Opasraportti

Open University - Engineering, manufacturing and construction (2018 - 2019)

Tutkintorakenteisiin kuulumattomat opintokokonaisuuDET JA -jakSOt

466106S: Advanced topics on design of steel structures, 6 op
ay555225P: Basics of industrial engineering and management (OPEN UNI), 5 op
466105S: Design of Steel Structures, 6 op
488231S: Environmental Chemistry and Ecology, 5 op
488201A: Environmental Ecology, 5 op
ay488201A: Environmental Ecology (OPEN UNI), 5 op
ay440190: Industrial Engineering and Management (IEM) Minor Subject Studies (OPEN UNI), 25 op
780116P: Introduction to Organic Chemistry, 5 op
ay555264P: Managing well-being and quality of working life (OPEN UNI), 5 op
ay555286A: Process and quality management (OPEN UNI), 5 op
ay555242A: Product development (OPEN UNI), 5 op

OpintojakoSOen kuvauKset

Tutkintorakenteisiin kuulumattomien opintokokonaisuuksien ja -Jaksojen kuvauKset

466106S: Advanced topics on design of steel structures, 6 op

Voimassalo: 01.08.2015 -
Opiskelumuoto: Advanced Studies
Laji: Course
Vastuuysikkö: Field of Mechanical Engineering
Arvostelu: 1 - 5, pass, fail
Opettajat: Kangaspuoaskari, Matti Johannes
Opintokohteen kielet: Finnish
Leikkaavuudet:
ay466106S Advanced topics on design of steel structures (OPEN UNI) 6.0 op
460128S-01 Advanced Course in Design of Steel Structures I, examination 0.0 op
460128S-02 Advanced Course in Design of Steel Structures I, exercise work 0.0 op
460128S Advanced Topics on Design of Steel Structures I 4.0 op
ECTS Credits: 6 ECTS

Language of instruction: Finnish

Timing: Periods 3 and 4

Learning outcomes: After completing the course the student is capable of explain the performance and design principles of welded steel structures exposed to fatigue loading. He is able to design the plated structural elements and cold-formed members. He is able to analyze and design a steel frame. He is able to analyze dynamically loaded structures and can explain the effect of vibration on steel structures strength and reliability.


Mode of delivery: Face-to-face.

Learning activities and teaching methods: Lectures and exercises 52 h. Self-study 110 h. Total 162 h = 6 ECTS Credits.

Target group: Major students in Structural Engineering, Machine design, and Engineering Mechanics. 466102A


Assessment methods and criteria: Three midterm exams or one final exam is required. One design exercise is required.

Grading: The course utilizes a numerical grading scale 1-5. In the numerical scale zero stands for a fail.

Person responsible: Matti Kangaspuoskari

ay555225P: Basics of industrial engineering and management (OPEN UNI), 5 op

Voimassaolo: 01.01.2014 -
Opiskelumuoto: Basic Studies
Laj: Course
Vastuuysikkö: University of Oulu, Open University
Arvostelu: 1 - 5, pass, fail
Opetus suunnattu: University of Oulu, Open University
Opettajat: Jukka Majava
Opintokohteen kielet: Finnish
Leikkaavuudet:

555225P Basics of industrial engineering and management 5.0 op

466105S: Design of Steel Structures, 6 op

Voimassaolo: 01.08.2015 -
Opiskelumuoto: Advanced Studies
Laj: Course
Vastuuysikkö: Field of Mechanical Engineering
Arvostelu: 1 - 5, pass, fail
Opettajat: Kangaspuoskari, Matti Johannes
Opintokohteen kielet: Finnish

Leikkaavuudet:

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<td>485118S</td>
<td>Design of Steel Structures</td>
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<tr>
<td>460127S</td>
<td>Design of Steel Structures</td>
<td>4.0 op</td>
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ECTS Credits:
6 ECTS

Language of instruction:
Finnish

Timing:
Periods 1 and 2

Learning outcomes:
After completing the course the student is capable of explaining the crystalline structure of steel material and he understands elasto-plastic material model. He is able to explain the effect of inclusions, heat treatment and welding process to the mechanical properties of a steel material. The student is familiar with fire design of steel structures. He is able to explain common types of corrosion. The student is able to design the most typical joints in a steel frame and he can analyze simple steel structures. He is also able to analyze stability problems and explain the effects of imperfections and second order effects on frame behavior and member forces.

Contents:

Mode of delivery:
Face-to-face.

Learning activities and teaching methods:
Lectures and exercises 52 h. Self-study 110 h. Total 162 h = 6 ECTS Credits.

Target group:

Prerequisites and co-requisites:

Recommended or required reading:

Assessment methods and criteria:
Three midterm exams or one final exam is required. One design exercise is required.

Grading:
The course utilizes a numerical grading scale 1-5. In the numerical scale zero stands for a fail.

Person responsible:
Matti Kangaspuroskaari

488231S: Environmental Chemistry and Ecology, 5 op

Voimassaolo: 01.08.2018 -
Opiskelumuoto: Advanced Studies
Laji: Course
Vastuuysikko: Field of Process and Environmental Engineering
Arvostelu: 1 - 5, pass, fail
Opettajat: Väisänen, Virpi Maria
Opintokohteen kielet: English

Leikkaavuudet:
ay488231S  Environmental Chemistry and Ecology (OPEN UNI)  5.0 op

ECTS Credits:
5 ECTS credits / 135 hours of work

Language of instruction:
English

Timing:
A 10 week intensive course is arranged twice per year: in the autumn semester and in the spring semester. For further information concerning the schedule please contact the teachers.

Learning outcomes:
Upon completion of the course, the student has an understanding of the multidisciplinary nature and concept of the current environmental problems through the lens of (1) environmental chemistry and (2) environmental ecology. In addition, the student is able to consider how the circular economy tools can be applied to prevent and minimize environmental impacts.

Contents:
A project work focusing on four major environmental concerns is done in groups of 4-5 students. In addition to the project work, there are individual course tasks.

Mode of delivery:
Online studies.

Learning activities and teaching methods:
Project work 100 h / Self-study 35 h

Target group:
Students in all disciplines

Assessment methods and criteria:
Project work and individual tasks will be assessed. Assessment criteria are based on the learning outcomes of the course. Read more about the course assessment and grading systems of the University of Oulu at www.oulu.fi/english/studying/assessment.

Grading:
The course utilizes a numerical grading scale 1-5. In the numerical scale zero stands for a fail.

Person responsible:
University lecturer Minna Tiainen and university teacher Virpi Väisänen

488201A: Environmental Ecology, 5 op

Voimassaolo: 01.08.2005 -
Opiskelumuoto: Intermediate Studies
Laji: Course
Vastuuysiköt: Field of Process and Environmental Engineering
Arvostelu: 1 - 5, pass, fail
Opettajat: Väisänen, Virpi Maria
Opintokohteen kielet: English

Leikkaavuudet:

ECTS Credits:
5 ECTS credits / 133 hours of work

Language of instruction:
English

Timing:
Implementation in spring semester during 4th period. It is recommended to complete the course at the first (Bachelor’s) spring semester.

Learning outcomes:
Upon completion of the course, the student is able to define the basic concepts of environmental ecology and environmental conservation. He/she has knowledge about the state of the environment and is able to explain the essential environmental problems and the main effects of pollution. In addition, the student knows some solutions to environmental problems and is aware of ethical thinking in environmental engineering. The student also has basic knowledge about environmental toxicology.

Contents:

Mode of delivery:
e-learning

Learning activities and teaching methods:
Individual e-learning 133 h following the schedule of the course.

Target group:
Bachelor's degree students of environmental engineering. International exchange students.

Recommended optional programme components:
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Recommended or required reading:

Assessment methods and criteria:
Continuous assessment is implemented in the course and all learning tasks are evaluated. All students complete the course in a final examination. The assessment of the course is based on the learning outcomes of the course. Read more about the course assessment and grading systems of the University of Oulu at [www.oulu.fi/english/studying/assessment](http://www.oulu.fi/english/studying/assessment).

Grading:
The course utilizes a numerical grading scale 1-5. In the numerical scale zero stands for a fail.

Person responsible:
University teacher Virpi Väisänen

Working life cooperation:
No

Other information:
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ay488201A: Environmental Ecology (OPEN UNI), 5 op

Voimassaolo: 01.08.2012 -
Opiskelumuoto: Intermediate Studies
Laji: Course
Vastuuysikkö: University of Oulu, Open University
Arvostelu: 1 - 5, pass, fail
Opetus suunnattu: University of Oulu, Open University
Opintokohteen kielet: English

Leikkaavuudet:
488201A Environmental Ecology 5.0 op

ECTS Credits:
5 cr

Language of instruction:
English

Timing:
4th and 5th period

Learning outcomes:
The student is able to define the basic concepts of environmental ecology. He/she has knowledge about the state of the environment and is able to explain the essential environmental problems and the main effects of pollution. In addition, the student knows some solutions to environmental problems and is aware of ethical thinking in environmental engineering. The student also has basic knowledge about toxicology and epidemiology.

Contents:
Principles of environmental ecology. Roots of environmental problems. Global air pollution: ozone depletion, acid deposition, global warming and climate change. Water pollution, eutrophication, overexploitation of ground and surface water. Main effects of pollution and other stresses. Non-

**Mode of delivery:**
distance teaching

**Learning activities and teaching methods:**
E-learning in the Optima learning environment.

**Target group:**
Master's degree students of the Department of Process and Environmental Engineering

**Prerequisites and co-requisites:**
The courses 477011P Introduction to Process Engineering and 488011P Introduction to Environmental Engineering recommended beforehand

**Recommended or required reading:**

**Assessment methods and criteria:**
Exercises and exam.
Read more about assessment criteria at the University of Oulu webpage.

**Grading:**
The course unit utilizes a numerical grading scale 1-5. In the numerical scale zero stands for a fail.

**Person responsible:**
Rauli Koskinen

**Working life cooperation:**
No

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**ayA440190: Industrial Engineering and Management (IEM) Minor Subject Studies (OPEN UNI), 25 op**

**Voimassaolo:** 01.01.2014 -

**Opiskelumuoto:** Intermediate Studies

**Laji:** Study module

**Vastuuysikkö:** University of Oulu, Open University

**Arvostelu:** 1 - 5, pass, fail

**Opetus suunnattu:** University of Oulu, Open University

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

A440190  Industrial Engineering and Management (IEM) Minor Subject Studies  25.0 op

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**780116P: Introduction to Organic Chemistry, 5 op**

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Basic Studies

**Laji:** Course

**Vastuuysikkö:** Field of Chemistry

**Arvostelu:** 1 - 5, pass, fail

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

ay780116P  Introduction to Organic Chemistry (OPEN UNI)  5.0 op
780103P2  Organic Chemistry I  6.0 op
780108P  Basic Course in Organic Chemistry  6.0 op
780112P  Introduction to Organic Chemistry  4.0 op
780103P  Introduction to Organic Chemistry  6.0 op

**ECTS Credits:**
5 credits / 134 hours of work
Language of instruction:
Finnish. Book-examination in English as well.

Timing:
1st spring

Learning outcomes:
After this course, the student:
- can recognize and name basic organic compounds and explain their properties.
- can explain organic chemistry basic concepts.
- can deduce basic reaction types and solve their mechanisms.

Contents:
Classification of organic compounds and their properties. Basic reactions of organic compounds: addition, elimination and substitution along with the reaction mechanisms. Basics of stereochemistry.

Mode of delivery:
Face-to-face teaching

Learning activities and teaching methods:
38 hours of lectures plus 12 hours of exercises, 84 hours of independent self-study.

Target group:
Biochemistry, Chemistry, Biology, Process Engineering, Environmental Engineering and in the study entity of 25 credits, compulsory.
Physical Sciences, Geology, Geography, Mathematical Sciences, optional.

Prerequisites and co-requisites:
Upper secondary school chemistry

Recommended optional programme components:
The course is an independent entity and does not require additional studies carried out at the same time.

Recommended or required reading:

Assessment methods and criteria:
Two intermediate examinations or one final examination.
Read more about assessment criteria at the University of Oulu webpage.

Grading:
The course utilizes a numerical grading scale 0-5. In the numerical scale zero stands for a fail.

Person responsible:
Johanna Kärkkäinen

Working life cooperation:
No

Other information:
No

ay555264P: Managing well-being and quality of working life (OPEN UNI), 5 op

Voimassaolo: 01.01.2014 -
Opiskelumuoto: Basic Studies
Laji: Course
Vastuuysiksikkö: University of Oulu, Open University
Arvostelu: 1 - 5, pass, fail
Opetus suunnattu: University of Oulu, Open University
Opintokohteen kielet: Finnish
Leikkaavuudet:
   555264P Managing well-being and quality of working life 5.0 op

ay555286A: Process and quality management (OPEN UNI), 5 op

Voimassaolo: 01.01.2014 -
Opiskelumuoto: Intermediate Studies
Laji: Course
ay555242A: Product development (OPEN UNI), 5 op

Voimassaolo: 01.01.2014 -
Opiskelumuoto: Intermediate Studies
Laji: Course
Vastuuysikkö: University of Oulu, Open University
Arvostelu: 1 - 5, pass, fail
Opetus suunnattu: University of Oulu, Open University
Opettajat: Kai Hänninen
Opintokohteen kielet: Finnish
Leikkaavuudet:
  555242A  Product development      5.0 op