FITech
NETWORK UNIVERSITY

COURSES & PROGRAMS SPRING 2019

JOIN US TO STUDY TECHNOLOGY IN A NEW WAY!

Seven Universities in FITech offer the most wanted! Choose a new minor or just a single course from our new range of programmes. You can also complement your current degree to the Master of Science in Technology. Plenty of online courses and all units are free-of-charge. All Credits are eligible to be included in your MSc degree.

Apply now for courses in spring! www.fitech.io

IN THIS LEAFLET, WE OFFER TWO TYPES OF STUDIES:

1. Study Modules: You can choose either individual courses or gather a whole minor subject. You can apply for the FITech-studies if your home university is one of the FITech universities*. Some of the studies are open to business representatives and students from other universities.

2. Master of Science in Technology –programmes: The program is designed for Bachelors from universities or universities of applied science. You can complete your degree for Master of Science in Technology in two years.

APPLICATIONS:

The default time for applying the study right in JOOPAS is 2-3 weeks before the course starts. After getting the study right, the students are instructed to sign up for the course in the university's own system. More info: www.fitech.io

Applications are welcome for the Master of Science in Technology –programmes 3.12.2018 – 23.1.2019. You will find instructions in the same context than details of your programme.

MORE INFO:

For more information about the content of the studies, contact the university's contact person of each course. Contact info is available in the same context than details of your course.

Support for your application process:

If you attend to apply for the individual courses or for the study module, please don't hesitate to send an email: info@fitech.io or to Pilvi Lempiäinen: pilvi.lempiainen@fitech.io

If you attend to apply for the Master of Science in Technology –programmes, please contact Admission services at the Lappeenranta University of Technology: hakijapalvelut@lut.fi or tel. 0400 295 130. www.lut.fi

*FITech Universities: University of Turku, Åbo Akademi, University of Oulu, Lappeenranta University of Technology, University of Vaasa, Tampere University of Technology and Aalto University. Join us to study technology in a new way!

Psst. **Stay tuned - studies coming up also for Summer 2019!**

www.fitech.io

FITECH MODULES 2019

ENVIRONMENTAL ENGINEERING (5- 20 ECTS)

The environment and different environmental issues are increasingly important in the world. Independent of their background, engineers need basic knowledge in this field. The minor is aimed for students who want to include different aspects of environmental engineering as a part of their studies. It offers a selection of courses from which the students can individually choose an optimal combination for their needs. The minor introduces the students to the basics in environmental engineering and provides a good foundation for future studies and practical challenges in the field.

Teaching method: Online studies or Contact learning in Turku

Courses in spring 2019, a´5 ECTS:

Åbo Akademi: Energy Technologies in Process Industry (AS00BQ78), or in Turku
Starts: 7.1.2019
Åbo Akademi: Environmental Engineering and Design (AS00BQ71), or in Turku
Starts: 22.1.2019
University of Oulu: Environmental Load of Industry, 7.1.2019

Coming in the fall 2019:

Åbo Akademi: Combustion Chemistry, : Intensive course in Turku
University of Oulu: Industrial Ecology,
University of Oulu: Air Pollution Control Engineering,

Coordinating university: University of Oulu in cooperation with Åbo Akademi and University of Turku
More info and applications: https://fitech.io/studies/environmental-engineering/

CHEMICAL ENGINEERING FOR MANUFACTURING INDUSTRY (5-20 ECTS)

Chemical engineering for manufacturing industry provides student knowledge in combustion, materials engineering (especially materials suitable for high temperature processes) and on industrially applied chemical processes.

Teaching method: Intensive studies or Contact learning in Turku .

Courses in spring 2019, a´5 ECTS:

Chemistry in the energy technology (OO00BD89), Contact learning Intensive studies in Turku
Duration: 11.3.2019 – 15.3.2019
Corrosion of metals (416520.0), in Turku , Starts: 19.3.2019

Coming in the fall 2019:

Combustion chemistry, 5 ECTS : in Turku
Chemical process and product technology, 10 ECTS, in Turku

Coordinating university: Åbo Akademi
More info and applications: https://fitech.io/studies/chemical-engineering-for-manufacturing-industry/

SAFETY-CRITICAL AND AUTONOMOUS SYSTEMS (5-40 ECTS)

In this module, the student will learn the fundamentals to the design of reliable autonomous and distributed systems. The student will learn methods to sense and collect data to allow autonomous systems to take intelligent decisions development methods at tools to develop complex systems, and how to ensure that they operate in a reliable and safe way while fulfilling their specification. This module is recommended to students in Information Technology or a closely related field. We want to encourage other students to apply as well.

Teaching method: Contact learning in Turku.

Courses in spring 2019, a´5 ECTS:

Software Safety (456501.0), , Starts: 7.1.2019
Security Engineering (DTEK0039), , Starts 7.1.2019
Autonomic Software and Systems (DV00BO00), , Starts: 18.3.2019

Coming in the fall 2019 a´5 ECTS:

Multidimensional sensing techniques,
Control of Discrete Event Systems,
Real-time systems,
Specification Methods,
Reliable Distributed Systems,

Coordinating university: Åbo Akademi in cooperation with University of Turku
More info and applications: https://fitech.io/studies/safety-critical-and-autonomous-systems/

INDUSTRIAL ICT (4-30 ECTS)

The minor can be completed by choosing courses offered for this minor by University of Turku and Åbo Akademi. This minor provides wide overview of technologies and processes essential in designing and implementing "Smart industry" applications in Internet Era. Even though the primary target group is the students of technology, we want to encourage other students to apply as well when advisable.

University of Turku courses covers diverse topics ranging from: data exchange, cloud services, cyber-physical systems, Big Data, Artificial Intelligence (AI), Internet of things (IoT), security, (semi-) autonomous industrial techniques, among others.

Courses by **Åbo Akademi** focus on the design of IT solutions for the digitization of the industry. The student will learn on new sensor technologies, software and system development methods, the internet of things and the analytics required to control and optimize industrial systems.

Teaching method: Contact learning or Blended learning in Turku

Courses in spring 2019:

University of Turku:
Industrial Seminar on Future Technologies (DTEK2036), 5 ECTS, , Starts 7.1.2019
Enterprise Architecture (TJ093223 TJS17), 6 ECTS, , Starts 7.1.2019
Åbo Akademi: System architecture of IoT (453507.0), 5 ECTS, , Starts 7.1.2019

Courses in fall 2019:

University of Turku:
System and Application Security (DTEK8025), 5 ECTS,
Data Analysis and Knowledge Discovery (TKO_3103), 5 ECTS,
Ohjelmistotuotannon peruskurssi (DTEK1201), 5 ECTS, (in Finnish!)
Sulautettujen järjestelmien ohjelmointi (DTEK2041), 4 ECTS, (in Finnish!)

Åbo Akademi:
Analytics for industrial internet (DT00BQ86), 5 ECTS,
Wireless digital communication (453101.0), 5 ECTS,
Code optimization (455304.0), 5 ECTS,
Multidimensional sensing techniques (DT00BQ89), 5 ECTS,

Coordinating university: University of Turku in cooperation with Åbo Akademi
More info and applications: https://fitech.io/studies/industrial-ict/

PROCESS DESIGN FOR ENERGY EFFICIENCY (5-25 ECTS)

The minor offers students a solid foundation of thermodynamics and modelling with advanced applications in the fields of refrigeration and new energy technologies such as solar and wind power. Advanced process thermodynamics offers deeper knowledge of the subject. Introduction to Computational fluid dynamics gives students an insight into fluid dynamics and introduces them to the world of CFD modelling.

Teaching method: Online or Contact learning in Turku.

Courses in spring 2019, a´5 ECTS:

New energy technologies (424517.0), or ,
Starts 22.1.2019
Advanced process thermodynamics (424520.0), , Starts 18.3.2019

Coming in the fall 2019 a´5 ECTS:

Principles of process engineering (424307.0), or
Introduction to Computational Fluid Dynamics (424512.0), Intensive studies 1 week

Coordinating university: Åbo Akademi
More info and applications: https://fitech.io/studies/process-design-for-energy-efficiency/

CO-CREATION AND PLATFORM ECONOMY (5-46 ECTS)

The minor can be completed by choosing courses offered for this minor by University of Turku and Åbo Akademi. UTU's courses provide a multidisciplinary approach to the domains of Co-Creation and Platform Economy, combining teaching of aspects such as business law, and ethics to the technological context.

Åbo Akademi's courses provide a wide overview software development technologies used in building products on modern business platforms. With these courses student can learn about how to design new digital products and services for platform economy as well as how to implement these product and services as web and cloud based software intensive systems.

The student will also learn how to plan and work in large software development projects. Courses Technological phenomena in context (DTEK2039) and Digital Business models (TJ093238) are mandatory for those who wish to complete the minor with University of Turku courses.

Teaching method: Blended learning - Combination of online & contact learning in Turku or Contact learning
University of Turku:

Courses in spring 2019:

Digital Economy and Business Models (TJ093238), 6 ECTS, * Course contains 3 modules. Student can complete as 3 or 6 ECTS by choosing alternative modules. See course page for detailed information https://fitech.io/studies/co-creation-and-platform-economy/,
Starts 18.3.2019.
Lean Platform Business Design (DTEK2037), 5 ECTS, , Starts 1.7.2019

Coming in the fall 2019:

Technological phenomena in context (DTEK2039), 5 ECTS,
Co-Creation and new product development (DTEK2038), 5 ECTS,
Information technology and ethics (TJ093222), 6 ECTS,

Åbo Akademi: Software Technology for co-creation and platform economy

In this module the student can learn about how to design new digital products and services for platform economy as well as how to implement these product and services as web and cloud based software intensive systems. The student will also learn about digital business models and how to plan and work in large software development projects. The module contains courses on product design and business models as well as in software technology. This module is recommended to students in Information Technology or a closely related field.

Courses in spring 2019 a´5 ECTS:

Cloud Computing (451502.0), 5 ECTS, , Starts 18.3.2019
Special course in Software Engineering (DT00BP96), 5 ECTS, ,
Not scheduled at the moment, the updated schedule will be available
https://fitech.io/studies/co-creation-and-platform-economy/

Coming in fall 2019:

Development of Server-side Web Services (DT00BT67), 5 ECTS,
Development of Client-side Interactive Web Applications (DT00BN92), 5 ECTS,
Project course (451000.0), 10 ECTS,

Coordinating university: University of Turku in cooperation of Åbo Akademi
More info and applications: https://fitech.io/studies/co-creation-and-platform-economy/

ENERGY TECHNOLOGY (5-20 ECTS)

The minor focuses on the marine power generation systems, fuels, and the abatement solutions of exhaust emissions.

The studies cover liquid renewable fuels and their blends with fossil fuels, as well as gaseous fuel alternatives. In addition, the courses deal with the fundamentals of internal combustion engines. The emissions abatement systems are also considered. Various solutions have been and are developed for the reduction of Sulphur, oxides of Nitrogen, and other emissions. Finally, the student can collect all his new knowledge by performing project work and writing a special assignment within the marine energy generation systems – preferably in close cooperation with a company.

Teaching method: Online

Courses in spring 2019, a´5 ECTS:

Exhaust and flue gas after-treatment technologies (ENERFT3130), , Starts 7.1.2019
Present and future prospects in energy technology: a seminar course with industrial viewpoint (FYSIFT3100), , Starts 25.2.2019.

Coming in the fall 2019, 'a 5 ECTS:

Marine and power plant engines (ENERFT3110),
Engine fuels and lubricants (ENERFT3120),

Coordinating university: University of Vaasa
More info and applications: https://fitech.io/studies/energy-technology/

PRODUCTION PLANNING, CONTROL AND OPTIMIZATION (5-25 ECTS)

The courses introduce the students to the basics in production planning, control and optimization which are important tools in the development of more material, energy and cost efficient processes.

Process optimization introduces students to the basics in optimization, including the different problem classifications and algorithms to solve the problems. Evolutionary algorithms offers knowledge in optimization with stochastic methods. Production optimization and scheduling provides knowledge on how to solve problems related to the production and cost efficiency and how to distribute tasks optimally. Control of discrete event systems gives basic knowledge in computer aided modeling and control of systems where discrete decisions are made and actions.

Teaching method: Contact learning in Turku or Online

Courses in spring 2019, a´5 ECTS:

Neural Networks (424501.0), , 1 week Intensive course, preliminary in 05/2019
Evolutionary Algorithms (424511.0), , Starts 7.1.2019
Process and Production Optimization (411528.0 Note! The course is lectured in Swedish), , Starts 21.1.2019

Coming in the fall 2019, 'a 5 ECTS:

Basics in Production Optimization (411523.0 Note!: Lectured in Swedish),
Control of discrete event systems (419502.0),

Coordinating university: Åbo Akademi
More info and applications: https://fitech.io/studies/production-planning-control-and-optimization/

MATERIALS ENGINEERING (5-20 ECTS)

A minor in the material science gives the student basic knowledge on ceramics, polymers and composite materials. In addition, the wear and corrosion properties of different material groups are studied. After completing the minor, the student understands the use of each material group and also their limitations.

Teaching method: Online

Courses in spring 2019, a´5 ECTS:

Advanced Composites (MOL-42236), , Starts: 7.1.2019.
Advanced Ceramics (MOL-52026), , Starts 7.1.2019

Coming in the fall 2019, 'a 5 ECTS:

Materials Performance (MOL-32307),
Polymeric Materials (MOL-42106),

Coordinating university: Tampere University of Technology
More info and applications: https://fitech.io/studies/materials-engineering/

MARINE TECHNOLOGY (5-40 ECTS)

The Marine Technology Minor offers students good overall knowledge of the engineering aspects related to marine environment. The main contents is to introduce design aspects related to environment, marine structures, transport and related systems and sub-systems. The studies cover design, manufacturing and operational aspects. The studies are built around expertise of each student by utilization of portfolio- and project-based teaching methods.

Choose five courses to complete the minor 25 ECTS. *Note! Courses: Ship Systems and Principles of Naval Architecture are obligatory if you attend to complete your minor subject in Marine Technology.

Teaching method: Online

Courses in spring 2019, a´5 ECTS:

***Ship Systems** (MEC-E2005), Starts 7.1.2019.
Ship Dynamics (MEC-E2004), Starts 25.2.2019
Ship Structures and Construction (MEC-E2007), , Starts 26.2.2019
Winter Navigation (MEC-E4001), Starts 9.1.2019

Coming in fall 2019, a´5 ECTS:

***Principles of Naval Architecture** (MEC-E1004),
Passenger Ships (MEC-E2003),
Marine Risks and Safety (MEC-E2009),
Special Assignment in Mechanical Engineering (MEC-E1500),

Coordinating university: Aalto University
More info and applications: https://fitech.io/studies/marine-technology/

PROJECT & INDUSTRIAL MANAGEMENT (5-20 ECTS)

Project & Industrial Management minor gives students skills needed in how to successfully conduct projects in industries and infra-structure, as for example energy, shipbuilding and innovative start-ups. The courses include real-life cases and the teaching methods are combination of physical and virtual lectures.

Participating in these courses gives the student excellent capabilities in how projects are conducted and the requirements in international project business.

Teaching method: Contact learning or Blended learning- Combination of online & contact learning in Turku:

Courses in spring 2019, a´5 ECTS:

Industrial Project Business (414506.0), 18.3.2019
Advanced Project Management, in the evening. Starts: 5.3.2019.
*Introduction to project management course or other basic course in Project management is a prerequisite for the Advanced course.

Coming in fall 2019, a´5 ECTS:

Business Models and Ecosystems (414505.0),
Project Management (IE00BT38),

Coordinating university: Åbo Akademi in Cooperation with University of Oulu, Tampere University of Technology and Aalto University
More info and applications: https://fitech.io/studies/project-industrial-management/

USE AND CHARACTERISTICS OF STEELS (5-38 ECTS)

The steel know-how minor focuses on the characteristics of steel and the use of steels in the manufacturing industries. Utilizing the new strong steels, makes it possible to considerably develop the lifetime characteristics of a product. This gives the manufacturer of the product a clear competitive advantage, enabling a stable and if necessary, a growing market share as well as profitable business operations.

Teaching method: Online or Blended learning - Combination of online & contact learning

Courses in spring 2019:

Fracture Mechanics (461021A), 5 ECTS, , Starts: 7.1.2019
Basiscs of corrosion in metals (Korroosionesto 465106A), 5 ECTS , in Finnish! Starts: 11.3.2019
Welding and heat treatment of metals (465104A), 5 ECTS , in Finnish! Starts: 11.3.2019
Sheet metal forming (465112S), 5 ECTS Starts: 11.3.2019
Welding metallurgy (465111S), 8 ECTS , Starts: 11.3.2019

Coming in fall 2019, a´5 ECTS:

Materials in machine shops (Konetekniikan materiaalit 465102A),
Principles of metal forming (465103A),

Coordinating university: University of Oulu
More info and applications: https://fitech.io/studies/use-and-characteristics-of-steels/

AUTOMATION ENGINEERING (5-20 ECTS)

Tampere University of Technology is offering minor studies in automation engineering. The minor offers basic knowledge on Control systems, Automation systems and Robotics.

Coordinating university: Tampere University of Technology
More info and applications: https://fitech.io/studies/automation-engineering/

MASTER OF SCIENCE IN TECHNOLOGY -PROGRAMMES

The programmes are designed for Bachelors from universities or universities of applied science.

Language of the studies is Finnish, but includes several courses in English.

Teaching method: Mostly online studies, some intensive studies e.g. laboratory work in Turku or in Lappeenranta. The programs will start in fall 2019.

MASTER OF SCIENCE IN TECHNOLOGY, MEC PROGRAMME 120 ECTS, 2 YEARS

The aim of the program is to provide engineers in mechanical engineering especially for the needs of the Finnish marine and automotive industry and their subcontractors.

The program is designed for Bachelors from universities or universities of applied science, preferably with a background in mechanical engineering. The programme is suitable for students who work during the studies.

Next application Period:
3.12.2018–23.1.2019

More info: https://www.lut.fi/opiskelu/maisteriohjelmat/tutkinto-ohjelmat-tyon-ohessa/kone-ja-sahkotekniikan-di-ohjelma-mec-elec-turku

If you have any questions, please contact Lappeenranta University of Technology:
hakijapalvelut@lut.fi or tel. 0400 295 130, www.lut.fi

MASTER OF SCIENCE IN TECHNOLOGY, ELEC PROGRAMME 120 ECTS, 2 YEARS

The aim of the program is to provide engineers in electrical engineering especially for the needs of the Finnish marine and automotive industry and their subcontractors.

The program is designed for Bachelors from universities or universities of applied science, preferably with a background in electrical engineering. The program is suitable for students who work during the studies.

Next application Period:
3.12.2018–23.1.2019

More info: https://www.lut.fi/opiskelu/maisteriohjelmat/tutkinto-ohjelmat-tyon-ohessa/kone-ja-sahkotekniikan-di-ohjelma-mec-elec-turku

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MASTER OF SCIENCE IN TECHNOLOGY, EFFICIENT ENERGY USAGE, ENERGY ECONOMICS (ENTEDI)

Efficient energy usage, energy economics. The programs gives insight about the energy production and consumption in Finland and elsewhere and how it relates to efficient energy usage, energy economics and environment. Energy affects everything and is a corner stone for any civilized society. The programme gives you insight how energy is produced and consumed in Finland and elsewhere. The topics include e.g. energy economics, energy efficiency, waste heat utilization and it gives you competences to work as a member in a project team.

The programme is designed for Bachelors from universities or universities of applied science, preferably with a background in energy technology or environmental engineering. The programme is suitable for students who work during the studies.

Next application Period:
3.12.2018–23.1.2019

More info: https://www.lut.fi/opiskelu/maisteriohjelmat/tekniikan-maisteriohjelmat/energiatekniikka/energiatekniikan-entedi-ohjelma

If you have any questions, please contact Lappeenranta University of Technology:
hakijapalvelut@lut.fi or tel. 0400 295 130, www.lut.fi

FITECH INDIVIDUAL COURSES

Tolerance Design (462113S), 5 ECTS
Teaching method: Online, Starts: 11.3.2019

The course consists of the following topics: Benefits of tolerance design, consideration of product level requirements in tolerance design, consideration of the manufacturing process variation in tolerance design, utilization of measurement data of components in tolerance design, determination of a tolerance chain and calculus of its total variation, step-by-step introduction for 4-phase tolerance analysis process.

Coordinating university: University of Oulu
More info and applications: https://fitech.io/studies/tolerance-design/

Simulation and Modelling of Machines (462019S), 8 ECTS
Teaching method: Blended learning, Combination of online & contact learning in Oulu.
Starts: 11.1.2019

The course focuses on the use of a multibody simulation software called Adams. The main goal is to get the essential skills needed in using an extensive simulation software. The teaching relies on hands-on assignments supported by videos and written material.

Coordinating university: University of Oulu
More info and applications: https://fitech.io/studies/simulation-and-modelling-of-machines/

Signal analysis in mechanical engineering (462113S), 5 ECTS
Teaching method: Online. Starts: 7.1.2019

The course consists of the most important mathematical methods of digital signal processing related to mechanical engineering, such as filters, numerical differentiation and integration, application of the discrete Fourier transform, calculation of signal features in time and frequency domains, envelope analysis and other cyclostationary methods, describing mechanical phenomena by means of random signals and basics of statistical pattern recognition. Exercises from example applications and on numerical signal processing are provided.

Coordinating university: University of Oulu
More info and applications: https://fitech.io/studies/signal-analysis-in-mechanical-engineering

TECH TALENT'S FAST TRACK TO THE FUTURE

Thanks to the new FITech network university, selected studies offered by Finnish technical universities are now available in one handy place. You could choose a new minor or just a single course from our new range of programmes.

STUDY FLEXIBLY

Plenty of online courses and all units are free-of-charge. All Credits are eligible to be included in your MSc degree.

COOPERATE

Thanks to the university's close cooperation with businesses, you will be in close contact with companies and working life. Many of the studies can be taken while working.

FIND A CAREER

Companies short of engineers in the region provide excellent opportunities to find a meaningful job in Southwest Finland, where you can enjoy a high quality of life, close to the nature.

→ www.fitech.io

FITech NETWORK UNIVERSITY

Aalto-yliopisto · Åbo Akademi University · Turun yliopisto University of Turku · Vaasan yliopisto University of Vaasa · University of Oulu

TEK Tekniikan akateemiset · Tampere University of Technology · LUT Lappeenranta University of Technology · Technology Industries of Finland