 | Ciepłownictwo | 60 | 30 | 15 | | 15 | 5 | | | | | | | | | | | | | | | | | | | 2 | 1 | | 1 | E | 5 | | | | | | | | | | | | | | | | | | | | | |
| EN-I-38 | Sieci ciepłownicze i magazynowanie ciepła | 45 | 30 | | | 15 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | 1 | E | 3 | | | | | | | | | |
| EN-I-39 | Konwersja ciepła w systemach energetycznych | 30 | 15 | | | 15 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 2 | | | | | | | | | | | | | | | |
| EN-I-40 | Czyste technologie energetyczne | 15 | 15 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | 1 | | |
| EN-I-41 | Niezawodność systemów energetycznych | 15 | 15 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | 1 | | | | | | | | |
| EN-I-42A | Techniki ochrony powietrza | 45 | 30 | | | 15 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | 1 | | 3 | | | | | | | | | | | | | | | |
| EN-I-42B | Spalanie paliw energetycznych | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-43 | Energetyka jądrowa | 30 | 15 | 15 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | 2 | | | | | | | | | | | | | | | |
| EN-I-44A | Efektywność energetyczna obiektów | 60 | 30 | 15 | | 15 | 4 | | | | | | | | | | | | | 2 | 1 | | 1 | E | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-44B | Audyt energetyczny | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-45 | Automatyka budowlana | 30 | 15 | | 15 | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | 1 | | | 2 | | | | | | | | | | | | | | | |
| EN-I-46A | Instalacje sanitarne w budynkach energooszczędnych | 60 | 30 | | | 30 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | 2 | E | 5 | | | | | | | | | |
| EN-I-46B | Zaopatrzenie budynków w ciepło | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-47 | Energetyka gazowa | 30 | 15 | 15 | | | 2 | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | 2 | | | | | | | | | | | | | | | | | | | | | |
| EN-I-48 | Inżynieria gazownictwa | 30 | 15 | | | 15 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 2 | | | | | | | | | | | | | | | |
| EN-I-49 | Wytwarzanie energii elektrycznej | 60 | 30 | | 30 | | 4 | | | | | | | | | | | | | | | | | | | 2 | | 2 | | E | 4 | | | | | | | | | | | | | | | | | | | | | |
| EN-I-50 | Urządzenia elektryczne | 90 | 30 | | 30 | 30 | 7 | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | 2 | 2 | E | 7 | | | | | | | | | | | | | | | |
| EN-I-51 | Sieci elektroenergetyczne | 75 | 30 | | 15 | 30 | 6 | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | 1 | 2 | E | 6 | | | | | | | | | | | | | | | |
| EN-I-52 | Podstawy elektroenergetyki | 45 | 30 | 15 | | | 3 | | | | | | | | | | | | | 2 | | 1 | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-53 | Miernictwo wielkości elektrycznych | 30 | 15 | | 15 | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | 1 | | | 2 | | | | | | | | | | | | | | | |
| EN-I-54 | Zastosowania odnawialnych źródeł energii | 30 | 15 | | 15 | | 2 | | | | | | | 1 | | 1 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-55 | Pompy ciepła | 30 | 15 | | | 15 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 2 | | |
| EN-I-56 | Układy magazynowania energii | 15 | 15 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | 1 | | |
| EN-I-57 | Energetyka geotermalna | 30 | 15 | 15 | | | 2 | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | 2 | | | | | | | | | | | | | | | | | | | | | |
| EN-I-58A | Konwersja fotowoltaiczna | 60 | 30 | | | 30 | 5 | | | | | | | | | | | | | | | | | | | 2 | | | 2 | E | 5 | | | | | | | | | | | | | | | | | | | | | |
| EN-I-58B | Konwersja fototermiczna | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-59A | Metody przetwarzania biomasy do energii | 60 | 30 | | | 30 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | 2 | E | 4 | | | | | | | | | |
| EN-I-59B | Biopaliwa gazowe i ciekłe | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-60 | Metody poprawy efektywności konwersji biomasy do energii | 30 | 15 | 15 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | 2 | | |
| EN-I-61 | Hydroenergetyka | 30 | 15 | 15 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 | | | | 2 | | |
| EN-I-62 | Energetyka wiatrowa | 30 | 15 | | | 15 | 2 | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 2 | | | | | | | | | | | | | | | | | | | | | |
| EN-I-63 | Woda i ścieki w energetyce | 45 | 15 | 15 | | 15 | 3 | | | | | | | | | | | | | | | | | | | 1 | 1 | | 1 | | 3 | | | | | | | | | | | | | | | | | | | | | |
| EN-I-64A | Ochrona środowiska w energetyce | 30 | 30 | | | | 2 | 2 | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-64B | Ekotoksykologia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN-I-65 | Zagospodarowanie odpadów z produkcji energii | 15 | 15 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | 1 | | |
| EN-I-66 | Termiczne metody przekształcania odpadów | 30 | 15 | | | 15 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | 1 | | 2 | | |
| EN-I-67 | Seminarium dyplomowe | 30 | | 30 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | 2 | | |
| EN-I-68 | Praktyka inżynierska | 120 | | | | | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 4 tygodnie | | | | | 4 | | | | | | | | |
| EN-I-69 | Praca inżynierska | 0 | | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 15 |
| | **RAZEM** | **2916** | **1279** | **722** | **450** | **345** | **210** | 13 | 10 | 5 | 0 | 3 | 30 | 13 | 6 | 9 | 1 | 4 | 30 | 12 | 10 | 7 | 1 | 3 | 29 | 13 | 9 | 2 | 7 | 3 | 31 | 12 | 4 | 5 | 7 | 2 | 30 | 12 | 4 | 3 | 5 | 3 | 29 | 10 | 4 | 0 | 2 | 0 | 31 |
| | **Suma godzin w tygodniu** | | | | | | | 28 | | | | | | 29 | | | | | | 30 | | | | | | 31 | | | | | | 28 | | | | | | 24 | | | | | | 16 | | | | | |