



MASTER'S DEGREE COURSE IN
MECHANICAL ENGINEERING FOR PRODUCT INNOVATION
Study programme for students enrolled in the academic year 2025-2026

1st YEAR	
MANDATORY COURSES	CREDITS
MECHANICS OF MATERIALS AND STRUCTURES	9
ADVANCED THERMODYNAMICS	9
METALLIC ALLOYS FOR PRODUCT INNOVATION	9
DYNAMICS AND VIBRATIONS	9
SELECTION AMONG 1 OF THE FOLLOWING TRACKS	
TRACK A – SUSTAINABLE MATERIALS AND DESIGN	CREDITS
ENERGY MANAGEMENT IN INDUSTRY	6
LIGHTWEIGHT DESIGN WITH COMPOSITES	6
SELECTION CRITERIA OF METALLIC ALLOYS	6
1 FREE-CHOICE COURSE AMONG THE FOLLOWING:	CREDITS
MAINTENANCE MANAGEMENT (1st YEAR)	6
ADDITIVE MANUFACTURING (2nd YEAR)	6
TRACK B – MULTIPHYSICS SIMULATION	
MULTIBODY SYSTEM DYNAMICS AND SIMULATION	6
FINITE ELEMENTS FOR STRUCTURAL DESIGN	6
SIMULATION OF METALLURGICAL PROCESSES	6
1 FREE-CHOICE COURSE AMONG THE FOLLOWING:	CREDITS
APPLIED AERODYNAMICS (1st YEAR)	6
ADVANCED METHODS FOR GEOMETRIC MODELING (2nd YEAR)	6
TRACK C – SMART DIGITAL MANUFACTURING	
DESIGN OF AUTOMATIC MACHINES	6
MAINTENANCE MANAGEMENT	6

QUALITY AND METROLOGY	6
1 FREE-CHOICE COURSE AMONG THE FOLLOWING:	CREDITS
MULTIBODY SYSTEM DYNAMICS AND SIMULATION (1st YEAR)	6
ADDITIVE MANUFACTURING (2nd YEAR)	6
TRACK D – ADVANCED MECHANICAL DESIGN	CREDITS
LIGHTWEIGHT DESIGN WITH COMPOSITES	6
FINITE ELEMENTS FOR STRUCTURAL DESIGN	6
DESIGN OF AUTOMATIC MACHINES	6
1 FREE-CHOICE COURSE AMONG THE FOLLOWING:	CREDITS
APPLIED AERODYNAMICS (1st YEAR)	6
ADVANCED DESIGN WITH POLYMERS AND POLYMERIC COMPOSITES	6
2nd YEAR	
MANDATORY COURSES	CREDITS
PRODUCT AND PROCESS ENGINEERING	9
ASSEMBLY SYSTEMS AND LOGISTICS	9
PRODUCT INNOVATION MANAGEMENT	9
SELECTION AMONG 1 OF THE FOLLOWING PATHS	
TRACK A - AUTOMATIC MACHINES AND SMART INDUSTRY ELECTIVE COURSES	
ADVANCED DESIGN WITH POLYMERS AND POLYMERIC COMPOSITES	6
POLYMERS TECHNOLOGY AND RECYCLING	6
URBAN MINING FOR CIRCULAR ECONOMY	6
TRACK B - MULTIPHYSICS SIMULATION ELECTIVE COURSE	
NUMERICAL THERMO-FLUID DYNAMICS	6
MAINTENANCE MANAGEMENT	6

DIGITAL TWINS FOR AUTOMATION	6
TRACK C - SMART DIGITAL MANUFACTURING ELECTIVE COURSES	
DIGITAL TWINS FOR AUTOMATION	6
SIMULATION OF METALLURGICAL PROCESSES	6
ENERGY MANAGEMENT IN INDUSTRY	6
TRACK D – ADVANCED MECHANICAL DESIGN ELECTIVE COURSES	
ADVANCED METHODS FOR GEOMETRIC MODELING	6
DIGITAL TWINS FOR AUTOMATION	6
MULTIBODY SYSTEM DYNAMICS AND SIMULATION	6
12 ADDITIONAL FREE-CHOICE CREDITS	
INTERNSHIP/PRACTICAL TRAINING	6
FINAL THESIS/DISSERTATION	15

ANY FURTHER NOTES

Educational activities are organized in semesters.

Class attendance is not compulsory but strongly recommended.

From the middle of the first semester of the first year, students can choose one of the following tracks:

1. Sustainable materials and design
2. Multiphysics simulation
3. Smart digital manufacturing
4. Advanced mechanical design

Each track features specific courses that are culturally aligned with its main topic. This structure allows students to tailor their education according to their specific interests and career goals.