

Unofficial Translation. For the purpose of understanding only!

Annex 1: English-speaking consecutive degree program Advanced Manufacturing leading to the award of the degree Master of Science (2026)
Programm Schedule

Module	1. Semester (Winter semester)	2. Semester (Summer semester)	3. Semester (Winter semester)	4. Semester (Summer semester)	Workload/ Total credit points
1. Basic module Advanced Manufacturing (Σ 25 LP)					
220000-614 Mathematics for Engineering Science	150 AS 4 LVS (V2/Ü1/P1) PVL: Sets of tasks PL: Exam				150 AS / 5 LP
231533-029 Digital Tools for Smart Manufacturing	150 AS 4 LVS (V2/Ü2) PL: Exam				150 AS / 5 LP
231231-014 Humans and Mechatronics in Manufacturing	150 AS 4 LVS (V2/Ü2) PL: Exam				150 AS / 5 LP
231834-009 Applied Materials and Composite Structures	150 AS 4 LVS (V2/S2) PL: Exam				150 AS / 5 LP
231432-008 Modelling and Idealisation in Manufacturing Simulation	150 AS 4 LVS (V2/Ü2) PL: Exam				150 AS / 5 LP
2. Specialisation modules for profile lines (Σ 30 LP) One of the seven profile lines listed below must be selected, along with the associated compulsory modules, comprising a total of 30 ECTS credits:					
2.1 Lightweight Technologies					
231032-019 Composite-based Technologies		150 AS 3 LVS (V2/Ü1) PL: Exam			150 AS / 5 LP
231036-004 Technical Textile Processes		150 AS 3 LVS (V3) PL: Exam			150 AS / 5 LP
231133-013 Recycling of Plastics		150 AS 3 LVS (V2/Ü1) PL: Exam			150 AS / 5 LP
231032-018 Anisotropic Composites			150 AS 3 LVS (V2/S1) PL: Exam		150 AS / 5 LP
231032-020 Lightweight Technologies for Bio-based Structures			150 AS 4 LVS (V2/P2) PL: Exam		150 AS / 5 LP

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231032-025 Carbon Fibre Lightweight Technologies			150 AS 4 LVS (V2/Ü2) PL: Exam		150 AS / 5 LP
2.2 Smart Manufacturing					
231732-011 Joining Technologies and Strategies			150 AS 4 LVS (V2/Ü1/S1) PL: Oral exam		150 AS / 5 LP
231537-003 Forming Process Chains		150 AS 4 LVS (V2/Ü1/P1) PL: Exam			150 AS / 5 LP
231539-006 Geometrical Product Specification and Verification		150 AS 4 LVS (V2/Ü1/P1) PL: Oral exam			150 AS / 5 LP
231533-021 Cyber-Physical Production and Robot Systems		150 AS 4 LVS (V2/Ü1/P1) PL: Exam			150 AS / 5 LP
231533-020 Machining Technologies			150 AS 4 LVS (V1/Ü1/P2) ASL: course work carried throughout the semester		150 AS / 5 LP
231534-007 Efficient Process Chains			150 AS 4 LVS (V2/Ü1/P1) PL: Exam		150 AS / 5 LP
2.3 Industrial Engineering					
231231-009 Digital Ergonomics		150 AS 3 LVS (S2/Ü1) PL: praktische Leistung mit Kolloquium			150 AS / 5 LP
231232-014 Simulation of Production and Logistics Systems			150 AS 4 LVS (V2/Ü2) PL: A simulation study running throughout the semester, with documentation of the results		150 AS / 5 LP

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231232-015 Sustainable Smart Production		150 AS 4 LVS (V2/Ü2) PL: Exam			150 AS / 5 LP
231231-011 Applied Human Factors		150 AS 4 LVS (V2/Ü2) PL: Oral exam			150 AS / 5 LP
231035-018 Resilience in Manufacturing			150 AS 2 LVS (S2) PL: Presentations and written assignments		150 AS / 5 LP
231232-008 Production Planning and Control			150 AS 4 LVS (V2/Ü2) PL: Exam		150 AS / 5 LP
2.4 Printed Functionalities					
231732-008 Printed Materials		150 AS 4 LVS (V2/S2) PL: Presentation und oral defense			150 AS / 5 LP
231732-015 Additive Manufacturing		150 AS 4 LVS (V2/S1/Ü1) PL: Document with oral defense			150 AS / 5 LP
231833-007 Surface and Interface Engineering		150 AS 5 LVS (V2/S2/P1) PL: Exam			150 AS / 5 LP
231539-007 Quality Assurance in Additive Manufacturing		150 AS 4 LVS (V2/Ü1/P1) PL: Oral exam			150 AS / 5 LP
231732-007 Structural Design of Additive Manufacturing Components			150 AS 4 LVS (V2/Ü2) PL: Exam		150 AS / 5 LP
31732-014 Joining of Additive Manufacturing Parts			150 AS 4 LVS (V2/Ü1/S1) PL: Exam		150 AS / 5 LP
2.5 Materials Engineering					

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231834-008 Materials Analysis		150 AS 4 LVS (V2/S2) PL: Exam			150 AS / 5 LP
231833-007 Surface and Interface Engineering		150 AS 5 LVS (V2/S2/P1) PL: Exam			150 AS / 5 LP
231133-015 Polymer Materials		150 AS 4 LVS (V2/S2) PL: Colloquium (Presentation und Oral exam)			150 AS / 5 LP
231133-016 Polymer Processing			150 AS 4 LVS (V2/S2) PL: Colloquium (Presentation und Oral exam)		150 AS / 5 LP
231832-009 Materials Testing			150 AS 3 LVS (V2/Ü1) PL: Exam		150 AS / 5 LP
231831-014 Lightweight Metals and Ceramics			150 AS 3 LVS (V2/Ü1) PL: Exam		150 AS / 5 LP
2.6 Mechatronics and Automation					
231131-004 Sichere Mechatronische Systeme/Safe Mechatronic Systems		150 AS 3 LVS (V2/Ü1) PL: Exam			150 AS / 5 LP
231534-021 Data Acquisition and Analysis of Manufacturing Processes		150 AS 4 LVS (V1/Ü1/S2) PL: Exam			150 AS / 5 LP
231536-007 Components and Integration of Mechatronic Systems		150 AS 4 LVS (V2/P2) PL: Exam			150 AS / 5 LP
231534-020 Design and Realisation of Mechatronic Systems I		150 AS 2 LVS (S2)			150 AS / 5 LP

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		PL: oral interim presentation and brief written report			
231536-008 Design and Realisation of Mechatronic Systems II			150 AS 2 LVS (S2) PL: final oral presentation and brief written report		150 AS / 5 LP
231536-009 Advanced Mechatronic Systems			150 AS 4 LVS (V2/S2) PL: Exam		150 AS / 5 LP
2.7 Computational Manufacturing Engineering					
220000-706 Topics in Numerical Methods		150 AS 6 LVS (V4/Ü2) PL: Exam			150 AS / 5 LP
231537-008 Simulation in der Fertigungstechnik/Simulation in Manufacturing Engineering		150 AS 4 LVS (V2/S2) PL: Exam			150 AS / 5 LP
231431-012 Applied Modelling and Simulation in Solid Mechanics I		150 AS 4 LVS (V2/Ü2) PL: Exam			150 AS / 5 LP
231431-013 Applied Modelling and Simulation in Solid Mechanics II			150 AS 4 LVS (V2/Ü2) PL: Oral exam		150 AS / 5 LP
231435-015 Computational Methods of Heat Transfer		150 AS 2 LVS (V1/Ü1) PL: short thesis with a presentation and an oral examination			150 AS / 5 LP
231432-007 Computational Modelling of Thermo-Mechanically Coupled Processes			150 AS 4 LVS (V2/S2) PL: Oral exam		150 AS / 5 LP
3. Vertiefungsmodule Electives/Soft skills (Σ 25 LP)					
Module 136004-017 is mandatory. Students whose native language is German select one module from the range 136001-004 to 136009-002 as an alternative.					

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136004-017 Deutsch für Ingenieure (Maschinenbau) (Niveau B1+)			150 AS 6 LVS (Ü5/P1) 2 ASL: Exam, oral group assessments conducted throughout the semester		150 AS / 5 LP
Modules totaling 20 ECTS, which are not in the chosen profile line of the student, must be selected from the modules 136004-007 through 261033-310. A maximum of 10 ECTS credits may be obtained from the language modules 136004-007 through 136009-002. Language modules corresponding to the student's native language may not be selected. Students whose native language is not German and who cannot demonstrate German language proficiency at level B1 of the Common European Framework of Reference for Languages (CEFR) are required to take module 136004-007.					
136004-007 Deutsch als Fremdsprache III (Niveau B1) (The module can be taken in any semester.)	150 AS 4 LVS (Ü4) ASL: Exam				150 AS / 5 LP
136001-004 Englisch in Studien- und Fachkommunikation III (Niveau C1) (The module can be taken in any semester.)		150 AS 4 LVS (Ü4) 2 ASL: Exam, Oral exam			150 AS / 5 LP
136001-006 Englisch in Studien- und Fachkommunikation V (Niveau C1) (The module can be taken in any semester.)			150 AS 4 LVS (Ü4) 2 ASL: written paper with presentation and defense, oral group discussion		150 AS / 5 LP
136001-007 Englisch in Studien- und Fachkommunikation VI (Niveau C1) (The module can be taken in any semester.)			150 AS 4 LVS (T4) ASL: Summary of a technical text and discussion		150 AS / 5 LP
136005-001 Französisch I (Niveau A1) (The module can be taken in any semester.)		150 AS 4 LVS (Ü4) ASL: Exam			150 AS / 5 LP
136005-002 Französisch II (Niveau A2) (The module can be taken in any semester.)			150 AS 4 LVS (Ü4) ASL: Exam		150 AS / 5 LP
136009-001 Spanisch I (Niveau A1)		150 AS 4 LVS (Ü4)			150 AS / 5 LP

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<i>(The module can be taken in any semester.)</i>		ASL: Exam			
136009-002 Spanisch II (Niveau A2) <i>(The module can be taken in any semester.)</i>			150 AS 4 LVS (Ü4) ASL: Exam		150 AS / 5 LP
231833-010 Electroplating and Thermal Coating			150 AS 4 LVS (V2/Ü1/P1) PL: Exam		150 AS / 5 LP
231831-012 Complex Materials for Manufacturing		150 AS 3 LVS (V2/P1) PL: Exam			150 AS / 5 LP
231035-005 Instrumentation			150 AS 3 LVS (V1/P2) PL: Exam		150 AS / 5 LP
231733-011 Industrial Robotics and Periphery			150 AS 4 LVS (V2/Ü2) PL: Exam		150 AS / 5 LP
232033-012 Fundamentals of Hydrogen Technologies			150 AS 4 LVS (V2/Ü1/P1) PL: Oral exam		150 AS / 5 LP
232033-013 Fuel Cells and Fuel Cell Systems		150 AS 4 LVS (V2/Ü1/P1) PL: Oral exam			150 AS / 5 LP
231435-016 Techno-Economic Analysis of Hydrogen Energy Systems		150 AS 3 LVS (V2/Ü1) PL: short thesis with a presentation and an oral examination			150 AS / 5 LP
261033-312 Life Cycle-oriented Management		150 AS 3 LVS (V2/Ü1) PL: Exam			150 AS / 5 LP
261042-301 Sustainability Management		150 AS 3 LVS (V2/Ü1) PL: Exam			150 AS / 5 LP
261033-310 Resource Efficiency from an Economic Perspective			150 AS 3 LVS (V2/Ü1) PL: Exam		150 AS / 5 LP
4. Modul Applied Engineering Project					

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230100-860 Applied Engineering Project			300 AS 4 LVS (PR2/E1/S1) 2 PL: Project work, Oral exam		300 AS / 10 LP
5. Modul Master-Arbeit					
230100-960 Master Thesis				900 AS 2 LVS (S2) 2 PL: Master Thesis, Oral exam (Presentation and Colloquium)	900 AS / 30 LP
Examples: Gesamt LVS bei Wahl von Studienrichtung 2.1 Lightweight Technologies sowie der Module 136004-007, 231732-015, 231833-007 und 261042-301 2.2 Smart Manufacturing sowie der Module 136004-007, 231232-015, 231537-008 und 261042-301 2.3 Industrial Engineering sowie der Module 136004-007, 231435-016, 261033-312 und 261042-301 2.4 Printed Functionalities sowie der Module 136004-007, 231539-008, 231832-009 und 231435-015 2.5 Materials Engineering sowie der Module 136004-007, 231133-013, 231732-008 und 231831-012 2.6 Mechatronics and Automation sowie der Module 136004- 007, 231533-021, 231537-008 und 231733-011 2.7 Computational Manufacturing Engineering sowie der Module 136004-007, 231732-007, 231534-021 und 231435- 016	2.1-2.7: 24	2.1: 21 2.2: 23 2.3: 20 2.4: 23 2.5: 23 2.6: 21 2.7: 23	2.1: 21 2.2: 22 2.3: 20 2.4: 21 2.5: 20 2.6: 20 2.7: 22	2.1-2.7: 2	2.1: 68 LVS 2.2: 71 LVS 2.3: 66 LVS 2.4: 70 LVS 2.5: 69 LVS 2.6: 67 LVS 2.7: 71 LVS
Examples: Gesamt AS bei Wahl von Studienrichtung 2.1 Lightweight Technologies sowie der Module 136004-007, 231732-015, 231833-007 und 261042-301 2.2 Smart Manufacturing sowie der Module 136004-007, 231232-015, 231537-008 und 261042-301 2.3 Industrial Engineering sowie der Module 136004-007, 231435-016, 261033-312 und 261042-301	2.1-2.7: 900	2.1-2.7: 900	2.1-2.7: 900	2.1-2.7: 900	2.1-2.7: 3600 AS / 120 LP

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2.4 Printed Functionalities sowie der Module 136004-007, 231539-008, 231832-009 und 231435-015 2.5 Materials Engineering sowie der Module 136004-007, 231133-013, 231732-008 und 231831-012 2.6 Mechatronics and Automation sowie der Module 136004-007, 231533-021, 231537-008 und 231733-011 2.7 Computational Manufacturing Engineering sowie der Module 136004-007, 231732-007, 231534-021 und 231435-016					
PL	Prüfungsleistung (Examination performance)	S	Seminar (Seminar)		
PVL	Prüfungsvorleistung (Pre-examination performance)	Ü	Übung (Exercise)		
ASL	Anrechenbare Studienleistung (Recognizable study performance)	T	Tutorium (Tutorial)		
AS	Arbeitsstunden (Working hours)	P	Praktikum (Practical work)		
LP	Leistungspunkte (Credit points)	E	Exkursion (Excursion)		
LVS	Lehrveranstaltungsstunden (Teaching hours)	K	Kolloquium (Colloquium)		
V	Vorlesung (Lectures)	PR	Projekt (Project)		
FS	Fallstudie (Case study)				