**Abdullah Gul University**

**Industrial Engineering Program**

(*For students who start their undergraduate program in* ***Fall 2014*** *and* ***Fall 2015***).

**FIRST YEAR/FIRST SEMESTER (FRESHMAN YEAR)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| MATH101 | Calculus I  |  | 4 | 0 | 4 | 5 |
| SCI101 | Science of Nature I |  | 3 | 2 | 4 | 7 |
| ENG101 | English I |  | 4 | 0 | 4 | 4 |
| TURK101 | Turkish I |  | 2 | 0 | 2 | 2 |
| COMP101 | Art of Computing I |  | 3 | 2 | 4 | 6 |
| PDA101 | Professional Development Activities I |  | 1 | 1 | 0 | 1 |
| HUM101 | Understanding the Contemporary World  |  | 3 | 0 | 3 | 5 |
| **Total** | 20 | 5 | 21 | 30 |

**FIRST YEAR/SECOND SEMESTER (FRESHMAN YEAR)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| MATH102 | Calculus II | MATH101 | 4 | 0 | 4 | 5 |
| SCI102 | Science of Nature II | SCI101 | 3 | 2 | 4 | 7 |
| ENG102 | English II | ENG101 | 4 | 0 | 4 | 4 |
| TURK102 | Turkish II |  | 2 | 0 | 2 | 2 |
| IE102 | Exploring Profession |  | 3 | 2 | 4 | 6 |
| PDA102 | Personal/Professional Development Activities II |  | 1 | 1 | 0 | 1 |
| HUM102 | Imagining the Future |  | 3 | 0 | 3 | 5 |
| **Total** | 20 | 5 | 21 | 30 |

**SECOND YEAR/THIRD SEMESTER (SOPHOMORE YEAR)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| IE197 | Summer Training I  |  |  |  | **-** | **-** |
| MATH203 | Linear Algebra  |  | 3 | 0 | 3 | 5 |
| IE221 | Probability |  | 3 | 0 | 3 | 6 |
| IE213 | Mathematical Modeling | MATH102 | 4 | 0 | 4 | 7 |
| COMP112 | Object Oriented Programming | COMP101 | 3 | 2 | 4 | 6 |
| IE201  | Developing Entrepreneurial Skills  |  | 4 | 0 | 4 | 4 |
| HIST201 | History of Modern Turkey I |  | 2 | 0 | 2 | 2 |
| **Total** | 18 | 2 | 19 | 30 |

**SECOND YEAR/FOURTH SEMESTER (SOPHOMORE YEAR)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| COMP204 | Database Management Systems |  | 3 | 0 | 3 | 5 |
| IE222 | Statistics |  | 4 | 0 | 4 | 7 |
| IE212 | Deterministic Optimization | MATH102IE213 | 4 | 0 | 4 | 7 |
| IE242 | Business Process Analysis and Design |  | 3 | 0 | 3 | 5 |
| ECON222 | Economics for Engineers  |  | 3 | 0 | 3 | 4 |
| HIST202 | History of Modern Turkey II |  | 2 | 0 | 2 | 2 |
| **Total** | 19 | 0 | 19 | 30 |

**THIRD YEAR/FIFTH SEMESTER (JUNIOR YEAR)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| IE297 | Summer Training II  |  |  |  | - | - |
| IE375 | Production and Service Systems Management I | IE222 IE212 | 4 | 0 | 4 | 6 |
| IE325 | System Simulation | IE222 | 3 | 2 | 4 | 7 |
| IE335 | Stochastic Models | IE221 | 3 | 0 | 3 | 5 |
| IE395 | Decision and Risk Analysis | IE221IE212 | 3 | 0 | 3 | 5 |
| IE345 | Financial and Managerial Accounting |  | 3 | 0 | 3 | 4 |
|  | Elective (Non-technical) |  |  |  |  | 3 |
| **Total** |  |  |  | 30 |

**THIRD YEAR/SIXTH SEMESTER (JUNIOR YEAR)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| IE376 | Production and Service Systems Management II | IE375 | 4 | 0 | 4 | 6 |
| IE346 | Engineering Economic and Cost Analysis |  | 3 | 0 | 3 | 5 |
| IE380 | Quality Control and Assurance  | IE222 | 3 | 0 | 3 | 4 |
| IE326 | Business Analytics | IE212 IE221 | 3 | 0 | 3 | 5 |
|  | Elective  |  | 3 | 0 | 3 | 5 |
|  | Elective (Non-technical) |  | 3 | 0 | 3 | 5 |
| **Total** | 19 | 0 | 19 | 30 |

**FOURTH YEAR/SEVENTH SEMESTER (SENIOR YEAR)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| IE 397 | Summer Training III (Preparation for Professional Life) |  |  |  | - | - |
| IE 497 | Systems Analysis and Design Project I  | IE212 IE222 IE376 | 4 | 0 | 4 | 10 |
| OHS 401 | Occupational Health and Safety I |  | 2 | 0 | 2 | 1 |
| IE 197 | Summer Training I |  | - | - | - | 4 |
|  | Elective  |  |  |  |  | 5 |
|  | Elective |  |  |  |  | 5 |
|  | Elective (Non-technical) |  |  |  |  | 5 |
| **Total** |  |  |  | 30 |

**FOURTH YEAR/EIGTH SEMESTER (SENIOR YEAR)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| IE 498 | Systems Analysis and Design Project II | IE497 | 4 | 0 | 4 | 10 |
| OHS 402 | Occupational Health and Safety II |  | 2 | 0 | 2 | 1 |
| IE 297 | Summer Training II |  |  |  |  | 5 |
| IE 397 | Summer Training III |  |  |  |  | 6 |
|  | Elective  |  |  |  |  | 4 |
|  | Elective (Non-technical)  |  |  |  |  | 4 |
| **Total** |  |  |  | 30 |

**Concentration Area Electives**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **T** | **P** | **Credits** | **ECTS** |
| IE 348 | Marketing Engineering | 3 | 0 | 3 | 5 |
| IE 374 | Supply Chain Management | 3 | 0 | 3 | 5 |
| IE 391 | Industry Applications I | 3 | 0 | 3 | 5 |
| IE 392 | Industry Applications II | 3 | 0 | 3 | 5 |
| IE 393 | Industry Applications III | 3 | 0 | 3 | 5 |
| IE 394 | Industry Applications IV | 3 | 0 | 3 | 5 |
| IE 396 | High-Tech Product Development I | 3 | 0 | 3 | 5 |
| IE 398 | High-Tech Product Development II | 3 | 0 | 3 | 5 |
| IE 495 | High-Tech Product Development III | 3 | 0 | 3 | 5 |
| IE 496 | High-Tech Product Development IV | 3 | 0 | 3 | 5 |
| IE 412 | Network Optimization | 3 | 0 | 3 | 5 |
| IE 414 | Advanced Linear Programming | 3 | 0 | 3 | 5 |
| IE 415 | Discrete Math | 3 | 0 | 3 | 5 |
| IE 416 | Nonlinear Programming | 3 | 0 | 3 | 5 |
| IE 417 | Heuristic Methods in Optimization  | 3 | 0 | 3 | 5 |
| IE 418 | Discrete Optimization | 3 | 0 | 3 | 5 |
| IE 422 | Advanced Simulation | 3 | 0 | 3 | 5 |
| IE 425 | System Dynamics | 3 | 0 | 3 | 5 |
| IE 426 | Data Mining | 3 | 0 | 3 | 5 |
| IE 442 | Operations Analysis and Design | 3 | 0 | 3 | 5 |
| IE 446 | Supply Chain Economics | 3 | 0 | 3 | 5 |
| IE 448 | International Marketing Tool:Turquality | 3 | 0 | 3 | 5 |
| IE 449 | Financial Engineering | 3 | 0 | 3 | 5 |
| IE 454 | Sustainable Energy Systems | 3 | 0 | 3 | 5 |
| IE 455 | Green Buildings | 3 | 0 | 3 | 5 |
| IE 456 | Operations Research in Sustainability | 3 | 0 | 3 | 5 |
| IE 457 | Operations Research Applications in Energy Systems | 3 | 0 | 3 | 5 |
| IE 458 | Smart Transportation Systems | 3 | 0 | 3 | 5 |
| IE 459 | Smart Cities  | 3 | 0 | 3 | 5 |
| IE 461 | Manufacturing Processes | 3 | 0 | 3 | 5 |
| IE 462 | Lean Manufacturing | 3 | 0 | 3 | 5 |
| IE 463 | Disaster and Emergency Management  | 3 | 0 | 3 | 5 |
| IE 464 | Operations Research Models in Disaster Management | 3 | 0 | 3 | 5 |
| IE 465 | Operations Research and Homeland Security  | 3 | 0 | 3 | 5 |
| IE 466 | Vulnerability and Resilience | 3 | 0 | 3 | 5 |
| IE 467 | Critical Infrastructure Planning | 3 | 0 | 3 | 5 |
| IE 472 | Production Planing and Scheduling | 3 | 0 | 3 | 5 |
| IE 474 | Humanitarian Logistics | 3 | 0 | 3 | 5 |
| IE 475 | Facility Layout and Location | 3 | 0 | 3 | 5 |
| IE 476 | Logistics Engineering | 3 | 0 | 3 | 5 |
| IE 477 | Inventory Models | 3 | 0 | 3 | 5 |
| IE 478 | Scheduling | 3 | 0 | 3 | 5 |
| IE 482 | Economics of Healthcare | 3 | 0 | 3 | 5 |
| IE 484 | Optimization Models in Health Care | 3 | 0 | 3 | 5 |
| IE 486 | Healthcare Operations Management | 3 | 0 | 3 | 5 |
| IE 488 | Healthcare Policy Analysis | 3 | 0 | 3 | 5 |
| IE 489 | Optimization in Medicine and Biology | 3 | 0 | 3 | 5 |
| IE 497 | Systems Analysis and Design Project I | 3 | 0 | 3 | 5 |
| IE 498 | Systems Analysis and Design Project II | 3 | 0 | 3 | 5 |
| IE499 | Industry 4.0 | 3 | 0 | 3 | 5 |