



Courses in English in the *Field of Technology and Science*

School of *Chemical Technology* chem.aalto.fi/en

School of *Electrical Engineering* elec.aalto.fi/en

School of *Engineering* eng.aalto.fi/en

School of *Science* sci.aalto.fi/en

2015-2016

Practical Information

The extent of courses is given in ECTS (European Credit Transfer System) credits. One credit corresponds to 27 hours of work, including lectures and other forms of instruction, exercises, seminars and independent work. The scope of a course can be 1-15 credits, depending on the content of the course.

Detailed information on courses can be found in the MyCourses -portal. The portal includes course home pages, course descriptions, timetables, course materials, information about assignments and exams, as well as course news and results.

Grading scale: 1-5, where 5 is the highest grade and 1 is the lowest passing grade.

mycourses.aalto.fi

Sources of Information for Students

WebOodi

Course descriptions,
registering for courses and
exams, planning your studies
(personal study plan)
<https://oodi.aalto.fi/a/>

MyCourses

Course home pages,
timetables, materials, course
spaces, course news
mycourses.aalto.fi

Study guide

Degree structure and the
courses it consists of
<http://studyguides.aalto.fi/>

Into

A student portal, with information about studies, Aalto services and Aalto university in general. The Into pages of the School of Science give you general information about studies: timetables, instructions on registration, advice on how to plan your studies and draw up a personal study plan, forms, information about studies abroad or in other Aalto schools or other Finnish universities, common practices in courses, academic rules and regulations etc.
<https://into.aalto.fi/display/enmastersci/Homepage>

Autumn term 2015

Period I 7 September – 24 October

Period II 26 October – 12 December

Spring term 2016

Period III 4 January – 20 February

Period IV 22 February – 9 April

Period V 11 April – 28 May

Summer teaching period 30 May – 30 July


 Bachelor level courses are **bolded**.

 Detailed information on courses can be found in the My Courses –portal: mycourses.aalto.fi
<https://into.aalto.fi/display/enmasterchem/Incoming+exchange+students>

CHEM-A1610	Design Meets Biomaterials	3	IV-V
CHEM-C2120	Industrial Processes in Bio and Chemical Technology	5	IV-V
CHEM-C2420	Materials Performance	5	IV-V
CHEM-E0100	Academic Learning Community	5	I-V
CHEM-E1100	Plant Biomass	5	I-II
CHEM-E1110	Lignocellulose Chemistry	5	I-II
CHEM-E1120	Thermochemical Processes	5	III-V
CHEM-E1130	Catalysis	5	III-IV
CHEM-E1140	Catalysis for biomass refining	5	IV-V
CHEM-E1150	Biomass Pretreatment and Fractionation – in Class	5	III-V
CHEM-E1160	Biomass Pretreatment and Fractionation – in Laboratory	5	III-V
CHEM-E1200	Integration and Products	10	I-II or III-V
CHEM-E2100	Polymer Synthesis	5	I
CHEM-E2105	Wood and Wood Products	5	III-IV
CHEM-E2115	Wood Products: Application and Performance	5	IV-V
CHEM-E2120	Fibres and Fibre Products	5	I
CHEM-E2125	Web-Based Natural Fiber Products	5	III-IV
CHEM-E2130	Polymer Properties	5	II
CHEM-E2135	Converting of Web-Based Products	5	IV-V
CHEM-E2140	Cellulose-Based Fibres	5	II
CHEM-E2145	Polymer Reaction Engineering	5	III-V
CHEM-E2150	Interfacial Phenomena in Biobased Systems	5	III-IV
CHEM-E2155	Biopolymers	5	III-IV
CHEM-E2160	Product Development Practices	5	III-V
CHEM-E2165	Computer Aided Visualization and Scientific Presentation	3-5	V
CHEM-E2175	Research Project in Polymer Technology	4-7	I-V
CHEM-E2200	Polymer Blends and Composites	5	I
CHEM-E2210	Product Development- Project Course	10	II-V
CHEM-E3100	Biochemistry	5	I
CHEM-E3120	Microbiology	5	I
CHEM-E3140	Bioprocess technology	5	II
CHEM-E3150	Biophysical chemistry	5	III

Code	Course	Credits	Period
CHEM-E3170	Systems biology	5	IV-V
CHEM-E3205	Bioprocess optimization and simulation	5	I
CHEM-E3215	Advanced Biochemistry	5	II-III
CHEM-E4100	Laboratory projects in chemistry	10	I-II
CHEM-E4105	Inorganic Material Design and Synthesis	5	III
CHEM-E4110	Quantum mechanics and Spectroscopy	5	I
CHEM-E4115	Computational Chemistry I	5	III
CHEM-E4120	Quantitative Instrumental Analysis	5	I
CHEM-E4125	Asymmetric Synthesis	5	III
CHEM-E4130	Chemistry of the Elements	5	II
CHEM-E4135	Advanced Analytical Chemistry	5	III
CHEM-E4140	Selectivity in Synthesis and Recognition	5	II
CHEM-E4145	Electrochemistry	10	III-V
CHEM-E4155	Solid State Chemistry	5	IV-V
CHEM-E4165	Chemical instrumentation and electroanalytical methods	5	IV-V
CHEM-E4205	Crystallography Basics and Structural Characterization	5	I
CHEM-E4215	Functional Inorganic Materials	5	II
CHEM-E4225	Computational Chemistry II	5	IV-V
CHEM-E4235	Transport processes at electrodes and membranes	5	I
CHEM-E4245	Natural Product Chemistry	5	II
CHEM-E4255	Electrochemical energy conversion	5	II
CHEM-E4265	Advanced Synthesis	10	III-IV
CHEM-E4275	Research project in chemistry I	5	I, II, III, IV, V
CHEM-E4285	Research project in chemistry II	5	I, II, III, IV, V
CHEM-E5100	Solid State Materials and Phenomena	5	I
CHEM-E5105	Powder Metallurgy and Composites	5	I - II
CHEM-E5110	Metallic Materials	5	II
CHEM-E5115	Microfabrication	5	III-IV
CHEM-E5120	Interfaces and Nanomaterials	5	I
CHEM-E5125	Thin Film Technology	5	IV
CHEM-E5130	Laboratory Course in Functional Materials	5	III-V
CHEM-E5135	Biomimetic materials and technologies	5	IV-V
CHEM-E5140	Materials Characterization, laboratory course	5	I-II
CHEM-E5145	Materials for Renewable Energy P	5	III-IV
CHEM-E5200	Personal Research Assignment in Functional Materials, V	5-10	I, II, III, IV, V
CHEM-E5205	Advanced Functional Materials P	5	I - II
CHEM-E5210	Group Research Assignment in Functional Materials, V	5-10	I, II, III, IV, V
CHEM-E5215	Materials for Nuclear Power Plants P	5	III - IV
CHEM-E5225	Electron Microscopy	5	I - II
CHEM-E6100	Fundamentals of Chemical Thermodynamics	5	I
CHEM-E6105	Thermodynamics of Solutions	5	III-V
CHEM-E6115	Thermodynamics of Modeling and Simulation	5	III-IV
CHEM-E6120	System Integrated and Sustainable Metals Production	5	II
CHEM-E6125	Environmental Management in Industry	5	IV-V
CHEM-E6135	Planning Exercise in Sustainable Metals Processing L	5	IV-V
CHEM-E6140	Fundamentals of Minerals Engineering and Recycling	5	I
CHEM-E6145	Unit Operations in Mineral Processing and Recycling	5	III-IV
CHEM-E6155	Minerals Engineering Project Work	5	III-V
CHEM-E6160	Fundamentals of Pyrometallurgy	5	II
CHEM-E6165	Unit Processes in Pyrometallurgy	5	III-IV

Code	Course	Credits	Period
CHEM-E6175	Modelling Methods in Pyrometallurgy	5	IV-V
CHEM-E6180	Fundamentals of Hydrometallurgy	5	I-II
CHEM-E6185	Applied Electrochemistry and Corrosion	5	III-IV
CHEM-E6195	Unit processes and Systems in hydrometallurgy	5	IV-V
CHEM-E6200	Materials processing & synthesis	10	I-II
CHEM-E7100	Engineering Thermodynamics, Separation Processes, part 1	5	I
CHEM-E7105	Process Development	5	III-V
CHEM-E7110	Engineering Thermodynamics, Separation Processes, part 2	5	II
CHEM-E7115	Experimental Assignments in Chemical Engineering	5	I - II or III - V
CHEM-E7120	Laboratory Project in Chemical Engineering	5	I-II
CHEM-E7130	Process Modeling	5	II
CHEM-E7135	Reactor Design	5	I-II
CHEM-E7140	Process Automation	5	I
CHEM-E7145	Advanced Process Control Methods and Process Control Project Work	5	IV
CHEM-E7150	Reaction Engineering	5	III
CHEM-E7155	Production Planning and Control	5	III
CHEM-E7160	Fluid Flow in Process Units	5	IV-V
CHEM-E7200	Design Project in Chemical Engineering	10	I-II or III-V
CHEM-E8100	Organic Structural Analysis	5	I
CHEM-E8105	Medicinal Chemistry	5	III-IV
CHEM-E8115	Cell factory	5	IV
CHEM-E8120	Cell Biology	5	III
CHEM-E8125	Synthetic biology	5	IV-V
CHEM-EV	Course with Varying Content	0-10	I-V

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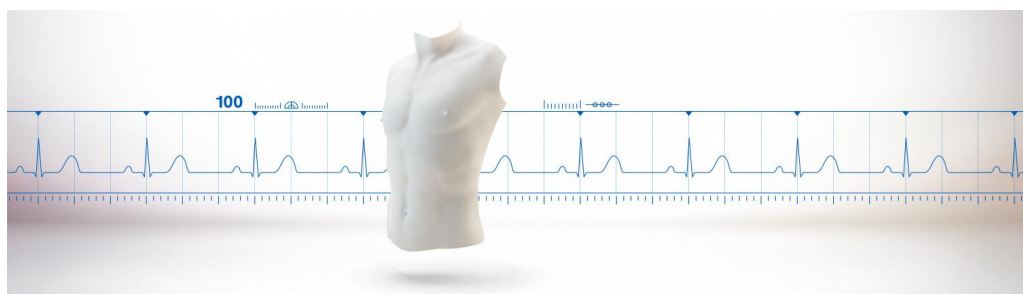
<https://into.aalto.fi/display/enmasterelec/Incoming+exchange+students>

Automation and Systems Technology

ELEC-E8101	Digital and Optimal Control	5	I-II
ELEC-E8102	Distributed and Intelligent Automation Systems	5	I-II
ELEC-E8103	Modelling, Estimation and Dynamic Systems	5	I
ELEC-E8104	Stochastic models and Estimation	5	I
ELEC-E8110	Automation Software Synthesis and Analysis	5	IV-V
ELEC-8111	Autonomous Mobile Robots	5	IV
ELEC-E8112	Hybrid Powertrains in Vehicle	5	III
ELEC-E8113	Information Systems in Industry	5	I-II
ELEC-E8114	Manufacturing Automation Systems Modelling	5	V
ELEC-E8115	Micro- and Nanorobotics	5	III-IV
ELEC-E8116	Model-Based Control Systems	5	III-IV
ELEC-E8117	Modelling and Control of Field Systems	5	III-IV
ELEC-E8118	Robot Vision	5	III
ELEC-E8119	Robotics: Manipulation, Decision Making and Learning	5	I-II
ELEC-L8120	Postgraduate Seminar in Automation, Systems and Control Engineering - Series A	5	
ELEC-L8121	Postgraduate Seminar in Automation, Systems and Control Engineering - Series B	5	

Electronics

ELEC-D8710	Principles of materials science	5	III-IV
ELEC-D8723	Laboratory course of biomedical engineering	5	IV-V
ELEC-E8700	Principles and fundamentals of lighting	5	II
ELEC-E8701	Lighting technology and applications	5	IV-V
ELEC-E8703	Special assignment in illumination engineering and building electrical designs	2-8	I,II,III,IV,V
ELEC-E8711	Materials compatibility	5	III-V
ELEC-E8712	Design for Reliability	5	I-II
ELEC-E8713	Materials & Microsystems Integration	5	I-II
ELEC-E8724	Biomaterials Science	5	I-II
ELEC-E8725	Methods of bioadaptive technology	5	I-II
ELEC-E8726	Biosensing (periods II-IV)	5	II-IV



Code	Course	Credits	Period
ELEC-E8728	Tissue-foreign body interaction	5	I-II
ELEC-E8733	Bioelectric Phenomena	5	I
ELEC-L8710	Postgraduate seminar in illumination engineering	8	
ELEC-L8742	Design for portability in electronics	6	I-II, III-IV
ELEC-L8743	Radar Electronics	6	I-II, III-IV

Micro and Nanosciences

ELEC-E3120	Analysis and Design of Electronic Circuits	5	I-II
ELEC-E3140	Semiconductor Physics	5	I-II
ELEC-E3150	Mathematical Methods	5	I-II
ELEC-E3210	Optoelectronics	5	III
ELEC-E3220	Semiconductor Devices	5	III
ELEC-E3230	Nanotechnology	5	IV
ELEC-E3240	Photonics	5	V
ELEC-E3250	Optical Fibers: Physics and applications	5	II
ELEC-E3260	Biomolecules	5	III
ELEC-E3280	Micronova Laboratory Course	5	I-II
ELEC-E3285	N5T Grand Exercise in Micro and Nanotechnology (intensive summer course)	3	June/N5T
ELEC-E3290	Micronova Special Assignment	5	III-V
ELEC-E3510	Basics of IC Design	5	III
ELEC-E3520	Digital Microelectronics I	5	III
ELEC-E3530	Integrated Analog Systems	5	IV-V
ELEC-E3540	Digital Microelectronics II	5	IV-V
ELEC-E3550	Integrated RF-Circuit	5	IV-V
ELEC-E3560	IC Design Project	5	IV-V
ELEC-E3570	Special Course in Electronic Circuit Design	5	Specified later
ELEC-L3210	Postgraduate Course in Micro and Nanosciences I	5	I-II
ELEC-L3220	Postgraduate Course in Micro and Nanosciences II	5	III-V
ELEC-L3510	Postgraduate Course in Electronic Circuit Design I	8	I-II
ELEC-L3520	Postgraduate Course in Electronic Circuit Design II	1-8	IV-V
ELEC-L3530	Postgraduate Course in Electronic Circuit Design III	1-8	Specified later

Radio Science and Engineering

ELEC-A4930	Astronomical View of the World	3	III-IV
ELEC-E4130	Electromagnetic Fields	5	I-II
ELEC-E4210	Introduction to Space	5	III-IV
ELEC-E4240	Satellite Systems	5	IV,V
ELEC-E4410	Electromagnetic and circuit simulations	5	III
ELEC-E4420	Microwave engineering I	5	III-IV
ELEC-E4430	Microwave Engineering II	5	IV-V
ELEC-E4450	Antennas	5	IV-V
ELEC-E4510	Earth observation	5	III, IV
ELEC-E4520	Space physics	5	IV-V
ELEC-E4710	Computational Electromagnetics	5	IV-V
ELEC-E4720	Advanced Circuit Theory	5	IV-V
ELEC-E4760	Terahertz techniques	5	V
ELEC-E4910	Postgraduate Course in Radio Science and Engineering	5	I,II,III,IV,V
ELEC-E4920	Special assignment in radio science and engineering	5-10	I,II,III,IV,V

Code	Course	Credits	Period
ELEC-E4930	Space technology project	5-10	I,II,III,IV,V
ELEC-E4940	Special assignment in space science and technology	5-10	I-V
ELEC-E4950	Research seminar on radio science and engineering	1	I-II, III-V

Signal Processing and Acoustics

ELEC-C5230	Digital Signal Processing Basics	5	IV-V
ELEC-E5400	Project Work in Signal Processing	1-10	I-V
ELEC-E5410	Signal Processing for Communications	5	I
ELEC-E5420	Convex Optimization for Engineers	5	I-II
ELEC-E5430	Signal Processing for Large Scale Data Analysis	5	III-IV
ELEC-E5440	Statistical Signal Processing	5	I-II
ELEC-E5450	Signal Processing Seminar 1 (postgraduate)	2-5	I-II
ELEC-E5460	Signal Processing 2 (postgraduate)	2-5	III-IV
ELEC-E5490	Convex Optimization Project	3	III-V
ELEC-E5500	Speech Processing	5	I
ELEC-E5510	Speech Recognition	5	II
ELEC-E5520	Speech and Language Processing Methods	2	III-IV
ELEC-E5530	Speech and Language Processing Seminar	3-5	III-IV
ELEC-E5540	Special Assignment in Speech and Language Processing	1-10	I-V
ELEC-E5650	Electroacoustics	5	IV-V
ELEC-E5430	Signal Processing for Large Scale Data Analysis	5	III-IV
ELEC-E5600	Communication Acoustics	5	I
ELEC-E5610	Acoustics and the Physics of Sound	5	II
ELEC-E5620	Audio Signal Processing	5	III-IV
ELEC-E5630	Acoustics and Audio Technology Seminar	5	IV-V
ELEC-E5660	Special Assignment in Acoustics and Audio Technology	1-10	I-II,III-V
ELEC-E5710	Sensors and Measurement Methods	5	I-II,III-V
ELEC-E5720	Virtual Instrumentation	5	I,II,III,IV,V
ELEC-E5730	Optics	5	I
ELEC-E5740	Research Seminar on Measurement Science and Technology	2	I-V
ELEC-E5750	Project Work in Measurement Science and Technology	2-10	I-V
ELEC-E5760	Project Work in Optical Technology	2-10	I-V
ELEC-E5770	Biological Effects and Measurements of Electromagnetic Fields and Optical Radiation	5	II
ELEC-E5780	Postgraduate Course in Measurement Science and Technology	10	III-V

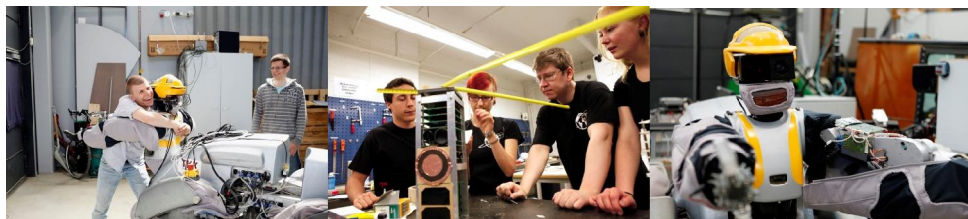
Electrical Engineering

ELEC-A4010	Electrical Engineering Workshop	5-8	I-II, III-V
(The course can be completed in English upon request.)			
ELEC-E8001	Embedded Real-time Systems	5	I-II
ELEC-E8401	Condition Monitoring of Electrical Equipment	5	IV-V
ELEC-E8402	Control of Electric Drives and Power Converters	5	IV-V
ELEC-E8403	Converter Techniques	5	III-IV
ELEC-E8404	Design of Electrical Machines	5	III
ELEC-E8405	Electric Drives	5	I-II
ELEC-E8406	Electricity Distribution and Markets	5	III-IV
ELEC-E8407	Electromechanics	5	I-II
ELEC-E8408	Embedded Systems Development	5	III-IV
ELEC-E8409	High Voltage Engineering	5	I-II

Code	Course	Credits	Period
ELEC-E8410	Materials in Energy Applications	5	IV-V
ELEC-E8411	Numerical Methods in Electromechanics	5	I
ELEC-E8412	Power Electronics	5	I-II
ELEC-E8413	Power Systems	5	I-II
ELEC-E8414	Seminar on Electromechanics	5	IV
ELEC-E8415	Special Assignment in Electrical Power and Energy Engineering	2-10	I,II,III,IV,V
ELEC-E8416	Special Course on Electromechanics	5	I-II
ELEC-E8417	Switched-Mode Power Supplies	5	IV-V
ELEC-L8401	Postgraduate Seminar on Electromechanics	5	I,II
ELEC-L8402	Special Topics in Industrial Electronics I	5	I-II
ELEC-L8403	Special Topics in Industrial Electronics II	5	III-IV

Communications and Networking

ELEC-A7150	C++ Programming	5	I-II
ELEC-A7900	Telecommunications Forum	3-5	I-II
ELEC-E7110	Trends in Communications Engineering Research	5	I-II
ELEC-E7120	Wireless Systems	5	I
ELEC-E7130	Internet Traffic Measurements and Analysis	5	I
ELEC-E7210	Communications Theory	5	II
ELEC-E7220	Radio Resource and Spectrum Management	5	IV
ELEC-E7230	Mobile Communication Systems	5	I
ELEC-E7240	Coding Methods	5	III
ELEC-E7250	Laboratory Course in Communications Engineering	5	III-V
ELEC-E7310	Routing and SDN	5	II
ELEC-E7320	Internet Protocols	5	III-IV
ELEC-E7410	Communication Transmission Lines	5	V
ELEC-E7450	Performance Analysis	5	V
ELEC-E7460	Modelling and Simulation	5	II
ELEC-E7470	Cybersecurity	5	V
ELEC-E7490	Challenged Networks	5-10	III
ELEC-E7810	Patterns in Communications Ecosystem	5	IV-V
ELEC-E7820	Operator Business	5	I
ELEC-E7830	Value Network Design for Internet	5	III-IV
ELEC-E7850	User Interfaces	5	II
ELEC-E7860	Research Project in User Interfaces	5-10	III
ELEC-E7870	Advanced Topics in User Interfaces	3-5	I-II, III-V
ELEC-E7910	Special Project in Communications Engineering	2-10	I,II,III,IV,V
ELEC-L7100	Postgraduate Seminar in Communications Engineering	5-10	I-II, III-V



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Structural Engineering and Building Technology

RAK-11.3001	Design of Bridges	6	I-II
RAK-11.3200	Bridges, Special Course	4	III-IV
RAK-11.3300	Bridge Design Exercise	4	I-II
RAK-43.3111	Prestressed and Precast Concrete Structures	5	III-IV
RAK-43.3121	Wood Structures II	4	I-II
RAK-43.3301	Repair Methods of Structures I	4	I
RAK-43.3312	Repair Methods of Structures II	4	III
RAK-43.3313	Repair Methods of Structures, exercise	4	V
RAK-43.3410	Building Physics Design I, Thermal and Moisture Technical Design	6	I-II
RAK-43.3415	Building Physics Design 2, Acoustic Design	4	I-II
RAK-50.3150	Numerical Methods in Geoengineering	5	III-V
RAK-54.3110	Plate and Shell Structures	5	I-II
RAK-54.3200	Numerical Methods in Structural Engineering P	5	III-IV
RAK-54.3310	Stability of Structures	5	I-II
RAK-63.3214	Management of Lifecycles of Buildings	7	I-II
RAK-63.3238	Advanced Construction Project Management P	4	IV
RAK-63.3280	Special Assignment in Construction Business P, V	5-10	
RAK-63.3311	Contexts in International Construction Business	4	
RAK-63.3320	Strategies in International Construction Business L	6	III-IV
RAK-63.3330	Operations in International Construction Business L	5	I-II
RAK-63.4210	Postgraduate Course in Construction Management and Economics P, V	3-5	
RAK-82.2121	Production Technology of Concrete Structures	4	I-II
RAK-82.3131	Concrete Technology 2	6	I-II
RAK-82.3138	Advanced Building Materials Technology L	4	III-IV
RAK-82.3141	Seminar on Building Materials Technology	3	III-V
RAK-82.3152	Building Materials Technology, special assignment	6-10	I-V
RAK-82.3160	Experimental Methods in Building Materials Technology L	4	III-IV
RAK-83.3110	Steel Structures II	4	III-IV
RAK-83.3200	Composite Structures	4	I-II
RAK-130.3100	Constructing, Maintaining and Using Buildings Energy Efficiently	4	III
RAK-C3002	Project Course on Computational Methods in Engineering	5	IV-V

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RAK-50.3125	Advanced Course in Soil Mechanics	5	I-II
Transportation and Environmental Engineering			
YHD-10.3105	Road Structures and Construction L	5	I-II
YHD-10.3502	Advanced Course in Highway Engineering II P	5	III-IV
YHD-10.4100	Postgraduate Course in Highway Engineering	5	
YHD-12.3081	State of the World and Development	2	I
YHD-12.3088	Sustainable Global Technologies	5	II
YHD-12.3092	Sustainable Technologies Studio	10	III - V
YHD-12.3105	Subsurface Hydrology P	5	II
YHD-12.3110	Transport of Harmful Substances P	5	IV-V
YHD-12.3120	Global Water Problems P	5	I-II
YHD-12.3140	Water and People in a Changing World P	5	V
YHD-12.3210	Watershed Engineering	5	III-IV
YHD-33.3265	Geophysical Inversion Methods	4	I
YHD-71.3225	Transportation System Planning P	5-6	I-II
YHD-71.3235	Traffic Studies and Forecasting P	5	I-II
YHD-71.3270	Urban Transport Systems P	5	III-IV
YHD-71.3280	Shared Project C, Urban Engineering	6	I-II
YHD-73.3510	Environmental Engineering	6	I
YHD-102.3020	Applied Chemistry for Urban Environments	3	I-II
YYT-C3002	Application Programming in Engineering	5	III

Energy and HVAC-Technology

ENE-C3002	Models for Decision Support in Engineering	5	II
ENE-39.4018	Theoretical Assignment in Applied Thermodynamics	5	I-IV
ENE-39.4024	Design of Heat Exchangers P	6	III-IV
ENE-39.4027	Mass Transfer P	5	I-II
ENE-39.4043	Individual Assignment in Thermal Engineering, short	5	I-IV
ENE-39.4044	Individual Assignment in Thermal Engineering, large P	10	I-IV
ENE-39.4055	Irreversible Thermodynamics P	5	I-II
ENE-47.4110	Power Generation from Biomass I	3	I
ENE-47.4111	Power Generation from Biomass IIa	3	I-II
ENE-47.4112	Power Generation from Biomass IIb	3	II
ENE-47.4113	Measurements in Power Plants	3	I-II
ENE-47.4114	Waste to Energy	3	I-II
ENE-47.4150	Project in New Energy Technology	5-7	I-II
ENE-47.4151	Individual Assignment in Environment Friendly Energy Processes	5	III-IV
ENE-47.5122	Pollutant Formation and Control in Combustion P	3	III-IV
ENE-47.5123	Combustion and Gasification Technology	6	I-II
ENE-47.5130	Process-Integration, Simulation and Optimization	3	I
ENE-47.5131	Life-Cycle Assessment and Environmental Auditing P	3	II
ENE-47.5140	Wind Energy P	5	I-II
ENE-58.4122	Advanced Air Conditioning P	6	III-IV
ENE-58.5181	Theoretical Modelling of HVAC Systems P	6	III-IV
ENE-59.4010	Models and Optimization of Energy Systems	5	III
ENE-59.4160	District Heating Engineering	5	I-II
ENE-59.4201	Energy Markets	5	I-II

Code	Course	Credits	Period
ENE-59.4210	Special Course in Energy Economics P	5	I-IV
ENE-59.4220	Practical Study Assignment in Energy Economics P	10	I-IV
ENE-59.4301	Energy Systems for Communities	5	II
ENE-59.4310	Special Course in Energy for Communities P	5	I-IV
ENE-59.4320	Practical Study Assignment in Energy for Communities P	10	I-IV
ENE-59.5050	Individual Studies in Energy L	1-10	I-IV
KE-40.4120	Introduction to Biorefineries and Biofuels	5	I-II
KUL-14.4100	Internal Combustion Engine Technology	5	I
KUL-14.4400	Simulation of Internal Combustion Engines L	5	III
KUL-14.4700	Transport Biofuels, Combustion and Emission Control	5	I
KUL-14.4800	Exercises in Internal Combustion Engine Technology	5	IV

Mechanical Engineering

AAN-C2004	Contemporary Topics on Product Liability V	5-10	I-II
AAN-C2005	Scientific Research Project V	5-10	I-II and/or III-IV
ENG-0.4101	Introduction to Master's Studies in Engineering	1	I
KON-0.4730	The Cultural History of Technology P	3	I-II
KON-0.4997	History of Technology Course with Varying Content V	1-5	
KON-15.4101	Digital Manufacturing	4	I-II
KON-15.4126	Production Technology, special topics	3	III-IV
KON-80.3125	Castings	4	I-II
KUL-34.3600	Composite Structures	5	I-II
KUL-34.3700	Gas Dynamics	2	IV
KUL-34.4240	Airplane Compressible Aerodynamics	4	I-II
KUL-34.4700	Lightweight Structures	5	I-II
KUL-49.3300	Finite Element Method I	5	III-IV
KUL-49.3400	Dynamics of Structures P	5	I-II
KUL-49.4150	Finite Element Method, applications	3	I-II
KUL-49.4250	Models for Beam, Plate and Shell Structures P	5	III-V
KUL-49.4400	Ice Mechanics P	5	III-IV
AAN-C2001	Plastics product design	5	I-II
AAN-C2003	ADD Basics: Working in the digital paradigma	5	IV-V
AAN-C2006	Product Analysis	5	III-IV
KON-C2004	Mechatronics Basics	5	II
KUL-49.4350	Fatigue of Structures	5	I-II

Machine Design (Mechanical Engineering)

KON-41.3006	Computer Aided Design Basic Course	5	I-II & III-IV
KON-41.3131	Mechatronics Exercises	2-6	III-IV
KON-41.4001	Product Development	5	II
KON-41.4002	Product Development Project	10	I-IV
KON-41.4003	Interdisciplinary Product Development	5	III-IV
KON-41.4102	Special Course on Product Development Project Management	2	I-IV
KON-41.4151	Mechatronics Machine System Design	4	I
KON-41.4160	Mechatronics Project	8	I-IV
KON-41.4181	Advanced Project on Mechatronics A	2-10	I-IV
KON-41.4182	Advanced Project on Mechatronics B	2-10	I-IV
KON-41.4207	CAE Project	3	III-IV

Code	Course	Credits	Period
KON-41.4999	Product Development Course with Varying Content	1-10	
KON-41.5216	Postgraduate Seminar on Product Development P	5	III-IV
KON-41.5230	Postgraduate Seminar on Paper Machinery P	5	
KON-C2004	Mechatronics Basics	5	II

Engineering Materials (Mechanical Engineering)

KON-67.4123	Advanced Project on Selection of Engineering Materials P	5	III-II
KON-67.4200	Welding Technology	6	I-II
KON-67.4201	Welding Metallurgy	4	III-V
KON-67.4203	Welding laboratory exercises	3	I-II
KON-67.4206	Design and Analysis of Welded Structures	3	III-IV
KON-67.4208	Welding Methods and Production	4	III-IV
KON-67.4210	Weld design and Production	5	III-V
KON-67.4211	Welding Exercises	5	I-II
KON-67.5100	Postgraduate Seminar on Engineering Materials P	1-10	I-V
KON-67.5200	Postgraduate Seminar on Welding Technology P V	1-10	I-V
KON-67.4405	Advanced Engineering Materials P	5	III-IV

Marine Technology (Mechanical Engineering)

KUL-24.3100	Ship Conceptual Design P	5	I-II
KUL-24.3200	Introduction of Marine Hydrodynamics	5	I-II
KUL-24.3300	Ship Buoyancy and Stability	5	I-II
KUL-24.3400	Ship Machinery Systems	5	I-II
KUL-24.3500	Winter Navigation	5	III-IV
KUL-24.3710	Potential Flow Theory for Lifting Surfaces	3	III-IV
KUL-24.4110	Ship Project A	5	I-II
KUL-24.4120	Ship Structural Design P	5	III-IV
KUL-24.4130	Shipyards Engineering	5	I-II
KUL-24.4140	Ship Dynamics P	5	III-IV
KUL-24.4200	Introduction to Risk Analysis of Structures P	5	I-II
KUL-24.4230	Safety and Risks of Marine Traffic P	5	III-IV
KUL-24.4310	Arctic Offshore Structures P	5	III(-IV)
KUL-24.4320	Small Craft Design	5	III-IV
KUL-24.4343	CAD in Naval Architecture	5	III-IV (V)
KUL-24.4350	Passenger Ship Architecture	5	I-II
KUL-24.4355	Cruise & Ferry Experience Project	5	I-II
KUL-24.4370	Potential Flow Theory for Lifting Surfaces, extended course P	5	III-V
KUL-24.4420	Reliability and Management L	4	I-II
KUL-24.4511	Optimization of Structures	6	I-II
KUL-24.4520	Computational Marine Hydrodynamics P	5	III-IV
KUL-24.4610	Ship Performance in Ice	5	I-II
KUL-24.4710	Large Complex Structures P	5	II

Geomatics

ENY-C2005	Geoinformation in Environmental Modelling	5	III
MAA-C2005	Geometric Models in Engineering	5	IV
MAA-C3001	Statistical and Stochastic Methods in Engineering	5	I

Code	Course	Credits	Period
MAA-6.3261	Engineering Geodesy P	5	I-II
MAA-6.3273	Physical Geodesy P	5	III-IV
MAA-6.3282	Statistical Methods in Geodesy P	3	III-IV
MAA-6.3285	Navigation Methods P	3	I-II
MAA-6.3287	Mathematical Geodesy P	7	III-IV
MAA-6.3288	GIS and Geodetic Measurements P	5	I-II
MAA-6.3289	GNSS-technologies P	5	III-IV
MAA-123.3410	Fuzzy Modeling of Geographic Information P	4	II
MAA-123.3430	Visualisation of Geographic Information L	5	I-II
MAA-123.3461	Topographic Data and Maps	6	IV
MAA-123.3470	Web Map Project L	3	III
MAA-123.3510	GIS Analysis and Modelling	5	I-II
MAA-123.3520	Principles of Geostatistics L	3	II
MAA-123.3530	Visual Analysis in GIS L	4	II
MAA-123.3550	GIS Application Development L	8	I-IV
MAA-123.3560	Uncertainty in Geographic Information L	4	V
MAA-123.3585	Spatial Data Mining P	3-5	V

Real Estate Economics

MAA-20.3303	Theories in Real Estate Economics P V	5-10	III-IV
MAA-20.3337	Commercial Property Market and Valuation P	5	I-II
MAA-20.3341	Real Estate Investment Analysis P	4-8	I-II
MAA-20.3343	Analysis of Real Estate Assets and Vehicles P	6	I
MAA-20.3345	Urban Economics for Real Estate P	5	II
MAA-20.3375	International Land Management P	6	I-II
MAA-20.3393	Special Assignment in Real Estate Studies L	1-10	
MAA-20.3395	Sustainable Real Estate Business L	5	II
MAA-20.3401	Corporate Real Estate Management	5	IV
MAA-20.3402	Real Estate Development	5	III
MAA-20.3407	Research Methods for Real Estate P	5	I
MAA-20.3409	Real Estate Finance I P	5	III-IV
MAA-78.3330	Urban Systems	5	III-V



Autumn term 2015

Period I 7 September – 24 October
 Period II 26 October – 12 December

Spring term 2015

Period III 4 January – 20 February
 Period IV 22 February – 9 April
 Period V 11 April – 28 May
 Summer teaching period 30 May – 30 July



Bachelor level courses **bolded**.

Detailed information on courses can be found in the My Courses –portal: mycourses.aalto.fi

<https://into.aalto.fi/display/enmastersci/Incoming-exchange+students>

Computer Science (Department of Computer Science)

Computational Science

BECS-E2601	Bayesian Data Analysis	5	I - II
BECS-E4101	Mathematical Modelling of Social Dynamics	5	II
BECS-E4200	Hands-on Network Analysis	5	IV-V
BECS-E4300	Special Course in Complex Systems	5	I, II, III, IV, V
Becs-114.1100	Computational Science	5	I - II
Becs-114.2240	Seminar on Computational Engineering	3	III - IV
Becs-114.3250	Special Course in Computational Science	6	III - IV
Becs-114.4150	Complex Networks	5	II
Becs-114.4610	Special Course in Bayesian Modelling	1–8	III - IV
Becs-114.5312	Work Course on Bayesian Analysis	2	IV, V
Becs-114.7151	Nonlinear Dynamics and Chaos	3–5	I

Data Communication Software

CSE-C3400	Information Security	5	I
CSE-E4430	Methods and Tools for Network Systems	5	I - II
CSE-E5440	Energy-efficient Mobile Computing	5	V
CSE-E5480	Mobile Systems Security	5	III - IV
CSE-E5490	Network Services Business Models	5	III - IV
T-109.5410	Technology Management in the Telecommunications Industry	3	I - II
T-110.5102	Laboratory Works in Networking and Security	5–10	III - IV
T-110.5111	Computer Networks II - Advanced Features	5	I - II
T-110.5121	Mobile Cloud Computing	5	I - II
T-110.5130	Mobile Systems Programming	5	III - IV
T-110.5150	Applications and Services in Internet	5	I - II
T-110.5241	Network Security	5	II

T-110.6000	Internet and Computing Forum	2	III - IV
T-110.7111	Internet Technologies for Mobile Computing	2–10	IV

Information and Computer Science

ICS-E4000	Artificial Intelligence	5	III - IV
ICS-E4010	Introduction to Analytics and Data Science	2	I
ICS-E4020	Programming Parallel Computers	5	V
ICS-E4030	Kernel Methods in Machine Learning	5	I - II
ICS-E5010	Computer-Aided Verification and Synthesis	5	III - IV
ICS-E5020	Distributed Algorithms	5	I - II
ICS-E5030	Advanced Combinatorics in Computer Science	5	I - II
ICS-E5040	Modern Database Systems	5	III - IV
ICS-E5050	Advanced Course in Boolean Satisfiability	5	III - IV
T-61.3025	Principles of Pattern Recognition	5	III
T-61.3050	Machine Learning: Basic Principles	5	I - II
T-61.5010	Information Visualization	5	IV
T-61.5020	Statistical Natural Language Processing	5	III - IV
T-61.5050	High-Throughput Bioinformatics	5–7	II
T-61.5060	Algorithmic Methods of Data Mining	5	I - II
T-61.5070	Computer Vision	5	III - IV
T-61.5100	Digital Image Processing	5	I - II
T-61.5110	Modeling Biological Networks	5–7	III
T-61.5120	Computational Genomics	4–7	I
T-61.5130	Machine Learning and Neural Networks	5	II
T-61.5140	Machine Learning: Advanced Probabilistic Methods	5	III - IV
T-61.5910	Research Project in Computer and Information Science	5–10	I - II
T-61.6010	Special Course in Computer and Information Science I	3–10	I - II
T-79.4101	Discrete Models and Search	5	III - IV
T-79.4202	Principles of Algorithmic Techniques	5	I - II
T-79.4302	Parallel and Distributed Systems	5	I - II
T-79.4502	Cryptography and Data Security	5	I - II
T-79.5001	Student Project in Theoretical Computer Science	5	I, II, III, IV, V
T-79.5103	Computational Complexity Theory	5	III - IV
T-79.5105	Answer Set Programming	5	I - II
T-79.5207	Advanced Course in Algorithms	5	III - IV
T-79.5501	Cryptology	5	III - IV
T-79.7001	Postgraduate Course in Theoretical Computer Science (PhD)	2–10	I, II, III, IV, V
T-79.7003	Research Course in Theoretical Computer Science	1–10	I, II, III, IV, V

Media Technology

ME-C3100	Computer Graphics	5	I - II
ME-E2420	Room Acoustics	5	III - IV
ME-E2430	Acoustical Measurements	5	II
ME-E3300	Aesthetics	3	III - V
ME-E4100	Advanced Computer Graphics	5	III - V
ME-E4200	Experimental User Interfaces	5	III - IV

Code	Course	Credits	Period
ME-E4300	Semantic Web	5	III - V
ME-E4360	Design of WWW Services	5	I - II
ME-E4400	Information Retrieval	5	III - IV
ME-E4500	Explorative Information Visualization	5	I - II
T-75.5300	Web Services	4	I - II
T-111.4800	Social Media	4	I - II
T-111.5006	Conceptualization and scriptwriting	4	I - II
T-111.5007	Multimedia Project	5	III - IV
T-111.5077	Special Project on Content Production	6-9	I - V
T-111.5360	WWW Applications	4	I - II

Software Engineering and Business

CSE-C3600	Software Design and Modelling	5	I - II
CSE-C3610	Software Engineering	5	I-II, III-IV
CSE-E4600	Software Project Management	5	IV-V
CSE-E4605	Requirements Engineering	5	III - V
CSE-E4650	Enterprise Systems Architecture	5	I
CSE-E4655	IT Governance	5	II
CSE-E4660	ICT Enabled Service Business and Innovation	5	I - II
CSE-E4670	Introduction to Industrial Internet	5	IV
CSE-E4675	Systems of Systems	5	V
CSE-E4680	Law in Digital Society	5-6	IV
CSE-E4751	Introduction to IT Business and Venturing	2	I - II
CSE-E4755	Management of a Technology Venture	6	I - II
CSE-E5600	Software Project 3	5-8	I-V
CSE-E5670	Seminar on Industrial Internet	5	I - II
CSE-E5675	Industrial Internet Project	5-10	I-V
CSE-E5680	Seminar on Law and Technology	3	V
CSE-E5690	Seminar in Software and Service Engineering	5	I - II, III - V
CSE-E5695	Portfolio in Software and Service Engineering	1-5	I, III, V
CSE-E5753	Technology Entrepreneurship Seminar	4	IV
CSE-E5754	Growth and Internationalization of Technology SMEs	4	V
CSE-E5800	User-Centered Methods for Product and Service Design	5	I - II
CSE-E5810	Usability Evaluation	5	IV - V
CSE-E5888	Design Project	10	III - V
T-76.5050	Methods for Software Engineering and Business Research	3-5	I - II
T-76.5150	Software Architectures	5	III - V
T-76.5613	Software Testing and Quality Assurance	5	II - III

Software Technology

CSE-C3200	Operating Systems	5	I
CSE-C3210	Web Software Development	5	II - III
CSE-E5280	Learning Technologies	5	I - II
CSE-E5430	Scalable Cloud Computing	5	I - II
T-106.5221	Transaction Management in Databases	5	IV
T-106.5300	Embedded Systems	5	III - V

Code	Course	Credits	Period
T-106.5320	ICT Innovation Summer School	3-9	Summer
T-106.5400	String Algorithms	5-6	III - IV
T-106.5550	Research methods	5-8	III - V
T-106.5600	Concurrent Programming	5	I - II
T-106.5740	Project in Embedded Systems	5-10	I - II, III - V

Industrial Engineering and Management (Department of Industrial Engineering and Management)

Industrial engineering and management

TU-E2010	Industrial Service Operations	3-6	III - IV
TU-E2020	Advanced Operations Management	3-5	II
TU-E2030	Advanced Project-based Management	3-5	I - II
TU-E2040	Management of External Resources	3-5	I
TU-E2090	Research Assignment in Operations and Service Management	5-7	I-II, III-V
TU-E2120	Project Business	3-5	III - IV
TU-E2130	Operations Management for New Ventures	3-5	III - IV
TU-E2210	Financial Engineering I	3-6	III - IV
TU-E2220	Financial Engineering II	3-6	V
TU-E5000	Innovation and Project Management	5	I - II
TU-E5010	IDBM Project	5	I-V
TU-E5020	Collaborative Innovation Management	5	IV
TU-E6110	Management of Networked Business Processes	3-5	I - II
TU-E6120	Co-development Interventions in Business Networks	5	III - IV
TU-E6130	Facilitating Collaboration in Networks	5	I-V
TU-L0000	Research Methods in Industrial Engineering and Management (PhD)	5	I - II
TU-L0020	Statistical Research Methods in Industrial Engineering and Management (PhD)	3-6	IV
TU-L2000	Doctoral Seminar in Industrial Management (PhD)	5	I, II, III, IV
TU-L2030	Co-Design in Service Innovation (PhD)	5-8	
TU-0.2000	Industrial management research methods	5	I - II

Strategic Management

TU-C1020	Creating Value	5	IV-V
TU-C2010	Introduction to Strategic Management	5	I - II
TU-C2040	Strategy Fieldwork	5	III - V
TU-E1010	Advanced Strategic Management	5	I
TU-E1020	Strategies for Growth and Renewal	3	III - IV
TU-E1030	Advanced Case-seminar in Strategy	5	I
TU-E1090	Research Assignment in Strategy and Venturing	5	I-II, III-V
TU-E1110	Strategic Marketing	5	IV-V
TU-E1120	Strategic Management of Technology and Innovation	5	III - V
TU-E1130	Financial Modeling in Strategy and Venturing	3-5	II
TU-E1140	Contracting in Strategy and Venturing	2	IV
TU-E1150	Managerial Economics	5	III
TU-E1160	International Economics	5	IV

Code	Course	Credits	Period
TU-E4000	Changemakers	1	I, II, III, IV
TU-E4010	High Growth Entrepreneurship with varying content 1	1-10	I-II,III-V
TU-E4020	High Growth Entrepreneurship with varying content 2	1-10	I-II,III-V
TU-E4030	Entrepreneurial Finance	5	IV
TU-E4040	Opportunity Prototyping	3	I
TU-E4050	Entrepreneurial Leadership	5	II
TU-E4060	Design & Innovation in Context	6	II
TU-E4070	Entrepreneurial Marketing	5	IV
TU-E4080	Managing Innovative Sales	3	II
TU-L1000	Doctoral Seminar in Strategy (PhD)	8	IV-V
TU-L1010	Theory Building and Research Design in Strategy and Venturing (PhD)	5	III - IV
TU-91.2013	Economics of European Integration	3	I

Work Psychology and Leadership

TU-C3021	Managing knowledge and knowledge-intensive organizations	5	III - IV
TU-C3030	Basics in Research and Development (R&D) Management	3-5	III - V
TU-E3010	Leading as practice	5	III - V
TU-E3020	Knowledge Management in Practice	5	I - II
TU-E3030	Collaboration in Networks	5	I - II
TU-E3040	Human Potential	5	III - IV
TU-E3090	Research Assignment in Leadership and Knowledge Management	5	III - IV
TU-E3110	Work Design in Organizations	5	III - IV
TU-E3120	Human Resources in Service Operations	5	I - II
TU-E3150	Safety Management in Complex Sociotechnical Systems	5	IV - V
TU-E3160	Leadership and Knowledge Management, Special Topics	2-5	I - V
TU-E6010	Philosophy	3	I
TU-L2040	Research Perspectives on Inter-organizational Collaboration (PhD)	5	I - II

Engineering Physics (Department of Applied Physics)

PHYS-C1380	Multi-disciplinary energy perspectives	5	III - IV
PHYS-C6370	Fundamentals of New Energy Sources	5	I - II
PHYS-E0411	Advanced Physics Laboratory	5	III - V
PHYS-E0412	Computational Physics	5	III - V
PHYS-E0413	Theoretical Mechanics	5	I - II
PHYS-E0414	Advanced Quantum Mechanics	5	I - II
PHYS-E0415	Statistical Mechanics	5	I - II
PHYS-E0416	Quantum Physics	5	III - IV
PHYS-E0417	Experimental Methods in Physics	5	I - II
PHYS-E0418	Advanced Statistical Physics	5	IV - V
PHYS-E0421	Solid-State Physics	5	IV-V
PHYS-E0422	Soft Condensed Matter Physics	5	III - IV
PHYS-E0423	Surface Physics	5	III- IV
PHYS-E0435	Optical Physics	5	I - II
PHYS-E0437	Laser Physics	5	IV-V
PHYS-E0463	Fusion Energy Technology	5	III - IV
PHYS-E0483	Advances in New Energy Technologies	5	III - IV

Code	Course	Credits	Period
PHYS-E0525	Microscopy of Nanomaterials	5	III - IV
PHYS-E0526	Microscopy of Nanomaterials, laboratory course	5	IV - V
PHYS-E0541	Special Course in Physics	3-10	I, II, III, IV, V
PHYS-E0542	Special Course in Theoretical Physics	3-10	I, II, III, IV, V
PHYS-E0544	Individual Studies in Physics	1-10	I, II, III, IV
PHYS-E0551	Low Temperature Physics	5-6	I, II, III, IV, V
PHYS-E0562	Nuclear Engineering, advanced course	5	IV - V
PHYS-E0563	Fundamentals of Plasma Physics for Space and Fusion Applications	5	III - V
PHYS-E0564	Nuclear competence portfolio	1	I-V
PHYS-E0582	Special Course in Advanced Energy Technologies 2	1-10	I, II, III, IV, V
PHYS-E6570	Solar Energy Engineering	5	III - IV

Mathematics and Operations Research (Department of Mathematics and Systems Analysis)

MS-E1050	Graph theory	5	I
MS-E1051	Combinatorics	5	II
MS-E1059	Seminar on combinatorics	1-5	I-V
MS-E1089	Seminar on Algebra, Number Theory, and Applications to Communications and Computing	2	I-V
MS-E1110	Number theory	5	II
MS-E1111	Galois theory	5	IV
MS-E1280	Measure and integral	5	II
MS-E1281	Real analysis	5	IV
MS-E1289	Seminar on analysis and geometry	1-5	I-V
MS-E1460	Functional analysis	5	I
MS-E1531	Differential geometry	5	III
MS-E1600	Probability theory	5	III
MS-E1601	Brownian motion and stochastic analysis	5	II
MS-E1602	Large random systems	5	IV
MS-E1609	Seminar on stochastics and statistics	1-5	I-V
MS-E1651	Numerical matrix computations	5	I
MS-E1652	Computational methods for differential equations	5	II
MS-E1653	Finite element method	5	III - IV
MS-E1654	Computational inverse problems	5	IV
MS-E1659	Seminar on applied mathematics	1-5	I-V
MS-E1740	Continuum mechanics 1	5	I
MS-E1741	Continuum mechanics 2	5	II
MS-E1742	Computational mechanics 1	5	IV
MS-E1743	Computational mechanics 2	5	V
MS-E1980	Special assignment in mathematics	5-10	I-V
MS-E1981	Individual studies in mathematics	1-10	I-V
MS-E2112	Multivariate statistical analysis	5	III - IV
MS-E2114	Investment science	5	IV
MS-E2133	Systems analysis laboratory II	5	I - II
MS-E2134	Decision making and problem solving	5	I
MS-E2139	Nonlinear programming	5	II
MS-E2140	Linear programming	5	I
MS-E2146	Integer programming	5	IV
MS-E2148	Dynamic optimization	5	III

Code	Course	Credits	Period
MS-E2153	Multiple criteria optimization	3-6	I, II, III, IV, V
MS-E2170	Simulation	5	IV
MS-E2174	Computational methods in operations research	3-6	V
MS-E2193	Independent studies in systems analysis	1-9	I - II, III - V
MS-E2194	Research course in systems science	1-6	I, II, III, IV, V
MS-E2195	Web-based courses in systems analysis	1-6	I - II, III - V

Biomedical Engineering and Neuroscience (Department of Neuroscience and Biomedical Engineering)

BECS-E3060	Special Course in Brain and Mind Study	2-5	I, II, III, IV, V
BECS-E5971	Functional Brain Imaging: Principles	5	IV-V
BECS-E5972	Functional Brain Imaging: Practice	5	I - II
JOIN-E3000	Life Science Technologies Project Course	10	III - V
NBE-E4000	Principles of Biomedical Imaging	5	I - II
NBE-E4010	Medical Image Analysis	5	I-II
NBE-E4100	Molecular Biophysics	5	III - V
NBE-E4140	Neurophysics	5	IV-V
NBE-E4300	Medical Device Innovation	5	III-V
NBE-E5700	Introduction to Cognitive Neuroscience	5	III
Becs-114.5501	Experimental and Statistical Methods in Biological Sciences I	5	I
Becs-114.5707	Individualized Studies in Cognitive Neuroscience	1-10	I, II, III, IV, V
Becs-114.5808	Individualized Studies in Neuroscience	1-10	I, II, III, IV, V
Tfy-99.2710	Introduction to the Structure and Operation of the Human Brain	5	I - II
Tfy-99.3227	Electromagnetic Field Theory	5	I-II
Tfy-99.3298	Biophysics and Biomedical Engineering, special assignment	5-10	I, II, III, IV, V
Tfy-99.3720	Advanced Course on Human Brain Functioning	5	IV-V
Tfy-99.4275	Signal Processing in Biomedical Engineering	5	I - II
Tfy-99.7280	Medical Imaging	5	III-IV

Special Thematic Courses

Aalto Ventures Program (AVP)

INSPIRATION & INTRODUCTION

TU-E4000	Changemakers	1	I, II, III or IV
TU-E4040	Opportunity Prototyping	3	I
CSE-E4751	Introduction to IT Business and Venturing	2	I-II

KNOWLEDGE & SKILLS

TU-E4030	Entrepreneurial Finance	5	IV
TU-E4050	Entrepreneurial Leadership	5	II
TU-E4070	Entrepreneurial Marketing	5	IV
TU-E4060	Design and Innovation in Context	6	II
TU-E4080	Managing Innovative Sales	3	II
TU-E1020	Strategies for Growth and Renewal	3	I
TU-E4010	High Growth Entrepreneurship with varying content 1	1-10	I-II, III-V
T-128.2500	Management of a Software Venture	6	I-II

Code	Course	Credits	Period
T-76.5750	Seminar on ICT-law , "Exploitation of IPR" <i>INTEGRATIVE PROJECT EXPERIENCE</i>	3	IV
CSE-E5754	Growth and Internationalization of Technology SMEs	4	V
TU-E4020	High Growth Entrepreneurship with varying content 2	1-10	I-II, III-V
TU-E5020	Collaborative Innovation Management	5	IV
Kon-41.4002	Product Development Project	10	I-V
Kon-41.4009	Global Team-based Design Innovation	10	
Kon-41.4014	Internship Innovation Project	6	III-V

Multi-Disciplinary Energy Studies (MES)

LEVEL 1 CORE COURSE (5 cr)

PHYS-C1380	Multi-disciplinary energy perspectives	5	III-IV
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LEVEL 2 SUPPORTIVE COURSES (15-20 cr):

CSE-E5001	Special Course in Software Systems and Technologies	1-10	
PHYS-C6370	Fundamentals of New Energy Sources	5	I-II
CSE-E5001	Special Course in Software Systems and Technologies	1-10	
T-110.5121	Mobile Cloud Computing	5	I-II
MS-E2117	Risk Analysis	5	III-IV
MS-E2136	Special Topics in Decision Making	3-6	
PHYS-C6370	Fundamentals of New Energy Sources	5	I-II
PHYS-E0483	Advances in New Energy Technologies	5	III-IV
PHYS-E0581	Individual Studies	1-10	I, II, III, IV, V
TU-E2030	Advanced Project-based Management	3-5	I-II
TU-E2010	Industrial Service Operations	3-6	I
31C01300	Energy and Environmental Economics	6	V
31E01800	Resource and Environmental Economics	6	TBA
DOM-E5058	Information Visualization and Design	5	III

Aalto Nuclear Safety Minor (ANS)

PHYS-E0564	Nuclear competence portfolio	1	I-V
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PHYSICS-ORIENTED COURSES:

PHYS-E0463	Fusion Energy Technology	5	III-IV
PHYS-E0563	Fundamentals of Plasma Physics for Space and Fusion Applications	5	III-V
PHYS-E0544	Individual Studies in Physics	1-10	I, II, III, IV

ORGANIZATION AND SYSTEMS -ORIENTED COURSES:

TU-3150	Safety Management in Complex Sociotechnical Systems	5	IV-V
TU-3020	Knowledge Management in Practice	5	I-II
TU-3030	Collaboration in Networks	5	I-II
ICS-E5010	Computer-Aided Verification and Synthesis	5	III-IV
ELEC-E8110	Automation Software Synthesis and Analysis	5	

ENGINEERING -ORIENTED COURSES:

Ene-59.4201	Energy Markets	5	I-II
S-18.2103	Power Systems	5	I-II
S-18.3154	Electricity Distribution and Markets	6	III-IV