Advanced Materials

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:
        - Nanocomposites and Intermetallic Compounds
        - Advanced Materials and Processes in Powder Metallurgy
        - Thermodynamics and Kinetics of Solid State Transformations
        - Research Methodology
        - Interphase Phenomena in Obtaining Special Alloys
        - Thermo-mechanical Processing of Special Steels
        - Micro and Nanotechnologies of Material Processing

- Refractory Materials
- Processing of Advanced Materials
- Magnetic Materials
- Advanced Functional Materials
- Unconventional Methods of Material Processing
- Ceramic Matrix Composite Materials
- Amorphous Materials

Complementary Course:

- Ethics and Academic Integrity

Practice:

- Specialized Practice 1-4
- Practice for the Elaboration of the Dissertation

Elaboration of the Dissertation Project

- **Electives:**

Optional Course 1:

- Composite Materials with Ceramic Matrix
- Refractory Materials

Optional Course 2:

- Magnetic Materials
- Amorphous Materials

Optional Course 3:

- Unconventional Material Processing Methods
- Advanced Functional Materials

- **Major/Concentration:**

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

- Addressing intricate Materials Engineering challenges through advanced engineering science knowledge.
- Applying mathematical modeling and optimization to tailor technological processes in material processing.
- Proficiently utilizing software applications for precise material characterization.
- Managing projects focused on designing and characterizing advanced materials.
- Leading the design, realization, valorization, and quality assurance of advanced materials with a commitment to sustainable development.

- **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 Dambovita 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 Advanced Materials.