

**INFORMATION ON THE INDUSTRIAL ENGINEERING BACHELOR DEGREE PROGRAM**

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| <b>General Information</b>   | <p>TOBB ETÜ Industrial Engineering Program, founded in 2005 gave its first graduates in 2009. There are currently 9 faculty members in the department. The faculty does research mostly in the areas of optimization, stochastic models, statistics, logistics, supply chain, scheduling, energy systems.</p> <p>In order to qualify for the program the student must pass or obtain exemption from the English Preparatory Program (requires 61 from TOEFL IBT or 500 from TOEFL ITP). The first three terms of the program provides background in mathematics and basic science. Departmental courses start in the third semester. An academic year at TOBB ETÜ consists of three semesters (Fall, Spring and Summer). After the fifth semester the students take their first Cooperative Education. Cooperative Education (Coop) is a semester-long internship program with payment and insurance. After returning from their first Coop, students continue the programme in a one term course - one term internship pattern until graduation. The program lasts for 11 semesters, three of which are for Coop semesters. In the last two course semesters students have to take 4-5 departmental, 1-2 technical and one non-technical elective in order to gain deeper knowledge in the areas they desire. The program culminates in a Senior Design Project course, where the students apply their knowledge on an extensive project.</p> |
| <b>Program Purpose</b>   | To educate students to gain proper abilities and the knowledge base of Industrial Engineering discipline in order to design, analyze, control, and improve the systems that produce goods and services.  |
| <b>Degree Earned</b>   | Bachelor of Science in Industrial Engineering  |
| <b>Level of Degree Earned</b>                                      | First-Cycle (Bachelors Degree – EOF 6) program.  |
| <b>Requirements and Rules of the Degree Earned</b>                 | Graduation requirements are defined according to Article 45 of the Undergraduate Education and Examination Regulation (link: <a href="http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIlski=0&amp;sourceXmlSearch=">http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIlski=0&amp;sourceXmlSearch=</a> ). For graduation the student should a) successfully complete 287 ECTS credits including the three Cooperative Education semesters within the maximum allowable time period b) obtain a GPA of 2.00/4.00.   |
| <b>Registration Admission Requirements</b>                         | Student quota of our undergrad programs are determined by the board of regents after a suggestion by the Senate and subject to the approval of the Higher Education Council (YÖK). Acceptance of candidate students is according to the ÖSYM exam scores. Acceptance of foreign students are carried out according to the rules determined by the Senate. Acceptance of horizontal and vertical transfer students and special/guest/exchange students are regulated by the departmental and faculty administrative boards according to Undergraduate Education and Examination Regulation (link: <a href="http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIlski=0&amp;sourceXmlSearch=">http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIlski=0&amp;sourceXmlSearch=</a> )   |
| <b>Recognition of Prior Learning</b>                               | A student arriving through the ÖSYM examination or by undergraduate transfer can substitute courses taken in a quitted previous higher education program. The substitution of the courses taken in a previous program, its equivalency and suitability with the courses in the program are evaluated at the Departmental and Engineering Faculty Boards. In case of approval of substitution, the course is substituted with its letter grade. In case of vertical transfer the course is substituted with M (Exempt) grade. Grade is converted to a letter at graduation.   |
| <b>Examinations, Assessment and Grading</b>                        | Evaluation and assessment methods used for each course are defined according to Article 22 of the Undergraduate Education and Examination Regulation (link: <a href="http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIlski=0&amp;sourceXmlSearch=">http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIlski=0&amp;sourceXmlSearch=</a> ). Except the project and laboratory courses, which do not necessarily require an examination, all courses require at least a midterm and a final exam. Final exams are applied in a specific period of time indicated in the Academic Calendar. Final exam period and classrooms are determined by the Rectorate.   |
| <b>Teaching Style</b>  | The style of education is Full-Time and Day-Time. Most of the courses are given in classrooms. Only the TÜR 101, 102 Turkish and AİT 201,202 Principles of Atatürk and History of Revolution courses are given by distance education methods.  |
| <b>Graduation Requirements</b>                                     | Graduation requirements are defined according to Article 45 of the Undergraduate Education and Examination Regulation (link: <a href="http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIlski=0&amp;sourceXmlSearch=">http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIlski=0&amp;sourceXmlSearch=</a> ). For graduation the student should a) successfully complete the 287 ECTS credits including the three Cooperative Education semesters within the maximum allowable time period b) obtain a GPA of 2.00/4.00.   |
| <b>Occupational Profiles of Graduated-Employment Opportunities</b> | The sectors targeted by the program are financial services, retail services, logistic and transportation, health-care services, intellectual services (consulting, R&D, ICT, education), and public services (governmental and non-governmental organizations). Graduates of the program are employed in these sectors.  |
| <b>Transition to a Upper Degree</b>                                | Students graduating from the program can apply for graduate degree programs.   |



**Program Qualifications**

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|----|---|
| 1  | An ability to apply knowledge of mathematics, science, and engineering  |
| 2  | An ability to design and conduct experiments, as well as to analyze and interpret data  |
| 3  | An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability |
| 4  | An ability to function on multidisciplinary teams   |
| 5  | An ability to identify, formulate, and solve engineering problems   |
| 6  | An understanding of professional and ethical responsibility   |
| 7  | An ability to communicate effectively   |
| 8  | The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context  |
| 9  | A recognition of the need for, and an ability to engage in life-long learning   |
| 10 | An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.  |

| All Courses in the Program |  | Program Qualifications |   |   |   |   |   |   |   |   |    |
|----------------------------|--|------------------------|---|---|---|---|---|---|---|---|----|
| Code                       | Course Name                            | 1                      | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| MAT 101                    | Mathematics I                          | 5                      |   |   | 2 | 5 | 3 |   | 3 | 3 | 3  |
| MAT 102                    | Mathematics II                         | 5                      |   |   | 3 | 3 | 3 |   | 3 |   | 3  |
| MAT 203                    | Intro. to Linear Algebra and Diff. Eq. | 5                      |   |   |   | 4 |   |   |   |   | 3  |
| FİZ 101                    | Physics I                              | 5                      |   |   | 3 | 3 |   |   |   |   | 3  |
| FİZ 101L                   | Physics I Laboratory                   | 5                      | 3 |   | 4 | 3 |   |   | 3 |   | 3  |
| FİZ 102                    | Physics II                             | 5                      |   |   | 2 | 3 |   |   |   |   | 3  |
| FİZ 102L                   | Physics II Laboratory                  | 5                      | 5 |   | 4 | 3 |   | 3 | 3 |   | 3  |
| KİM 101                    | General Chemistry                      | 5                      |   |   | 3 | 3 |   |   |   |   | 3  |
| KİM 101L                   | General Chemistry Laboratory           | 5                      | 5 |   | 4 | 3 | 3 | 3 |   |   | 3  |
| AİT 201                    | History of Turkish Revolution I        |                        |   |   |   |   | 3 |   |   |   |    |
| AİT 202                    | History of Turkish Revolution II       |                        |   |   |   |   | 3 |   |   |   |    |
| TÜR 101                    | Turkish I                              |                        |   |   | 3 |   | 3 | 5 |   | 5 |    |
| TÜR 102                    | Turkish II                             |                        |   |   | 3 |   |   | 5 |   | 3 |    |
| İNG 001                    | English I                              |                        |   |   |   |   |   | 5 |   | 5 |    |
| İNG 002                    | English II                             |                        |   |   |   |   |   | 5 |   | 3 |    |
| İNG 003                    | English Writing Skills                 |                        |   |   |   |   | 3 | 5 |   | 5 |    |
| İNG 004                    | English Presentation Skills            |                        |   |   |   |   |   | 5 |   | 3 |    |
| IYD 1                      | Second Foreign Language 1              |                        |   |   |   |   |   | 5 |   | 3 |    |
| IYD 2                      | Second Foreign Language 2              |                        |   |   |   |   |   | 5 |   | 3 |    |
| IYD 3                      | Second Foreign Language 3              |                        |   |   |   |   |   | 5 |   | 3 |    |
| IYD 4                      | Second Foreign Language 4              |                        |   |   |   |   |   | 5 |   | 3 |    |
| OEG 101                    | Introduction to Cooperative Education  |                        |   |   | 3 |   | 3 | 3 | 3 | 5 | 3  |
| USD 421                    | University Elective I                  | 3                      |   | 3 | 5 | 3 | 5 | 5 | 5 | 5 | 5  |
| USD 422                    | University Elective II                 |                        |   |   | 3 |   | 3 | 5 | 3 | 5 |    |
| BİL 141                    | Computer Programming I (Java)          | 3                      |   | 5 | 3 | 3 |   |   |   |   | 5  |
| BİL 106                    | Database Management                    | 3                      |   | 5 |   | 3 |   |   |   |   | 5  |
| MAK 101                    | Computer Aided Technical Drawing I     |                        | 3 | 3 |   |   |   | 3 |   |   | 3  |
| MAK 209                    | Materials Sci. & Manuf. Processes      | 5                      | 3 |   |   | 3 |   |   | 3 |   | 3  |
| MAK 209L                   | Materials Sci. & Manuf. Processes Lab  | 5                      | 5 |   |   | 3 |   | 3 | 3 |   | 3  |
| MFSD 421                   | Faculty Elective                       | 5                      | 3 | 5 | 5 | 5 | 3 | 3 | 5 | 3 | 5  |
| İKT 103                    | Introduction to Economics              | 3                      |   | 3 | 3 |   | 3 |   | 3 | 3 |    |
| İŞL 212                    | Management Science                     | 5                      |   | 3 | 5 | 3 | 3 | 3 | 5 | 3 | 3  |
| UGİ 315                    | Entrepreneurship and Leadership        |                        |   | 3 | 5 |   | 5 | 5 |   | 3 |    |
| İŞL 353                    | Accounting and Cost Accounting         | 5                      | 3 | 3 | 3 | 3 | 3 | 1 | 5 | 3 | 3  |
| END 320                    | Engineering Economics                  | 5                      | 3 | 3 |   | 4 |   |   | 3 |   | 4  |
| END 101                    | Introductory Seminars to Ind. Eng.     | 2                      | 2 | 2 | 3 | 4 |   |   | 3 | 3 | 4  |
| END 202                    | Work Analysis and Design               | 3                      | 5 | 5 | 5 | 4 | 3 | 4 | 3 | 4 | 4  |
| END 213                    | Probability and Statistics I           | 5                      | 2 |   |   | 5 | 2 |   |   | 3 | 2  |
| END 214                    | Probability and Statistics II          | 5                      | 5 |   |   | 4 | 2 |   |   | 3 | 4  |
| END 294                    | Operations Research I                  | 5                      |   | 4 |   | 5 |   |   |   |   | 5  |
| END 306                    | Systems Simulation                     | 4                      | 5 | 5 | 4 | 5 | 3 | 4 | 2 | 2 | 5  |
| END 307                    | Production Systems Planning            | 5                      | 3 | 4 |   | 5 |   |   |   |   | 5  |
| END 308                    | Facilities Planning and Design         | 5                      |   | 5 |   | 5 | 3 | 4 | 4 |   | 5  |
| END 321                    | Stochastic Models                      | 5                      |   |   |   | 4 |   |   |   |   | 4  |
| END 395                    | Operations Research II                 | 5                      | 3 | 5 | 2 | 5 |   | 4 | 3 |   | 4  |
| END 396                    | Service Systems Design and Planning    | 5                      | 2 | 5 | 4 | 5 | 3 |   | 5 | 5 | 5  |
| END 409                    | Production Information Systems         | 4                      | 2 | 5 | 4 | 3 | 3 | 2 | 3 | 3 | 5  |

|         |   |   |   |   |   |   |   |   |   |   |   |
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| END 471 | Quality Planning and Control                | 5 | 4 | 2 |   | 4 |   |   | 1 |   | 4 |
| END 497 | Senior Design Project                       | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 3 | 5 | 5 |
| END 426 | Logistics                                   | 5 | 3 | 3 | 3 | 5 | 3 | 4 | 3 | 4 | 4 |
| END 424 | Quantitative Decision Making Methods        | 4 | 3 | 5 | 2 | 4 |   |   | 3 |   | 5 |
| END 429 | Energy Systems Planning                     | 3 | 4 | 4 |   | 5 |   |   | 4 |   | 5 |
| END 433 | System Reliability and Maintenance Planning | 5 | 2 | 3 |   | 4 |   |   |   |   | 4 |