Masterurkunde

Technology
Arts Sciences
TH Köln

Frau Maxima Mustermann

geboren am 01.01.2000 in Musterstadt
hat am 26.05.2017
die Masterprüfung im Studiengang

Medieninformatik

mit dem Schwerpunkt

Weaving the Web

mit Erfolg abgelegt. Aufgrund dieser Prüfung verleiht die Technische Hochschule Köln ihr den akademischen Grad

Master of Science (M.Sc.)

Gummersbach, 26.05.2017

Prof. Dr. Christian Averkamp
Dekan
Fakultät für Informatik
und Ingenieurwissenschaften

Prof. Dr. Stefan Eckstein
Vorsitzender
Prüfungsausschuss für den
Masterstudiengang Medieninformatik
der Technischen Hochschule Köln

(Prägesiegel)

Der Studiengang wurde durch die Akkreditierungsagentur für Studiengänge der Ingenieurwissenschaften, der Informatik, der Naturwissenschaften und der Mathematik e.V. (ASIIN) akkreditiert.

Zeugnis

Technology
Arts Sciences
TH Köln

Fakultät für Informatik und Ingenieurwissenschaften
Masterstudiengang
Medieninformatik
mit dem Schwerpunkt
Weaving the Web

Frau Maxima Mustermann

geboren am 01.01.2000 in Musterstadt
hat am 26.05.2017 den akademischen Grad des Master of Science (M.Sc.) erworben.

Thema der Master-Thesis:

Hier steht das Thema der Masterarbeit

Note der Master-Thesis und des Kolloquiums	sehr gut	30

Aus den Noten der Master-Thesis, des Kolloquiums und der während des Studiums abgelegten Modulprüfungen ist folgende Gesamtnote gebildet worden:

sehr gut«pnotetxt1» (1,0)

120 Leistungspunkte (ECTS)

Gummersbach, 26.05.2017

(Siegel)

Prof. Dr. Stefan Eckstein
Vorsitzender
Prüfungsausschuss für den
Masterstudiengang Medieninformatik
der Technischen Hochschule Köln

Die Prüfung erfolgte auf der Grundlage der Prüfungsordnung für den Masterstudiengang Medieninformatik der Technischen Hochschule Köln, Campus Gummersbach vom 00.00.2017 (Amtliche Mitteilung 00/2017)

Die Gesamtnote der Masterprüfung wird aus dem mit den Leistungspunkten gewichteten Durchschnitt der Modulprüfungen (90 Leistungspunkte) und der Master-Thesis inkl. Kolloquium (30 Leistungspunkte) ermittelt.

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Die Noten der Zusatzfächer werden bei der Festsetzung der Gesamtnote nicht berücksichtigt.

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hat am 26.05.2017 den akademischen Grad des Master of Science (M.Sc.) erworben.

Modulprüfungen, Noten und Leistungspunkte (ECTS):

Grundlagen

Spezielle Gebiete der Mathematik	sehr gut	6
Computerethik	sehr gut	6
Research Methods	sehr gut	6

Projekt

Vision und Konzept: Hier steht das Thema von Vision und Konzept	sehr gut	12
Entwicklung: Hier steht das Thema von Entwicklung	sehr gut	12
Forschung, Evaluation/Assessment, Verwertung: Hier steht das Thema von Forschung, Evaluation/Assessment, Verwertung	sehr gut	12

Schwerpunkt:

Weaving the Web

Web Architekturen	sehr gut	6
Sicherheit, Privatsphäre und Vertrauen	sehr gut	6
Web Technologie	sehr gut	6

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Modulprüfungen, Noten und Leistungspunkte (ECTS):

Wahlpflichtmodule

Schwerpunkt:	Visual Computing	
Visualisierung	sehr gut	6
Schwerpunkt:	Visual Computing	
Bildbasierte Computergrafik	sehr gut	6
Schwerpunkt:	Multi-Perspektive Product Development	
Qualitätssicherung und -management	sehr gut	6

Gummersbach, 26.05.2017

(Siegel)

Prof. Dr. Stefan Eckstein
Vorsitzender
Prüfungsausschuss für den
Masterstudiengang Medieninformatik
der Technischen Hochschule Köln

Diploma Supplement

Technology
Arts Sciences
TH Köln

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. Holder of the Qualification

1.1 Family Name / 1.2 First Name

Mustermann, Maxima

1.3 Date, Place, Country of Birth

01.01.2000, Musterstadt

1.4 Student ID Number or Code

11111111

2. Qualification

2.1 Name of Qualification (full, abbreviated; in original language)

Master of Science (M.Sc.)

Title Conferred (full, abbreviated; in original language)

same

2.2 Main Field(s) of Study

Media Informatics

2.3 Institution Awarding the Qualification (in original language)

Technische Hochschule Köln, Fakultät für Informatik und Ingenieurwissenschaften

Status (Type / Control)

University of Applied Sciences / State Institution

2.4 Institution Administering Studies (in original language)

same

Status (Type / Control)

same

2.5 Language(s) of Instruction/Examination

German

3. Level of the Qualification

3.1 Level

Postgraduate degree

3.2 Official Length of Program

Two years

3.3 Access Requirements

Fachhochschulreife or equivalent; successful completion of a suitable university degree with the minimum degree of "Bachelor of Science" in Informatics and a final cumulative grade of "good" (2.0) or better in the German grading system or its equivalent; German language competence (DSH II) if secondary-school diploma was not obtained from a German institution.

4. Contents and Results Gained

4.1 Mode of Study

Fulltime

4.2 Program Requirements/Qualification Profile of the Graduate

Graduates of the Master's program in Media Informatics analyze, create, implement, adapt, operate and evaluate IT- and web-based processes and systems for the design, production, processing, distribution and consumption of media-based information with respect to computer science-related, economic and social contexts.

Holders of the Master of Science in Media Informatics will have deepened their technical and specialized knowledge of computer science and media informatics in particular, which they previously acquired in their undergraduate studies. Adopting a methodological and analytical approach, they will broaden their skills of abstraction and modeling and of acting in formal domains. Moreover, they will develop critical awareness of the latest developments in computer science and media informatics in particular and will be able to analyze, formulate, formalize and solve problems stemming from new, evolving fields of media informatics in a pure, system-analytical and multi-faceted manner. Subsequently, they will be able to critically evaluate such solutions.

Students will acquire judgmental skills in the analysis and evaluation of complex, inconsistent and incomplete information. They will be proficient in media conception/design and will be able to model concepts and information in terms of structure, use and management. They will be able to deduce from, analyze and define organizational, social, cultural contexts, requirements and rules, and to formulate adequate design objectives, taking into account different perspectives.

Moreover, graduates will be able to categorize concepts in connection with well-established scientific theories and to analyze, discuss and assess such concepts with respect to technical, judicial, economic, social, cultural and ethical objectives. They will be capable of conceptualizing, controlling and evaluating processes for the design, production, processing, distribution and consumption of media-based information with respect to organizational, social and cultural contexts and adequate selection of methods, techniques and tools. Furthermore, they will be able to combine knowledge in computer science, media technology, internet and web technologies as well as related sciences and cope with complex issues.

Students will develop a good understanding of applicable methods and techniques in the value chain of design, production, processing, distribution and consumption of media-based information and know their limitations. Moreover, they will acquire profound technical knowledge of media informatics, dealing with the most advanced knowledge and technology. They will also be aware of non-technical effects of their work both on and in socio-technical systems and will be able to use their understanding and knowledge to analyze, conceive, adapt and evaluate models, systems and processes for the design, production, processing, distribution and consumption of media-based information.

Furthermore, graduates of the program will be proficient in the selection and application of cutting-edge methods to solve problems and will know how to justify their application. They will also acquire the necessary skills to perceive future problems, technologies and scientific findings related to media informatics, and to adopt these skills in their professional career. Graduates will be capable of working scientifically and of further advancing the scientific discipline of media informatics.

Graduates will be able to responsibly and professionally organize, execute, control and manage projects in the field of media informatics. They will be capable of effectively leading teams that are made up of different disciplines, educational levels and culturally or ethnically heterogeneous sub-teams. They will also be able to autonomously and quickly familiarize themselves – both from a theoretical as well as a technical point of view – with new theories, methods and techniques relevant to media informatics.

Graduates will be able to question and develop their own role in their profession and are proficient in the preparation of scientific work for different audiences, which they will then be able to present in a substantiated and convincing manner. They will also be able to acknowledge and assess criticism and deviating positions and incorporate these positions into their own scientific work.

4.3 Program Details

See Transcript for list of courses and grades; „Prüfungszeugnis“(Master Examination Certificate) for subjects taken in final examinations (written and oral) as well as topic of the thesis, including grades.

4.4 Grading Scheme

Grades are assigned as set down in the general grading scheme cf. Sec. 8.6.
«dipldatume»
up to 1.5 = excellent
above 1.5 – 2.5 = good
above 2.5 – 3.5 = satisfactory
above 3.5 – 4.0 = sufficient
above 4.0 = fail
The final cumulative grade point average is determined by the weighted grades for the Master's thesis and the average of the examination grades. Credits are assigned according to ECTS-standards (European Credit Transfer and Accumulation System).

4.5 Overall Classification (in original language)
«pnote1» («pnotetxt1»)

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5. Function of the Qualification

5.1 Access to Further Study

The Master of Science in Media Informatics entitles its holder to apply for admission to doctoral/PhD-level studies (thesis research).

5.2 Professional Status

The Master's Degree in Media Informatics entitles its holders to exercise professional and scientific work in the fields of media informatics, computer science and related fields in industry as well as in public institutions.

6. Additional Information

6.1 Additional Information:

The Master's program was first accredited on December 14, 2004 and was reaccredited on March 30, 2010.

6.2 Further Information Sources

For more detailed information on postgraduate studies (Master's program) in media informatics at Technische Hochschule Köln (University of Applied Sciences), please visit:

www.th-koeln.de/studium/medieninformatik-master_3729.php

7. Certification

This Diploma Supplement is in reference to the following original documents:
Urkunde über die Verleihung des Grades 26.05.2017
Prüfungszeugnis 26.05.2017
Transcript of Records

Date of certification: 26.05.2017

(Official stamp/seal)

Chairperson of the Examination Board
(Prof. Dr. Stefan Eckstein)

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.

8. 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 programmes 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 includes 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, two-tier degrees (Bachelor and Master) have been introduced in almost all study programmes. 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 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).[6] 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.[7]

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

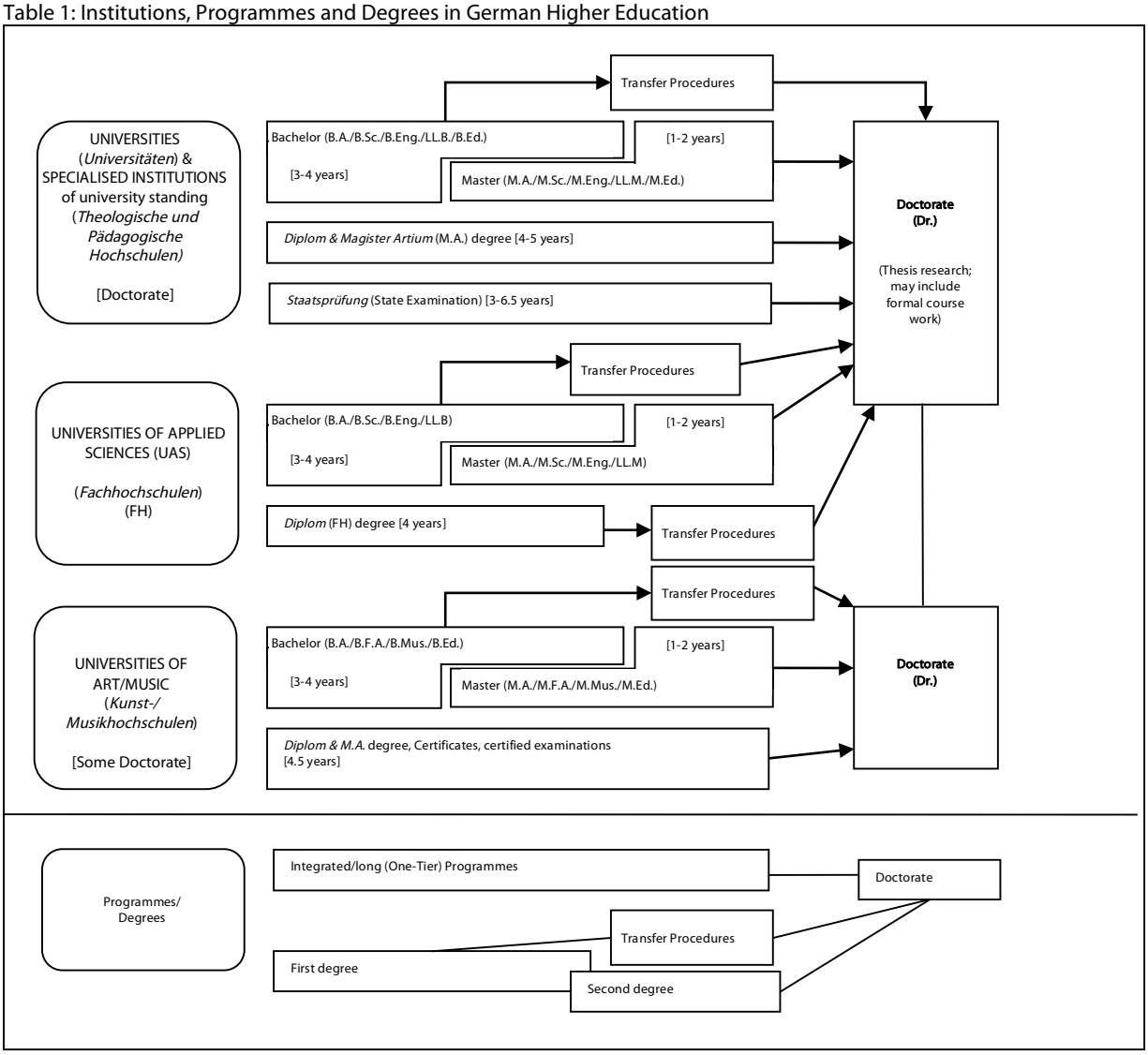
Bachelor degree study programmes lay the academic foundations, provide methodological skills and lead to qualifications related to the professional field. The Bachelor degree is awarded after 3 to 4 years.
The Bachelor degree programme includes a thesis requirement. Study courses leading to the Bachelor degree must be accredited according to the Law establishing a Foundation for the Accreditation of Study Programmes in Germany.[8]
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.), Bachelor of Music (B.Mus.) or Bachelor of Education (B.Ed.).
The Bachelor degree corresponds to level 6 of the German Qualifications Framework/ European Qualifications Framework.

8.4.2 Master

Master is the second degree after another 1 to 2 years. Master study programmes may be differentiated by the profile types "practice-oriented" and "research-oriented". Higher Education Institutions define the profile.
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.[9]
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.), Master of Music (M.Mus.) or Master of Education (M.Ed.). Master study programmes 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.

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



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 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 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. Comparable degrees from universities of art and music can in exceptional cases (study programmes 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 programmes at *Fachhochschulen* (UAS) is also possible with a *Fachhochschulreife*, which can usually be acquired after 12 years of schooling. Admission to study programmes at Universities of Art/Music and comparable study programmes at other higher education institutions as well as admission to a study programme 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 programmes, 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; Fax: +49[0]228/501-777; 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 (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; Fax: +49[0]228/887-110; Phone: +49[0]228/887-0; www.hrk.de; E-Mail: post@hrk.de
- "Higher Education Compass" of the German Rectors' Conference features comprehensive information on institutions, programmes of study, etc. (www.higher-education-compass.de)

[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 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.

[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 10.10.2003, as amended on 04.02.2010).

[7] "Law establishing a Foundation 'Foundation for the Accreditation of Study Programmes in Germany'", entered into force as from 26 February 2005, GV. NRW. 2005, No. 5, p. 45 in connection with the Declaration of the *Länder* to the Foundation "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 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).