

MASTER MECHANICAL ENGINEERING ACADEMIC YEAR 2024-2025

SPECIALISATIONS											
Aeronautics (AERO)				Design & Manufacturing (DM)				Energy & Flow (EF)			
Specialisation courses		EC	Quarter	Specialisation courses		EC	Quarter	Specialisation courses		EC	Quarter
201900091	Advanced Topics in Finite Element Methods	5	2	201400103	3D printing	5	1	201500024	Advanced Thermodynamics	5	2
202300225	Basics of Acoustics and Aero-acoustics	5	4	201200133	Biomechatronics	5	4	191121710	Composites	5	1+2
202000244	Aircraft & Wind Turbine Aerodynamics	5	3	191121710	Composites	5	1+2	191154731	Computational Fluid Dynamics	5	4
191121710	Composites	5	1+2	191121720	Design, Production and Materials	5	1+2	201600019	Energy Conversion Technology	5	1
191154731	Computational Fluid Dynamics	5	4	191124720	Design of Production & Inventory Systems	5	3	201500136	Fluid Mechanics II	5	1
201500235	Design for Maintenance Operations	5	3	201000159	Durability of Consumer products	5	3	191154720	Fluid Mechanics of Turbomachines 1	5	2
202000245	Experimental methods in Fluid and Thermal Engine	5	1	202000033	Frontiers in Design and Manufacturing	5	3	202000036	Frontiers in Energy and Flow	5	4
201900074	Fundamentals of Numerical Methods	5	1	191137400	Laser Materials Processing	5	2	201900074	Fundamentals of Numerical Methods	5	1
202000246	Frontiers in Aeronautics	5	4	201200146	Maintenance Engineering & Management	5	1	201400300	Multiphase Flows	5	4
191154340	Gasdynamics	5	4	191102041	Manufacturing Facility Design	5	2	202000035	Multiscale Functional Materials	5	3
201400037	Linear Solid Mechanics	5	3	201600018	Modelling of Technical Design Processes	5	1	201300039	Structural Health and Condition Monitoring	5	3
201300039	Structural Health and Condition Monitoring	5	3	202200100	Systems Engineering	5	1	191141700	Transport Phenomena	5	1
Elective courses		EC	Quarter	Elective courses		EC	Quarter	Elective courses		EC	Quarter
191121700	Composites Forming	5	4	202100228	Adhesion and Bonding Technology	5	4	201900091	Advanced Topics in Finite Element Methods	5	2
202200127	Computational Optimization	5	2	201900091	Advanced Topics in Finite Element Methods	5	2	202300225	Basics of Acoustics & Aero-acoustics	5	4
201700173	Control for UAVs	5	4	201800156	Biomechanics of Human Movement	5	3	202000244	Aircraft & Wind Turbine Aerodynamics	5	3
201900037	Flexible Multibody Dynamics	5	2	202300210	Capita Selecta Design & Manufacturing	5	Y	202001436	Biofluid Dynamics	5	3
201500036	Fluid Mechanics II	5	1	191121700	Composites Forming	5	4	191121700	Composites Forming	5	4
201900097	Machine Learning in Engineering	5	3	202200127	Computational Optimization	5	2	202200127	Computational Optimization	5	2
201400042	Nonlinear Solid Mechanics	5	4	201400244	Cost Management & Engineering	5	2	201500235	Design for Maintenance Operations	5	3
201600101	Theory of ODE	5	3	202100128	Design for Additive Manufacturing	5	3	201700023	Energy from Biomass	5	2
201700024	Wind Energy	5	4	191131360	Design Principles for Precision Mechanisms 2	5	3	201600252	Energy Storage	5	3
				201900037	Flexible Multibody Dynamics	5	2	191157750	Engineering Acoustics	5	1
				192850730	Governing Product Development	5	1	202000245	Experimental methods in Fluid and Thermal Engine	5	1
				202400400	Integrative Design of Biomedical Products	5	1	191154340	Gasdynamics	5	4
				191127520	Lean Six Sigma Green Belt	5	4	201400194	Granular Matter	5	3
				191102010	Life-Cycle Strategy	5	4	202200266	Hydrogen Technology	5	2
				202000035	Multiscale Functional Materials	5	3	201400037	Linear Solid Mechanics	5	3
				201900097	Machine Learning in Engineering	5	3	201300155	Process Equipment Design	5	3
				201800003	Operations Research Techniques 1	5	1&3	202400656	Programming in Engineering	-	Y
				202300064	Simulation	5	1	201700218	Turbulent Combustion	5	3
				191530881	Stochastic Models in Operations Management	5	3	201700024	Wind Energy	5	4
				191531830	Stochastic Models in Production and Logistics	5	4				

High-Tech Systems and Materials (HTSM)			
Specialisation courses		EC	Quarter
201900091	Advanced Topics in Finite Element Methods	5	2
202200104	Control System Design for Robotics	5	2
191131360	Design Principles for Precision Mechanisms 2	5	3
191121720	Design, Production and Materials	5	1+2
201400046	Experimental Methods	5	3+4
201900037	Flexible Multibody Dynamics	5	2
202000247	Frontiers in High-Tech Systems and Materials	5	4
201400037	Linear Solid Mechanics	5	3
201400042	Nonlinear Solid Mechanics	5	4
201400044	Plastic & Elastomer Engineering	5	2
191155700	Solids & Surfaces	5	1
202000037	Structural Dynamics	5	1
Elective courses		EC	Quarter
202001392	Active Sound and Vibration Control	5	3
202100228	Adhesion and Bonding Technology	5	4
201500024	Advanced Thermodynamics	5	2
191121700	Composites Forming	5	4
191121710	Composites	5	1+2
202200127	Computational Optimization	5	2
201500344	Elastomer Science & Engineering	5	4
191157750	Engineering Acoustics	5	1
201500136	Fluid Mechanics II	5	1
201900074	Fundamentals of Numerical Methods	5	1
191137400	Laser Materials Processing	5	2
202000256	Learning and Adaptive Control	5	3
201900097	Machine Learning in Engineering	5	3
202100319	Phase Transformations in Manufacturing	5	4
202100226	Reinforcement learning in Engineering	5	4
201300039	Structural Health and Condition Monitoring	5	3
191155710	Surface Technology	5	3
202200111	System Identification and Parameter Estimation	5	4
201600101	Theory of ODE	5	3
191141700	Transport Phenomena	5	1
191155730	Tribology	5	3
201900098	Uncertainty Quantification & Model Reduction	5	4

Maintenance Engineering & Operations (MEO)			
Specialisation courses		EC	Quarter
201800008	After-Sales Service Logistics	5	2
201500235	Design for Maintenance Operations	5	3
201300038	Failure Mechanisms & Life Prediction	5	2
202000039	Frontiers in Maintenance	5	4
201800034	Infrastructure Asset Management	5	4
191102010	Life-Cycle Strategy	5	4
201200146	Maintenance Engineering & Management	5	1
191852630	Reliability Engineering and Maintenance Management	5	3
202000037	Structural Dynamics	5	1
201300039	Structural Health and Condition Monitoring	5	3
191155730	Tribology	5	3
Elective courses		EC	Quarter
202100228	Adhesion and Bonding Technology	5	4
201900091	Advanced Topics in Finite Element Methods	5	2
201200145	Capita Selecta - Maintenance Engineering & Operations	5	4
202200104	Control System Design for Robotics	5	2
191121720	Design, Production and Materials	5	1+2
201700294	Engineering Project Management	5	4
201900037	Flexible Multibody Dynamics	5	2
191102041	Manufacturing Facility Design	5	2
191531830	Stochastic Models in Production and Logistics	5	4
191155710	Surface Technology	5	3
202200100	Systems Engineering	5	1
202400647	Warehousing	5	1

Personalized Health Technology (PHT)			
Specialisation courses		EC	Quarter
191210720	Biomedical Signal Acquisition	5	3
191121720	Design, Production and Materials	5	1+2
201700294	Engineering Project Management	5	4
201900037	Flexible Multibody Dynamics	5	2
201500136	Fluid Mechanics II	5	1
202000034	Frontiers in Personal Health Technology	5	2
202200103	Image Processing and Computer Vision	5	1
202400400	Integrative Design of Biomedical Products	5	1
202300102	Medical Certification & Human Factors	5	2
201400037	Linear Solid Mechanics	5	3
202200100	Systems Engineering	5	1
191141700	Transport Phenomena	5	1
Elective courses		EC	Quarter
201400103	3D Printing	5	1
202100080	3D Bioprinting	5	4
201500024	Advanced Thermodynamics	5	2
201900091	Advanced Topics in Finite Element Methods	5	2
202001436	Biofluid Dynamics	5	3
201800156	Biomechanics of Human Movement	5	3
201200133	Biomechatronics	5	4
191154740	Biophysical Fluid Dynamics	5	1
191154731	Computational Fluid Dynamics	5	4
202200104	Control System Design for Robotics	5	2
202000040	Design of Flexible and Soft Robotic Systems	5	4
191131360	Design Principles for Precision Mechanisms 2	5	3
202300256	Development of Artificial Internal Organs	5	3
201900074	Fundamentals of Numerical Methods	5	1
191150480	Human Movement Control	5	3
201700071	Identification of Human Physiological Systems	5	4
202300030	Imaging Techniques	5	1
191127520	Lean Six Sigma Green Belt	5	4
191155700	Solids & Surfaces	5	1
202200111	System Identification and Parameter Estimation and	5	4
191155730	Tribology	5	3

Smart and Sustainable Industry (SSI)			
Specialisation courses		EC	Quarter
201500518	Advanced 3D Modelling	5	3
202000030	Automated Production Systems	5	2
191124720	Design of Production & Inventory Systems	5	3
201600019	Energy Conversion Technology	5	1
202400340	Frontiers in Smart & Sustainable Industries	5	1
202000032	Industrial Robotic Systems	5	1
191102010	Life-cycle Strategy	5	4
201900097	Machine Learning in Engineering	5	3
202000028	Smart Industry Systems	5	4
202400341	Sustainable Cyber-Physical Production Systems	5	2
202400342	Sustainability in Manufacturing	5	2
202200111	System Identification with Parameter Estimation and	5	4
Elective courses		EC	Quarter
201400103	3D Printing	5	1
201700365	Business Models for Sustainable Energy	5	1
201700026	Electrical Power Engineering & System Integration	5	2
202400343	Energy System Integration	5	2
201700075	Internet of Things	5	1
191137400	Laser Materials Processing	5	2
201200146	Maintenance Engineering & Management	5	1
191102041	Manufacturing Facility Design	5	2
192850750	Product Life Cycle Management	5	3
202100226	Reinforcement learning in Engineering	5	4
191531830	Stochastic Models in Production and Logistics	5	4

General Electives			
General elective subjects		EC	Quarter
191158500	Advanced Programming in Engineering	-	Y
201800102	Basics for Process Simulation	5	1
191124310	CAD/CAM - research	5	3
192850960	Intellectual Property in Product Development	5	3
201600241	Multigrid/Multilevel Scientific Computing	5	4
201700025	Solar Energy	5	3
192850840	Sources of Innovation	5	1
201000201	Virtual Reality	5	4
Glossary			
Y = all year			
1+2 = course will be spread over both quartiles			
I = Referes to latest course information			
Internship 202000250 (15 EC)			
Graduation 202000249 (45 EC)			

Changes compared to previous academic year:			
202400400	Integrative Design of Biomedical Products: new course code		
191158510	Programming in Engineering: new course code -> 202400656		
191820120	Warehousing: in Q1 instead of Q4		
HTSM specialisation			
201500136	Fluid Mechanics II: was specialisation course, now elective		
202000247	Frontiers in HTSM: will only be available in Q4		
202000037	Structural Dynamics: was elective course, now specialisation		
PHT specialisation			
Specialisation courses			
191210720	Biomedical Signal Acquisition: new course		
201700294	Engineering Project Management: new course		
202200103	Image Processing and Computer Vision: new course		
202400400	Integrative Design of Biomedical Products: was elective		
202200100	Systems Engineering: was elective		
Elective courses			
201800156	Biomechanics of Human Movement: was specialisation		
202000040	Design of Flexible & Soft Robotic Systems: new elective		
201900074	Fundamentals of Numerical Methods: was specialisation		
191150480	Human Movement Control: was specialisation		
191127520	Lean Six Sigma Green Belt: new elective		
191155700	Solids & Surfaces: was specialisation		