

**Dritte Satzung zur Änderung der Fachprüfungsordnung
für den Master-Studiengang
Medizintechnische Systeme
an der Hochschule Stralsund**

Vom 23. November 2018

Aufgrund von § 2 Absatz 1 in Verbindung mit § 38 Absatz 1 des Gesetzes über die Hochschulen des Landes Mecklenburg-Vorpommern (Landeshochschulgesetz –LHG M-V) in der Fassung der Bekanntmachung vom 25. Januar 2011 (GVOBl. M-V S. 18), zuletzt geändert durch Artikel 3 des Gesetzes vom 11. Juli 2016 (GVOBl. M-V S. 550, 557), erlässt die Hochschule Stralsund die folgende Änderungssatzung:

Artikel 1

Die Fachprüfungsordnung für den Master-Studiengang Medizintechnische Systeme an der Fachhochschule Stralsund vom 29. Februar 2016 (veröffentlicht auf der Homepage der Fachhochschule Stralsund), zuletzt geändert durch die Zweite Satzung zur Änderung der Fachprüfungsordnung für den Master-Studiengang Medizintechnische Systeme an der Hochschule Stralsund vom 24. Juli 2017 (veröffentlicht auf der Homepage der Hochschule Stralsund) wird wie folgt geändert:

1. In § 10 Absatz 2 wird die Tabelle I wie folgt neu gefasst:

Tabelle I Masterstudiengang Medizintechnische Systeme

Modul-Nr.	Pflichtmodul	Regel-semester	Prüfung	1. Alternative	2. Alternative	Anteil in % an		ECTS-Punkte
						MN	GN	
MTSM1100	Anatomie und Physiologie	1	K2			100	8,75	6
MTSM1200	Pathophysiologie und Krankheitslehre	1	K2			100	8,75	6
MTSM1300	Qualitätsmanagement	1	EA100	K2	M 30	100	8,75	6
MTSM1400	Systemanalyse technischer Prozesse	1	EA100	M 30	K2	100	8,75	6
MTSM2100	Ausgewählte Themen der klinischen Medizin	2	M30	K2	EA100	100	8,75	6
MTSM2200	Diagnostische und Supportive Systeme	2	K 2	M 30	EA100	100	8,75	6
MTSM2300	Marketing/Management	2	EA100			100	0	6
MTSM2400	Medizintechnischen Systeme in der Therapie	2	K 2	EA100	M30	100	8,75	6
MTSM1900	Wahlpflichtmodul I *)	1	Entsprechend ausgewähltem Modul			100	8,75	6
MTSM2900	Wahlpflichtmodul II*)	2	Entsprechend ausgewähltem Modul als unbenotete Prüfungsleistung			100	0	6
MTSM3100	Masterarbeit mit Kolloquium Masterarbeit Kolloquium	3	siehe § 5 siehe § 6			80 20	30	27 3

Erläuterungen:

- | | | | | | |
|--------|---|--|----|---|--|
| K | = | Klausur mit Angabe der Dauer in Stunden (Stunde = 60 Minuten), vgl. § 11 RPO | LN | = | Leistungsnachweis, vgl. § 7 |
| K + ÜS | = | Klausur und Übungsschein als Zulassungsvoraussetzung, vgl. §§ 8, 7 und § 11 RPO | MN | = | Modulnote |
| M | = | Mündliche Prüfung mit Angabe der Dauer in Minuten, vgl. § 10 RPO | GN | = | Gesamtnote der Modulprüfungen einschließlich Masterarbeit mit Kolloquium |
| M + ÜS | = | Mündliche Prüfung und Übungsschein als Zulassungsvoraussetzung, vgl. § 7, 8 und § 10 RPO | | | |
| EA | = | Experimentelle Arbeit mit Angabe des Arbeitsaufwandes in Stunden, vgl. § 9 | | | |

*) Die Studierenden können aus einem angebotenen Pool von Lehrveranstaltungen aus dem Wahlpflichtangebot des gewählten Studienganges oder auf Antrag an den Prüfungsausschuss aus dem Fächerpool anderer Master-Studiengänge des Fachbereiches bzw. dem Studienangebot der Hochschule auswählen. (§ 6 Studienordnung des Master-Studiengangs Medizintechnische Systeme an der Fachhochschule Stralsund)

Offene Liste Wahlpflichtangebot							
Modul-Nr.:	Wahlpflichtmodul I	Prüfung	1. Alternative	2. Alternative	Anteil in % an		ECTS-Punkte
					MN	GN	
MTSM1910	Plasmatechnik	K2			100	8,75	6
MTSM1920	Moderne Methoden der Regelungstechnik	K2			100	8,75	6
MTSM1930	Grundlagen Lasertechnik	K2	M30	EA100	100	8,75	6
MTSM1940	Ambient Assisted Living und Tele-Monitoring	EA50	K 2 + ÜS		100	8,75	6
	Wahlpflichtmodul II						
MTSM2910	Laseranwendung in der Medizin	LN			100	0	6
MTSM2920	Bildgebende Systeme	LN			100	0	6
MTSM2930	Projektseminar	LN			100	0	6

2. Die Anlage Diploma supplement wird wie folgt neu gefasst:

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. HOLDER OF QUALIFICATION

- 1.1 *Family Name*
«Nachname»
- 1.2 *First Name*
«Vorname»
- 1.3 *Date, Place, Country of Birth*
«GebDatum», «GebOrt», «GebLandE»
- 1.4 *Student ID Number or Code*
not of public interest

2. QUALIFICATION

- 2.1 *Name of Qualification (full, abbreviated; in original language)*
Master of Science, M.Sc.; Master of Science
- 2.2 *Main Field(s) of Study*
Medical technology systems
- 2.3 *Institution Awarding the Qualification (in original language)*
Hochschule Stralsund - University of Applied Sciences
Status (Type / Control)
Hochschule (University of Applied Sciences / State Institution)
- 2.4 *Institution Administering Studies (in original language)*
same as 2.3
- 2.5 *Language(s) of Instruction/Examination*
German/English (depending on type of course)

Certification Date: 20XX-XX-XX

Prof. Dr. rer. nat. Michael Schlereth
Chairman Examination Committee

3. LEVEL OF QUALIFICATION

3.1 Level

Second-level degree (postgraduate), scientific orientation.

3.2 Official Length of Programme

3 semesters (1.5 years), 16 weeks of classes per semester, 30 ECTS credits per semester, Master thesis in semester 3

3.3 Access Requirements

Bachelor or equivalent

4. CONTENTS AND RESULTS GAINED

4.1 Mode of Study

Full time /part time

4.2 Programme Requirements/Qualification Profile of the Graduate

During the two semesters the students acquire basic knowledge enabling them to comprehend and solve problems in the interdisciplinary field of medical questions, engineering and economics in science, technology development and service. Basic courses include human anatomy and physiology as well as System Design and Quality Management in a medical environment. Optional modules allow specialization in specific subjects, such as Medical Imaging, Diagnostic and Supportive Systems, Laser Technology.

4.3 Programme Details

See „Zeugnis über die Masterprüfung“ (Final Examination Certificate) for subjects offered in final examinations (written and oral) and topic of thesis, including evaluations.

4.4 Grading Scheme

For general grading scheme cf. sec. 8.6.

4.5 Overall Classification (in original language)

«GesNoteT» («GesNote»)

Based on comprehensive Final Examination (written 70 %, thesis 30 %); cf. „Zeugnis über die Masterprüfung“ (Final Examination Certificate).

Certification Date: 20XX-XX-XX

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Chairman Examination Committee

5. FUNCTION OF QUALIFICATION

5.1 Access to Further Study

Graduates of this programme are entitled to admission to doctoral studies.

5.2 Professional Status

The Master degree entitles its holder to exercise professional work as a scientific engineer in academic, research and industrial settings and in the public service sector. Depending on the focus of study, there are special skills in: human anatomy, physiology and engineering.

6. ADDITIONAL INFORMATION

6.1 Additional Information

Last accredited (cf. sec. 8.3 below) by AQAS e.V (Agentur für Qualitätssicherung durch Akkreditierungsagentur von Studiengänge e.V., Köln) on 2018-02-20.

6.2 Further Information Sources

On the institution: www.hochschule-stralsund.de; on the programme www.hochschule-stralsund.de > studium.

For national information sources cf. sec. 8.8.

7. CERTIFICATION

This Diploma Supplement refers to the following original documents:

Urkunde über die Verleihung des Grades vom 20XX-XX-XX

Prüfungszeugnis vom 20XX-XX-XX

Transcript of Records

Certification Date: 20XX-XX-XX

Prof. Dr. rer. nat. Michael Schlereth
Chairman 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 institution that awarded it.

8. INFORMATION ON THE GERMAN HIGHER EDUCATION SYSTEM¹

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 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.

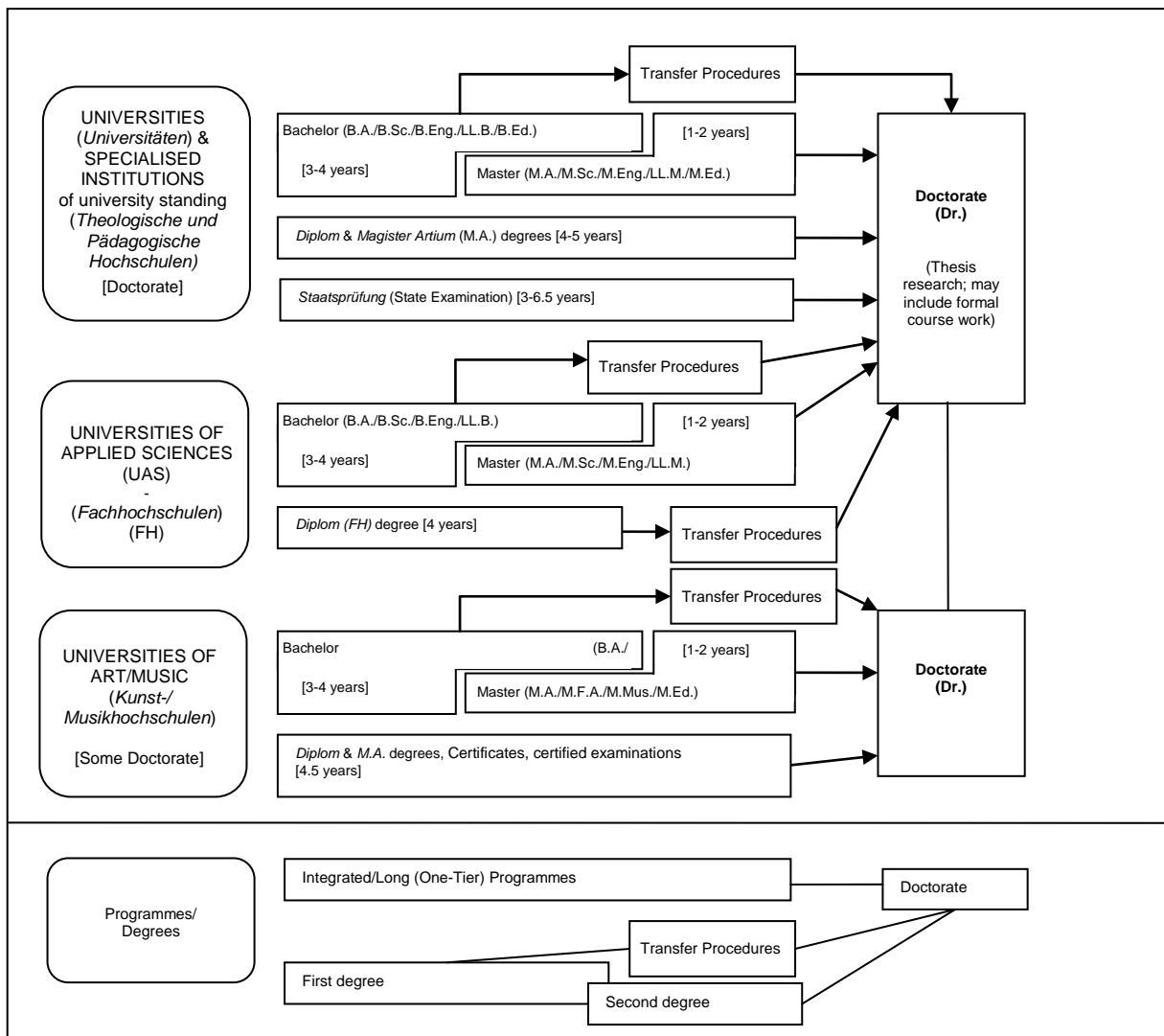
The German Qualification Framework for Higher Education Degrees³, the German Qualifications Framework for Lifelong Learning⁴ and the European Qualifications Framework for Lifelong Learning⁵ describe the degrees of the German Higher Education System. They contain the classification of the qualification 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

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.³

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.³

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.

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 (*Fachgebundene 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 *Fachgebundene 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.

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- 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.dgr.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).

Artikel 2

1. Diese Änderungssatzung tritt am Tag nach ihrer Veröffentlichung auf der Homepage der Hochschule Stralsund in Kraft.
2. Diese Änderungssatzung gilt erstmals für Studierende, die im Sommersemester 2019 an der Hochschule Stralsund für den Master-Studiengang Medizintechnische Systeme immatrikuliert wurden.

Ausgefertigt aufgrund des Beschlusses des Senats der Hochschule Stralsund vom 23. Oktober 2018 und der Genehmigung der Rektorin vom 23. November 2018

Stralsund, den 23. November 2018

**Die Rektorin
der Hochschule Stralsund
University of Applied Sciences
Prof. Dr.-Ing. Petra Maier**

Veröffentlichungsvermerk:

Diese Satzung wurde am 26. November 2018 auf der Homepage der Hochschule Stralsund veröffentlicht.