

SPECIALISATION COURSES

Aeronautics (AERO)		
Core specialisation courses	EC	Quarter
201900091	Advanced Topics in Finite Element Methods	5 1B
201800371	Aeroacoustics	5 2A
202000244	Aircraft & Wind Turbine Aerodynamics	5 2A
191121710	Composites	5 1A+1B
191154731	Computational Fluid Dynamics	5 2B
201500235	Design for Maintenance Operations	5 2A
202000245	Experimental methods in Fluid and Thermal Engin	5 1A
201900074	Fundamentals of Numerical Methods	5 1A
202000246	Frontiers in Aeronautics	5 2B
201400037	Linear Solid Mechanics	5 2A
201700042	Safety by Design	5 1B
201300039	Structural Health and Condition Monitoring	5 2A
Elective subjects	EC	Quarter
191121700	Composites Forming	5 2B
202200127	Computational Optimization	5 1B
201700173	Control for UAVs	5 2B
201900037	Flexible Multibody Dynamics	5 1B
201500036	Fluid Mechanics II	5 1A
201900097	Machine Learning in Engineering	5 2A
201400042	Nonlinear Solid Mechanics	5 2B
201700024	Wind Energy	5 2B

Design & Manufacturing (DM)		
Core specialisation courses	EC	Quarter
201400103	3D printing	5 1A
201200133	Biomechatronics	5 2B
191121710	Composites	5 1A+1B
191121720	Design, Production and Materials	5 1A+1B
191124720	Design of Production & Inventory Systems	5 2A
201000159	Durability of Consumer products	5 2A
202000033	Frontiers in Design and Manufacturing	5 2A
191137400	Laser Materials Processing	5 1B
201200146	Maintenance Engineering & Management	5 1A
191102041	Manufacturing Facility Design	5 1B
201600018	Modelling of Technical Design Processes	5 1A
202200100	Systems Engineering	5 1A
Elective subjects	EC	Quarter
202100228	Adhesion and Bonding Technology	5 2B
201900091	Advanced Topics in Finite Element Methods	5 1B
201800156	Biomechanics of Human Movement	5 2A
191121700	Composites Forming	5 2B
202200127	Computational Optimization	5 1B
201400244	Cost Management & Engineering	5 1B
202100128	Design for Additive Manufacturing	5 2A
191131360	Design Principles for Precision Mechanisms 2	5 2A
201500009	Electric Vehicle System Design	5 1B
201900037	Flexible Multibody Dynamics	5 1B
192850730	Governing Product Development	5 1A
191150700	Integrative Design of Biomedical Products	5 1A
191127520	Lean Six Sigma Green Belt	5 2B
191102010	Life-Cycle Strategy	5 2B
202000035	Multiscale Functional Materials	5 2A
191158520	Multi Scale Mechanics	5 Y
201800003	Operations Research Techniques 1	5 1A
191820210	Simulation	5 1A
191530881	Stochastic Models in Operations Management	5 2A
191531830	Stochastic Models in Production and Logistics	5 2B
202100082	Structured innovation using TRIZ	5 S

Energy & Flow (EF)		
Core specialisation courses	EC	Quarter
201500024	Advanced Thermodynamics	5 1B
191121710	Composites	5 1A+1B
191154731	Computational Fluid Dynamics	5 2B
201600019	Energy Conversion Technology	5 1A
201500136	Fluid Mechanics II	5 1A
191154720	Fluid Mechanics of Turbomachines 1	5 1B
202000036	Frontiers in Energy and Flow	5 2B
201900074	Fundamentals of Numerical Methods	5 1A
201400300	Multiphase Flows	5 2B
202000035	Multiscale Functional Materials for Engineering Ap	5 2A
201300039	Structural Health and Condition Monitoring	5 2A
191141700	Transport Phenomena	5 1A
Elective subjects	EC	Quarter
201900091	Advanced Topics in Finite Element Methods	5 1B
201800371	Aeroacoustics	5 2A
202000244	Aircraft & Wind Turbine Aerodynamics	5 2A
202001436	Biofluid Dynamics	5 2A
191121700	Composites Forming	5 2B
201500235	Design for Maintenance Operations	5 2A
201700023	Energy from Biomass	5 1B
201600252	Energy Storage	5 2A
191157750	Engineering Acoustics	5 1A
202000245	Experimental methods in Fluid and Thermal Engin	5 1A
191154340	Gasdynamics	5 2B
201400194	Granular Matter	5 2A
202200266	Hydrogen Technology	5 1B
201400037	Linear Solid Mechanics	5 2A
201300155	Process Equipment Design	5 2A
191158510	Programming in Engineering	- Y
201700042	Safety by Design	5 1B
201700218	Turbulent Combustion	5 2A
201700024	Wind Energy	5 2B

High-Tech Systems and Materials (HTSM)		
Core specialisation courses	EC	Quarter
201900091	Advanced Topics in Finite Element Methods	5 1B
202200104	Control System Design for Robotics	5 1B
191131360	Design Principles for Precision Mechanisms 2	5 2A
191121720	Design, Production and Materials	5 1A+1B
201400046	Experimental Methods	5 2A+2B
201900037	Flexible Multibody Dynamics	5 1B
201500136	Fluid Mechanics II	5 1A
202000247	Frontiers in High-Tech Systems and Materials	5 Y
201400037	Linear Solid Mechanics	5 2A
201400042	Nonlinear Solid Mechanics	5 2B
201400044	Plastic & Elastomer Engineering	5 1B
191155700	Solids & Surfaces	5 1A
Elective subjects	EC	Quarter
202001392	Active Sound and Vibration Control	5 2A
202100228	Adhesion and Bonding Technology	5 2B
201500024	Advanced Thermodynamics	5 1B
191121700	Composites Forming	5 2B
191121710	Composites	5 1A+1B
202200127	Computational Optimization	5 1B
201500344	Elastomer Science & Engineering	5 2A+2B
191157750	Engineering Acoustics	5 1A
201900074	Fundamentals of Numerical Methods	5 1A
191137400	Laser Materials Processing	5 1B
202000256	Learning and Adaptive Control	5 2A
201900097	Machine Learning in Engineering	5 2A
202100319	Phase Transformations in Manufacturing	5 2B
191121740	Rheology & Processing of Thermoplastics	5 2A+2B
202100226	Reinforcement learning in Engineering	5 2B
202000037	Structural Dynamics	5 1A
201300039	Structural Health and Condition Monitoring	5 2A
191155710	Surface Technology	5 2A
202200111	System Identification and Parameter Estimation a	5 2B
201600101	Theory of ODE	5 2A
191141700	Transport Phenomena	5 1A
191155730	Tribology	5 2A
201900098	Uncertainty Quantification & Model Reduction	5 2B

Maintenance Engineering & Operations (MEO)		
Core specialisation courses	EC	Quarter
201800008	After-Sales Service Logistics	5 1B
201500235	Design for Maintenance Operations	5 2A
201300038	Failure Mechanisms & Life Prediction	5 1B
202000039	Frontiers in Maintenance	5 2B
201800034	Infrastructure Asset Management	5 2B
191102010	Life-Cycle Strategy	5 2B
201200146	Maintenance Engineering & Management	5 1A
191852630	Reliability Engineering and Maintenance Managere	5 2A
202000037	Structural Dynamics	5 1A
201300039	Structural Health and Condition Monitoring	5 2A
191155730	Tribology	5 2A
Elective subjects	EC	Quarter
202100228	Adhesion and Bonding Technology	5 2B
201900091	Advanced Topics in Finite Element Methods	5 1B
201200145	Capita Selecta - Maintenance Engineering & Oper	5 2B
202200104	Control System Design for Robotics	5 1B
191121720	Design, Production and Materials	5 1A+1B
201700294	Engineering Project Management	5 2B
201900037	Flexible Multibody Dynamics	5 1B
191102041	Manufacturing Facility Design	5 1B
201700042	Safety by Design	5 1B
191531830	Stochastic Models in Production and Logistics	5 2B
191155710	Surface Technology	5 2A
202200100	Systems Engineering	5 1A
191820120	Warehousing	5 2B

Personalized Health Technology (PHT)		
Core specialisation courses	EC	Quarter
201800156	Biomechanics of Human Movement	5 2A
191121720	Design, Production and Materials	5 1A+1B
201900037	Flexible Multibody Dynamics	5 1B
201500136	Fluid Mechanics II	5 1A
202000034	Frontiers in Personal Health Technology	5 1B
201900074	Fundamentals of Numerical Methods	5 1A
191150480	Human Movement Control	5 2A
191150700	Integrative Design of Biomedical Products	5 1A
201400037	Linear Solid Mechanics	5 2A
191155700	Solids & Surfaces	5 1A
202200111	System Identification and Parameter Estimation a	5 2B
191141700	Transport Phenomena	5 1A
Elective subjects	EC	Quarter
201400103	3D Printing	5 1A
202100080	3D Bioprinting	5 2B
201500024	Advanced Thermodynamics	5 1B
201900091	Advanced Topics in Finite Element Methods	5 1B
191154740	Biophysical Fluid Dynamics	5 1A
201200133	Biomechatronics	5 2B
202001436	Biofluid Dynamics	5 2A
191154731	Computational Fluid Dynamics	5 2B
202200104	Control System Design for Robotics	5 1B
202001409	Development of Artificial Internal Organs	5 2A
191131360	Design Principles for Precision Mechanisms 2	5 2A
201700071	Identification of Human Physiological Systems	5 2B
201200167	Imaging Techniques	5 1A
202200070	Medical Certification & Human Factors	5 1B
202200100	Systems Engineering	5 1A
201600327	Tissue Engineering	5 2B
191155730	Tribology	5 2A

Robotics (ROB)		
Core specialisation courses	EC	Quarter
201900091	Advanced Topics in Finite Element Methods	5 1B
202000030	Automated Production Systems	5 1B
201200133	Biomechatronics	5 2B
202200104	Control System Design for Robotics	5 1B
191131360	Design Principles for Precision Mechanisms 2	5 2A
201900037	Flexible Multibody Dynamics	5 1B
202000031	Frontiers in Robotics	5 Y
202000032	Industrial Robotic Systems	5 1A
201900097	Machine Learning in Engineering	5 2A
201300004	Robotics for Medical Applications	5 1B
202200108	Software Development for Robotics	5 2A
202200111	System Identification and Parameter Estimation a	5 2B
Elective subjects	EC	Quarter
202001392	Active Sound and Vibration Control	5 2A
202200109	Advanced Software Development for Robotics	5 2A
201900074	Fundamentals of Numerical Methods	5 1A
191150480	Human Movement Control	5 2A
201700071	Identification of Human Physiological Systems	5 2B
191210910	Image Processing and Computer Vision	5 1A
202000040	Design of Flexible and Soft Robotic Systems	5 2B
202000256	Learning and Adaptive Control	5 2A
191210930	Measurement Systems for Mechatronics	5 1A
202200101	Modelling, Dynamics and Kinematics	5 1A
201900085	Nonlinear Control	5 2A
191560430	Nonlinear Dynamics	5 1A
191561620	Optimal Control	5 1B
202200106	Optimal Estimation in Dynamic Systems	5 2A
191560671	Robust Control	5 2A
202000248	Soft Robotics	5 2B
202000037	Structural Dynamics	5 1A
202200100	Systems Engineering	5 1A

General Electives		
General elective subjects	EC	Quarter
191158500	Advanced Programming in Engineering	- Y
201800102	Basics for Process Simulation	5 1A
191124310	CAD/CAM - research	5 2A
202200310	Introduction Humanitarian Engineering	5 2B
192850960	Intellectual Property in Product Development	5 2A
201600241	Multigrid/Multilevel Scientific Computing	5 -
201700025	Solar Energy	5 2A
192850840	Sources of Innovation	5 1A
202100082	Theory of Inventive Problem Solving (TRIZ)	5 S
201000201	Virtual Reality	5 2B

Glossary		
Y = all year		
S = summer period		
1A+1B = course will be spread over both quartiles		
I = Referes to latest course information		
Red = Change compared to previous year		
Internship 202000250 (15EC)		
Graduation 202000249 (45EC)		