**Abdullah Gul University**

**Industrial Engineering Program**

(*For students who start their undergraduate program in* ***Fall 2021 and later***).

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| MATH 151 | Calculus I  | - | 5 | 0 | 5 | 6 |
| PHYS 101 | Physics I  | - | 3 | 2 | 4 | 5 |
| COMP 101 | Art of Computing | - | 3 | 2 | 4 | 6 |
| ENG 101 | English I | - | 4 | 0 | 4 | 4 |
| GLB 101 | AGU Ways | - | 3 | 0 | 3 | 4 |
| CHEM 101 | Chemistry for Engineers | - | 3 | 2 | 4 | 5 |
| **Total** | 21 | 6 | 24 | 30 |

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| MATH 152 | Calculus II | MATH 151 | 5 | 0 | 5 | 6 |
| BIO 101\* | Biology for Engineers I  | - | 3 | 2 | 4 | 5 |
| COMP 112 | Object Oriented Programming | COMP 101 | 3 | 2 | 4 | 6 |
| ENG 102 | English II | ENG 101 | 4 | 0 | 4 | 4 |
| GLB XXX | Global Issues Elective I  | - | 3 | 0 | 3 | 4 |
| IE 102 | Exploring Profession | - | 3 | 2 | 4 | 4 |
| CP100.IE | Career Planning | - | 1 | 0 | 1 | 1 |
|  | **Total** |  | 21 | 6 | 24 | 30 |

*\*BIO102 can be selected if BIO101 is not offered in that semester.*

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| MATH 203 | Linear Algebra  |  |  3 |  0 |  3 |  5 |
| IE 221 | Probability | MATH 151 | 4 | 0 | 4 | 5 |
| IE 211 | Mathematical Modeling | MATH 151 | 3 | 2 | 4 | 7 |
| ECON 222 | Economics for Engineers |  | 3 | 0 | 3 | 4 |
| TURK 101\* | Turkish Language I |  | 2 | 0 | 2 | 2 |
| GLB XXX | Global Issues Elective II |  | 3 | 0 | 3 | 4 |
|  | Elective (Non-technical) |  |  |  |  | 3 |
| **Total** |  |  |  | 30 |

*\*TURK 103 – Turkish I for non-Turkish citizens*

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| IE 222 | Statistics | IE 221 | 4 | 0 | 4 | 6 |
| IE 212 | Deterministic Optimization | MATH 203 IE 211 | 4 | 0 | 4 | 7 |
| IE 242 | Business Process Analysis and Design |  | 3 | 0 | 3 | 5 |
| COMP 204 | Database Management Systems |  | 3 | 0 | 3 | 6 |
| TURK 102\* | Turkish Language II |  | 2 | 0 | 2 | 2 |
| GLB XXX | Global Issues Elective III |  | 3 | 0 | 3 | 4 |
| **Total** | 19 | 0 | 19 | 30 |

*\*TURK 104- Turkish II for non-Turkish citizens*

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| IE 375 | Production and Service Systems Management I | IE 211 | 4 | 0 | 4 | 6 |
| IE 325 | System Simulation | IE 222 | 3 | 2 | 4 | 7 |
| IE 335 | Stochastic Models | IE 221 | 3 | 0 | 3 | 5 |
| IE 346 | Engineering Economics and Cost Analysis |  | 3 | 0 | 3 | 5 |
| HIST 201\* | History of Modern Turkey I |  | 2 | 0 | 2 | 2 |
| GLB XXX | Global Issues Elective IV |  | 3 | 0 | 3 | 4  |
| **Total** | 18 | 2 | 19 | 29 |

*\*HIST 203 for non-Turkish citizens*

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| IE 376 | Production and Service Systems Management II | IE 375 | 4 | 0 | 4 | 6 |
| IE 345 | Financial and Managerial Accounting |  | 3 | 0 | 3 | 4 |
| IE 380 | Quality Control and Assurance  | IE 222 | 3 | 0 | 3 | 4 |
| IE 326 | Business Analytics | IE 212 IE 222 | 3 | 0 | 3 | 6 |
| IE 395 | Decision and Risk Analysis | IE 212IE 221 | 3 | 0 | 3 | 5 |
| HIST 202\* | History of Modern Turkey II |  | 2 | 0 | 2 | 2 |
|  | Elective (Non-technical) |  |  |  |  | 4 |
| **Total** |  |  |  | 31 |

*\*HIST 204 for non-Turkish citizens*

**FOURTH YEAR (SENIOR YEAR)**

***YEAR LONG (TWO-SEMESTER LONG) COURSES***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| IE 499 | Capstone Design Project | 160 ECTS, All pre-capstone courses (IE 212, IE 222, IE 376) must be already taken and at least two of them must be successful | 0 | 2 | 1 | 20 |

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| OHS 401 | Occupational Health and Safety I |  | 2 | 0 | 2 | 1 |
| IE 197 | Summer Training I |  | - | 2 | 1 | 2 |
| IE/MATH XXX | Math Elective  |  | 3 | 0 | 3 | 5 |
|  | Elective |  |  |  |  | 5 |
|  | Elective (Non-technical) |  |  |  |  | 5 |
| **Total** |  |  |  | 18 |

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **PreReq** | **T** | **P** | **Credits** | **ECTS** |
| OHS 402 | Occupational Health and Safety II |  | 2 | 0 | 2 | 1 |
| IE 297 | Summer Training II |  | - | 2 | 1 | 3  |
| IE 397 | Summer Training III |  | - | 2 | 1 | 5 |
|  | Elective |  | - | - | - | 5 |
|  | Elective  |  |  |  |  | 4 |
|  | Elective (Non-technical)  |  |  |  |  | 4 |
| **Total** |  |  |  | 22  |

**Concentration Area Electives**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Code** | **Course** | **T** | **P** | **Credits** | **ECTS** |
| IE 348 | Marketing Engineering | 3 | 0 | 3 | 5 |
| IE 351 | Project Management | 3 | 0 | 3 | 5 |
| IE 353 | Strategic Management | 3 | 0 | 3 | 5 |
| IE 358 | Ergonomics | 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 415 | Discrete Optimization | 3 | 0 | 3 | 5 |
| IE 416 | Nonlinear Programming | 3 | 0 | 3 | 5 |
| IE 417 | Heuristic Methods in Optimization  | 3 | 0 | 3 | 5 |
| IE 425 | System Dynamics | 3 | 0 | 3 | 5 |
| IE 448 | International Marketing Tool: Turquality | 3 | 0 | 3 | 5 |
| IE 454 | Sustainable Energy Systems | 3 | 0 | 3 | 5 |
| IE 461  | Manufacturing Systems | 3 | 0 | 3 | 5 |
| IE 462 | Lean Manufacturing | 3 | 0 | 3 | 5 |
| IE 464 | Operations Research Models in Disaster Management | 3 | 0 | 3 | 5 |
| IE 472 | Production Planning 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 486 | Healthcare Operations Management | 3 | 0 | 3 | 5 |
| IE 494 | Industry 4.0 | 3 | 0 | 3 | 5 |

**GLB Electives**

(4 GLB courses must be taken)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Code** | **Course Name** | **T** | **P** | **Credits** | **ECTS** |
| GLB 102 | Innovation and Entrepreneurship | 3 | 0 | 3 | 4 |
| GLB 201 | Food and Health | 3 | 0 | 3 | 4 |
| GLB 202 | Immigration and Population | 3 | 0 | 3 | 4 |
| GLB 301 | Sustainability | 3 | 0 | 3 | 4 |

**Math Electives**

(1 math elective must be taken)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Code** | **Course Name** | **T** | **P** | **Credits** | **ECTS** |
| MATH 205 | Differential Equations | 3 | 0 | 3 | 5 |
| IE 402 | Discrete Mathematics | 3 | 0 | 3 | 5 |
| IE 415 | Discrete Optimization | 3 | 0 | 3 | 5 |
| IE 416 | Nonlinear Programing | 3 | 0 | 3 | 5 |