

# Opasraportti

## Courses in English for Exchange Students, 2015-16: Mechanical Engineering (2015 - 2016)

This WebOodi **Course Catalogue** lists the courses in the study field of **Mechanical Engineering with lecture materials (books, notes, etc.) available in English** (or taught in English) for exchange students during the **Academic Year 2015-2016** at the **Faculty of Technology**, University of Oulu.

Most of the Mechanical Engineering courses listed in this Catalogue are actually lectured in Finnish, but there is an alternative method for completing the course in English: e.g. the course has reading materials in English available, (self-study materials: books, lecture notes) which replace the lectures and assignments; possible practical exercises are taught in English; examinations are given in English.

This means that the lecture parts of the course which are given in Finnish are substituted with the English materials, and the other parts of the course, like exercises, seminars, are given to exchange students as "face-to-face" teaching in English. Final and other examinations are written in English.

**NB! Course availability:** The listed courses are available for **exchange students hosted by the Faculty of Technology / study field Mechanical Engineering**. Please also check the previous knowledge requirements of the course (see "Prerequisites and co-requisites" in the course's description).

**Exchange students hosted by other University of Oulu faculties usually cannot take these courses, especially if they do not have the required previous knowledge. They must contact** the Coordinator of the Faculty of Technology to ask if it is possible to participate to the courses.

**When planning your exchange studies** and the required **Learning Agreement**, please use the information provided under the **Courses tab** in this Catalogue. Please read carefully the provided information for each course you wish to take (course description, language of instruction, target group, course content, timing, preceding studies = required previous studies, additional information, etc.).

**All incoming exchange students must submit their Exchange Application online through the University of Oulu SoleMOVE system**, and you will also need to submit a course plan to that application and enclose the respective **Learning Agreement signed** by you and your home coordinator.

**Further information** on application process for incoming exchange students is available at <http://www.oulu.fi/english/studentexchange> or at [international.office@oulu.fi](mailto:international.office@oulu.fi).

**For more information** about the courses, please contact Faculty Coordinator (see contact info below).

**After arrival**, accepted exchange students are required to **register** on-line to all courses (and later, to the possible final course exams too). Course registration takes place via the WebOodi system once you have arrived in Oulu and received your University of Oulu login information. More information on registration will be provided during Orientation. When registering to a course you will be able to find detailed information on teaching and **schedules** under the **Instruction** and **Examinations tabs**.

**Course schedules:** Detailed information on teaching and schedule can be found under the **Instruction** and **Examinations tabs**. Our courses' schedules are based on so-called **periodical schedules**. Courses which are organised during **periods 1-2** are given on the **autumn** term (September-December), and respectively the **periods 3-4** refer to courses given during the **spring** term (January-May).

On the **Academic Study Year 2015-2016** these periods are scheduled as follows:

Autumn term:

Period 1. 31.8.-23.10 .2015 (for exchange students, from 1.9.-)

Period 2. 26.10.-18.12.2015

Spring term

Period 3. 11.1.-11.3. 2016 (exchange students should arrive on 4.1. for the Orientation)

Period 4. 14.3.-13.5.2016 (NB: after that, there is a 2w period for possible extra exams until 27.5.)

Individual course codes include information on the level of course:

xxxxxY, xxxxxP, = basic introductory level courses, for 1st-2nd year students (basic Bachelor level)

xxxxxA = subject level introductory courses, mainly for 1-3 year students (advanced Bachelor level)

xxxxxS = advanced level courses, mainly for 4-5 year students (Master level courses)

**Any questions about these courses in English in Mechanical Engineering should be addressed to:**

Ms. M.Sc. Marita Puikkonen

Coordinator for Faculty of Technology Student Exchange (Incoming & Outgoing Mobility) for  
Process, Environmental and Mechanical Engineering, and Industrial Engineering and Management  
Faculty of Technology, University of Oulu, Finland

Address: [firstname.surname@oulu.fi](mailto:firstname.surname@oulu.fi)

## Tutkintorakenteisiin kuulumattomat opintokokonaisuudet ja -jaksot

462110S: Advanced course in mechatronics, 8 op  
 464105S: Computer aided design, 5 op  
 465114S: Exercises in physical metallurgy, 5 op  
 465113S: Failure mechanisms in metals, 5 op  
 465104A: Heat treatment and welding of metals, 5 op  
 462101A: Information technology and machines, 5 op  
 462103A: Introduction to Maintenance, 5 op  
 462105A: Machine Sensor Technology, 5 op  
 462104A: Machine automation, 5 op  
 462102A: Machine automation actuators, 5 op  
 462111S: Machine diagnostics, 10 op  
 462107A: Maintenance of machines, 5 op  
 462112S: Measuring instruments in machine diagnostics, 5 op  
 462108S: Mechatronics, 6 op  
 462106A: Precision engineering, 5 op  
 465103A: Principles of metal shaping and forming, 5 op  
 465112S: Sheet metal forming, 8 op  
 462109S: Simulation and modelling of machines, 8 op  
 465064S: Strength of metal alloys, 7 op  
 465111S: Welding metallurgy, 8 op

## Opintojaksojen kuvaukset

**Tutkintorakenteisiin kuulumattomien opintokokonaisuuksien ja -jaksojen kuvaukset**

### **462110S: Advanced course in mechatronics, 8 op**

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Advanced Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Liedes, Toni Mikael

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

462052S    Advanced Course in Mechatronics    8.0 op

Ei opintojaksokuvauksia.

### **464105S: Computer aided design, 5 op**

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Advanced Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Tapio Korpela

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

462044S-01    Computer Aided Design, examination    0.0 op

462044S-02    Computer Aided Design, exercise work    0.0 op

462044S    Computer Aided Design    3.5 op

Ei opintojaksokuvauksia.

### **465114S: Exercises in physical metallurgy, 5 op**

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Advanced Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Nousiainen, Olli Pekka

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

465084S    Exercises in Physical Metallurgy    4.0 op

465084S-01    Exercise 1 in Physical Metallurgy    0.0 op

465084S-02    Exercise 2 in Physical Metallurgy    0.0 op

465084S-03    Exercise 3 in Physical Metallurgy    0.0 op

Ei opintojaksokuvauksia.

### **465113S: Failure mechanisms in metals, 5 op**

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Advanced Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** David Porter

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

465079S Failure Analysis 3.5 op

Ei opintojaksokuvauksia.

### **465104A: Heat treatment and welding of metals, 5 op**

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Intermediate Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Leinonen, Jouko Iivari

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

465077A-01 Welding Technology, examination 0.0 op

465077A-02 Welding Technology, exercises 0.0 op

465077A Welding Technology 3.5 op

Ei opintojaksokuvauksia.

### **462101A: Information technology and machines, 5 op**

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Intermediate Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Liedes, Toni Mikael

**Opintokohteen kielet:** Finnish

Ei opintojaksokuvauksia.

### **462103A: Introduction to Maintenance, 5 op**

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Intermediate Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

464087A-01 Maintenance Technology, examination 0.0 op

464087A-02 Maintenance Technology, exercise work 0.0 op

464087A Maintenance Technology 5.0 op

Ei opintojaksokuvauksia.

### **462105A: Machine Sensor Technology, 5 op**

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Intermediate Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Liedes, Toni Mikael

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

462053A Sensor Technology of Machine Automation 5.0 op

Ei opintojaksokuvauksia.

### **462104A: Machine automation, 5 op**

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Intermediate Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Louhisalmi, Yrjö Aulis

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

462022S-01 Machine Automation II, examination 0.0 op

462022S-02 Machine Automation II, exercise work 0.0 op

462022S Machine Automation II 5.0 op

Ei opintojaksokuvauksia.

### **462102A: Machine automation actuators, 5 op**

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Intermediate Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Louhisalmi, Yrjö Aulis

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

462021A-01 Machine Automation I, examination 0.0 op

462021A-02 Machine Automation I, exercise work 0.0 op

462021A Machine Automation I 5.0 op

464064A Actuators 5.0 op

Ei opintojaksokuvauksia.

## 462111S: Machine diagnostics, 10 op

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Advanced Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Jouni Laurila

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

464088S	Diagnosis of Machine Condition	8.0 op
464088S-01	Diagnosis of Machine Condition, examination	0.0 op
464088S-02	Diagnosis of Machine Condition, exercises	0.0 op

Ei opintojaksokuvauksia.

## 462107A: Maintenance of machines, 5 op

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Intermediate Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Jouni Laurila

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

464087A-01	Maintenancy Technology, examination	0.0 op
464087A-02	Maintenancy Technology, exercise work	0.0 op
464087A	Maintenancy Technology	5.0 op

Ei opintojaksokuvauksia.

## 462112S: Measuring instruments in machine diagnostics, 5 op

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Advanced Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Konsta Antero Karioja

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

464089S-01	Measuring Instrumentation and Techniques for Diagnosis of Machine Condition, examination	0.0 op
464089S-02	Measuring Instrumentation and Techniques for Diagnosis of Machine Condition, exercises	0.0 op
464089S	Measuring Instrumentation and Techniques for Diagnosis of Machine Condition	5.0 op

Ei opintojaksokuvauksia.

## 462108S: Mechatronics, 6 op

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Advanced Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Liedes, Toni Mikael

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

462051S Mechatronics 5.0 op

Ei opintojaksokuvauksia.

## 462106A: Precision engineering, 5 op

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Intermediate Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Louhisalmi, Yrjö Aulis

**Opintokohteen kielet:** English

**Leikkaavuudet:**

462038A-01 Precision Engineering, examination 0.0 op

462038A-02 Precision Engineering, exercise work 0.0 op

462038A Precision Engineering 3.5 op

Ei opintojaksokuvauksia.

## 465103A: Principles of metal shaping and forming, 5 op

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Intermediate Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Jari Larkiola

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

465095A-01 Sheet Metal Forming 0.0 op

465095A-02 Sheet Metal Forming, literature review 0.0 op

465095A Sheet Metal Forming 3.5 op

Ei opintojaksokuvauksia.

## 465112S: Sheet metal forming, 8 op

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Advanced Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Jari Larkiola

**Opintokohteen kielet:** Finnish

Ei opintojaksokuvauksia.

### **462109S: Simulation and modelling of machines, 8 op**

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Advanced Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

462055S-01	Virtual Engineering of Mechatronic Products, examination	0.0 op
462055S-02	Virtual Engineering of Mechatronic Products, exercise work	0.0 op
462055S	Virtual Engineering of Mechatronic Products	5.0 op

Ei opintojaksokuvauksia.

### **465064S: Strength of metal alloys, 7 op**

**Voimassaolo:** 01.08.2013 - 31.07.2021

**Opiskelumuoto:** Advanced Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** David Porter

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

465110S	Strength of metallic alloys	7.0 op
465081S	Physical Metallurgy I	7.0 op

Ei opintojaksokuvauksia.

### **465111S: Welding metallurgy, 8 op**

**Voimassaolo:** 01.08.2015 -

**Opiskelumuoto:** Advanced Studies

**Laji:** Course

**Vastuuyksikkö:** Field of Mechanical Engineering

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

**Opettajat:** Leinonen, Jouko Iivari

**Opintokohteen kielet:** Finnish

**Leikkaavuudet:**

465080S-03	Welding Technology, seminar	0.0 op
465080S-01	Welding Metallurgy, examination	0.0 op
465080S-02	Welding Technology, exercise work	0.0 op



465080S Welding Metallurgy 8.5 op

Ei opintojaksokuvauksia.