**Wydział Informatyki i Nauki o Materiałach**
**Kierunek - Inżynieria materiałowa**
**Specjalność - Biomateriały**

studia I stopnia
studia stacjonarne
od roku akademickiego 2013/2014

**A** **GRUPA MODUŁÓW PODSTAWOWYCH**

| Lp | Kod mudułu | Nazwa modułu | E/Z | Razem | w tym | | | | | Razem ECTS | I rok | | | | | | II rok | | | | | | III rok | | | | | | IV rok | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | semestr 1 15 tyg. | | | semestr 2 15 tyg. | | | semestr 3 15 tyg. | | | semestr 4 15 tyg. | | | semestr 5 15 tyg. | | | semestr 6 15 tyg. | | | semestr 7 15 tyg. | | |
| | | | | | wykłady | ćwicz. | laborat. | konwer. | semin. | | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS |
| 1 | IM1A_MAT1 | Matematyka stosowana 1 | E/1 | 60 | 30 | | 30 | | | 5 | 30 | 30 | 5 | | | | | | | | | | | | | | | | | | |
| 2 | IM1A_MAT2 | Matematyka stosowana 2 | E/2 | 60 | 30 | | 30 | | | 5 | | | | 30 | 30 | 5 | | | | | | | | | | | | | | | |
| 3 | IM1A_F1 | Fizyka 1 | E/1 | 90 | 45 | 15 | 30 | | | 5 | 45 | 45 | 5 | | | | | | | | | | | | | | | | | | |
| 4 | IM1A_F2 | Fizyka 2 | E/2 | 75 | 30 | 15 | 30 | | | 5 | | | | 30 | 45 | 5 | | | | | | | | | | | | | | | |
| 5 | IM1A_CH1 | Chemia 1 | E/1 | 60 | 30 | 15 | 15 | | | 5 | 30 | 30 | 5 | | | | | | | | | | | | | | | | | | |
| 6 | IM1A_CH2 | Chemia 2 | E/2 | 60 | 30 | | 30 | | | 5 | | | | 30 | 30 | 5 | | | | | | | | | | | | | | | |
| 7 | IM1A_MFP | Matematyczno fizyczne podstawy nauki o materiałach | Z | 75 | 30 | | 45 | | | 3 | | | | 30 | 45 | 3 | | | | | | | | | | | | | | | |
| 8 | IM1A_ITI | Informatyka i technologie informacyjne | Z | 60 | 30 | | 30 | | | 5 | 30 | 30 | 5 | | | | | | | | | | | | | | | | | | |
| 9 | IM1A_JP | Języki programowania | E/2 | 60 | 30 | | 30 | | | 4 | | | | 30 | 30 | 4 | | | | | | | | | | | | | | | |
| 10 | IM1A_PZ | Podstawy zarządzania | Z | 45 | 30 | | | 15 | | 3 | 30 | 15 | 3 | | | | | | | | | | | | | | | | | | |
| 11 | IM1A_WZM | Wybrane zagadnienia z marketingu | E/4 | 60 | 45 | | | 15 | | 3 | | | | | | | | | | 45 | 15 | 3 | | | | | | | | | |
| | | **RAZEM A:** | | **705** | **360** | **45** | **270** | **30** | **0** | **48** | **165** | **150** | **23** | **150** | **180** | **22** | **0** | **0** | **0** | **45** | **15** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

**B** **GRUPA MODUŁÓW KIERUNKOWYCH**

| Lp | Kod mudułu | Nazwa modułu | E/Z | Razem | w tym | | | | | Razem ECTS | I rok | | | | | | II rok | | | | | | III rok | | | | | | IV rok | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | semestr 1 15 tyg. | | | semestr 2 15 tyg. | | | semestr 3 15 tyg. | | | semestr 4 15 tyg. | | | semestr 5 15 tyg. | | | semestr 6 15 tyg. | | | semestr 7 15 tyg. | | |
| | | | | | wykłady | ćwicz. | labolat. | konwer. | semin. | | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS |
| 12 | IM1A_KRYST | Krystalografia | E/1 | 60 | 30 | | 30 | | | 5 | 30 | 30 | 5 | | | | | | | | | | | | | | | | | | |
| 13 | IM1A_WBIO | Wprowadzenie do biomateriałów | Z | 60 | 30 | | 30 | | | 3 | | | | | | | 30 | 30 | 3 | | | | | | | | | | | | |
| 14 | IM1A_FCPB | Fizyko-chemia procesów biologicznych | E/3 | 60 | 30 | | 30 | | | 3 | | | | | | | 30 | 30 | 3 | | | | | | | | | | | | |
| 15 | IM1A_TERM | Termodynamika techniczna | Z | 45 | 30 | 15 | | | | 3 | | | | 30 | 15 | 3 | | | | | | | | | | | | | | | |
| 16 | IM1A_PNOM | Podstawy nauki o materiałach | E/3 | 150 | 75 | | 75 | | | 9 | | | | | | | 75 | 75 | 9 | | | | | | | | | | | | |
| 17 | IM1A_MI | Materiały inżynierskie | E/4 | 75 | 30 | | 45 | | | 6 | | | | | | | | | | 30 | 45 | 6 | | | | | | | | | |
| 18 | IM1A_BM | Biomateriały metaliczne | E/4 | 75 | 30 | | 45 | | | 6 | | | | | | | | | | 30 | 45 | 6 | | | | | | | | | |
| 19 | IM1A_BC | Biomateriały ceramiczne | E/4 | 60 | 30 | | 30 | | | 5 | | | | | | | | | | 30 | 30 | 5 | | | | | | | | | |
| 20 | IM1A_PDM | Polimery dla medycyny | E/5 | 60 | 30 | | 30 | | | 5 | | | | | | | | | | | | | 30 | 30 | 5 | | | | | | |
| 21 | IM1A_BWK | Biomateriały węglowe i kompozytowe | E/5 | 60 | 30 | | 30 | | | 5 | | | | | | | | | | | | | | | | 30 | 30 | 5 | | | |
| 22 | IM1A_NWM | Nanomateriały w medycynie | E/6 | 75 | 30 | | 45 | | | 6 | | | | | | | | | | | | | | | | 30 | 45 | 6 | | | |
| 23 | IM1A_BFAB | Biologiczne i fizjoloiczne aspekty biomateriałów | Z | 45 | 30 | | 15 | | | 2 | | | | | | | | | | | | | | | | | | | 30 | 15 | 2 |
| 24 | IM1A_MBM1 | Metody badań materiałów 1 | E/3 | 75 | 30 | | 45 | | | 4 | | | | | | | 30 | 45 | 4 | | | | | | | | | | | | |
| 25 | IM1A_MBM2 | Metody badań materiałów 2 | E/4 | 75 | 30 | | 45 | | | 4 | | | | | | | | | | 30 | 45 | 4 | | | | | | | | | |
| 26 | IM1A_TWM | Technologie wytwarzania materiałów | E/6 | 150 | 75 | | 75 | | | 10 | | | | | | | | | | | | | 75 | 75 | 10 | | | | | | |
| 27 | IM1A_PEE | Podstawy elektroniki i elektrotechniki | Z | 60 | 30 | | 30 | | | 3 | | | | | | | 30 | 30 | 3 | | | | | | | | | | | | |
| 28 | IM1A_KIOPK | Korozja i ochrona przed korozją | Z | 45 | 20 | | 25 | | | 3 | | | | | | | | | | 20 | 25 | 3 | | | | | | | | | |
| 29 | IM1A_INMED | Techniki informatyczne w medycynie | Z | 60 | 30 | | 30 | | | 4 | | | | | | | | | | | | | 30 | 30 | 4 | | | | | | |
| 30 | IM1A_MZEB | Mechanika z elementami biomechaniki | E/3 | 75 | 45 | | 30 | | | 3 | | | | | | | 45 | 30 | 3 | | | | | | | | | | | | |
| 31 | IM1A_IPM | Inżynieria powierzchni materiałów | E/6 | 45 | 30 | | 15 | | | 3 | | | | | | | | | | | | | | | | 30 | 15 | 3 | | | |
| 32 | IM1A_PIGI | Projektowanie i grafika inżynierska | Z | 45 | 15 | | 30 | | | 3 | | | | | | | 15 | 30 | 3 | | | | | | | | | | | | |
| 33 | IM1A_PSK | Programowanie obiektowe i symulacje komputerowe | E/5 | 60 | 30 | | 30 | | | 5 | | | | | | | | | | | | | 30 | 30 | 5 | | | | | | |
| 34 | IM1A_BDOM | Bazy danych o materiałach | Z | 60 | 30 | | 30 | | | 5 | | | | | | | | | | | | | 30 | 30 | 5 | | | | | | |
| 35 | IM1A_ZPIDM | Zasady projektowania i doboru materiałów | E/6 | 60 | 30 | | 30 | | | 5 | | | | | | | | | | | | | | | | 30 | 30 | 5 | | | |
| 36 | IM1A_ZSZ | Zintegrowane systemy zarządzania | Z | 45 | 30 | 15 | | | | 3 | | | | | | | | | | | | | | | | | | | 30 | 15 | 3 |
| 37 | IM1A_PD1 | Pracownia dyplomowa 1 | Z | 30 | | | 30 | | | 3 | | | | | | | | | | | | | | | | | 30 | 3 | | | |
| 38 | IM1A_PD2 | Pracownia dyplomowa 2 | Z | 60 | | | 60 | | | 5 | | | | | | | | | | | | | | | | | | | | 60 | 5 |
| 39 | IM1A_SD1 | Seminarium dyplomowe 1 | Z | 15 | | | | | 15 | 2 | | | | | | | | | | | | | | | | | 15 | 2 | | | |
| 40 | IM1A_SD2 | Seminarium dyplomowe 2 | Z | 30 | | | | | 30 | 5 | | | | | | | | | | | | | | | | | | | | 30 | 5 |
| | | **RAZEM B:** | | **1815** | **830** | **30** | **910** | **0** | **45** | **128** | **30** | **30** | **5** | **30** | **15** | **3** | **255** | **270** | **28** | **140** | **190** | **24** | **195** | **195** | **29** | **120** | **165** | **24** | **60** | **120** | **15** |

| C | | INNE WYMAGANIA | | | | | | | | | I rok | | | | | | II rok | | | | | | III rok | | | | | | IV rok | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | w tym | | | | | | semestr 1 15 tyg. | | | semestr 2 15 tyg. | | | semestr 3 15 tyg. | | | semestr 4 15 tyg. | | | semestr 5 15 tyg. | | | semestr 6 15 tyg. | | | semestr 7 15 tyg. | | |
| Lp | Kod mudułu | Nazwa modułu | E/Z | Razem | wykłady | ćwicz. | labolat. | konwer. | semin. | Razem ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS | wykł. | ćwicz. | ECTS |
| 41 | IM1A_PASP | Psychologiczne aspekty środowiska pracy | Z | 45 | 30 | | | 15 | | 3 | | | | 30 | 15 | 3 | | | | | | | | | | | | | | | |
| 42 | IM1A_JO1 | Język obcy 1 | Z | 30 | | 30 | | | | 2 | | 30 | 2 | | | | | | | | | | | | | | | | | | |
| 43 | IM1A_JO2 | Język obcy 2 | Z | 30 | | 30 | | | | 2 | | | | | 30 | 2 | | | | | | | | | | | | | | | |
| 44 | IM1A_JO3 | Język obcy 3 | Z | 30 | | 30 | | | | 2 | | | | | | | | 30 | 2 | | | | | | | | | | | | |
| 45 | IM1A_JO4 | Język obcy 4 | E/4 | 30 | | 30 | | | | 2 | | | | | | | | | | | 30 | 2 | | | | | | | | | |
| 46 | IM1A_WF | Wychowanie fizyczne | Z | 30 | | 30 | | | | 1 | | | | | | | | | | | 30 | 1 | | | | | | | | | |
| 47 | IM1A_PZ | Praktyka zawodowa | Z | 0 | | | | | | 6 | | | | | | | | | | | | | | | | | | 6 | | | |
| 48 | IM1A_PPD | Przygotowanie pracy dyplomowej | Z | 0 | | | | | | 15 | | | | | | | | | | | | | | | | | | | | | 15 |
| 49 | IM1A_OWI | Ochrona własności intelektualnej | Z | 15 | 15 | | | | | 1 | | | | | | | | | | | | | 15 | | 1 | | | | | | |
| | | **RAZEM C:** | | **210** | **45** | **150** | **0** | **15** | **0** | **34** | **0** | **30** | **2** | **30** | **45** | **5** | **0** | **30** | **2** | **0** | **60** | **3** | **15** | **0** | **1** | **0** | **0** | **6** | **0** | **0** | **15** |
| | | **RAZEM SEMESTRY (A+B+C)** | | **2 730** | **1 235** | **225** | **1 180** | **45** | **45** | **210** | **405** | | **30** | **450** | | **30** | **555** | | **30** | **450** | | **30** | **405** | | **30** | **285** | | **30** | **180** | | **30** |
| | | **RAZEM ROCZNIE** | | | | | | | | | **855** | | | | | | **1 005** | | | | | | **690** | | | | | | **180** | | |
| | | **OGÓŁEM** | | | | | | | | | **2 730** | | | | | | | | | | | | | | | | | | | | |

Studia kończą się nadaniem *tytułu zawodowego* ***inżyniera*** na kierunku "Inżyneria materiałowa" w specjalności "Biomateriały"

Plan studiów zatwierdzony przez Radę Wydziału w dniu 18.06.2013 r.

Otrzymują:
1. Dział Kształcenia
2. Instytut
3. Dziekanat

..... (pieczęć i podpis Dyrektora Instytutu)

..... (pieczęć i podpis Dziekana)