

MODULE OVERVIEW SUMMARY

Master in Mechatronics and Sensor Systems Technology (MST)

Public module overview summary for the Master in Mechatronics and Sensor Systems Technology (MST). For complete assessment rules and binding regulations, refer to the current Module Handbook, Study Plan, Specific Examination Regulation, and Thesis Handbook.

Document owner	M.Sc. Le Duy Can, MST Programme Coordinator, Faculty of Engineering, VGU
Approval authority	Dean, Faculty of Engineering, VGU
Version	v1.2
Effective date	20 Mar 2026
Review cycle	Annual (or earlier if module catalogue/curriculum changes)
Status	Public module overview summary
Primary sources	MST Curriculum; MST Study Plan; MST Module Handbook; MST Specific Examination Regulation; MST Thesis Handbook

Fundamentals	Specialization	General	Thesis
--------------	----------------	---------	--------

Semester 1

Code	Module title	Category	Type	CP	Components / options	Main assessment	Prerequisites
61MST501	Fundamentals of Sensors	Fundamentals	Compulsory	6	Fundamentals of Physical Sensors (3 CP) + either Physical Chemistry (3 CP) or Sensor Data Fusion (3 CP)	Project/Seminar 40% + Exam 60%	Basic chemistry at university level.
61MST502	Sensor Data Processing	Fundamentals	Compulsory	6	Analog and Digital Electronic Lab (3 CP) + Advanced Programming (3 CP)	Lab Report 40% + Assignments/Exam 60%	Electrical engineering, control theory, and 61MST501.
61MST503	Technology and Materials	Fundamentals	Compulsory	6	Smart Materials (3 CP) + Technology of Sensors (3 CP)	Mini tests 20% + Seminar 20% + Exam 60%	Basics of materials engineering.
61MST504	Digital Systems Analysis	Fundamentals	Compulsory	6	Digital Signal Processing (3 CP) + Digital Control Systems (3 CP)	Lab Reports 40% + Exam 60%	Programming, mathematics, DSP foundations, and control theory.
61MST505	Advanced Dynamic	Fundamentals	Compulsory	6	Advanced Control	Exam 100%	Basic control theory at

	Control				Systems (3 CP) + Modern Intelligent Control (3 CP)		university level.
--	----------------	--	--	--	--	--	-------------------

Note: Students take either Physical Chemistry or Sensor Data Fusion within 61MST501.

Semester 2							
Code	Module title	Category	Type	CP	Components / options	Main assessment	Prerequisites
61MST506	Automotive Sensor Applications	Specialization	Compulsory	6	Bus Systems (3 CP) + Communication and Visualization (3 CP)	Exam 50% + Seminar 50%	Programming knowledge and probability theory.
61MST507	Advanced Simulation	Specialization	Compulsory	6	Application of FEM Technology (3 CP) + Numerical Methods for Differential Equations (3 CP)	Exam 60% + Seminar Report 40%	Engineering mathematics at university level.
61MST508	Embedded System	Specialization	Compulsory	6	Microcontroller and Interfaces (3 CP) + Real Time Operating System (3 CP)	Exam 60% + Lab Report 40%	C/C++ programming and fundamentals from 61MST502.
61MST509	Automation	Specialization	Compulsory	6	Automation System (3 CP) + Automation System Lab (3 CP)	Lab Report 40% + Exam 60%	61MST502 and C/C++ programming.
61MST510 / 60GER007	Elective 1 / Primary German Language A1	Specialization	Elective	6	Select 6 CP from Elective 1: Compliant Mechanism Analysis + Advanced Robotics; or MEMS Technology and Applications; or Primary German Language A1.	Option-dependent; see current Module Handbook for the selected option.	Option-dependent; German A1 is a prerequisite for the double degree pathway.

Note: Students complete 6 CP in Elective 1. Primary German Language A1 is an available option and a prerequisite for the double degree pathway.

Semester 3							
Code	Module title	Category	Type	CP	Components / options	Main assessment	Prerequisites
61MST601	Environment Sensor Technology	Specialization	Compulsory	6	Environmental Process Technology (3 CP) + Environmental Lab (3 CP)	Seminar/Lab 40% + Exam 60%	61MST501 and 61MST503.
61MST602	Advanced System Engineering	Specialization	Compulsory	6	Control Lab (3 CP) + Sensors, Perception and Control System (3 CP)	Exam 50% + Lab 50%	61MST505 and relevant mathematics/control background.
61MST603	Management	General	Compulsory	6	Research Methodology (3 CP) + Leadership and Management (3 CP)	Seminar 50% + Group Project and Colloquium 50%	No specific prerequisite stated in the current handbook.
61MST604	Scientific Project / Industry Project	General	Compulsory	6	Project-based module with academic or industrial supervision.	Project presentations and oral discussion 100%	Successful completion of earlier programme modules as required by the programme.
61MST605	Elective 2	Specialization	Elective	6	Select 6 CP from: Image Processing; System Identification; Data-Driven Modeling and Optimization for Sensor Systems; or Sensor Interface Circuits.	Option-dependent; see current Module Handbook for the selected option.	Option-dependent; suitable background in signals, control, modelling, or circuits is expected.

Note: Students complete 6 CP in Elective 2. Assessment and prerequisites are option-dependent for 61MST605.

Semester 4							
Code	Module title	Category	Type	CP	Components / options	Main assessment	Prerequisites
61MST606	Thesis	Thesis	Compulsory	27	Independent master's thesis under approved supervision.	Final thesis examination according to the current SER and Thesis Handbook.	According to the current SER and Thesis Handbook.
61MST607	Final Examination	Thesis	Compulsory	3	Oral final examination in semester 4.	Oral examination 100%	According to the current SER and programme requirements.

Note: Semester 4 consists of the Thesis (27 CP) and Final Examination (3 CP). Eligibility and procedures are governed by the current SER and Thesis Handbook.

Programme note: This overview is intentionally concise and student-facing. It should be read together with the current Study Plan, Module Handbook, Specific Examination Regulation, and thesis-related regulations published for the MST programme.