

## Diploma Supplement

This Diploma Supplement model was developed by the European Commission, Council of Europe and UNESCO/CEPES. The purpose of the supplement is to provide sufficient independent data to improve the international 'transparency' and fair academic and professional recognition of qualifications (diplomas, degrees, certificates, etc.). It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It should be free from any value judgements, equivalence statements or suggestions about recognition. Information in all eight sections should be provided. Where information is not provided, an explanation should give the reason why.

### 1. INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

1.1. *Family Name:*

1.2. *Given Name:*

1.3. *Date of Birth (day/month/year):*

*Place of Birth:*

*Nationality:*

1.4. *Student ID at 1<sup>st</sup> institution:*

*Student ID at 2<sup>nd</sup> institution:*

has followed the academic path outlined below:

Year	Semester	Institution	Status	Country	Language of Instruction
	1				
1					
	2				
	3				
2					
	4				

## **2. INFORMATION IDENTIFYING THE QUALIFICATION**

### **2.1 Date of Issue**

### **2.2 Name of Qualification and (if applicable) Title Conferred in official translation to English**

Master of Science – M.Sc.

### **2.3 Main Field(s) of Study for the Qualification**

Materials Science and Engineering

### **2.4 Name (in original language) and Status of Institution awarding the Qualification**

Universität des Saarlandes (UdS) – University / State Institution  
Naturwissenschaftlich-Technische Fakultät III – Chemie, Pharmazie, Bio- und  
Werkstoffwissenschaften

### **2.5 Name (in original language) and Status of Institution (if different from 2.5) administering Studies (in original language)**

Consortium of the Joint European Master Programme AMASE:

Universität des Saarlandes (UdS) (Coordinator of all activities) – University / State Institution

Luleå tekniska universitet (LTU) – University / State Institution

Universitat Politècnica de Catalunya (UPC) – University / State Institution

Université de Lorraine (UL) – University / State Institution

### **2.6 Language(s) of Instruction / Examination**

Universität des Saarlandes (UdS) – German, Examination: German/English

## **3. INFORMATION ON THE LEVEL OF THE QUALIFICATION**

### **3.1. Level of Qualification**

Graduate - Second Degree

### **3.2. Official Length of Programme**

Two years (120 ECTS)

### **3.3. Access Requirement(s)**

Bachelor degree or equivalent in the field of Materials Science and Engineering, Physics, Chemistry, or other engineering disciplines.

Sufficient knowledge of the language of the first hosting university.

## 4. INFORMATION ON THE CONTENTS AND RESULTS GAINED

### 4.1 Mode of Study

Full time

Study in two of the universities of the Consortium of the Joint European Master Programme AMASE (See 1.4)

### 4.2 Degree Requirements

#### Programme Requirements / Qualification Profile of the Graduate

- The students must complete 120 ECTS during the two-year programme, 60 ECTS per year and spend at least one semester at the second university obtaining at least 30 ECTS.
- Minimum 9 and maximum 12 ECTS are reserved for compulsory language courses: minimum 7 and maximum 9 ECTS in the first year and minimum 3 and maximum 5 ECTS in the third semester.
- The programme is divided into an adaptation phase (1<sup>st</sup> Semester), a specialization phase (2<sup>nd</sup> and 3<sup>rd</sup> Semester) and the master thesis phase (4<sup>th</sup> Semester).
- In the adaption phase, at least 30 Credit Points must be earned. At least 25
  - Credit Points must be earned from the exams of the module elements of the following
  - modules:
- Structure and Properties of Materials (between 12 and 15 ECTS)
- Materials Characterization (between 5 and 8 CP)
- Materials Engineering and Processing Technologies (between 5 and 8 ECTS)
- In the specialization phase (2<sup>nd</sup> and 3<sup>rd</sup> Semester), the student has to choose one of 5 tracks. In the chosen track, 53 ECTS has to be earned.
  - Track 1: Advanced metallic materials (design, characterization and processing)
  - Track 2: Polymers and composites (modelling, processing and tailored properties)
  - Track 3: High performing surfaces (coating, structuring and functionalization)
  - Track 4: Materials engineering and manufacturing technologies
  - Track 5: Bio/ Nano materials (including special applications)
- The master thesis in one of the areas of specialisation comprehends 30 ECTS.

All graduates of the AMASE Programme will be able to:

- Take responsibility for an industrial research or development project,
- Start doctorate studies,
- Reinforce the research teams within the consortium or in industrial, university laboratories in their country of origin as well as in similar institutions world-wide,
- Adapt easily to working in new countries/new cultures,
- Work in international networks as required by an increasingly globalized industrial and scientific environment,
- Transfer their knowledge to other students and work as a multiplier, especially in their home countries,
- Integrate multinational work teams (industry or universities) with the advantage of the language skills and cultural knowledge gained during the Master Programme.

**4.3 Programme Details (e.g. Modules or Units studied), and the individual Grades/Marks/Credits obtained:**

See "Transcript of Records" issued by UdS for a complete list of courses taken and grades obtained at Universität des Saarlandes.

**4.4 Grading Scheme and, if available, Grade Distribution Guidance**

German grading scheme: c.f. to 8.6

**4.5 Overall Classification of the Qualification (in original language)**

c.f. to Transcript of Records and Diploma Document  
(Courses, lectures, exercises, practicum: 75%, Master thesis 25%)

**5 INFORMATION ON THE FUNCTION OF THE QUALIFICATION****5.1 Access to Further Study**

The double degree of the European Master Course allows the students to start a doctorate programme.

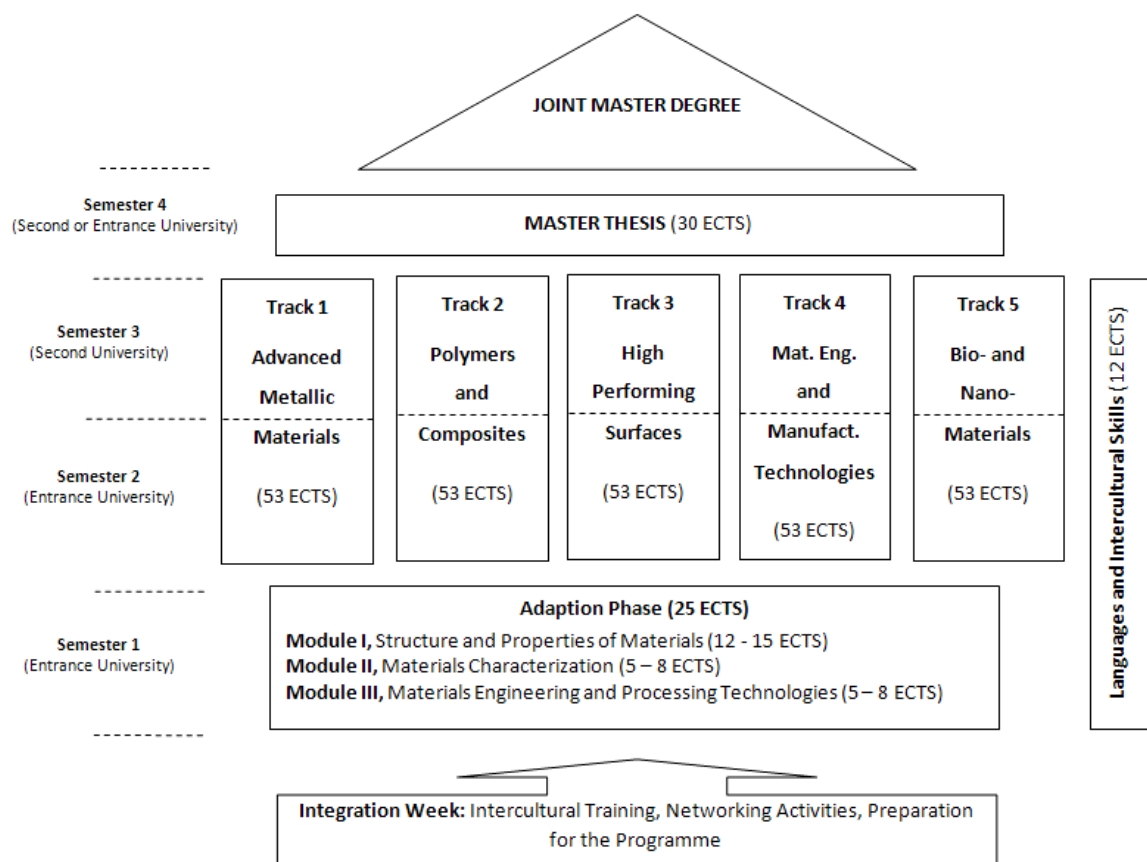
**5.2 Professional Status (if applicable): n.a.**

*Explanatory Note: Give details of any rights to practise, or professional status accorded to the holders of the qualification. What specific access, if any, does the qualification give in terms of employment or professional practice and indicate which competent authority allows this. Indicates if the qualification gives access to a 'regulated profession'.*

## 6 ADDITIONAL INFORMATION

### 6.1 Additional Information

- The accepted graduates with a BSc. or an equivalent degree in science or engineering start the programme at one of the four partner universities,
- Students spend the whole first year at the entrance university taking courses (lectures, exercises, laboratory work) in materials science and engineering as well as in European languages and culture,
- For the second year each student changes for at least one semester to one of the other three partner universities (second university),
- The master thesis can be done either at the same second university or at the student's entrance university.



### 6.2 Further Information Sources

Website of the AMASE Master Programme: <http://www.amase-master.net>

## **7 CERTIFICATION OF THE SUPPLEMENT**

### **7.1 Name of Qualification and (if applicable) Title Conferred (in original language)**

Awarded by UdS: Master of Science - M.Sc.

This document refers to the student's performance at Universität des Saarlandes

This Diploma Supplement refers to the following original documents:

### **7.2 Certification Date:**

### **7.3 Signature and official stamp or seal**

(Official Stamp/Seal)

Capacity

.....  
Prof. Dr. Frank Mücklich  
Chairman Examination Committee

## 8. INFORMATION ON THE NATIONAL HIGHER EDUCATION SYSTEM

The information on the national higher education systems on the following pages provides the context for the qualification and the type of higher education institutions that awarded it.

### 8. INFORMATION ON THE GERMAN HIGHER EDUCATION SYSTEM <sup>1</sup>

#### 8.1 Types of Institutions and Institutional Status

Higher education (HE) studies in Germany are offered at three types of Higher Education Institutions (HEI). <sup>2</sup>

- *Universitäten* (Universities) including various specialized institutions, offer the whole range of academic disciplines. In the German tradition, universities focus in particular on basic research so that advanced stages of study have mainly theoretical orientation and research-oriented components.

- *Fachhochschulen* (Universities of Applied Sciences) concentrate their study programmes in engineering and other technical disciplines, business-related studies, social work, and design areas. The common mission of applied research and development implies a distinct application-oriented focus and professional character of studies, which include integrated and supervised work assignments in industry, enterprises or other relevant institutions.

- *Kunst- und Musikhochschulen* (Universities of Art/Music) offer studies for artistic careers in fine arts, performing arts and music; in such fields as directing, production, writing in theatre, film, and other media; and in a variety of design areas, architecture, media and communication.

Higher Education Institutions are either state or state-recognized institutions. In their operations, including the organization of studies and the designation and award of degrees, they are both subject to higher education legislation.

#### 8.2 Types of Programmes and Degrees Awarded

Studies in all three types of institutions have traditionally been offered in integrated "long" (one-tier) programmes leading to *Diplom- or Magister Artium* degrees or completed by a *Staatsprüfung* (State Examination).

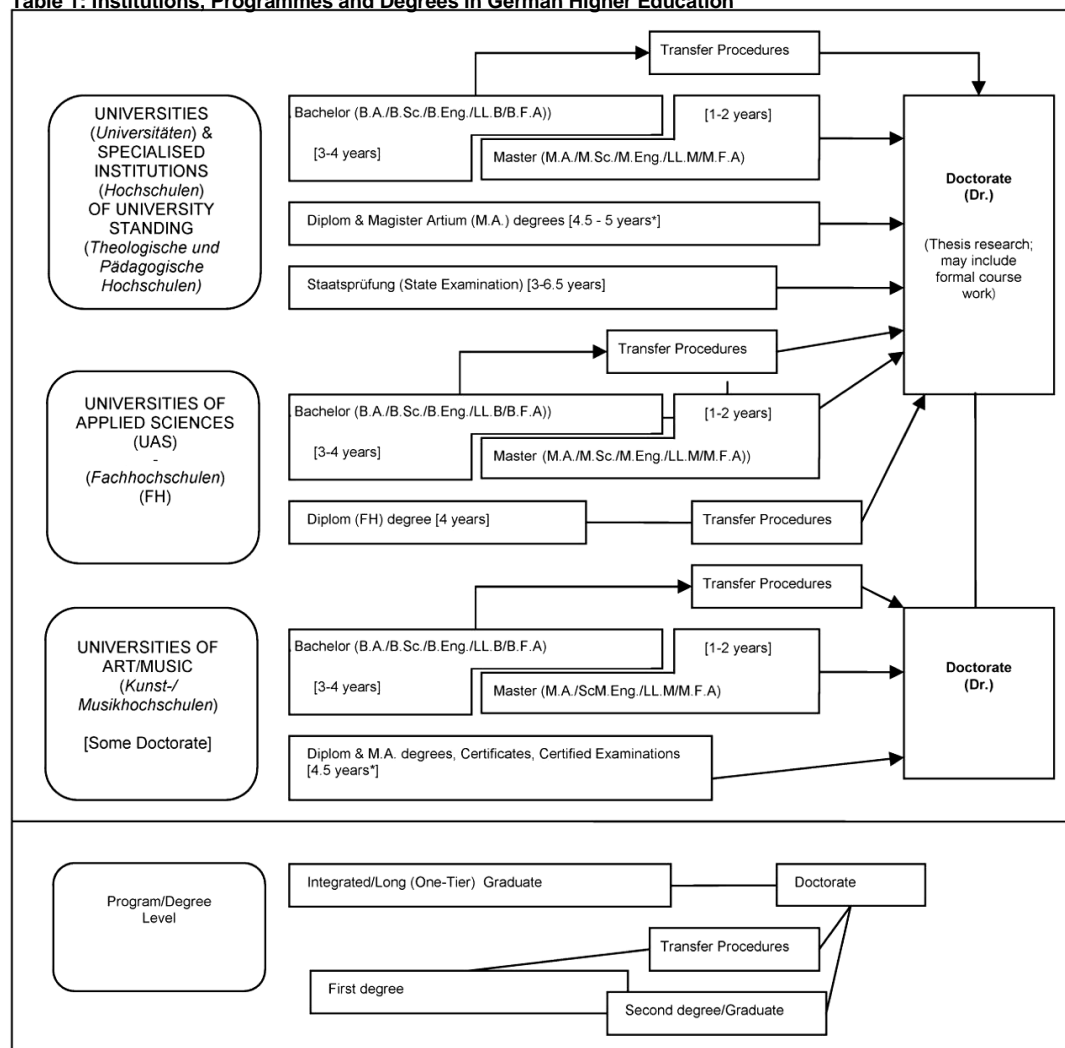
Within the framework of the Bologna-Process one-tier study programmes are successively being replaced by a two-tier study system. Since 1998, a scheme of first- and second-level degree programmes (Bachelor and Master) was introduced to be offered parallel to or instead of integrated "long" programmes. These programmes are designed to provide enlarged variety and flexibility to students in planning and pursuing educational objectives, they also enhance international compatibility of studies.

For details cf. Sec. 8.4.1, 8.4.2, and 8.4.3 respectively. Table 1 provides a synoptic summary.

#### 8.3 Approval/Accreditation of Programmes and Degrees

To ensure quality and comparability of qualifications, the organization of studies and general degree requirements have to conform to principles and regulations established by the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany (KMK). <sup>3</sup> In 1999, a system of accreditation for programmes of study has become operational under the control of an Accreditation Council at national level. All new programmes have to be accredited under this scheme; after a successful accreditation they receive the quality-label of the Accreditation Council. <sup>4</sup>

**Table 1: Institutions, Programmes and Degrees in German Higher Education**



## 8.4 Organization and Structure of Studies

The following programmes apply to all three types of institutions. Bachelor's and Master's study courses may be studied consecutively, at various higher education institutions, at different types of higher education institutions and with phases of professional work between the first and the second qualification. The organization of the study programmes makes use of modular components and of the European Credit Transfer and Accumulation System (ECTS) with 30 credits corresponding to one semester.

### 8.4.1 Bachelor

Bachelor degree study programmes lay the academic foundations, provide methodological skills and lead to qualifications related to the professional field. The Bachelor degree is awarded after 3 to 4 years. The Bachelor degree programme includes a thesis requirement. Study courses leading to the Bachelor degree must be accredited according to the Law establishing a Foundation for the Accreditation of Study Programmes in Germany.<sup>5</sup> First degree programmes (Bachelor) lead to Bachelor of Arts (B.A.), Bachelor of Science (B.Sc.), Bachelor of Engineering (B.Eng.), Bachelor of Laws (LL.B.), Bachelor of Fine Arts (B.F.A.) or Bachelor of Music (B.Mus.).

### 8.4.2 Master

Master is the second degree after another 1 to 2 years. Master study programmes must be differentiated by the profile types "more practice-oriented" and "more research-oriented". Higher Education Institutions define the profile of each Master study programme. The Master degree study programme includes a thesis requirement. Study programmes leading to the Master degree must be accredited according to the Law establishing a Foundation for the Accreditation of Study Programmes in Germany.<sup>6</sup> Second degree programmes (Master) lead to Master of Arts (M.A.), Master of Science (M.Sc.), Master of Engineering (M.Eng.), Master of Laws (LL.M.), Master of Fine Arts (M.F.A.) or Master of Music (M.Mus.). Master study programmes, which are designed for continuing education or which do not build on the preceding Bachelor study programmes in terms of their content, may carry other designations (e.g. MBA).

### 8.4.3 Integrated "Long" Programmes (One-Tier): Diplom degrees, Magister Artium, Staatsprüfung

An integrated study programme is either mono-disciplinary (*Diplom* degrees, most programmes completed by a *Staatsprüfung*) or comprises a combination of either two major or one major and two minor fields (*Magister Artium*). The first stage (1.5 to 2 years) focuses on broad orientations and foundations of the field(s) of study. An Intermediate Examination (*Diplom-Vorprüfung* for *Diplom* degrees; *Zwischenprüfung* or credit requirements for the *Magister Artium*) is prerequisite to enter the second stage of advanced studies and specializations. Degree requirements include submission of a thesis (up to 6 months duration) and comprehensive final written and oral examinations. Similar regulations apply to studies leading to a *Staatsprüfung*. The level of qualification is equivalent to the Master level.

- Integrated studies at *Universitäten* (U) last 4 to 5 years (*Diplom* degree, *Magister Artium*) or 3 to 6.5 years (*Staatsprüfung*). The *Diplom* degree is awarded in engineering disciplines, the natural sciences as well as economics and business. In the humanities, the corresponding degree is usually the *Magister Artium* (M.A.). In the social sciences, the practice varies as a matter of institutional traditions. Studies preparing for the legal, medical, pharmaceutical and teaching professions are completed by a *Staatsprüfung*. The three qualifications (*Diplom*, *Magister Artium* and *Staatsprüfung*) are academically equivalent. They qualify to apply for admission to doctoral studies. Further prerequisites for admission may be defined by the Higher Education Institution, cf. Sec. 8.5.

- Integrated studies at *Fachhochschulen* (FH)/Universities of Applied Sciences (UAS) last 4 years and lead to a *Diplom* (FH) degree. While the FH/UAS are non-doctorate granting institutions, qualified graduates may apply for admission to doctoral studies at doctorate-granting institutions, cf. Sec. 8.5.

- Studies at *Kunst- und Musikhochschulen* (Universities of Art/Music etc.) are more diverse in their organization, depending on the field and individual objectives. In addition to *Diplom/Magister* degrees, the integrated study programme awards include Certificates and certified examinations for specialized areas and professional purposes.

## 8.5 Doctorate

Universities as well as specialized institutions of university standing and some Universities of Art/Music are doctorate-granting institutions. Formal prerequisite for admission to doctoral work is a qualified Master (UAS and U), a *Magister* degree, a *Diplom*, a *Staatsprüfung*, or a foreign equivalent. Particularly qualified holders of a Bachelor or a *Diplom* (FH)

degree may also be admitted to doctoral studies without acquisition of a further degree by means of a procedure to determine their aptitude. The universities respectively the doctorate-granting institutions regulate entry to a doctorate as well as the structure of the procedure to determine

aptitude. Admission further requires the acceptance of the Dissertation research project by a professor as a supervisor.

## 8.6 Grading Scheme

The grading scheme in Germany usually comprises five levels (with numerical equivalents; intermediate grades may be given): "*Sehr Gut*" (1) = Very Good; "*Gut*" (2) = Good; "*Befriedigend*" (3) = Satisfactory; "*Ausreichend*" (4) = Sufficient; "*Nicht ausreichend*" (5) = Non-Sufficient/Fail. The minimum passing grade is "*Ausreichend*" (4). Verbal designations of grades may vary in some cases and for doctoral degrees. In addition institutions may already use the ECTS grading scheme, which operates with the levels A (best 10 %), B (next 25 %), C (next 30 %), D (next 25 %), and E (next 10 %).

## 8.7 Access to Higher Education

The General Higher Education Entrance Qualification (*Allgemeine Hochschulreife*, *Abitur*) after 12 to 13 years of schooling allows for admission to all higher educational studies. Specialized variants (*Fachgebundene Hochschulreife*) allow for admission to particular disciplines. Access to *Fachhochschulen* (UAS) is also possible with a *Fachhochschulreife*, which can usually be acquired after 12 years of schooling. Admission to Universities of Art/Music may be based on other or require additional evidence demonstrating individual aptitude. Higher Education Institutions may in certain cases apply additional admission procedures.

## 8.8 National Sources of Information

- Kultusministerkonferenz (KMK) [Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany]; Lennéstrasse 6, D-53113 Bonn; Fax: +49[0]228/501-229; Phone: +49[0]228/501-0
- Central Office for Foreign Education (ZaB) as German NARIC; www.kmk.org; E-Mail: zab@kmk.org
- "Documentation and Educational Information Service" as German EURYDICE-Unit, providing the national dossier on the education system (www.kmk.org/doku/bildungswesen.htm; E-Mail: eurydice@kmk.org)
- Hochschulrektorenkonferenz (HRK) [German Rectors' Conference]; Ahrstrasse 39, D-53175 Bonn; Fax: +49[0]228/887-110; Phone: +49[0]228/887-0; www.hrk.de; E-Mail: sekr@hrk.de
- "Higher Education Compass" of the German Rectors' Conference features comprehensive information on institutions, programmes of study, etc. (www.higher-education-compass.de)

<sup>1</sup> The information covers only aspects directly relevant to purposes of the Diploma Supplement. All information is as of 1 July 2005.

<sup>2</sup> *Berufsakademien* are not considered as Higher Education Institutions, they only exist in some of the Länder. They offer educational programmes in close cooperation with private companies. Students receive a formal degree and carry out an apprenticeship at the company. Some *Berufsakademien* offer Bachelor courses which are recognized as an academic degree if they are accredited by a German accreditation agency.

<sup>3</sup> Common structural guidelines of the *Länder* as set out in Article 9 Clause 2 of the Framework Act for Higher Education (HRG) for the accreditation of Bachelor's and Master's study courses (Resolution of the Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* in the Federal Republic of Germany of 10.10.2003, as amended on 21.4.2005).

<sup>4</sup> "Law establishing a Foundation 'Foundation for the Accreditation of Study Programmes in Germany'", entered into force as from 26.2.2005, GV. NRW. 2005, nr. 5, p. 45 in connection with the Declaration of the *Länder* to the Foundation "Foundation for the Accreditation of Study Programmes in Germany" (Resolution of the Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* in the Federal Republic of Germany of 16.12.2004).

<sup>5</sup> See note No. 4.

<sup>6</sup> See note No. 4.