List of Courses Taught in English Offered at Aalto University School of Engineering (ENG) in 2022/2023 and 2023/2024 Academic Years

This list is subject to change. Please check the Sisu course portal for up-to-date information and course descriptions. The course codes in the left side column are links which take you to Sisu. Bachelor students who are in the final stages of their studies can choose master level courses if they have the required background knowledge.

Autumn term: September - December (teaching periods I, II)

Spring term: January - May (teaching periods III, IV and V)

Teaching periods include examinations.

Bachelor Level Courses

Course Code	Course Name	Credits	Autumn/Spring	Teaching Period
AAN-C2006	Product analysis	5	Autumn	I-II
AAN-C2007	Product Sustainability	5	Autumn	I-II
AAN-C2009	Designing an Electronic Device for Business and Production	5	Spring	III-IV
AAN-C2012	ADD Basics - Additive manufacturing: from idea to business	5	Spring	IV-V
COE-C1002	Statics	5	Autumn	II
COE-C1003	Dynamics	5	Spring	IV
COE-C2001	Foundations of Solid Mechanics	5	Autumn	II
COE-C2002	Foundations of Continuum Mechanics	5	Spring	V
COE-C2003	Basic Course on Fluid Mechanics	5	Autumn	I
COE-C2004	Materials Science and Engineering	5	Autumn	II
COE-C2007	Thermodynamics and Heat Transfer	5	Spring	III
COE-C3005	Finite Element and Finite Difference Methods	5	Spring	V
ENG-A1003	Numerical Methods in Engineering	5	Spring	III
ENG-A1009	Practical Work Training with 3D-printers	1	Autumn/Spring	Any period
ENG-A1015	Computer-Aided Design and Engineering	5	Spring	IV
ENG-A2001	Computer-aided tools in engineering	5	Autumn	I-II
KIG-C1010	Introduction to geoinformatics	5	Spring	III
KIG-C1030	Management of spatial data	5	Autumn	I
KON-C2004	Mechatronics Basics	5	Autumn	II

Master Level Courses

Advanced Energy Solutions

Course Code	Course Name	Credits	Autumn/Spring	Teaching Period
AAE-E1000	Introduction to Advanced Energy Solutions	5	Autumn	I-II
AAE-E1040	Measurement and Control of Energy Systems	5	Autumn	I-II
AAE-E2001	Computational Fluid Dynamics D	5	Spring	III-IV
AAE-E2004	Mass Transfer D	5	Spring	III-IV
AAE-E2005	Thermochemical energy conversion D	5	Spring	III-IV
AAE-E3000	Advanced Energy Project D	10	Autumn	I-II
AAE-E3001	Fundamentals of Industrial Energy Engineering	5	Spring	III-IV
AAE-E3002	Power Process Simulation D	5	Spring	IV-V
AAE-E3003	Industrial Drying and Evaporation Processes	5	Spring	III-IV
AAE-E3004	District Heating and Cooling D	5	Spring	III
AAE-E3005	Exercises in Energy Technology D	5	Autumn - Spring	I-V
AAE-E3006	Energy Markets	5	Autumn	I
AAE-E3007	Process Integration and Energy Optimization D	5	Autumn	II
AAE-E3030	Numerical Modeling of Multiphase Flows D	5	Spring	IV-V
AAE-E3070	Electrical Energy Storage Systems D	5	Spring	III
AAE-E3071	Electrical Energy Storage Systems Theory D	3	Spring, Summer	III, Summer
AAE-E3080	Thermal Energy Storage Systems D	5	Spring	IV-V
AAE-E3081	Thermal Energy Storage Systems Theory D	3	Spring	IV-V
AAE-E3090	Renewable Energy Engineering	5	Spring	III-IV
AAE-E3100	Energy Carriers D	5	Autumn	I
AAE-E3120	Circular Economy for Energy Storage D	5	Autumn	II
AAE-E3121	Circular Economy for Energy Storage Theory D	3	Autumn, Summer	II, Summer
AAE-E4001	Comfortable and Healthy Indoor Environments	5	Spring	III
AAE-E4002	Heating and Cooling Systems	5	Spring	III
AAE-E4003	Ventilation and Air Conditioning Systems	5	Spring	IV
AAE-E4004	Fundamentals of HVAC Design	5	Spring	IV-V
AAE-E4005	Sustainable Building Energy Systems	5	Spring	V
AAE-E4006	Advanced HVAC Design	5	Autumn	I-II
AAE-E4007	Building Energy Optimisation	5	Autumn	I-II

EEN-E1010	Power Plants and Processes	5	Autumn	I-II
EEN-E1020	Heat Transfer D	5	Autumn	II
EEN-E1030	Termodynamics in Energy Technology	5	Autumn	I-II

Building Technology

Course Code	Course Name	Credits	Autumn/Spring	Teaching Period
CIV-E1010	Building Materials Technology	5	Autumn	I
CIV-E1020	Mechanics of Beam and Frame Structures	5	Autumn	I
CIV-E1030	Fundamentals of Structural Design	5	Autumn	II
CIV-E1040	Construction Management	5	Spring	III
CIV-E1050	Heat and Mass Transfer in Buildings	5	Autumn	I
CIV-E1060	Engineering Computation and Simulation	5	Autumn	II
CIV-E2020	Concrete Technology D	5	Spring	III
CIV-E2030	Experimental Methods in Building Materials D	5	Spring	V
CIV-E2040	Maintenance and Repair of Structures D	5	Autumn	II
CIV-E2050	Operations Management in Construction D	5	Spring	IV
CIV-E2060	Production Technology of Concrete Structures D	5	Spring	IV
CIV-E2070	Strategic Management of Construction D	5	Spring	V
CIV-E2080	Design Process Management D	5	Autumn	II
CIV-E3010	Applied Building Physics and Design D	5	Spring	V
CIV-E3020	Design of Energy Efficient Buildings D	5	Autumn	II
CIV-E3030	Indoor Air Quality D	5	Spring	IV
CIV-E3040	Indoor Environment Technology D	5	Autumn	I
CIV-E3050	Fire Dynamics and Simulation D	5	Spring	III
CIV-E3060	Fire Risk and Evacuation Analysis D	5	Autumn	I-II
CIV-E4010	Finite Element Methods in Civil Engineering D	5	Spring	IV
CIV-E4020	Design of Bridges D	5	Autumn	II
CIV-E4030	Engineering Design Exercises D	5	Autumn	II
CIV-E4040	Reinforced Concrete Structures D	5	Spring	III
CIV-E4050	Prestressed and Precast Concrete Structures D	5	Autumn	I
CIV-E4060	Steel Structures D	5	Spring	V

CIV-E4070	Composite Steel Structures D	5	Autumn	I
CIV-E4080	Material Modelling in Civil Engineering D	5	Spring	V
CIV-E4090	Mechanics of Plate and Shell Structures D	5	Spring	III
CIV-E4100	Stability of Structures D	5	Spring	IV
CIV-E4110	Timber Engineering D	5	Spring	IV
CIV-E4120	Timber Structures D	5	Autumn	I
CIV-E5010	Geometry & Lightweight: Structures and Architecture D	5	Spring	III
CIV-E5020	Structures and Architecture: Parametric Engineering D	3 - 6	Spring	IV
CIV-E5030	Structures and Architecture: Informed Structures D	10	Autumn	I-II
CIV-E6010	Sustainability and Circular Economy in Civil Engineering	5	Spring	III

Geoengineering

Course Code	Course Name	Credits	Autumn/Spring	Teaching Period
GEO-E1010	Engineering Geology	5	Spring	IV
GEO-E1020	Geotechnics	5	Autumn	I
GEO-E1030	Structural Design of Roads	5	Autumn	II
GEO-E1040	Rock Excavation	5	Spring	III
GEO-E1050	Finite Element Method in Geoengineering	5	Autumn	II
GEO-E2010	Advanced Soil Mechanics D	5	Spring	IV
GEO-E2020	Numerical Methods in Geotechnics D	5	Spring	V
GEO-E2030	Rock Mechanics D	5	Autumn	I
GEO-E2040	Rock Construction D	5	Spring	V
GEO-E2050	Bituminous Materials and Mixtures D	5	Spring	IV (even years)
GEO-E2060	Seminar in Geoengineering V D	5	Autumn	I-II
GEO-E2070	Special Assignment in Geoengineering V D	5	Autumn - Spring	I-V
GEO-E2071	Special Assignment in Geoengineering D	1-10	Autumn - Summer	I - Summer
GEO-E2080	Foundation Engineering and Ground Improvement	5	Autumn	II
GEO-E3010	Economic Geology and Mineral Economics D	5	Autumn	II
GEO-E3030	Road Maintenance and Rehabilitation D	5	Spring	IV (odd years)
GEO-E3040	Geometric Design of Roads	5	Spring	III

Geoinformatics

Course Code	Course Name	Credits	Autumn/Spring	Teaching Period
GIS-E1010	Geodesy and Positioning D	5	Autumn	I
GIS-E1020	From Measurements to Maps D	5	Autumn	I
GIS-E1030	Introduction to Spatial Methods D	5	Autumn	I
GIS-E1040	Photogrammetry, Laser Scanning and Remote Sensing D	5	Autumn	II
GIS-E1060	Spatial Analytics D	5	Autumn	II
GIS-E1070	Theories and Techniques in GIS D	5	Autumn	II
GIS-E3020	Digital Image Processing and Feature Extraction D	5	Spring	III
GIS-E3030	Advanced Laser Scanning D	5	Spring	IV
GIS-E3040	Advanced Photogrammetry D	5	Spring	IV
GIS-E3050	Advanced Remote Sensing D	5	Spring	V
GIS-E4030	GIS Development D	5	Spring	IV-V
GIS-E4040	Spatial Data Science for Sustainable Development	5	Spring	III
GIS-E5050	Advanced Geodesy D	5	Spring	IV
GIS-E6010	Project Course V D	10	Autumn	I-II
GIS-E6020	Special Course in Geoinformatics V D	1 - 5	Autumn - Spring	I-V

Mechanical Engineering

Course Code	Course Name	Credits	Autumn/Spring	Teaching Period
MEC-E1003	Machine Design Project	5	Autumn	I-II
MEC-E1004	Principles of Naval Architecture D	5	Autumn	I-II
MEC-E1005	Modelling in Applied Mechanics	5	Spring	V
MEC-E1010	Dynamics of Rigid Body	5	Autumn	I
MEC-E1020	Fluid Dynamics	5	Autumn	I
MEC-E1030	Random Loads and Processes D	5	Autumn	I-II
MEC-E1040	Dynamics of Structures D	5	Autumn	II
MEC-E1050	Finite Element Method in Solids	5	Autumn	II
MEC-E1060	Machine Design	5	Autumn	I
MEC-E1070	Selection of Engineering Materials	5	Autumn	I
MEC-E1080	Production Engineering	5	Autumn	I-II

MEC-E1090	Quality Management and Metrology	5	Autumn	II
MEC-E2000	Marine and Ship Systems Engineering	5	Autumn - Spring	II-III
MEC-E2001	Ship Hydrodynamics D	5	Autumn - Spring	II-III
MEC-E2002	Ship Buoyancy and Stability	5	Autumn - Spring	II-III
MEC-E2003	Passenger Ships D	5	Autumn - Spring	II-III
MEC-E2004	Ship Dynamics D	5	Spring	IV-V
MEC-E2007	Ship Structures and Construction D	5	Spring	IV-V
MEC-E2009	Marine Risks and Safety D	5	Autumn	I
MEC-E2010	Computational Fluid Modelling D	5	Autumn	I-II
MEC-E2011	Ship Design Portfolio	5	Spring	III-V
MEC-E2012	Computational Marine Hydrodynamics D	5	Autumn	I-II
MEC-E3001	Product Development Project V D	10-15	Autumn - Spring	I-V
MEC-E3002	Methods in Early Product Development D	5	Autumn	I
MEC-E3004	Safety Management in Complex Sociotechnical Systems D	5	Spring	IV-V
MEC-E3005	Prototyping for Innovation	5	Spring	III
MEC-E3006	Design thinking and creativity for innovation	1-3	Autumn-Summer	I - Summer
MEC-E4002	Ice Loads on Structures D	5	Spring	IV
MEC-E4003	Ice Mechanics D	5	Autumn	I
MEC-E4004	Model Scale Testing in Ice D	5	Autumn	II
MEC-E4006	Ship Operations in Ice D	5	Spring	III-IV
MEC-E5001	Mechatronic Machine Design	5	Spring	III
MEC-E5002	Mechatronics Project	10	Spring	III-IV
MEC-E5003	Fluid Power Basics	5	Spring	III-IV
MEC-E5004	Fluid Power Systems	5	Autumn	I-II
MEC-E5005	Fluid Power Dynamics D	5	Autumn	I-II
MEC-E5010	Advanced Project on Mechatronics V D	5	Autumn - Spring	I-V
MEC-E5011	Vehicle Mechatronics: Powertrain D	5	Autumn	II (odd years)
MEC-E5012	Vehicle Mechatronics: Control D	5	Autumn	II (even years)
MEC-E6001	Engineering Metals and Alloys D	5	Spring	V
MEC-E6002	Welding Technology and Design D	5	Spring	V
MEC-E6003	Materials Safety D	5	Autumn	I

MEC-E6004	Non-destructive Testing D	5	Autumn	II (even years)
MEC-E6005	Engineering Materials Seminar D	5	Spring	V
MEC-E6006	Engineering Materials Laboratory D	5	Autumn	I-II
MEC-E6007	Mechanical Testing of Materials D	5	Spring	IV-V
MEC-E7001	Production Systems Modelling D	5	Spring	III
MEC-E7002	Manufacturing Methods I	5	Spring	III
MEC-E7003	Manufacturing Methods II	5	Spring	IV-V
MEC-E7005	Advanced Casting Technology D	5	Spring	IV
MEC-E7006	Advanced Manufacturing D	5	Spring	IV
MEC-E7007	Factory Project	5	Autumn	I-II
MEC-E7009	Design for Additive Manufacturing L	5	Spring	V
MEC-E8001	Finite Element Analysis D	5	Spring	III
MEC-E8002	Continuum Mechanics and Material Modelling D	5	Spring	III
MEC-E8003	Beam, Plate and Shell Models D	5	Spring	IV
MEC-E8005	Thin-walled Structures D	5	Autumn	I-II
MEC-E8006	Fatigue of Structures D	5	Autumn - Spring	II-III
MEC-E8007	Fracture Mechanics D	5	Spring	V

Real Estate Economics

Course Code	Course Name	Credits	Autumn/Spring	Teaching Period
REC-E3100	Real Estate Economics D	6	Autumn	I
REC-E3200	Institutions in Real Estate Economics D	6	Autumn	I
REC-E3300	Facility and Property Management D	6	Autumn	II
REC-E3400	Housing Economics D	6	Autumn	II
REC-E3500	Urban Economics D	6	Spring	III
REC-E3600	Real Estate Market Analysis D	6	Spring	III
REC-E3800	Futures Studies for Real Estate Economics	6	Spring	IV
REC-E4100	Real Estate Finance D	6	Spring	IV
REC-E4300	Real Estate Valuation D	6	Spring	V
REC-E4500	Land Management D	6	Spring	V

Spatial Planning and Transportation Engineering

Course Code	Course Name	Credits	Autumn/Spring	Teaching Period
SPT-E1010	Land Use Planning Systems D	5	Autumn	I
SPT-E1021	Foundations of Mobility Systems D	5	Autumn	I
SPT-E1030	Planning Theory D	5	Autumn	I-II
SPT-E1070	Planning Studio V D	10	Autumn	I-II
SPT-E1090	Land-use and Transport Policy D	5	Autumn	II
SPT-E3010	Participatory Planning D	5	Spring	IV
SPT-E4010	Transport Modelling D	5	Spring	III
SPT-E4020	Traffic Flow Theory D	5	Spring	IV
SPT-E4030	Traffic Management D	5	Spring	V
SPT-E4040	Integrated Urban Transport D	5	Spring	III
SPT-E4050	Transport Economics	5	Spring	III
SPT-E5010	Urban and Regional Development D	5	Spring	V
SPT-E5020	Urban Experience D	5	Spring	III
SPT-E8010	Smart and Liveable City Studio V D	10	Spring	IV-V

Water and Environmental Engineering

Course Code	Course Name	Credits	Autumn/Spring	Teaching Period
WAT-E1100	Water and Environmental Engineering	15	Autumn	I
WAT-E2010	Groundwater Hydrology D	5	Spring	V
WAT-E2020	Environmental Hydraulics D	5	Spring	IV
WAT-E2030	Hydrological Modelling D	5	Spring	III
WAT-E2040	Surface Water Resources D	5	Autumn	II
WAT-E2060	Sustainable Built Environment D	5	Autumn	II
WAT-E2070	Sustainable Global Technologies (SGT) Studio D	10	Spring	III-V
WAT-E2080	Water and Governance D	5	Spring	III
WAT-E2090	Water and People in a Changing World D	5	Autumn	II
WAT-E2100	Urban Water Systems D	5	Autumn	II
WAT-E2110	Design and Management of Water and Wastewater Networks D	5	Spring	IV
WAT-E2120	Physical and Chemical Treatment of Water and Waste D	5	Spring	III

WAT-E2130	Modelling and Control of Water and Wastewater Treatment Processes D	5	Spring	V
WAT-E2180	Biological Treatment of Water and Waste D	5	Spring	IV
WAT-E3020	State of the World and Development D	2	Autumn	I