Study Regulations Framework for the "European Master Programme in Advanced Materials Science and Engineering (AMASE)"

The

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Hereafter referred to as the Consortium Universities, have decreed the following Joint Study Regulations for the Joint European Master Programme in Advanced Materials Science and Engineering (AMASE).

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I. General Conditions

§1 Scope

(1) This Study Regulations Framework governs the content and structure of the Joint European Master Programme in Advanced Materials Science and Engineering (AMASE). The course of study is based on a joint Consortium Agreement and is carried out by the following universities (hereafter referred to as the consortium):

- Saarland University (UdS), Saarbrücken, Germany,
- University of Lorraine (UL), Nancy, France,
- Technical University of Catalonia, Barcelona East School of Engeneering (UPC-EEBE), Barcelona, Spain
- Luleå University of Technology (LTU), Luleå, Sweden
- Montanuniversität Leoben (MUL), Leoben, Austria
- University of Padua (UNIPD), Padua, Italy

(2) The consortium universities jointly issue this Study Regulation Framework for the study programme, which regulates, in particular, the conditions for admission, the admission procedure, the requirements for the conferral of a Master's degree, the examination modalities and the performance assessments as well as the award of credit points.

(3) This Study Regulations Framework defines a common framework for the study regulations in force at the consortium universities.

§2 Administration

The UdS, the UL, the UPC-EEBE, the LTU, the MUL and the UNIPD are the joint governing bodies of the study programme, represented by their appointed members of the Steering Committee. The study programme is administrated by the UdS through the European School of Materials (EUSMAT). Details regarding the governing bodies and other relevant boards and committees are regulated in a joint Consortium Agreement.

§3 Education objectives

(1) The programme is a research-oriented study programme in the field of Materials Science and Engineering. The European Master Programme AMASE outlined in this regulation provides high-level multinational and research-oriented education in materials science and

engineering, including fundamental knowledge, research methodologies and advanced concepts in the field. It qualifies students to undertake independent scientific work. It provides intercultural, complementary and multilingual skills in at least two different instruction languages depending on the selected Entrance and Second Universities. The corresponding main instruction languages are the following:

- English at LTU, MUL and UNIPD,
- German at UdS,
- French at UL,
- Spanish at UPC.

(2) The regular period of study for the completion of the course is 2 years (4 semesters).

(3) The examination procedure, defined in this regulation, asserts if the candidate possesses solid professional expertise, if they have an overview of the relationships within the subjects in the field and if they are able to work independently according to scientific methods.

§4 Awarded degrees

Upon successful completion of the course of study the two universities where the student has jointly studied award the academic title of: Master of Science with the following denominations for each degree-awarding university:

- UdS: Master of Science, abbreviated with “M.Sc.”
- UL: Master, mention "Science pour l’ingénieur et Science des matériaux". Parcours «AMASE », translated in English to Master of Science, Mention in Materials Science and Engineering.
- UPC-EEBE: “Máster Universitario Erasmus Mundus en Ciencia e Ingeniería de Materiales Avanzados (AMASE)” and in English “Erasmus Mundus Master in Advanced Materials Science and Engineering (AMASE)”.
- LTU: Teknologie Masterexamen med huvudområde Materalteknik “Master of Science (2 years) with a major in Materials Science and Engineering”.
- MUL: Master of Science, abbreviated with “M.Sc.”
- UNIPD: Laurea Magistrale in Ingegneria dei Materiali, LM-53; in English: Master´s Degree in Materials Engineering.

II. Master Study

§5 Modules and credits

(1) The scope of academic achievements is documented by the European Credit Transfer System (ECTS). The curriculum is structured in such a way that full-time students can gain 60 ECTS (credit points -CP) per year. One credit point corresponds to approximately 30 hours of study time according to the ECTS.

(2) The subject matter is integrated into learning units that are coherently structured in terms of contents and time, which are termed modules. A number of credits is awarded for every successfully completed module; these credit points correspond to the average workload required for the successful completion of the module. An explicitly defined performance assessment must be submitted for the successful completion of a module.

§6 Structure of Master’s Degree Programme

(1) The joint study programme implies that the study is carried out at two universities of the consortium, with the following mobility scheme:

- First and second semester at one university of the consortium (called Entrance University) with the acquisition of at least 60 ECTS;
- Third semester at a second university of the consortium (called Second University) with the acquisition of at least 30 ECTS;
- Accomplishment of the master’s thesis at the Entrance University or at the Second University with the acquisition of 30 ECTS.

Candidates express their preference at application stage. The Steering committee will assign the individual study track to each selected student, according to the candidate background, motivation and career plans. Modifications can be considered by the Steering committee only for exceptional case and upon the presentation of a formal request by the student.

In special cases, the Steering Committee is able to permit an exception from the aforementioned scheme if this is in accordance with the local examination boards.

(2) The studies are structured in different modules. Special module elements (lectures, exercises, workshops, tutorials, laboratory and project work) need to be passed successfully. Also, every candidate must write a master's thesis as their final scientific work.

(3) For successful completion of the European Master programme, students have to achieve 120 ECTS.

90 ECTS result from examinations in the different modules/module elements: 60 ECTS in the first year (first and second semester) and 30 ECTS in the second year. The master's thesis represents 30 ECTS.

§7 Modules, credits and specialisations

The whole programme is composed of the following parts:

(1) The Adaptation Phase (at least 25 ECTS) is normally done in the first semester and includes the following modules:

- *Structure and Properties of Materials (at least 12 ECTS)*
- *Materials Characterisation (at least 5 ECTS)*
- *Materials Engineering and Processing Technologies (at least 5 ECTS).*

(2) The Specialisation Track (at least 50 ECTS): the student has to select one of the following specialisation tracks and obtains at least 25 ECTS at the Entrance University (normally in the 2nd semester) and at least 25 ECTS at the second University (normally in the third semester):

- Track 1: Advanced Metallic Materials (Design, characterisation and processing)
- Track 2: Polymers and composites (Modelling, processing and tailored properties)
- Track 3: Smart surfaces and functional materials (Coating, structuring and functionalisation)
- Track 4: Advanced processing technologies (emphasis on additive manufacturing, circular economy)
- Track 5: Bio/Nanomaterials (including special applications).

(3) Transversal Skills (15 ECTS): 10 ECTS have to be obtained from the Entrance University and 5 ECTS from the Second University, from the following modules:

- Participation in Integration Week and Professional Summer School organized by the consortium once a year (2 ECTS)
- Language Courses (at least 6 ECTS)
- Additional Transversal Skills (at least 3 ECTS)

(4) Master's thesis (30 ECTS), the master's thesis must be written at the Entrance or at the Second University, usually in the 4th Semester.

Each year, the Examination Boards of each university of the consortium provide a catalogue of module elements for the modules in Paragraph (1) to (4), as well as their assigned Credit Points. The proposed module elements and their assigned Credit Points must be approved by the Steering Committee of the programme.

§8 Examination Board and Examination Secretary

Each university has a local Examination Board and Examination Secretary. The composition of local Examination Boards and their duties and responsibilities are regulated by the individual Exam Regulations of each university of the consortium.

§9 Examination procedure, examination language

(1) Examination procedure and regulations including examination language are regulated by the individual Exam Regulations of each university of the consortium.

(2) The requirements and work load for the acquisition of ECTS, the form and rules of partial examinations and the elements of modules are regulated by the individual Exam Regulations of each university of the consortium.

§10 Performance assessment, examination requirements, examination modes, grading system

(1) The performance assignments required for the completion of a module will be assessed. A distinction will be made between modules for which grades are awarded and those for which grades are not awarded.

(2) For graded modules each university will use its own grading system according to local regulations.

(3) The grading is completed by an ECTS Grade, which gives information about the relative performance of the students. The ECTS evaluation scale subdivides the students according to a statistical criterion. This criterion allows classifying the individual student performance compared to the other students. Successful students receive the following grades:

A the best 10 %
B the next 25 %
C the next 30 %
D the next 25 %
E the next 10 %

This method is to be used in case the reference group is large enough to make a suitable statistical conclusion. In the case of excessively small groups pragmatic solutions should be applied.

(4) For transferring the marks between the universities, the Steering Committee will provide a translation scale based on statistics of the marks achieved by students at each university. This table will

be updated regularly with new statistics.

§11 Assessment of academic achievements

The local Examination Boards and Examination Secretary, or equivalent, supervise the achievements of the students and take the necessary measures in case the minimum requirements according to the local regulations are not achieved. The local Examination Secretaries inform the coordinator and the Steering Committee of the students' achievements.

§12 Repetition of exams and/or Master's Thesis

Possibilities and conditions for repetition of exams and/or master's thesis are regulated by the local exam regulations of the consortium universities.

§13 Registration for exams, withdrawal, absence, academic fraud, nullity of exams, access to records

Regulations for exam registration, withdrawal, absence, academic fraud, nullity of exams and access to records follow the rules of the local exam regulations of the consortium universities.

§14 Recognition of study periods, academic performance and exam performance

Study periods, academic performances and exam performances generated in the frame of the joint master study AMASE at any of the partner universities will be recognized by the other universities of the consortium through presenting the corresponding transcript of records. Study periods, academic performances and exam performances completed at universities not belonging to the consortium will be recognized according to the rules of the local exam regulations of each university of the consortium.

§15 Admission to the Master programme

(1) Being admitted to the Master programme requires a BSc. degree or equivalent in the field of materials science, materials engineering, physics, chemistry, or other engineering disciplines.

(2) Admission requires sufficient knowledge of the language of the Entrance University. For candidates with admission qualifications obtained in a foreign country this should be demonstrated with language certificates. The local examination board decides whether these are accepted.

(3) Candidates will be admitted for the master programme AMASE if they comply with the requirements in paragraphs (1) and (2) and if they are especially suited for these studies. Special aptitudes will be demonstrated through fundamental knowledge, as broad as possible, in several of the following fields:

- Mathematics (single and multivariable calculus, ordinary differential equations and linear algebra).
- Physics (with some knowledge of solid-state physics).
- Chemistry (both inorganic and organic).
- Physical chemistry (thermodynamics, kinetics).

(4) Candidates apply within the deadlines defined by the consortium with the following documentation:

- Copy of passport (or ID for EU students only)
- curriculum vitae of the candidate,
- certificates and diplomas of previous studies which should give information about the completed modules and their examination results (e.g. in the form of a Diploma Supplement),
- statement of purpose
- if applicable, letters of recommendation,
- proof of sufficient knowledge of the Entrance University language,
- proof of basic knowledge of the instruction language of the Second University.

(5) It is the responsibility of the local examination boards and the Steering Committee to confirm the fulfilment of the admission requirements for each applicant according to paragraphs (1) and (2) and the applicant's special aptitude for the programme, and to decide on their admission to the AMASE master's programme. The following criteria should be considered for the assessment of their aptitude for the programme:

- contents and grades in previous study periods,
- technical relation of the previous study to the field of materials science and engineering,
- language knowledge,
- motivation and success perspectives,
- previous experience in research and development in the field of materials science and engineering at universities and/or research centres or in the industry.

§16 Study plan

(1) At each university the corresponding organisational board provides a study plan based on these Framework Study Regulations and the study regulations in force at each university. The study plans will be published in applicable form.

(2) The study plan includes more detailed information about the individual courses and a recommendation for a convenient assembly of the study.

§17 Master's thesis: topic, procedure, duration, grading, approval

(1) The Master's Thesis is a scientific work that has to be accomplished independently or under guidance. It should show that the candidate has the ability to work out a technical problem in a given time, in the field of materials science and engineering, according to the scientific methods, and to present the results in an appropriate way.

(2) The Master´s Thesis shall be written in English or in the local instruction language of the corresponding partner University with a summary in English.

(2) Grading of Master´s Thesis, approval, re-sits and modalities of defence follows the local regulations in place at the corresponding partner university.

§18 Approval of master's degree study

(1) The course of study for the master's degree programme is deemed to be successfully completed when all requirements have been fulfilled and when a minimum of 120 ECTS overall have been acquired in accordance with § 6 and § 7.

(2) The overall grade is calculated from the weighted average of the grades of all the credit points awarded for each individually graded, successfully completed module of the master's programme. To calculate the overall grade, the local grades are transferred according to the conversion table as described in § 9 Abs (4). The overall grade is calculated precisely; the result is rounded to one decimal place. The grades of the Language courses are not considered for the overall grade.

§19 Award of final degree

(1) In case of a successfully completed master, the final degree can be a double or a joint degree. All Consortium Universities decides together according to the consortium's regulations in place for the respective cohort if joint or double degrees will be delivered. The students should be informed when they begin the programme about the type of degree that will be issued.

(2) Application for conferral of joint master's degree: once the candidate has completed all the requisite courses and submitted the necessary academic achievements for the master's degree, he or she can apply to the AMASE coordination office and the local examination secretaries, or equivalent, for the conferral of the master's degree. The modalities of the application will be made public in the appropriate manner.

(3) Application for conferral of double master's degrees: once the candidate has completed all the requisite courses and submitted the necessary academic achievements for the master's degrees, he or she can apply to the local examination secretaries, or equivalent, for the conferral of the Master's degree. The modalities of the application will be made public in the appropriate manner.

(4) The award of the "Master of Science" title is completed with the presentation of two signed national degrees (double degree) or the joint degree. In case of a double degree the national awards are signed by the responsible person according to the local study regulations of the university where the student has studied and bear the seal of the respective university. The respective documents include the denomination of the title in the national system of the university where the student has studied according to § 4. In case of a joint degree the award is signed by the responsible persons according to the local study regulations of the two universities where the student has studied and bears the respective university seals. It includes the denomination of the title in the national system of the two universities where the student has studied according to § 4. If national law imposes it, also a national degree from the university(is) where he/she studied will be awarded.

(5) The diploma may include, depending on local regulations, the overall grade in the ECTS system calculated according to §18 (2) and in the grading system of the degree awarding universities. In case of joint degree, the university where the student achieves his master's thesis issue the Joint Master's Diploma which is co-signed by the second university.

(6) Each university may issue a separate certificate of equivalence to compare the joint master's degree with a comparable national degree commonly issued in their country.

(7) In those cases where it is still not possible to deliver a joint degree due to local regulations, a common joint certificate bearing the seals of all four universities is issued by the coordinator.

§20 Diploma Supplement and Transcript of Records

With the master's degree(s), a Joint Diploma Supplement and a Transcript of Records is delivered to the students. The Joint Diploma Supplement will be delivered by the coordinator and provides standardised information about the degree(s).