PWSZ KROSNO kierunek **ENERGETYKA ( od 01.10.2015 )**
specjalność - OZE **stacjonarny [Odnawialne źródła energii ]**

| Lp. | Nazwa przedmiotu | Egz po sem/ zalicz | Rok I | | | | | | | | Rok II | | | | | | | | Rok III | | | | | | | | Rok IV | | | | Suma godzin | Suma ECTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | sem. 1 | | | | sem. 2 | | | | sem. 3 | | | | sem. 4 | | | | sem. 5 | | | | sem. 6 | | | | sem. 7 | | | | | |
| | | | W | ĆW | | ECTS | W | ĆW | | ECTS | W | ĆW | | ECTS | W | ĆW | | ECTS | W | ĆW | | ECTS | W | ĆW | | ECTS | W | ĆW | | ECTS | | |
| | | | | godz. | forma | | | godz. | forma | | | godz. | forma | | | godz. | forma | | | godz. | forma | | | godz. | forma | | | godz. | forma | | | |
| **A.** | **Moduł kształcenia ogólnego** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **150** | **8** |
| 1 | Technologia informacyjna | Z | | 15 | L | 1 | | 15 | L | 1 | | | | | | | | | | | | | | | | | | | | | 30 | 2 |
| 2 | Ochrona własności intelektualnej, normalizacja i komercjalizacja innowacji | Z | | | | | 15 | 15 | A | 2 | | | | | | | | | | | | | | | | | | | | | 30 | 2 |
| 3 | Wychowanie fizyczne | Z | | 30 | | 1 | | 30 | | 1 | | | | | | | | | | | | | | | | | | | | | 60 | 2 |
| 4 | Ergonomia i bezpieczeństwo pracy | Z | 15 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | 15 | 1 |
| 5 | Wprowadzenie do studiowania | Z | 15 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | 15 | 1 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 |
| **B** | **Moduł kształcenia podstawowego** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **690** | **55** |
| 1 | Matematyka | E1,2 | 45 | 45 | A | 7 | 30 | 30 | A | 5 | | | | | | | | | | | | | | | | | | | | | 150 | 12 |
| 2 | Fizyka | E1 | 30 | 15<br>15 | A<br>L | 5 | | | | | | | | | | | | | | | | | | | | | | | | | 60 | 5 |
| 3 | Chemia | E2 | 15 | 15<br>15 | A<br>L | 4 | 15 | 15<br>15 | A<br>L | 4 | | | | | | | | | | | | | | | | | | | | | 90 | 8 |
| 4 | Informatyka | Z | | | | | | | | | | | | | 30 | 30 | L | 3 | | | | | | | | | | | | | 60 | 3 |
| 5 | Mechanika techniczna | E2 | | | | | 30 | 30 | A | 4 | | | | | | | | | | | | | | | | | | | | | 60 | 4 |
| 6 | Wytrzymałość materiałów | Z | | | | | | | | | | | | | 15 | 15 | A | 2 | | | | | | | | | | | | | 30 | 2 |
| 7 | Elektrotechnika | E3 | | | | | | | | | 30 | 15<br>15 | A<br>L | 5 | | | | | | | | | | | | | | | | | 60 | 5 |
| 8 | Elektronika | E4 | | | | | | | | | 30 | 15<br>15 | A<br>L | 5 | | | | | | | | | | | | | | | | | 45 | 5 |
| 9 | Automatyka | E5 | | | | | | | | | | | | | | | | | 30 | 15<br>15 | A<br>L | 5 | | | | | | | | | 60 | 5 |
| 10 | Podstawy konstrukcji maszyn | Z | | | | | | | | | | | | | | | | | 15 | 30 | PR | 4 | | | | | | | | | 45 | 4 |
| 11 | Techniki wytwarzania | Z | | | | | 15 | 15 | A | 2 | | | | | | | | | | | | | | | | | | | | | 30 | 2 |
| **C** | **Moduł kształcenia kierunkowego** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **780** | **54** |
| 1 | Grafika inżynierska | Z | 15 | 30 | PR | 4 | | | | | | | | | | | | | | | | | | | | | | | | | 45 | 4 |
| 2 | Materiały konstrukcyjne i eksploatacyjne | Z | 30 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | 30 | 2 |
| 3 | Maszyny elektryczne | E4 | | | | | | | | | | | | | 30 | 15<br>15 | A<br>L | 5 | | | | | | | | | | | | | 60 | 5 |
| 4 | Przesyłanie energii elektrycznej | Z | | | | | | | | | | | | | 30 | 15<br>15 | A<br>L | 4 | | | | | | | | | | | | | 60 | 4 |
| 5 | Termodynamika Techniczna | E2 | | | | | 30 | 30<br>15 | A<br>L | 6 | | | | | | | | | | | | | | | | | | | | | 75 | 6 |
| 6 | Mechanika płynów | E3 | | | | | | | | | 30 | 15<br>15 | A<br>L | 5 | | | | | | | | | | | | | | | | | 60 | 5 |
| 7 | Zaawansowane technologie energetyczne | Z | | | | | | | | | | | | | | | | | 15 | 15 | A | 2 | | | | | | | | | 30 | 2 |
| 8 | Badanie maszyn i urzadzeń energetycznych | Z | | | | | | | | | | | | | | | | | | | | | | 15 | L | 2 | | | | | 15 | 2 |
| 9 | Wytwarzanie energii elektrycznej | Z | | | | | | | | | | | | | | | | | 15 | 15 | A | 2 | | | | | | | | | 30 | 2 |
| 10 | Maszyny i urządzenia energetyczne | E3 | | | | | | | | | 30 | 15 | A | 3 | | | | | | | | | | | | | | | | | 45 | 3 |
| 11 | Ochrona środowiska w energetyce | Z | | | | | | | | | | | | | | | | | | | | | 30 | 15 | L | 3 | | | | | 45 | 3 |
| 12 | Eksploatacja maszyn i instalacji energetycznych | Z | | | | | | | | | | | | | | | | | | | | | | | | | 15 | 15 | A | 2 | 30 | 2 |

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| 13 | Gospodarka energetyczna | Z | | | | | | | | | | | | | | | | | | | | | 15 | 15 | PR | 2 | | | | | 30 | 2 |
| 14 | Cieplne systemy energetyczne | Z | | | | | | | | | | | | | 15 | 15 | A | 2 | | | | | | | | | | | | | 30 | 2 |
| 15 | Podstawy metrologii i miernictwa cieplnego | Z | | | | | | | | | | | | | 30 | 15 | L | 2 | | | | | | | | | | | | | 45 | 2 |
| 16 | Wymiana ciepła i spalanie | Z | | | | | | | | | 15 | 30 | A | 3 | | | | | | | | | | | | | | | | | 45 | 3 |
| 17 | Prowadzenie działalności przedsiębiorstwa energetycznego na rynku | Z | | | | | | | | | | | | | | | | | | | | | 30 | 15 | A | 2 | 15 | 15 | A | 2 | 75 | 4 |
| 18 | Rynek energii | Z | | | | | | | | | | | | | | | | | | | | | | | | | 30 | | | 1 | 30 | 1 |
| **D** | **Moduły do wyboru (D1 + D2) suma ECTS / godz. (min. 30% ECTS)** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **975** | **96** |
| **D1** | **Moduł kształcenia specjalnościowego - OZE** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **780** | **79** |
| 1 | Fizyka cieplna budowli | Z | | | | | | | | | | | | | 15 | 15 | A | 2 | | | | | | | | | | | | | 30 | 2 |
| 2 | Ogrzewnictwo,Wentylacja | E5 | | | | | | | | | | | | | | | | | 15 | 15<br>15 | A<br>PR | 3 | | | | | | | | | 45 | 3 |
| 3 | Pompy,sprężarki i wentylatory z rurociągami | E3 | | | | | | | | | 30 | 15<br>15<br>15 | A<br>L<br>PR | 6 | | | | | | | | | | | | | | | | | 75 | 6 |
| 4 | Budownictwo energooszczędne | Z | | | | | | | | | 15 | 15 | PR | 2 | | | | | | | | | | | | | | | | | 30 | 2 |
| 5 | Energetyka słoneczna | E4 | | | | | | | | | | | | | 15 | 15<br>15 | A<br>PR | 4 | | | | | | | | | | | | | 45 | 4 |
| 6 | Pompy ciepła | E5 | | | | | | | | | | | | | | | | | 15 | 15<br>15 | A<br>PR | 4 | | | | | | | | | 45 | 4 |
| 7 | Energetyka wiatrowa | Z | | | | | | | | | | | | | | | | | 15 | 15 | PR | 2 | | | | | | | | | 30 | 2 |
| 8 | Energetyka wodna | Z | | | | | | | | | | | | | | | | | | | | | 15 | 15 | PR | 2 | | | | | 30 | 2 |
| 9 | Badania OZE | Z | | | | | | | | | | | | | | | | | | | | | | 15 | L | 2 | | | | | 15 | 2 |
| 10 | Technologia produkcji roślin energetycznych | Z | | | | | | | | | | | | | 15 | 30 | PR | 2 | | | | | | | | | | | | | 45 | 2 |
| 11 | Produkcja i wykorzystania biopaliw | E5 | | | | | | | | | | | | | | | | | 30 | 45 | PR | 5 | | | | | | | | | 75 | 5 |
| 12 | Środowiskowe aspekty wdrażania energetyki odnawialnej | Z | | | | | | | | | | | | | | | | | 15 | 30 | PR | 3 | | | | | | | | | 45 | 3 |
| 13 | Ekonomika i finansowanie technologii OZE | Z | | | | | | | | | | | | | | | | | | | | | | | | | 15 | 15 | PR | 2 | 30 | 2 |
| 14 | Doradztwo energetyczne i energetyka prosumencka | Z | | | | | | | | | | | | | | | | | | | | | | | | | 15 | 15 | PR | 2 | 30 | 2 |
| 15 | Automatyka i sterowanie w OZE | E6 | | | | | | | | | | | | | | | | | | | | | 15 | 15<br>15 | A<br>L | 3 | | | | | 45 | 3 |
| 16 | Instalacje elektryczne w obiektach | Z | | | | | | | | | | | | | | | | | | | | | 15 | 15<br>15 | A<br>PR | 3 | | | | | 45 | 3 |
| 17 | Komputerowe wspomaganie projektowania w energetyce | E6 | | | | | | | | | | | | | | | | | | | | | 15 | 45 | L | 5 | | | | | 60 | 5 |
| 18 | Seminarium dyplomowe i praca dyplomowa | Z6 / E7 | | | | | | | | | | | | | | | | | | | | | | 30 | S | 6 | | 30 | S | 21 | 60 | 27 |
| **D2** | **Moduł humanistyczno-społeczny do wyboru** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **195** | **17** |
| 1 | Elementy kultury współczesnej/Tradycje Euroregionu Karpackiego | Z | | | | | | 30 | A | 2 | | | | | | | | | | | | | | | | | | | | | 30 | 2 |
| 2 | Wykłady tematyczne | Z | 15 | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | 15 | 1 |
| 3 | Psychologia/Socjologia/Historia | Z | | | | | 30 | | | 2 | | | | | | | | | | | | | | | | | | | | | 30 | 2 |
| 4 | Lektorat języka obcego | E4 | | 30 | A | 3 | | 30 | A | 3 | | 30 | A | 3 | | 30 | A | 3 | | | | | | | | | | | | | 120 | 12 |
| **E** | **Praktyka** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **30** |
| 1 | Praktyka technologczna | Z | | | | | | 4 tyg | | 8 | | | | | | | | | | | | | | | | | | | | | | 8 |
| 2 | Praktyka zawodowa | Z | | | | | | | | | | | | | | 7 tyg | | 14 | | | | | | | | | | | | | | 14 |
| 3 | Praktyka dyploowa | Z | | | | | | | | | | | | | | | | | | | | | | 4 tyg | | 8 | | | | | | 8 |
| **SUMA** | | | **180** | **210** | | **30** | **165** | **270** | | **40** | **180** | **225** | | **32** | **195** | **240** | | **43** | **165** | **240** | | **30** | **135** | **225** | | **38** | **90** | **90** | | **30** | **2595** | **243** |
| **OGÓŁEM** | | | **390** | | | | **435** | | | | **405** | | | | **435** | | | | **405** | | | | **360** | | | | **180** | | | | **2610** | **243** |