Curriculum 2020-2022

Director of degree programme: Professor Mika Sillanpää

Degree: Master of Science (Technology)

Extent: 120 ECTS

Description of the programme and learning outcomes

Studies in engineering physics create a basis for the technological applications of physics and open doors for different careers in industry, science, and research. A profound understanding of physics and mathematics can be employed in finding novel solutions to both present-day and future’s challenges. The study programme differs from a more classical university physics in its proximity to concrete, practical research questions. However, its connection to real-life problems is very strong. Graduates from the programme are associated to an enduring national brand, and typically work in a vastly broad spectrum of jobs ranging from fundamental research to global corporate leadership.

The focus areas in the programme range from experimental and theoretical materials physics to nanophysics and nanoscience, and to novel energy solutions.

Degree structure

Two majors with a different focus are offered in the Master’s Programme in Engineering Physics:

**Materials Physics and Quantum Technology**

You can focus either in experimental physics, or theoretical physics and modeling with emphasis on technology applications or basic research. You can further specialize in nanomaterials, solid-state applications of quantum technology, or purely theoretical physics related to the most pressing questions in modern solid-state physics and quantum technology.

**Advanced Energy Technologies**

This major addresses the most pressing questions faced by the society in the near future: how to combat climate change and pollution by finding alternative energy sources. These include e.g. fusion, solar energy, and fuel cells.

Long major

- Long major (65 ECTS)
- Master’s thesis (30 ECTS)
- Elective studies (25 ECTS)

Compact major

- Compact major (40 ECTS)
- Master’s thesis (30 ECTS)
- Minor (20–25 ECTS)
- Elective studies (25–30)

In these two possible degree structures presented above, the extent of a major may not exceed 65 ECTS. Thus, the students will always have a choice of completely elective studies at minimum 25 ECTS.