

## Modern Mechanical Engineering Manufacturing and Testing Equipment

### 1. Admission Requirements:

#### • Prerequisites:

- Graduates with a bachelor's degree from a bachelor's degree course or graduates with an equivalent degree from a long-term university course may apply for admission to the master's degree course.
- Non-EU Citizens - Contingent upon the presentation of the Graduation Certificate from the preparatory year (excluding those who have completed their previous studies in the Romanian language) and obtaining the Letter of Acceptance issued by the Ministry of Education.
- EU Citizens + Swiss Confederation - Contingent upon the presentation of the Graduation Certificate from the preparatory year (excluding those who have completed their previous studies in the Romanian language) and the recognition of their studies by the National Centre for Recognition and Equivalence of Diplomas (CNRED).

#### • Entrance Exams:

- The admission process includes a structured interview on a predetermined topic.
- Admission to the Master's programs, for both free and fee-based studies, is contingent on the available positions. The admission competition is organized in descending order of the admission averages obtained by the candidates, with a breakdown of 50% for the license exam grade and 50% for the interview.

### 2. Degree Levels:

- Master's Degree: 2-year program following a bachelor's degree.

### 3. Curriculum:

#### • Core Courses:

**Mandatory courses** that all students in the program must take:

#### **Specialized Technical Courses:**

- 3D Scanning Techniques, Reverse Engineering, and Advanced Modeling
- CAD Techniques for Dynamic Modeling of Body Systems
- Modeling Tribological Systems in Mechanical Engineering
- Machining, Machining, and Post-Processing Centers for Precision Machining
- Testing and Simulation of Rheological Damping Systems

- Modern Analysis and Testing Equipment in Surface Engineering
- Anti-Vibration Isolation, Vibroacoustic Measurement, and Diagnosis of Cars
- Procurement Equipment and Systems for Mechanical Testing
- Rapid Prototyping Equipment and Technologies

**Complementary Courses:**

- Ethics and Academic Integrity

**Practice:**

- Specialized Practice 1, 2, 3, 4
- Practice for the Elaboration of the Dissertation

**Optional Courses:**

- Creativity and Inventiveness.
- Intellectual Property and Copyright.
- Drafting Projects for Financing Programs.
- Elaboration of the Dissertation Project.

• **Electives:**

**Optional Course 1:**

- Equipment for Micro-Processing by LASER Ablation
- Industrial Technologies Using LASER Ablation

**Optional Course 2:**

- Measurement, Control, and Monitoring of Smart Manufacturing Processes
- Advanced Mechatronics and Micro-Mechatronics

**Optional Course 3:**

- Modern Equipment and Technologies for Thin Layers
- Industrial Equipment for Surface Engineering

• **Major/Concentration:**

The study program ensures the development of the following professional skills:

- Identify the underlying phenomena and principles that govern the operation of modern measuring, testing, and manufacturing equipment in order to address complex issues within the realm of mechanical engineering.
- Utilize advanced design, modeling, and simulation software applications proficiently to solve intricate mechanical engineering challenges.
- Manage and resolve specific vibroacoustic and tribological diagnostic issues aimed at enhancing the reliability and maintainability of contemporary manufacturing and testing equipment.

- Address complex tasks related to smart manufacturing and process monitoring through the application of advanced knowledge in mechanical engineering.
- Effectively program and operate modern equipment for measuring, testing, and smart manufacturing.

• **General Education Requirements:**

- Successful completion of the mandatory courses, seminars and labs, completion of the three internships and the dissertation thesis.

4. **Credits:**

- Each semester carries a weight of 30 ECTS, with a total of 120 ECTS required for graduation.

5. **Internships and Practical Experience:**

- Students have the opportunity to carry out their internship in companies and enterprises in Dambovită county and its surroundings, as well as in the teaching and research laboratories of the faculty or the Institute for Scientific and Multidisciplinary Research.

6. **Research Requirements:**

- The master's thesis integrates a substantial research component directly tied to the thematic focus of the study. This endeavor encompasses specialized practices throughout all semesters, coupled with practical applications designed to enhance the development of the dissertation project.

7. **Academic Advising:**

- A supervising professor is assigned to each year of study and partially assisted activities are coordinated by supervising professors.
- The semester-long professional practice activity is carried out under the supervision of two coordinating professors.
- The dissertation thesis is also supervised by a scientific supervisor.

8. **Extracurricular Activities:**

- Students have the option to participate in clubs, organizations, or extracurricular activities related to their field of study or personal interests.

9. **Examinations:**

- The courses will span 14 weeks during each semester and conclude with oral, written, or practical examinations. Successful completion of these exams is mandatory to earn study credits.

10. **Thesis Defense:**

The prerequisites for presenting a dissertation thesis before a committee include:

- Attainment of 120 ECTS credits throughout the program.

- Obtaining the approval of the scientific supervisor to present the dissertation thesis.

#### **11. Graduation Requirements:**

- Graduation necessitates the fulfilment of all program requirements, encompassing the completion of the required credit hours and the successful completion of the dissertation thesis.

#### **12. Degree Awarding:**

- Master's Degree in Modern Mechanical Engineering Manufacturing and Testing Equipment.