Karlsruhe Institute of Technology

KIT – The Research University in the Helmholtz Association

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 judgments, 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. HOLDER OF THE QUALIFICATION

1.1 Family Name / 1.2 First Name
«nachn» / «vorn»

1.3 Date, Place of Birth
«gebdatE», «gebort»

1.4 Student ID Number or Code
«Mtknr»

2. QUALIFICATION

2.1 Name of Qualification (full, abbreviated; in original language)
Master of Science, M.Sc.

Title Conferred (full, abbreviated; in original language)
n.a.

2.2 Main Field(s) of Study
«StgDtxtE»

2.3 Institution Awarding the Qualification (in original language)
Karlsruhe Institut of Technology (KIT)
«FachbereichD»

Status (Type / Control)
University of the State Baden-Wuerttemberg

2.4 Institution Administering Studies (in original language)
see 2.3

Status (Type / Control)
see 2.3

2.5 Language(s) of Instruction / Examination
German, English

3. LEVEL OF THE QUALIFICATION

3.1 Level

Second university degree qualifying for a profession including a master thesis. Master degrees award the same entitlements as “Diplom” degrees of universities.

The degree is equivalent to Level 7 of the German Qualifications Framework for Lifelong Learning (GQF).

3.2 Official Length of Program

2 years (120 credit points, 4 semesters)

3.3 Access Requirements

Prerequisite for admission into a master degree program is an initial university degree or an equivalent qualification. Universities define further prerequisites by statute. The possible selection criteria are in particular:

- minimum of specialized skills and
- language skills.

A selection process takes place in master degree programs with restricted admission. The possible selection criteria are:

- final grade of the Bachelor degree,
- program achievements and
- other professional or scientific achievements.

The specific admission requirements for the particular degree programs at the KIT are regulated in the university’s own statutes. These are published in the bulletins of the KIT at www.kit.edu.

4. CONTENTS AND RESULTS GAINED

4.1 Mode of Study

Full time study with an average of 30 credit points (CP) per semester (6 months).

4.2 Program Requirements / Qualification Profile of the Graduate

The Master of Science in Informatics continues the education and development of the scientific competences that the students have acquired during their Bachelor program of study. The Master program of study provides students with the knowledge and skills necessary for scientific work and research. The program stands out due to the variety and broad range of the courses. This master program of study is structured to provide well-grounded and a broad based education at the same time. Students are required to take two graduate specializations. The program offers a wide variety of specializations in informatics areas including Theoretical Foundations, Algorithm Engineering, Cryptography and Security, Parallel Computing, Software Engineering and Compiler Construction, Design of Embedded Systems and Computer Architectures, Telematics, Databases and Information Systems, Computer Graphics and Geometry Processing, Anthropomatics and Cognitive Systems, Robotics and Automation and System Architecture.

The core focus of the program is the two graduate specializations. For each specialization, students have to select courses of at least 15 ECTS. For a comprehensive education the program offers a broad variety of compulsory courses. Students must also select a minor in a related interdisciplinary field (minor studies). Key competences such as social and teamwork skills are also mandatory (key competences). The table below shows the structure of the master program of study.

<table>
<tr><th>Sem.
Area</th><th>Area of Specialization I
min. 15 ECTS</th><th>Area of Specialization II
min. 15 ECTS</th><th>Elective Studies
max. 39 ECTS</th><th>Minor Studies
9 – 18 ECTS</th><th>Key Competences
2 – 6 ECTS</th></tr>
<tr><td>1</td><td>Advanced Mandatory Course I</td><td>Advanced Mandatory Course II
Advanced Mandatory Course IV</td><td>Advanced Mandatory Course III</td><td rowspan="3">Electrical Engineering/ Genetics/ Mathematics/ Mechanical Engineering/ Media Arts / Physics / Law / Sociology / Traffic Engineering / Economics</td><td rowspan="3">General Studies / Language Courses / Soft Skills</td></tr>
<tr><td>2</td><td colspan="3">Seminars (min. 3 ECTS) + Labs (min. 6 ECTS) =
in total min. 12 ECTS / max. 18 ECTS</td></tr>
<tr><td>3</td><td>min. 10 ECTS Lecture Courses</td><td>min. 10 ECTS Lecture Courses</td><td>Elective Lecture Courses</td></tr>
<tr><td>4</td><td colspan="5">Master Thesis
30 ECTS</td></tr>
</table>

Graduates of the Master of Science in Informatics are equipped with essential skills:

- *Informatics Competences (Core Competences)*
  Graduates are able to independently apply and enhance their scientific knowledge and methods of computer science. They can assess the relevance and consequences of different computer science methods in solving complex scientific and social problems. Graduates have the necessary skills needed to successfully solve applied as well as scientifically complex problems in the field of informatics and related interdisciplinary fields.
- *Communication Skills*
  Graduates can present and explain informatics ideas clearly and convincingly, both orally and in writing. They are able to communicate effectively to technical and non-technical audiences.
- *Team-work and Project Work*
  Graduates are able to work in multidisciplinary teams. They have project planning and organizing skills.
- *Commitment to Society (Commitment to the Civil Society)*
  Graduates recognize the impact of informatics in a societal context. They have the understanding of professional and ethical responsibilities and are able to act accordingly.
- *Personal and Professional Development*
  Graduates are able to adapt to the newest technologies and use their knowledge for further development.

4.3 Program Details

The transcript of records shows a list of course specific credits, modules and subject areas with grades. The master certificate lists the subject areas with the completed modules and the master thesis with evaluation.

4.4 Grading Scheme

The grades have values between 1.0 (best value) and 4.0 (pass mark):

Range	Value	Interpretation
1.0-1.5	very good	for a very good accomplishment
1.6-2.5	good	for an achievement, which is considerably above average requirements
2.6-3.5	satisfactory	for an achievement, which meets average requirements
3.6-4.0	sufficient	for an achievement, which in spite of its deficiencies, still meets the requirements
> 4	not sufficient	for an achievement, which due to its considerable deficiencies, no longer meets the requirements

4.5 Overall Grade (in original language)

The calculation of the final grade results from the respectively relevant study and examination regulations, which are published in the bulletins of the KIT at www.kit.edu.

If the master thesis is graded 1.0, the final grade is 1.1 or better, and the studies have been completed within seven semesters or less, the distinction “with distinction” is awarded. Students may apply to the examination board for exceptions.

5. FUNCTION OF THE QUALIFICATION

5.1 Access to Further Study

Qualifies for application for enrollment into a doctorate program.

5.2 Professional Status

The degree qualifies for direct entry into a profession.

6. ADDITIONAL INFORMATION

6.1 Additional Information

The following documents are available through the websites of the faculties (see 6.2):

- Study and examination regulations
- Study plan
- Description of the modules

For details with respect to the national university system, see 8.

6.2 Further Information Sources

In reference to the institution: www.kit.edu

In reference to the degree program: www.informatik.kit.edu

In reference to sources of information in the Federal Republic of Germany see 8.8.

7. CERTIFICATION

This Diploma Supplement refers to the following original documents:
Diploma for the award of the master degree dated «adat»
Master certificate dated «adat»
Transcript of Records dated «adat»

«adat»

Certification Date

Head of the Examination Committee

8. NATIONAL HIGHER EDUCATION SYSTEM

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

INFORMATION ON THE GERMAN HIGHER EDUCATION SYSTEM[1]

8.1 Types of Institutions and Institutional Status

Higher education (HE) studies in Germany are offered at three types of Higher Education Institutions (HEI).[2]

- *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 programs in engineering and other technical disciplines, business-related studies, social work, and design areas. The common mission of applied research and development implies an application-oriented focus 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 Programs and Degrees Awarded

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

Within the framework of the Bologna-Process one-tier study programs are successively being replaced by a two-tier study system. Since 1998, two-tier degrees (Bachelor and Master) have been introduced in almost all study programs. This change is designed to provide enlarged variety and flexibility to students in planning and pursuing educational objectives, they also enhance international compatibility of studies.

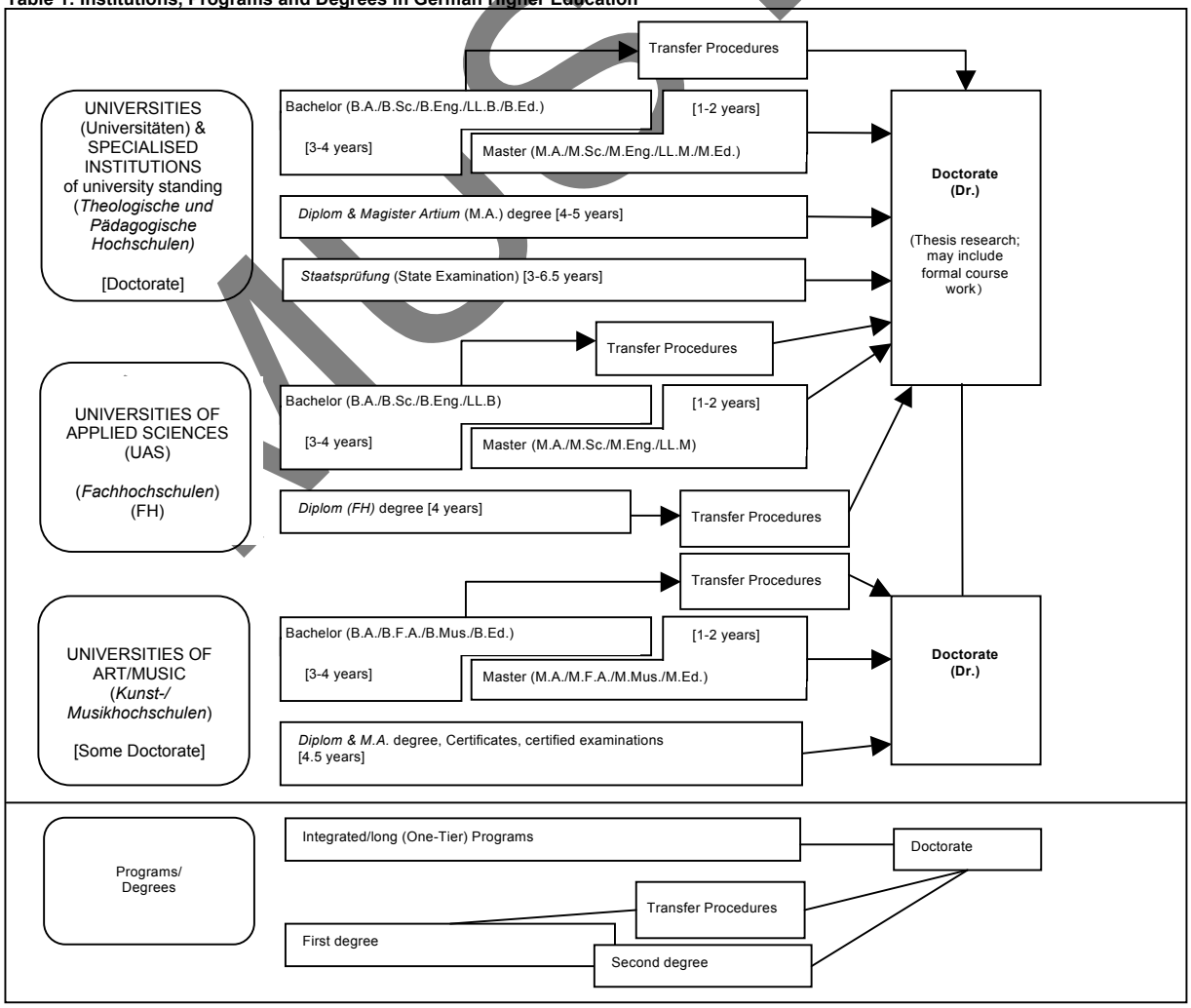
The German Qualifications Framework for Higher Education Degrees[3], the German Qualifications Framework for Lifelong Learning[4] and the European Qualifications Framework for Lifelong Learning[5] describe the degrees of the German Higher Education System. They contain the classification of the qualification levels as well as the resulting qualifications and competencies of the graduates.

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 Programs 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).[6] In 1999, a system of accreditation for programs of study has become operational under the control of an Accreditation Council at national level. All new programs have to be accredited under this scheme; after a successful accreditation they receive the quality-label of the Accreditation Council.[7]

Table 1: Institutions, Programs and Degrees in German Higher Education



8.4 Organization and Structure of Studies

The following programs 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 programs 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 programs 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 program 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 Programs in Germany.[8]
First degree programs (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.), Bachelor of Music (B.Mus.) or Bachelor of Education (B.Ed.).

8.4.2 Master

Master is the second degree after another 1 to 2 years. Master study programs may be differentiated by the profile types "practice-oriented" and "research-oriented". Higher Education Institutions define the profile. The Master degree study program includes a thesis requirement. Study programs leading to the Master degree must be accredited according to the Law establishing a Foundation for the Accreditation of Study Programs in Germany.[9]
Second degree programs (Master) lead to Master of Arts (M.A.), Master of Science (M.Sc.), Master of Engineering (M.Eng.), Master of Laws (L.L.M.), Master of Fine Arts (M.F.A.), Master of Music (M.Mus.) or Master of Education (M.Ed.). Master study programs which are designed for continuing education may carry other designations (e.g. MBA). The Master degree corresponds to level 7 of the German Qualifications Framework/ European Qualifications Framework.

8.4.3 Integrated „Long" Programs (One-Tier): *Diplom* degrees, *Magister Artium*, *Staatsprüfung*

An integrated study program is either mono-disciplinary (*Diplom* degrees, most programs 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 and pharmaceutical professions are completed by a *Staatsprüfung*. This applies also to studies preparing for teaching professions of some *Länder.*
The three qualifications (*Diplom*, *Magister Artium* and *Staatsprüfung*) are academically equivalent and correspond to level 7 of the German Qualifications Framework/ European Qualifications Framework.
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 which corresponds to level 6 of the German Qualifications Framework/ European Qualifications Framework. 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- and 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 program 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. Comparable degrees from universities of art and music can in exceptional cases (study programs such as music theory, musicology, pedagogy of arts and music, media studies) also formally qualify for doctoral work. 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. The doctoral degree corresponds to level 8 of the German Qualifications Framework/ European Qualifications Framework.

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, grade distribution tables as described in the ECTS Users' Guide are used to indicate the relative distribution of grades within a reference group.

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 (*Fachgebundende Hochschulreife*) allow for admission at Fachhochschulen (UAS), universities and equivalent higher education institutions, but only in particular disciplines. Access to study programs at *Fachhochschulen* (UAS) is also possible with a *Fachhochschulreife*, which can usually be acquired after 12 years of schooling. Admission to study programs at Universities of Art/Music and comparable study programs at other higher education institutions as well as admission to a study program in sports may be based on other or additional evidence demonstrating individual aptitude.
Applicants with a vocational qualification but without a school-based higher education entrance qualification are entitled to a general higher education entrance qualification and thus to access to all study programs, provided they have obtained advanced further training certificates in particular state-regulated vocational fields (e.g. *Meister/Meisterin im Handwerk, Industriemeister/in, Fachwirt/in (IHK und HWK), staatlich geprüfte/r Betriebswirt/in, staatliche geprüfte/r Gestalter/in, staatlich geprüfte/r Erzieher/in*). Vocationally qualified applicants can obtain a *Fachgebundende Hochschulreife* after completing a state-regulated vocational education of at least two years' duration plus professional practice of normally at least three years' duration, after having successfully passed an aptitude test at a higher education institution or other state institution; the aptitude test may be replaced by successfully completed trial studies of at least one year's duration.[10]
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]; Graurheindorfer Str. 157, D-53117 Bonn;
  Phone: +49(0)228/501-0; Fax: +49(0)228/501-777
- 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 (http://www.kmk.org/dokumentation/zusammenarbeit-auf-europaeischer-ebene-im-eurydice-informationsnetz.html; E-Mail: eurydice@kmk.org)
- *Hochschulrektorenkonferenz (HRK)* [German Rectors' Conference];
  Ahrstrasse 39, D-53175 Bonn; Phone:+49[0]228/887-0;
  Fax: +49[0]228/887-110; www.hrk.de; E-Mail: post@hrk.de
- "Higher Education Compass" of the German Rectors' Conference features comprehensive information on institutions, programs of study, etc. (www.higher-education-compass.de)

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1 The information covers only aspects directly relevant to purposes of the Diploma Supplement. All information as of January 2015.
2 *Berufsakademien* are not considered as Higher Education Institutions, they only exist in some of the *Länder.* They offer educational programs 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.
3 German Qualifications Framework for Higher Education Degrees. (Resolution of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany of 21 April 2005).
4 German Qualifications Framework for Lifelong Learning (DQR). Joint resolution of the Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* in the Federal Republic of Germany, the German Federal Ministry of Education and Research, the German Conference of Economics Ministers and the German Federal Ministry of Economics and Technology (Resolution of the Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* in the Federal Republic of Germany of 15 November 2012). More information at www.dqr.de
5 Recommendation of the European Parliament and the European Council on the establishment of a European Qualifications Framework for Lifelong Learning of 23 April 2008 (2008/C 111/01 – European Qualifications Framework for Lifelong Learning – EQF).
6 Common structural guidelines of the *Länder* 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.October.2003, as amended on 4 February 2010).
7 "Law establishing a Foundation 'Foundation for the Accreditation of Study Programs in Germany'", entered into force as from 26 February 2005, GV. NRW. 2005, nr. 5, p. 45 in connection with the Declaration of the *Länder* to the Foundation "Foundation: Foundation for the Accreditation of Study Programs 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 December 2004).
8 See Note No. 7.
9 See Note No. 7.
10 Access to higher education for applicants with a vocational qualification, but without a school-based higher education entrance qualification (Resolution of the Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* in the Federal Republic of Germany of 6 March 2009).

9. ECTS-EINSTUFUNGSTABELLE

Referenzgruppe: Bachelor Informatik

Vergleichszeitraum: Wintersemester 20xx - Sommersemester 20xx

Note	Prozent
1,0	3,22
1,1	3,22
1,2	3,22
1,3	3,22
1,4	3,22
1,5	3,22
1,6	3,22
1,7	3,22
1,8	3,22
1,9	3,22
2,0	3,22
2,1	3,22
2,2	3,22
2,3	3,22
2,4	3,22
2,5	3,22
2,6	3,22
2,7	3,22
2,8	3,22
2,9	3,22
3,0	3,22
3,1	3,22
3,2	3,22
3,3	3,22
3,4	3,22
3,5	3,22
3,6	3,22
3,7	3,22
3,8	3,22
3,9	3,22
4,0	3,22