# Plan studiów I stopnia - studia stacjonarne

Uczelnia: Politechnika Śląska
Wydział: Budownictwa
Kierunek: Budownictwo
Moduł (specjalność): **Budownictwo Drogowe**
Uwagi: Zatwierdzony przez Radę Wydziału 26.04.2017 r.

| lp | nazwa | kod przedmiotu | liczba godzin | s. I | | | | | | | s. II | | | | | | | s. III | | | | | | | s. IV | | | | | | | s. V | | | | | | | s. VI | | | | | | | s. VII | | | | | | | s. VIII | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | kod karty | ECTS | Egzamin | wykład | ćwiczenia | laboratorium | projekt | seminarium | kod karty | ECTS | Egzamin | wykład | ćwiczenia | laboratorium | projekt | seminarium | kod karty | ECTS | Egzamin | wykład | ćwiczenia | laboratorium | projekt | seminarium | kod karty | ECTS | Egzamin | wykład | ćwiczenia | laboratorium | projekt | seminarium | kod karty | ECTS | Egzamin | wykład | ćwiczenia | laboratorium | projekt | seminarium | kod karty | ECTS | Egzamin | wykład | ćwiczenia | laboratorium | projekt | seminarium | kod karty | ECTS | Egzamin | wykład | ćwiczenia | laboratorium | projekt | seminarium |
| **I** | **Przedmioty inne** | | **480** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Matematyka | RB-S1-17-I01 | 150 | RB-S1-17-I01-1 | 6 | 1 | 30 | 30 | - | - | - | RB-S1-17-I01-2 | 7 | 1 | 45 | 45 | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 2 | Fizyka | RB-S1-17-I02 | 45 | RB-S1-17-I02-4 | 5 | 0 | 30 | 15 | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 3 | Chemia | RB-S1-17-I03 | 45 | RB-S1-17-I03-5 | 5 | 0 | 30 | - | 15 | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 4 | Język angielski | RB-S1-17-I04 | 120 | RB-S1-17-I04-25 | 2 | 0 | - | - | 30 | - | - | RB-S1-17-I04-29 | 2 | 0 | - | - | 30 | - | - | RB-S1-17-I04-2A | 2 | 0 | - | - | 30 | - | - | RB-S1-17-I04-26 | 2 | 1 | - | - | 30 | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 5 | Historia sztuki | RB-S1-17-I14 | 45 | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 6 | Ergonomia i bezpieczeństwo pracy | RB-S1-17-I06 | 15 | RB-S1-17-I06-9 | 1 | 0 | 15 | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 7 | Zajęcia sportowe | RB-S1-17-I07 | 60 | RB-S1-17-I07-A | 0 | 0 | - | 30 | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-I07-A | 0 | 0 | - | 30 | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| **W** | **Przedmioty wspólne** | | **1310** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Podstawy technologii informacyjnej | RB-S1-17-W01 | 30 | | - | - | - | - | - | - | - | RB-S1-17-W01-1 | 2 | 0 | - | 10 | 20 | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 9 | Podstawy projektowania | RB-S1-17-W0B | 22 | | - | - | - | - | - | - | - | RB-S1-17-W0B-D | 2 | 0 | 10 | 2 | - | 10 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 10 | Geometria wykreślna i rysunek techniczny | RB-S1-17-W04 | 65 | RB-S1-17-W04-4 | 4 | 0 | 15 | 15 | 35 | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 11 | Mechanika teoretyczna | RB-S1-17-W02 | 60 | RB-S1-17-W02-2 | 7 | 1 | 30 | 15 | - | 15 | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 12 | Geodezja | RB-S1-17-W07 | 60 | | - | - | - | - | - | - | - | RB-S1-17-W07-8 | 2 | 0 | 15 | 5 | 10 | - | - | RB-S1-17-W07-77 | 2 | 0 | 15 | 5 | 10 | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 13 | Wytrzymałość materiałów | RB-S1-17-W08 | 68 | | - | - | - | - | - | - | - | RB-S1-17-W08-9 | 6 | 1 | 30 | 3 | - | 35 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 14 | Budownictwo ogólne z fizyką budowli | RB-S1-17-W34 | 120 | | - | - | - | - | - | - | - | RB-S1-17-W34-A | 5 | 1 | 30 | 5 | - | 25 | - | RB-S1-17-W34-B | 5 | 1 | 30 | 5 | - | 25 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 15 | Geologia inżynierska i mechanika gruntów | RB-S1-17-W40 | 60 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | RB-S1-17-W40-A3 | 3 | 0 | 15 | - | 15 | - | - | RB-S1-17-W40-A4 | 3 | 1 | 15 | - | 15 | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 16 | Materiały budowlane | RB-S1-17-W06 | 75 | | - | - | - | - | - | - | - | RB-S1-17-W06-6 | 4 | 1 | 25 | 5 | 15 | - | - | RB-S1-17-W06-7 | 4 | 0 | 15 | 5 | 10 | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 17 | Mechanika budowli | RB-S1-17-W12 | 120 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | RB-S1-17-W12-16 | 5 | 0 | 25 | 2 | 5 | 28 | - | RB-S1-17-W12-17 | 5 | 1 | 30 | 2 | 10 | 18 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 18 | Konstrukcje betonowe | RB-S1-17-W0A | 115 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | RB-S1-17-W0A-AB | 5 | 1 | 30 | 5 | - | 15 | - | RB-S1-17-W0A-AC | 5 | 1 | 30 | 5 | - | 30 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 19 | Konstrukcje metalowe | RB-S1-17-W0C | 75 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-W0C-AD | 5 | 1 | 23 | 2 | - | 20 | - | RB-S1-17-W0C-AE | 5 | 1 | 15 | 3 | - | 12 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 20 | Konstrukcje murowe i drewniane | RB-S1-17-W0D | 45 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | RB-S1-17-W0D-AF | 3 | 0 | 15 | 4 | - | 10 | - | RB-S1-17-W0D-B0 | 1 | 0 | 8 | 1 | - | 7 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 21 | Konstrukcje specjalne | RB-S1-17-W0E | 40 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-W0E-B1 | 2 | 0 | 25 | 5 | 4 | 6 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 22 | Fundamentowanie | RB-S1-17-W15 | 45 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-W15-1B | 4 | 1 | 15 | 4 | 10 | 16 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 23 | Technologia, ekonomika i organizacja | RB-S1-17-W11 | 135 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | RB-S1-17-W11-13 | 5 | 0 | 35 | 5 | 5 | 35 | - | RB-S1-17-W11-14 | 3 | 1 | 30 | 5 | 5 | 20 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 24 | Budownictwo komunikacyjne | RB-S1-17-W33 | 60 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | RB-S1-17-W33-7E | 4 | 0 | 30 | - | - | 30 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 25 | Infrastruktura komunalna i instalacje budowlane | RB-S1-17-W14 | 25 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-W14-1A | 2 | 0 | 15 | - | - | 10 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 26 | Mosty | RB-S1-17-W42 | 30 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-W42-A7 | 2 | 0 | 20 | - | - | 10 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 27 | Podstawy BIM | RB-S1-17-W0F | 30 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-W0F-B2 | 2 | 0 | 15 | - | 15 | - |
| 28 | Prawo w budownictwie | RB-S1-17-W1C | 30 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | RB-S1-17-W1C-B3 | 1 | 0 | 10 | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-W1C-22 | 1 | 0 | 5 | 3 | - | 12 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| **S** | **Przedmioty specjalnościowe** | | **1050** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | Geometria i odwodnienie dróg | RB-S1-17-S18 | 45 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S18-27 | 4 | 0 | 30 | - | - | 15 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 30 | Materiały i nawierzchnie drogowe | RB-S1-17-S1C | 90 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S1C-2B | 8 | 0 | 45 | - | 15 | 30 | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| 31 | Skrzyżowania i węzły drogowe | RB-S1-17-S2E | 45 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S2E-3E | 4 | 0 | 15 | - | 30 | - | - | | - | - | - | - | - | - | - |
| 32 | Fundamentowanie | RB-S1-17-S04 | 15 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S04-F | 1 | 0 | - | 2 | 13 | - | - | | - | - | - | - | - | - | - |
| 33 | Ulice i inżynieria ruchu | RB-S1-17-S20 | 75 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S20-30 | 7 | 1 | 45 | - | 30 | - | - | | - | - | - | - | - | - | - |
| 34 | Projektowanie dróg | RB-S1-17-S1F | 75 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S1F-2E | 7 | 1 | - | - | 75 | - | - | | - | - | - | - | - | - | - |
| 35 | Drogi na terenach górniczych | RB-S1-17-S1B | 90 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S1B-2A | 8 | 1 | 45 | - | 45 | - | - | | - | - | - | - | - | - | - |
| 36 | Mosty | RB-S1-17-S06 | 30 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S06-13 | 2 | 0 | 15 | 15 | - | - | - | | - | - | - | - | - | - | - |
| 37 | Zarządzanie w budownictwie drogowym | RB-S1-17-S09 | 15 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S09-18 | 1 | 0 | 15 | - | - | - |
| 38 | Zmechanizowane roboty drogowe | RB-S1-17-S21 | 45 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S21-31 | 3 | 0 | 15 | - | - | 30 |
| 39 | Opcja W1 (dwa do wyboru) 8) | | 60 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | 4 | 0 | 60 | - | - | - |
| | Bridges to Future | RB-S1-17-S73 | 0 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S73-D7 | - | - | - | - | - | - |
| | Advanced Computer Science Tools in Civil Engineering | RB-S1-17-S74 | 0 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S74-D8 | - | - | - | - | - | - |
| | Review of Famous World's Structures | RB-S1-17-S54 | 0 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S54-77 | - | - | - | - | - | - |
| | Selected Geotechnical Problems in Civil Engineering | RB-S1-17-S77 | 0 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S77-D8 | - | - | - | - | - | - |
| | Vibraton of Building Structures | RB-S1-17-S7B | 0 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S7B-E0 | - | - | - | - | - | - |
| | Selected Steel and Steel-concrete Composite Structures | RB-S1-17-S7D | 0 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S7D-E2 | - | - | - | - | - | - |
| | Computer Simulations in Buildings Operation | RB-S1-17-S7C | 0 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S7C-E1 | - | - | - | - | - | - |
| 40 | Opcja W2 (dwa do wyboru) 8) | | 60 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - |
| | Sztuczna inteligencja w zagadnieniach inżynierskich | RB-S1-17-S75 | 0 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S75-D9 | - | - | - | - | - | - |
| | Bezpieczeństwo pożarowe budowli i modelowanie konstrukcji w | RB-S1-17-S76 | 0 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S76-DA | - | - | - | - | - | - |
| | Hydrologia | RB-S1-17-S78 | 0 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S78-DC | - | - | - | - | - | - |
| | Działalność gospodarcza | RB-S1-17-S08 | 0 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S08-17 | - | - | - | - | - | - |
| | Nowoczesne technologie wzmacniania konstrukcji | RB-S1-17-S7F | 0 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S7F-E4 | - | - | - | - | - | - |
| | Modelowanie 3D | RB-S1-17-S80 | 0 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S80-E5 | - | - | - | - | - | - |
| | Wizualizacja obiektów budowlanych | RB-S1-17-S81 | 0 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S81-E6 | - | - | - | - | - | - |
| 41 | Praktyka zawodowa 4) | RB-S1-17-S6D | 360 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S6D-D2 | 30 | 0 | - | - | 360 | - | - | | - | - | - | - | - | - | - |
| 42 | Projekt inżynierski 24) | RB-S1-17-S56 | 45 | | - | - | - | - | - | - | - | | | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | RB-S1-17-S56-7E | 12 | 0 | - | - | - | 45 |
| **P** | **Podsumowanie** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 2840 | | 30 | 2 | 350 | | | | | | 30 | 4 | 375 | | | | | | 30 | 2 | 359 | | | | | | 30 | 5 | 381 | | | | | | 30 | 3 | 365 | | | | | | 30 | 3 | 350 | | | | | | 30 | 0 | 360 | | | | | | 30 | 0 | 300 | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | IW | 230 | | | | | | | IW | 20 | | | | | | | IW | 0 | | | | | | | IW | 75 | | | | |
| | **Podsumowanie** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | S | 135 | | | | | | | S | 330 | | | | | | | S | 360 | | | | | | | S | 225 | | | | |
| | Liczba ECTS - przedmioty inne | 15,0% | 36 | | 19 | | | | | | | | 9 | | | | | | | | 2 | | | | | | | | 2 | | | | | | | | 0 | | | | | | | | 0 | | | | | | | | 0 | | | | | | | | 4 | | | | |
| | Liczba ECTS - przedmioty wspólne | 45,4% | 109 | | 11 | | | | | | | | 21 | | | | | | | | 28 | | | | | | | | 28 | | | | | | | | 18 | | | | | | | | 1 | | | | | | | | 0 | | | | | | | | 2 | | | | |
| | Liczba ECTS - przedmioty specjalnościowe | 39,6% | 95 | | 0 | | | | | | | | 0 | | | | | | | | 0 | | | | | | | | 0 | | | | | | | | 12 | | | | | | | | 29 | | | | | | | | 30 | | | | | | | | 24 | | | | |
| | Suma punktów ECTS | | **240** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Liczba godzin - przedmioty inne | 16,9% | 480 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Liczba godzin - przedmioty wspólne | 46,1% | 1310 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Liczba godzin - przedmioty specjalnościowe | 37,0% | 1050 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Suma godzin dydaktycznych | | **2840** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Suma egzaminów | | **19** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Załącznik S1.1 |
|---|
| Plan studiów I stopnia - studia stacjonarne (j. pol.) |
| Kierunek: **Budownictwo** |
| Moduł: **Budownictwo Drogowe** |

# Efekty kształcenia

Uczelnia: Politechnika Śląska
Wydział: Budownictwa
Kierunek: Budownictwo

Moduł (specjalność): **Budownictwo Drogowe**

| | K1A_W01 | K1A_W02 | K1A_W03 | K1A_W04 | K1A_W05 | K1A_W06 | K1A_W07 | K1A_W08 | K1A_W09 | K1A_W10 | K1A_W11 | K1A_W12 | K1A_W13 | K1A_W14 | K1A_W15 | K1A_W16 | K1A_W17 | K1A_W18 | K1A_W19 | K1A_W20 | K1A_W21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Przedmioty I+W | ✓ 4 | ✓ 5 | ✓ 3 | ✓ 5 | ✓ 9 | ✓ 12 | ✓ 6 | ✓ 3 | ✓ 4 | ✓ 3 | ✓ 1 | ✓ 3 | ✓ 2 | ✓ 7 | ✓ 1 | ✓ 3 | ✓ 5 | ✓ 1 | ✓ 1 | ✓ 1 | ✓ 1 |
| Przedmioty S | ✓ 3 | ✓ 2 | ✓ 2 | ✓ 5 | ✓ 6 | ✓ 9 | ✓ 7 | ✓ 3 | ✓ 4 | ✓ 8 | ✓ 2 | ✓ 2 | ✓ 1 | ✓ 3 | ✓ 4 | ✓ 2 | ✓ 3 | ✓ 1 | ✗ 0 | ✗ 0 | ✓ 1 |
| Razem | ✓ 7 | ✓ 7 | ✓ 5 | ✓ 10 | ✓ 15 | ✓ 21 | ✓ 13 | ✓ 6 | ✓ 8 | ✓ 11 | ✓ 3 | ✓ 5 | ✓ 3 | ✓ 10 | ✓ 5 | ✓ 5 | ✓ 8 | ✓ 2 | ✓ 1 | ✓ 1 | ✓ 2 |
| **Przedmioty inne** | | | | | | | | | | | | | | | | | | | | | |
| Matematyka | +++ | | | | | | | | | | | | | | | | | | | | |
| Fizyka | | | | | | | | | | | | | | | | | | +++ | | | |
| Chemia | | | | | | | | | | | | ++ | | ++ | | | | | +++ | | |
| Język angielski | | | | | | | | | | | | | | | | | | | | | +++ |
| Historia sztuki | | | | | | | | | | | | | | + | | | + | | | | |
| Ergonomia i bezpieczeństwo pracy | | | | | | | | | | | | | | | | + | | | | | |
| Zajęcia sportowe | | | | | | | | | | | | | | | | | | | | ++ | |
| **Przedmioty wspólne** | | | | | | | | | | | | | | | | | | | | | |
| Podstawy technologii informacyjnej | | | | | +++ | | | | | | | | | | | | | | | | |
| Podstawy projektowania | | | | | | + | + | | | | | | | | | | | | | | |
| Geometria wykreślna i rysunek techniczny | ++ | +++ | ++ | | | | | | | | | | | | | | | | | | |
| Mechanika teoretyczna | ++ | | | +++ | +++ | | | | | | | | | | | | | | | | |
| Geodezja | | ++ | +++ | | | | | | | | | | | | | | | | | | |
| Wytrzymałość materiałów | + | | | +++ | ++ | | | | | | | | | | | | | | | | |
| Budownictwo ogólne z fizyką budowli | | ++ | | | | ++ | | + | ++ | | | | +++ | | | | | | | | |
| Geologia inżynierska i mechanika gruntów | | | | ++ | | ++ | | | | | +++ | | | | | | + | | | | |
| Materiały budowlane | | | | | | | | | | | | +++ | | +++ | | | ++ | | | | |
| Mechanika budowli | | | | +++ | +++ | + | | ++ | | | | | | | | | | | | | |
| Konstrukcje betonowe | | | | | ++ | +++ | ++ | | | | | | | | | | | | | | |
| Konstrukcje metalowe | | | | | +++ | +++ | ++ | | | | | | | | | | | | | | |
| Konstrukcje murowe i drewniane | | | | | + | +++ | +++ | | | | | | | | | | | | | | |
| Konstrukcje specjalne | | | | | + | ++ | +++ | | | | | | | | | | | | | | |
| Fundamentowanie | | | | | | +++ | | ++ | | | | | | | | | | | | | |
| Technologia, ekonomika i organizacja | | | | | | | | | | | | | | + | +++ | ++ | +++ | | | | |
| Budownictwo komunikacyjne | | ++ | | | | ++ | | | | +++ | | | ++ | | | | | | | | |
| Infrastruktura komunalna i instalacje budowlane | | | ++ | | | | | | ++ | ++ | | | | ++ | | | | | | | |
| Mosty | | | | ++ | ++ | + | + | | + | + | | ++ | | + | | | + | | | | |
| Podstawy BIM | | ++ | | | | | | | ++ | | | | | + | | | | | | | |
| Prawo w budownictwie | | | | | | ++ | | | | | | | | | | ++ | | | | | |
| **Przedmioty specjalnościowe** | | | | | | | | | | | | | | | | | | | | | |
| Geometria i odwodnienie dróg | | | | | | ++ | | | | ++ | | | | | | | | | | | |
| Materiały i nawierzchnie drogowe | | | | | | | | | | ++ | | ++ | | | | | | | | | |
| Skrzyżowania i węzły drogowe | | | | | | ++ | | | | ++ | | | | | | | | | | | |
| Fundamentowanie | | | | | | | | +++ | | | ++ | | | | | | | | | | |
| Ulice i inżynieria ruchu | | | | | | ++ | | | | ++ | | | | | | | ++ | | | | |
| Projektowanie dróg | | | | | | ++ | | | | ++ | | | | | | | | | | | |
| Drogi na terenach górniczych | | | | | | ++ | | | | ++ | | | | | | | | | | | |
| Mosty | | | | ++ | | | ++ | | ++ | | | | | | | | | | | | |
| Zarządzanie w budownictwie drogowym | | | | | | | | | | ++ | | | | | ++ | | | | | | |
| Zmechanizowane roboty drogowe | | | | | | | | | | ++ | | ++ | | | ++ | | | | | | |
| Opcja W1 (dwa do wyboru) 8) | | | | | | | | | | | | | | | | | | | | | |
| Bridges to Future | | | | ++ | | ++ | | | +++ | | | | | | | | | | | | |
| Advanced Computer Science Tools in Civil Engineering | + | | | | + | | | | | | | | | | | | | | | | |
| Review of Famous World's Structures | | | | | | +++ | ++ | | ++ | | | | | | | | ++ | | | | |
| Selected Geotechnical Problems in Civil Engineering | | | | ++ | | | | +++ | | | +++ | | | ++ | | | | | | | |
| Vibraton of Building Structures | | | | | ++ | | | | | | | | | | | | | ++ | | | |
| Selected Steel and Steel-concrete Composite Structures | | | | | + | ++ | ++ | | + | | | | | | | | | | | | |
| Computer Simulations in Buildings Operation | | | | | +++ | ++ | | | | | | | | | | | | | | | |
| Opcja W2 (dwa do wyboru) 8) | | | | | | | | | | | | | | | | | | | | | |
| Sztuczna inteligencja w zagadnieniach inżynierskich | ++ | | | ++ | | | | | | | | | | | | | | | | | |
| Bezpieczeństwo pożarowe budowli i modelowanie konstrukcji w | | | | | + | | + | | | | | | | | | | | | | | |
| Hydrologia | ++ | | | | | | + | | | | | | | | | | + | | | | |
| Działalność gospodarcza | | | | | | | | | | | | | | + | +++ | ++ | | | | | |
| Nowoczesne technologie wzmacniania konstrukcji | | | ++ | | | | ++ | | | | | | +++ | | | | | | | | |
| Modelowanie 3D | | +++ | ++ | | | | ++ | | | | | | | | | | | | | | |
| Wizualizacja obiektów budowlanych | | + | | | ++ | | | | | | | | | | | | | | | | |
| Praktyka zawodowa 4) | | | | | | | | | | | | | | +++ | ++ | ++ | | | | | |
| Projekt inżynierski 24) | | | | +++ | | | | +++ | | | | | | | | | | | | | +++ |
| | | | | | | | | | | | | | | | | | | | | | |

| | K1A_U01 | K1A_U02 | K1A_U03 | K1A_U04 | K1A_U05 | K1A_U06 | K1A_U07 | K1A_U08 | K1A_U09 | K1A_U10 | K1A_U11 | K1A_U12 | K1A_U13 | K1A_U14 | K1A_U15 | K1A_U16 | K1A_U17 | K1A_U18 | K1A_U19 | K1A_U20 | K1A_U21 | K1A_U22 | K1A_U23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Przedmioty I+W | ✓ 3 | ✓ 7 | ✓ 6 | ✓ 5 | ✓ 7 | ✓ 2 | ✓ 8 | ✓ 3 | ✓ 3 | ✓ 1 | ✓ 1 | ✓ 2 | ✓ 4 | ✓ 4 | ✓ 2 | ✓ 3 | ✓ 7 | ✓ 1 | ✓ 3 | ✓ 4 | ✓ 2 | ✓ 2 | ✓ 1 |
| Przedmioty S | ✓ 5 | ✓ 6 | ✓ 3 | ✗ 0 | ✓ 15 | ✓ 2 | ✓ 7 | ✓ 2 | ✓ 2 | ✗ 0 | ✗ 0 | ✗ 0 | ✗ 0 | ✓ 3 | ✓ 2 | ✓ 2 | ✓ 4 | ✗ 0 | ✗ 0 | ✓ 1 | ✓ 1 | ✗ 0 | ✗ 0 |
| Razem | ✓ 8 | ✓ 13 | ✓ 9 | ✓ 5 | ✓ 22 | ✓ 4 | ✓ 15 | ✓ 5 | ✓ 5 | ✓ 1 | ✓ 1 | ✓ 2 | ✓ 4 | ✓ 7 | ✓ 4 | ✓ 5 | ✓ 11 | ✓ 1 | ✓ 3 | ✓ 5 | ✓ 3 | ✓ 2 | ✓ 1 |
| **Przedmioty inne** | | | | | | | | | | | | | | | | | | | | | | | |
| Matematyka | | | | | | +++ | | | | | | | | | | | | | | | | | |
| Fizyka | | | | | | | | | | +++ | | | | | | | | | | | | | |
| Chemia | | | | | | | | | | | | | +++ | | | | | | | | | ++ | |
| Język angielski | | | | | | | | | | | | | | | | | | +++ | | | | | |
| Historia sztuki | ++ | | | | | | | | | | | | | | | | ++ | | | | | | |
| Ergonomia i bezpieczeństwo pracy | | | | | | | | | | | | | | | | + | | | | | + | | |
| Zajęcia sportowe | | | | | | | | | | | | | | | | | | | | | | | +++ |
| **Przedmioty wspólne** | | | | | | | | | | | | | | | | | | | | | | | |
| Podstawy technologii informacyjnej | | | | | ++ | | | | | | | | | | | | +++ | | | | | | |
| Podstawy projektowania | | +++ | | | | | | | | | | | | | | | | | | | | | |
| Geometria wykreślna i rysunek techniczny | +++ | | | | | | ++ | | | | | | | +++ | | | ++ | | | | | | |
| Mechanika teoretyczna | | | | +++ | | | | | | | | | | | | | | | | | | | |
| Geodezja | | | | | | | | | | | | | | +++ | | | +++ | | +++ | | + | | |
| Wytrzymałość materiałów | | | | ++ | ++ | | ++ | | | | | | | | | | | | | | | | |
| Budownictwo ogólne z fizyką budowli | | | | | | | ++ | + | ++ | | | +++ | | ++ | | | | | ++ | ++ | | | |
| Geologia inżynierska i mechanika gruntów | | | | | | | | | | | | | +++ | | | + | | | | | | | |
| Materiały budowlane | | | | | + | | | | | | | | +++ | | | | | | | ++ | | +++ | |
| Mechanika budowli | | | +++ | +++ | + | ++ | | | | | +++ | | | | | | | | | | | | |
| Konstrukcje betonowe | | ++ | ++ | + | | | +++ | | | | | | | | | | | | | | | | |
| Konstrukcje metalowe | | ++ | ++ | ++ | | | +++ | | | | | | | | | | | | | | | | |
| Konstrukcje murowe i drewniane | | +++ | ++ | | | | +++ | | | | | | | | | | | | | | | | |
| Konstrukcje specjalne | | ++ | +++ | | | | +++ | | | | | | | | | | | | | | | | |
| Fundamentowanie | | | | | | | | | ++ | | | | +++ | | | | | | | | | | |
| Technologia, ekonomika i organizacja | | | | | | | | | | | | | | | +++ | ++ | | | | +++ | | | |
| Budownictwo komunikacyjne | | | | | ++ | | ++ | | ++ | | | ++ | | | +++ | | | | | | | | |
| Infrastruktura komunalna i instalacje budowlane | | +++ | | | +++ | | | ++ | | | | | | +++ | | | ++ | | | ++ | | | |
| Mosty | +++ | + | | | | | | +++ | | | | | | | | | +++ | | | | | | |
| Podstawy BIM | | | +++ | | +++ | | | | | | | | | | | | | | | | | | |
| Prawo w budownictwie | | | | | | | | | | | | | | | | | ++ | | +++ | | | | |
| **Przedmioty specjalnościowe** | | | | | | | | | | | | | | | | | | | | | | | |
| Geometria i odwodnienie dróg | | | | | ++ | | ++ | | | | | | | | | | | | | | | | |
| Materiały i nawierzchnie drogowe | | | | | ++ | | ++ | | | | | | | | | | | | | | | | |
| Skrzyżowania i węzły drogowe | ++ | | | | ++ | | | | | | | | | | | | | | | | | | |
| Fundamentowanie | | | | | | | | | +++ | | | | | | | | | | | | | | |
| Ulice i inżynieria ruchu | | | | | ++ | | ++ | | | | | | | | | | | | | | | | |
| Projektowanie dróg | | | | | ++ | | ++ | | | | | | | | | | | | | | | | |
| Drogi na terenach górniczych | | | | | ++ | | ++ | | | | | | | | | | | | | | | | |
| Mosty | +++ | +++ | | | | | | ++ | | | | | | | | | | | | | | | |
| Zarządzanie w budownictwie drogowym | | | | | ++ | | ++ | | | | | | | | | | | | | | | | |
| Zmechanizowane roboty drogowe | | | | | ++ | | | | | | | | | | ++ | | | | | | | | |
| Opcja W1 (dwa do wyboru) 8) | | | | | | | | | | | | | | | | | | | | | | | |
| Bridges to Future | +++ | +++ | | | | | | | | | | | | | | | | | | | | | |
| Advanced Computer Science Tools in Civil Engineering | | | | | + | + | | | | | | | | | | | | | | | | | |
| Review of Famous World's Structures | ++ | ++ | | | | | | | | | | | | | | | | | | | | | |
| Selected Geotechnical Problems in Civil Engineering | | | | | +++ | | | | | | | | | | | | | | | | | | |
| Vibraton of Building Structures | | | | | | | | | | | | | | | | | | | | | | | |
| Selected Steel and Steel-concrete Composite Structures | | ++ | ++ | | | | | | | | | | | | | | | | | | | | |
| Computer Simulations in Buildings Operation | | | | | +++ | | | | | | | | | | | | ++ | | | | | | |
| Opcja W2 (dwa do wyboru) 8) | | | | | | | | | | | | | | | | | | | | | | | |
| Sztuczna inteligencja w zagadnieniach inżynierskich | | | ++ | | + | + | | | | | | | | | | | | | | | | | |
| Bezpieczeństwo pożarowe budowli i modelowanie konstrukcji w | | | + | | + | | | | | | | | | | | | | | | | | | |
| Hydrologia | | ++ | | | ++ | | | | | | | | | | | | | | | | | | |
| Działalność gospodarcza | | | | | | | | | | | | | | | +++ | ++ | | | | +++ | | | |
| Nowoczesne technologie wzmacniania konstrukcji | | | | | | | | | | | | | | | | | ++ | | | | | | |
| Modelowanie 3D | | | | | | | +++ | ++ | | | | | | ++ | | | + | | | | | | |
| Wizualizacja obiektów budowlanych | | | | | + | | | | | | | | | ++ | | | + | | | | | | |
| Praktyka zawodowa 4) | + | | | | | | | | | | | | | +++ | | +++ | | | | | +++ | | |
| Projekt inżynierski 24) | | +++ | | | | | | | +++ | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |

| | K1A_K01 | K1A_K02 | K1A_K03 | K1A_K04 | K1A_K05 | K1A_K06 | K1A_K07 | K1A_K08 | K1A_K09 | K1A_K10 | K1A_K11 | K1A_K12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Przedmioty I+W | ✓ 14 | ✓ 16 | ✓ 6 | ✓ 2 | ✓ 2 | ✓ 7 | ✓ 5 | ✓ 2 | ✓ 4 | ✓ 2 | ✓ 1 | ✓ 1 |
| Przedmioty S | ✓ 13 | ✓ 13 | ✓ 6 | ✓ 1 | ✓ 2 | ✓ 8 | ✓ 2 | ✓ 3 | ✓ 2 | ✓ 1 | ✗ 0 | ✓ 1 |
| Razem | ✓ 27 | ✓ 29 | ✓ 12 | ✓ 3 | ✓ 4 | ✓ 15 | ✓ 7 | ✓ 5 | ✓ 6 | ✓ 3 | ✓ 1 | ✓ 2 |
| **Przedmioty inne** | | | | | | | | | | | | |
| Matematyka | | | | | | + | | | | | | |
| Fizyka | | | | | | + | | | | | | |
| Chemia | | ++ | | | | | | | | | | |
| Język angielski | | | | | | | | | | | | +++ |
| Historia sztuki | | | | | | | | +++ | | | | |
| Ergonomia i bezpieczeństwo pracy | | | | + | ++ | | | | | | | |
| Zajęcia sportowe | | | | +++ | | | | | | | +++ | |
| **Przedmioty wspólne** | | | | | | | | | | | | |
| Podstawy technologii informacyjnej | | | + | | | | | + | | ++ | | |
| Podstawy projektowania | + | | | | | | | | | | | |
| Geometria wykreślna i rysunek techniczny | +++ | | ++ | | | | | | | | | |
| Mechanika teoretyczna | +++ | ++ | | | | | | | | | | |
| Geodezja | | ++ | | | | | ++ | | | | | |
| Wytrzymałość materiałów | | ++ | | | | | | | | | | |
| Budownictwo ogólne z fizyką budowli | ++ | ++ | | | | ++ | ++ | | | | | |
| Geologia inżynierska i mechanika gruntów | +++ | +++ | | | | | | | | | | |
| Materiały budowlane | | ++ | ++ | | | | | | | | | |
| Mechanika budowli | +++ | +++ | | | | | | | | | | |
| Konstrukcje betonowe | | +++ | | | | | | | ++ | | | |
| Konstrukcje metalowe | + | ++ | | | | | | | ++ | | | |
| Konstrukcje murowe i drewniane | + | +++ | | | | + | | | ++ | | | |
| Konstrukcje specjalne | | +++ | | | | | ++ | | ++ | | | |
| Fundamentowanie | +++ | ++ | | | | | | | | | | |
| Technologia, ekonomika i organizacja | + | | | | ++ | | | | | | | |
| Budownictwo komunikacyjne | ++ | ++ | | | | ++ | ++ | | | | | |
| Infrastruktura komunalna i instalacje budowlane | ++ | + | ++ | | | + | | | | | | |
| Mosty | + | | + | | | ++ | ++ | | | | | |
| Podstawy BIM | +++ | | +++ | | | | | | | | | |
| Prawo w budownictwie | | ++ | | | | | | | | ++ | | |
| **Przedmioty specjalnościowe** | | | | | | | | | | | | |
| Geometria i odwodnienie dróg | ++ | ++ | | | | | | | | | | |
| Materiały i nawierzchnie drogowe | ++ | ++ | | | | | | | | | | |
| Skrzyżowania i węzły drogowe | ++ | ++ | | | | | | | | | | |
| Fundamentowanie | | +++ | | | | | | | | | | |
| Ulice i inżynieria ruchu | ++ | ++ | | | | | | | | | | |
| Projektowanie dróg | ++ | ++ | | | | | | | | | | |
| Drogi na terenach górniczych | ++ | ++ | | | | | | | | | | |
| Mosty | | | | | | ++ | | | | | | |
| Zarządzanie w budownictwie drogowym | ++ | ++ | | | | | | | | | | |
| Zmechanizowane roboty drogowe | ++ | ++ | | | | | | | | | | |
| Opcja W1 (dwa do wyboru) 8) | | | | | | | | | | | | |
| Bridges to Future | ++ | | | | | ++ | | | | | | |
| Advanced Computer Science Tools in Civil Engineering | | | + | | | + | | | | | | |
| Review of Famous World's Structures | | | | | | ++ | ++ | + | | | | |
| Selected Geotechnical Problems in Civil Engineering | | | | | | +++ | | | | | | |
| Vibraton of Building Structures | | | | | | | | | | | | ++ |
| Selected Steel and Steel-concrete Composite Structures | | ++ | | | | | | | | | | |
| Computer Simulations in Buildings Operation | | +++ | ++ | | | | | | | | | |
| Opcja W2 (dwa do wyboru) 8) | | | | | | | | | | | | |
| Sztuczna inteligencja w zagadnieniach inżynierskich | | | | | | + | | | | | | |
| Bezpieczeństwo pożarowe budowli i modelowanie konstrukcji w | | | + | | | + | | | | | | |
| Hydrologia | ++ | | ++ | | | | | | | | | |
| Działalność gospodarcza | + | | | | ++ | | | | | | | |
| Nowoczesne technologie wzmacniania konstrukcji | | | +++ | | | | | | | | | |
| Modelowanie 3D | +++ | | | +++ | | | | +++ | | | | |
| Wizualizacja obiektów budowlanych | | | | | | | | +++ | ++ | | | |
| Praktyka zawodowa 4) | +++ | +++ | | | +++ | | | | | | | |
| Projekt inżynierski 24) | | +++ | +++ | | | +++ | +++ | | +++ | +++ | | |
| | | | | | | | | | | | | |

| Załącznik E.1.2 | |
|---|---|
| Plan studiów I stopnia - studia stacjonarne (j. pol.) | |
| Kierunek: | **Budownictwo** |
| Moduł: | **Budownictwo Drogowe** |