Minor 2018-2020

The expertise of an engineer is contingent on the understanding of opportunities provided and constraints imposed by technical systems. An expert in the field of industrial engineering and management needs to understand the engineering processes and systems in order to be able to create and transform technology-based business. This requires expertise in a selected field of engineering, so that a graduate from the programme has the knowledge and skills to follow and critically analyze development in this field. The foundation for this engineering knowledge is created in Bachelor's studies and refined at the Master's level.

To acquire appropriate level of knowledge in a technical discipline, the student can choose the minor from an appropriate field of engineering. The selection of the minor is regulated, and suitable options depend on the educational background of the student.

Students with Bachelor’s degree in Industrial Engineering and Management, and all other students with equivalent educational background: Students with a Bachelor's degree in non-engineering fields such as natural sciences choose the minor of their master’s studies in a field of engineering that clearly differs from industrial engineering and management. The minor may be in a different field of engineering than the minor of their bachelor’s degree. The student should select from the offering by Aalto schools of technology. However, the programme may disallow some minors because of overlap with industrial engineering and management. For the same reason, the programme may also restrict the choice of optional courses within a minor.

The educational background is assessed during the admission process. Graduates from the Bachelor’s Programme in Science and Technology (Teknistieteenlainen kandidattijohelma) majoring in industrial engineering and management follow these guidelines.

Students with a Bachelor’s degree with the major in a field of engineering that clearly differs from industrial engineering and management: The minor can be chosen freely. Again, the educational background is assessed during the admission process.

Students with a Bachelor’s degree in other fields: Students with bachelor’s degree in non-engineering fields such as natural sciences choose the minor of their master’s studies in a field of engineering that clearly differs from industrial engineering and management. The minor should be selected from the offering by Aalto schools of technology. However, the programme may disallow some minors because of overlap with industrial engineering and management. For the same reason, the programme may also restrict the choice of optional courses within a minor.

Any student may also include a second minor in the elective studies. The programme has no restrictions concerning the second minor.

In every case, the minor may be of master’s level or bachelor’s level. The minor is confirmed in the Personal Study Plan.

All minors at Aalto: Minors 2018-2020

Basically, minors provided by CHEM, ELEC, ENG or SCI (i.e. Aalto Schools of Technology) and designed only for the Master's level (Level equals "Master") are suitable. Exceptions are listed in this page.

When your choice of minor is restricted, please note the following general principles:

- The objectives and content of the minor must be clearly from a field of technology other than IEM.
- Some minors contain courses that are offered by the Department of Industrial Engineering and Management (course code format being TU-XXXX) or the School of Business (99XX9999). Replace these courses with other courses accepted in the minor. Examples of such cases include:
  - SCI3077 Systems and Operations Research (the course MS-C2197= TU-A1150 is not allowed)
- The following Master's level minors do not fulfill the programme's intention of "a minor in a field of engineering that clearly differs from industrial engineering and management":
  - Code: CS.a BIZ40015 Creative Sustainability
  - Code: BIZ40006E (BIZ)/IDBM.a (ARTS) International Design Business Management
  - SCI3038 Multi-Disciplinary Energy Studies
  - ENG3074 Real Estate Economics
  - ENG3073 Human-Centered Living Environment
  - SCI3098 Human-Computer Interaction
  - SCI3072 USchool
  - ENG3067 ME310 Aalto-Global Innovation Program
  - SCI3073 Analytics and Data Science
  - SCI3086 Financial Engineering
  - SCI3090 Startup Minor.
- Bachelor-level minors: ENG3065 Kiinteistötalous (Real Estate Economics), ENG3070 Vesi- ja ympäristötekniikka (Water and Environmental Engineering), CHEM3018 Luonnonvarojen kestävä jalostaminen (Sustainable processing of natural resources), ENG3047 Built Environment (Rakennettu ympäristö), SCI3030 Informaatioverkostot (Information Networks), and SCI3063 Tilastotiede (Statistics).
- Some minors may also contain courses that have strong business, societal, or varying content although they are offered by departements in the Schools of Technology. These types of courses must also be replaced with other courses in the minor. In ENG3060 Mechanical Engineering, a student can choose courses from several tracks (topic groups). The following restrictions concern this minor:
  - The MEC-E1001 Mechanical Engineering in Society course offered as common studies or courses under the topic group "Societal perspectives in engineering" are not allowed in the minor.
- Product Development track is only allowed with the following contents:
  - MEC-E3001 Product Development Project 10-15 cr
  - MEC-E3002 Methods in Early Product Development 5 cr
  - MEC-E3003 System Engineering Design 5 cr

A minor designed for the bachelor's level may be included in the master's degree. Many of the bachelor-level minors are offered in Finnish, which may in practice limit the choices of foreign students. Problems may also arise if the student does not have sufficient prerequisite knowledge for a master-level minor, and the prerequisite course is offered in Finnish. To avoid these problems, the following minors are recommended:

- ENG3048 Computation and Modelling in Engineering
- SCI3096 Data Science