

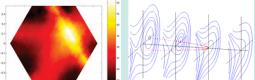
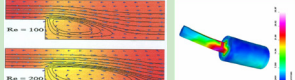


HELSINKI UNIVERSITY OF TECHNOLOGY
TKK

Degree Programme of Engineering Physics and Mathematics

From science to technology.
<http://www.tkk.fi/Yksikot/TeknillinenFysiikka/>

MAJOR SUBJECTS OF BACHELOR'S DEGREE

Engineering Physics	Mathematics
	
	Mechanics
	
	Systems Sciences
	

MAJOR SUBJECTS OF MASTER'S DEGREE

Engineering Physics	Mathematics
Semiconductors, polymers Nanophysics and nanomaterials Positron physics, surface science Theoretical and computational physics Quantum mechanics and quantum computing Nonequilibrium phenomena and physical optimization Modelling of biological phenomena	Mathematical analysis Linear algebra, scientific computing Partial differential equations Inverse problems, imaging Iterations and complex dynamics Stochastics, risk management FEM models and numerical analysis
Engineering physics may include some parts of Optics, Nanotechnology, Advanced energy systems, and Biomedical engineering, or they may be chosen as independent majors.	Mechanics
	Continuum mechanics Modelling of structures and materials Computational fluid dynamics
Optics	Systems and Operations Research
Laser physics and quantum optics Photonics and nano-optics	Optimization, decision analysis, game theory Investment theory Risk and technology assessment Energy and environmental systems Applied philosophy and system intelligence
Nanotechnology	Computational Science and Engineering
Molecular materials Nanostructures and nanotubes	Minor subject for B.Sc. and M.Sc. degrees. Produces new scientific knowledge by computational means. Uses mathematical models, simulations and visualization.
Advanced Energy Systems	Discrete Mathematics
Fusion energy, plasma physics Nuclear engineering, radiation physics New energy technologies, renewables Photonics, engineering physics	Minor subject for B.Sc. and M.Sc. degrees. Noncontinuous and algorithmic reasoning in computer science, communication theory, optimization and mathematics.
Biomedical Engineering	
Biological physics Biomedical engineering and imaging Modelling and 3D image processing Intelligent materials research	