# PLAN STUDIÓW I stopnia - studia stacjonarne

Wydział **INŻYNIERII ŚRODOWISKA I ENERGETYKI** rok ak. **2019/2020**

Kierunek **Energetyka**

Specjalność **Energetyka gazowa i rozproszona**

| PRZEDMIOTY - SEMESTR | Razem | Wykł. | Ćw. | Sem. | Lab. | Proj. | 1 sem | | | | 2 sem | | | | 3 sem | | | | 4 sem | | | | 5 sem | | | | | 6 sem | | | | 7 sem | | | | | ECTS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | w | c | l | p | w | c | l | p | w | c | l | p | w | c | l | p | w | c | s | l | p | w | c | l | p | w | c | s | l | p | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Σ |
| **PRZEDMIOTY NIETECHNICZNE** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Język angielski | 120 | 0 | 120 | 0 | 0 | 0 | | 2 | | | | 2 | | | | 2 | | | | 2 | | | | | | | | | | | | | | | | 2 | 2 | 2 | 2 | | | | 8 |
| Wychowanie fizyczne | 60 | 0 | 60 | 0 | 0 | 0 | | 2 | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 |
| Przedmiot humanistyczny | 15 | 15 | 0 | 0 | 0 | 0 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | 1 |
| Przedmiot ekonomiczny | 30 | 30 | 0 | 0 | 0 | 0 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | 3 |
| Ochrona własności intelektualnych | 15 | 15 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | 1 | 1 |
| **PRZEDMIOTY PODSTAWOWE** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Matematyka | 150 | 60 | 90 | 0 | 0 | 0 | 2 | 4 | | | 2 | 2 | | | | | | | | | | | | | | | | | | | | | | | | 7 | 5 | | | | | | 12 |
| Technologie informacyjne | 30 | 0 | 0 | 0 | 30 | 0 | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | 2 |
| Fizyka | 90 | 30 | 30 | 0 | 30 | 0 | 2 | 2 | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | 6 | 3 | | | | | | 9 |
| Chemia | 60 | 30 | 15 | 0 | 15 | 0 | 2 | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | 6 | 2 | | | | | | 8 |
| Grafika inżynierska | 45 | 15 | 0 | 0 | 0 | 30 | | | | | 1 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | 3 |
| **PRZEDMIOTY KIERUNKOWE** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Informatyczne podstawy projektowania | 75 | 15 | 0 | 0 | 30 | 30 | | | | | | | | | 1 | | 2 | | | | | 2 | | | | | | | | | | | | | | | | 3 | 2 | | | | | 5 |
| Mechanika techniczna | 60 | 30 | 30 | 0 | 0 | 0 | | | | | 2 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | 5 | | | | | | 5 |
| Elektrotechnika i elektronika | 75 | 30 | 15 | 0 | 30 | 0 | | | | | 2 | 1 | 2 | | | | | | | | | | | | | | | | | | | | | | | | 5 | | | | | | 5 |
| Podstawy metrologii i techniki eksperymentu | 45 | 15 | 0 | 0 | 30 | 0 | | | | | | | | | 1 | | 2 | | | | | | | | | | | | | | | | | | | | | 4 | | | | | 4 |
| Maszyny energetyczne | 45 | 30 | 15 | 0 | 0 | 0 | 2 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 | | | | | | | 5 |
| Wytrzymałość materiałów | 75 | 30 | 30 | 0 | 15 | 0 | | | | | | | | | 2 | 2 | 1 | | | | | | | | | | | | | | | | | | | | | 6 | | | | | 6 |
| CAD | 45 | 0 | 0 | 0 | 45 | 0 | | | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | 3 |
| Maszyny elektryczne | 45 | 30 | 0 | 0 | 15 | 0 | | | | | | | | | | | | | 2 | | 1 | | | | | | | | | | | | | | | | | | 3 | | | | | 3 |
| Ochrona środowiska w energetyce | 45 | 30 | 0 | 0 | 15 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | 3 |
| Podstawy konstrukcji maszyn | 60 | 30 | 0 | 0 | 0 | 30 | | | | | | | | | 2 | | | 2 | | | | | | | | | | | | | | | | | | | | | 5 | | | | | 5 |
| Materiały konstrukcyjne i eksploatacyjne | 45 | 30 | 0 | 0 | 15 | 0 | | | | | | | | | 2 | | 1 | | | | | | | | | | | | | | | | | | | | | 4 | | | | | 4 |
| Termodynamika techniczna | 120 | 45 | 60 | 0 | 15 | 0 | | | | | | | | | 2 | 2 | | | 1 | 2 | 1 | | | | | | | | | | | | | | | | | 6 | 5 | | | | 11 |
| Mechanika płynów | 75 | 30 | 30 | 0 | 15 | 0 | | | | | | | | | | | | | 2 | 2 | 1 | | | | | | | | | | | | | | | | | | 6 | | | | | 6 |
| Technologie energetyczne | 75 | 45 | 30 | 0 | 0 | 0 | | | | | | | | | | | | | 2 | 1 | | | 1 | 1 | | | | | | | | | | | | | | | 3 | 2 | | | | 5 |
| Przesyłanie energii elektrycznej | 30 | 15 | 0 | 0 | 15 | 0 | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | | | | | | | | | 2 | | | | | 2 |
| Woda i ścieki w energetyce | 45 | 30 | 0 | 0 | 15 | 0 | | | | | | | | | | | | | | | | | | | | | | 2 | | 1 | | | | | | | | | | 3 | | | | 3 |
| Gospodarka odpadami i recykling | 45 | 30 | 0 | 0 | 15 | 0 | | | | | | | | | | | | | 2 | | 1 | | | | | | | | | | | | | | | | | | 3 | | | | | 3 |
| Podstawy automatyki | 60 | 30 | 15 | 0 | 15 | 0 | | | | | | | | | | | | | 2 | 1 | 1 | | | | | | | | | | | | | | | | | | 4 | | | | | 4 |
| Transport ciepła i masy | 75 | 30 | 30 | 0 | 15 | 0 | | | | | | | | | | | | | | | | | 2 | 2 | | 1 | | | | | | | | | | | | | | 6 | | | | 6 |
| Eksploatacja instalacji energetycznych | 45 | 30 | 0 | 0 | 15 | 0 | | | | | | | | | | | | | | | | | 2 | | | 1 | | | | | | | | | | | | | | 3 | | | | 3 |
| Gospodarka energetyczna | 60 | 30 | 30 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | 2 | 2 | | | | | | | | | | | | 4 | | | | 4 |
| Inżynieria finansowa w energetyce | 45 | 30 | 0 | 0 | 15 | 0 | | | | | | | | | | | | | | | | | | | | | | 2 | | 1 | | | | | | | | | | | 3 | | | | 3 |
| Alternatywne źródła energii | 45 | 30 | 0 | 0 | 15 | 0 | | | | | | | | | | | | | | | | | | | | | | 2 | | 1 | | | | | | | | | | | 2 | | | | 2 |
| **PRZEDMIOTY SPECJALNOŚCIOWE** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pomiary wielkości energetycznych Measurements of energy quantities | 45 | 15 | 0 | 0 | 30 | 0 | | | | | | | | | | | | | | | | | 1 | | | 2 | | | | | | | | | | | | | 4 | | | | 4 |
| Energetyka gazowa | 60 | 30 | 0 | 0 | 30 | 0 | | | | | | | | | | | | | | | | | 2 | | | 2 | | | | | | | | | | | | | 4 | | | | 4 |
| Czyste technologie energetyczne | 60 | 30 | 0 | 0 | 0 | 30 | | | | | | | | | | | | | | | | | 2 | | | | 2 | | | | | | | | | | | | 5 | | | | 5 |
| Podstawy energetyki komunalnej | 30 | 15 | 0 | 0 | 0 | 15 | | | | | | | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | | | | 3 | | | | 3 |
| Przedmioty obieralne* | 135 | 135 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | 3 | | | | | 3 | | | | 3 | | | | | | | 3 | 3 | 4 | 10 |
| Paliwa i ich spalanie Fuels and combustion | 30 | 15 | 0 | 0 | 15 | 0 | | | | | | | | | | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | | 2 | | | | 2 |
| Energetyczne zaopatrzenie budynków | 60 | 30 | 0 | 0 | 0 | 30 | | | | | | | | | | | | | | | | | | | | | | 2 | | | 2 | | | | | | | | | | 4 | | | | 4 |
| Inżynieria gazownictwa | 45 | 30 | 0 | 0 | 15 | 0 | | | | | | | | | | | | | | | | | | | | | | 2 | | 1 | | | | | | | | | | | 3 | | | | 3 |
| Praktyka zawodowa (4 tygodnie) | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 6 | | | | 6 |
| Zasady projektowania układów energetycznych | 60 | 15 | 0 | 0 | 0 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | 3 | | | | | | | 5 | 5 |
| Seminarium specjalnościowe | 30 | 0 | 0 | 30 | 0 | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | 5 | 5 |
| Projekt inżynierski | 45 | 0 | 0 | 0 | 0 | 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | | | | 15 | 15 |
| **Liczba godzin zajęć w tygodniu** | **2550** | **1155** | **600** | **30** | **510** | **255** | 11 | 12 | 0 | 0 | 7 | 9 | 10 | 2 | 10 | 6 | 6 | 2 | 12 | 8 | 6 | 2 | 14 | 3 | 0 | 6 | 3 | 18 | 2 | 6 | 2 | 5 | 0 | 2 | 0 | 6 | | | | | | | | |
| **Łącznie godzin w tygodniu** | | | | | | | **23** | | | | **28** | | | | **24** | | | | **28** | | | | **26** | | | | | **28** | | | | **13** | | | | | | | | | | | |
| **Łącznie punktów ECTS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 30 | 30 | 30 | 30 | 30 | 33 | 30 | 213 |
| **Egzaminy** | | | | | | | **1** | | | | **3** | | | | **2** | | | | **3** | | | | **3** | | | | | **2** | | | | | | | | | | | | | | | |

*** przedmioty obieralne 9 h w wymiarze: 5 h (wykład + ćwiczenia), 4 h (laboratorium + projekt)**

Specjalność projektowa **Energetyka gazowa i rozproszona** - przedmioty zastąpione

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Projekt przemysłowy | 180 | 0 | 0 | 0 | 0 | 180 | | | | | | | | | | | | | | | | | | | | 6 | | | | 6 | | | | | | | | | 7 | 7 | | 14 |
| **Liczba godzin zajęć w tygodniu** | **2550** | **1005** | **600** | **30** | **480** | **435** | | | | | | | | | | | | | | | | | 9 | 3 | 0 | 5 | 9 | 13 | 2 | 5 | 8 | | | | | | | | | | | |
| **Łącznie godzin w tygodniu** | | | | | | | | | | | | | | | | | | | | | | | **26** | | | | | **28** | | | | | | | | | | | | | | |
| **Łącznie punktów ECTS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 31 | 34 | | 215 |
| **Egzaminy** | | | | | | | | | | | | | | | | | | | | | | | **3** | | | | | **2** | | | | | | | | | | | | | | |