FRANKFURT UNIVERSITY OF APPLIED SCIENCES

Lesefassung der Prüfungsordnung

Prüfungsordnung
des konsekutiven Master-Studiengangs

Information Technology (dreisemestrig)

Master of Engineering (M.Eng.)

Fb2: Informatik und Ingenieurwissenschaften, Computer Science and Engineering

Prüfungsordnung des Fachbereichs 2: Informatik und Ingenieurwissenschaften, Computer Science and Engineering der Frankfurt University of Applied Sciences für den konsekutiven Master Studiengang Information Technology (dreisemestrig) vom 17. April 2019 in der Fassung der Änderung vom 23. November 2022

Diese Lesefassung umfasst folgende Änderungen:

Änderung vom	genehmigt durch das Präsidium am	veröffentlicht in den Amtlichen Mitteilungen am
30.10.2019	12.12.2019, RSO 1014	17.01.2020
23.11.2022	16.01.2023, RSO 1409	30.01.2023

Aufgrund des § 44 Abs. 1 Nr. 1 des Hessischen Hochschulgesetzes (HHG) in der Fassung vom 14. Dezember 2009 (GVBl. S. 666), zuletzt geändert durch Gesetz vom 18. Dezember 2017 (GVBl. S. 482), hat der Fachbereichsrat des Fachbereichs 2: Informatik und Ingenieurwissenschaften, Computer Science and Engineering der Frankfurt University of Applied Sciences am 17. April 2019, die nachstehende Prüfungsordnung für den Master Studiengang Information Technology (dreisemestrig) beschlossen. Die Prüfungsordnung entspricht den Allgemeinen Bestimmungen für Prüfungsordnungen mit den Abschlüssen Bachelor und Master an der Frankfurt University of Applied Sciences (AB Bachelor/Master) vom 10. November 2004 (Staatsanzeiger für das Land Hessen 2005 S. 519), in der Fassung der Änderung vom 20. Februar 2019 (veröffentlicht am 13. März 2019) auf der Internetseite in den Amtlichen Mitteilungen der Frankfurt University of Applied Sciences) und ergänzt sie.

Die Prüfungsordnung wurde durch das Präsidium am 26.08.2019 gemäß § 37 Abs. 5 HHG genehmigt.

Lesefassung der Prüfungsordnung

Inhaltsübersicht

§ 1 Akademischer Grad
§ 2 Zulassungsvoraussetzungen
§ 3 Qualifikationsziele
§ 4 Regelstudienzeit, Anzahl der ECTS-Punkte (Credit Points)
§ 5 Module
§ 6 Prüfungsleistungen
§ 7 Wiederholbarkeit von Prüfungsleistungen
§ 8 Master Thesis and Colloquium
§ 9 Bildung der Gesamtnote
§ 10 Zeugnis, Urkunde und Diploma Supplement
§ 11 Inkrafttreten

Anlagen

Anlage 1: Modulübersicht
Anlage 2: ECTS-/Workload-Übersicht
Anlage 3: Modulbeschreibungen
Anlage 4: Diploma Supplement

Lesefassung der Prüfungsordnung

§ 1 Akademischer Grad

Aufgrund der bestandenen Master-Prüfung verleiht die Frankfurt University of Applied Sciences den akademischen Grad „Master of Engineering“ (M.Eng.).

§ 2 Zugangsvoraussetzungen / Immatrikulationsvoraussetzungen

(1) Zugangsvoraussetzungen sind ein erster berufsqualifizierender Hochschulabschluss in Elektrotechnik und Informationstechnik mit dem Schwerpunkt Information and Communication Technology oder einem vergleichbaren Fachgebiet. Das Studium muss mindestens mit der Gesamtnote 2,0 abgeschlossen worden sein und einen Umfang von mindestens 210 ECTS-Punkten (Credits) aufweisen.

(2) Bei ausländischen Vorbildungsnachweisen gilt die Satzung über das Verfahren der Bewerbung und Zulassung von Studienbewerberinnen und Studienbewerbern mit ausländischen Vorbildungsnachweisen an der Fachhochschule Frankfurt am Main vom 28. Februar 2005.

(3) Die Immatrikulation erfordert zusätzlich zu den unter Absatz 1 und Absatz 2 genannten Voraussetzungen ausreichende englische Sprachkenntnisse, die nachgewiesen werden durch

   a. Test of English as a Foreign Language (TOEFL) mit einem Minimalergebnis von 80 (iTB) oder

   b. International English Language Testing mit einem Minimalergebnis von 6 oder

   c. Cambridge Certificate mit einem Minimalergebnis First Certificate in English (FCE, ehemals: A) oder

   d. mindestens befriedigender Leistungen im Leistungskurs Englisch im Abiturzeugnis oder

   e. andere Sprachnachweise, die eine Sprachkompetenz von mindestens B2 des vom Europarat empfohlenen Gemeinsamen Europäischen Referenzrahmens (GER) ausweisen und nicht älter als zwei Jahre sind.

(4) Auf den Nachweis englischer Sprachkenntnisse gemäß Absatz 3 wird verzichtet, falls Englisch die Muttersprache ist oder die Hochschulzugangsberechtigung im englischen Sprachraum oder an einer bilingualen Ausbildungsstätte erworben wurde oder es sich um Absolventinnen oder Absolventen des Bachelorstudiengangs Elektrotechnik und Informationstechnik der Frankfurt University of Applied Sciences handelt.

§ 3 Qualifikationsziele

Mit dem erfolgreichen Abschluss des Masterstudiengangs “Information Technology (dreisemestrig)” erwerben die Studierenden einen zweiten, berufsqualifizierenden Abschluss für Funktionen als technische Spezialisten und Führungskräfte in der Informationstechnologiebranche.

Lesefassung der Prüfungsordnung

Die Studierenden erwerben tiefgehendes Wissen in fortgeschrittener Mathematik, in Informations- und Kommunikationstechnologien sowie IT-Sicherheit. Sie verfügen über erweitertes Wissen fortgeschrittener theoretischer Methoden der Ingenieurwissenschaften sowie über angewandtes ingenieurwissenschaftliches Expertenwissen der Hard- und Software von Kommunikationssystemen, die die Grundlage für weitergehende innovative Ansätze bildet.

Die Absolventinnen und Absolventen sind qualifiziert multi- und interdisziplinär zu denken, indem sie Regeln und Prinzipien der Informationstechnologie anwenden, um herausfordernde und komplexe technische Probleme zu lösen, insbesondere in Bezug auf die Entwicklung neuer Technologien, Produkte und Dienstleistungen. Sie verfügen über Fertigkeiten und Erfahrungen mit digitalen Kommunikationssystemen, optischen und Mikrowellensystemen sowie mit intelligenten Systemen, Sensoren und Mustererkennung.

Spezielle Module wie die Projektarbeit qualifizieren die Studierenden in Projektdesign, Prozessen, Veränderungsmanagement sowie der Entwicklung neuer strategischer Ansätze. Sie sind in der Lage zur Verbesserung technischen Wissens beizutragen und internationale Teams und Projekte anzuleiten und zu managen. Sie sind befähigt, komplexe und unvorhersagbare Probleme mithilfe innovativer Lösungen zu lösen. Sie können moderne Projektmanagementmethoden anwenden und respektieren kulturelle und soziale Aspekte der Projektarbeit in internationalen Entwicklungsteams

Durch das Bewältigen verschiedener Laborsituationen sowie durch fachspezifische Projektarbeit haben die Studierenden innovative ingenieurwissenschaftliche Methoden und Strategien erworben. Diese machen sie zu reflektierten Berufspraktikern, die in der Lage sind, die ethischen und sozialen Aspekte ihrer Arbeit zu bewerten.

Die Absolventinnen und Absolventen können berufliche Anforderungen identifizieren und reflektieren und sind vorbereitet für lebenslanges Lernen. Sie sind in der Lage zu präsentieren, Selbst- und Projektmanagementmethoden anzuwenden, Informationen zu recherchieren für den akademischen Diskurs und können Anforderungen, Probleme und Ergebnisse in englischer Sprache beschreiben. Sie verfügen über die Schlüsselkompetenzen Technisches Englisch, soziale Interaktion (Teamarbeit, Projektarbeit), professionelle Präsentation und Kommunikation.

Die angehenden Ingenieure sind qualifiziert für Funktionen in Wissenschaft, öffentlichem Dienst und Privatwirtschaft, z. B. als technische Experten oder technische Führungskräfte sowie für eine Promotion. Sie haben sich unterschiedliche Methoden angeeignet und angewendet, die sie in die Lage versetzen in der Forschung und Entwicklung integrierter Produkt- und Dienstleistungskonzepte der Informationstechnologie tätig zu sein. Berufsfelder beinhalten die Forschung und Entwicklung technischer Systeme sowie die Koordination diesbezüglicher Projekte. Sie sind qualifiziert als technische Spezialisten und Führungskräfte in der Branche Informationstechnologie.

Lesefassung der Prüfungsordnung

§ 4 Regelstudienzeit, Anzahl der ECTS-Punkte (Credit Points)

(1) Die Regelstudienzeit dieses Studienprogramms beträgt drei Semester. Das Modul Master Thesis and Colloquium ist Bestandteil des dritten Semesters.

(2) Das Studienprogramm ist ein modular aufgebautes Vollzeitstudium und ist auf der Basis von Leistungspunkten gemäß dem „European Credit Transfer System (ECTS)“ organisiert.

(3) Das Studienprogramm umfasst 90 ECTS-Punkte (Credit Points [CP]). Ein ECTS-Punkt (Credit Point) entspricht einem studentischen Arbeitsaufwand (Workload) von 30 Stunden.

§ 5 Module

(1) Das Studienprogramm umfasst insgesamt 12 Pflichtmodule und ein Wahlpflichtmodul.

(2) Das Wahlpflichtmodul hat die Studierende oder der Studierende aus dem Katalog von Wahlpflichtmodulen gemäß Anlage 2 und 3 zu wählen. Alternativ kann die Studierende oder der Studierende das Wahlpflichtmodul aus dem Wahlpflichtpool des Fachbereich 2 auswählen. Der Fachbereichsrat beschließt jedes Semester die Wahlpflichtmodule des nächsten Semesters und veröffentlicht eine Liste der angebotenen Module per Aushang spätestens vier Wochen vor Semesterbeginn. Nach Ablauf des Rücknahmezeitraumes für die Anmeldung zur Modulprüfung ist die Wahl eines Wahlpflichtmoduls verbindlich. Ein Wechsel ist danach nicht mehr möglich.

(3) Die Inhalte der Module, die Anzahl der jeweiligen ECTS-Punkte (Credit Points) und die Art und Dauer der jeweiligen Modulprüfungsleistungen ergeben sich aus der ECTS-/Workload-Übersicht (Anlage 2) und den Modulbeschreibungen (Anlage 3).

§ 6 Prüfungsleistungen

(1) Die Art der Modulprüfung oder Modulteilprüfung im Sinne von § 7 Abs. 3 in Verbindung mit § 10 Abs. 1 AB Bachelor/Master wird in der Modulbeschreibung (Anlage 3) geregelt.

§ 7 Wiederholbarkeit von Prüfungsleistungen

(1) Eine Modulprüfung ist bestanden, wenn die Modulprüfungsleistung oder alle dem Modul zugeordneten Modulteilprüfungsleistungen mit mindestens „ausreichend“ (4,0) bewertet wurden. Die Gewichtung von Modulteilprüfungsleistungen bei der Notenbildung ergibt sich aus der jeweiligen Modulbeschreibung (Anlage 3).

(2) Nicht bestandene Modulprüfungsleistungen oder Modulteilprüfungsleistungen können zweimal wiederholt werden. Bestandene Modulprüfungsleistungen oder Modulteilprüfungsleistungen können nicht wiederholt werden.

(3) Die Prüfungsleistung des Moduls Master Thesis and Colloquium kann nur einmal wiederholt werden. Eine nichtbestandene Master-Thesis kann einmal wiederholt werden.

§ 8 Master Thesis and Colloquium

(1) Der Bearbeitungsumfang für das Modul Master Thesis and Colloquium beträgt 30 ECTS-Punkte.

(2) Bei der Meldung zur Master-Thesis ist der Nachweis, dass die Module 1 bis 12 gemäß Anlage 2 ECTS-/Workload-Übersicht erfolgreich abgeschlossen sind, vorzulegen.

(3) Die Anmeldung zur Master-Thesis ist schriftlich an den Prüfungsausschuss zu richten. Aufgrund der eingereichten Unterlagen entscheidet der Prüfungsausschuss über die Zulassung zur Master-Thesis und legt die Prüferinnen oder die Prüfer fest.

(4) Die Zeit von der Ausgabe der Master-Thesis bis zur Abgabe der Master- Thesis beträgt 22 Wochen. Die Ausgabe des Themas für die Master- Thesis erfolgt mit dem Tag der Zulassung der Studierenden oder des Studierenden zur Master-Thesis durch den Prüfungsausschuss.

Lesefassung der Prüfungsordnung

(5) Das Modul Master Thesis and Colloquium ist in englischer Sprache zu absolvieren. Auf Antrag der Studierenden oder des Studierenden an den Prüfungsausschuss kann das Modul Master Thesis and Colloquium in einer anderen Sprache absolviert werden. Der Prüfungsausschuss entscheidet im Einvernehmen mit den Prüferinnen oder Prüfern.

(6) Die Master-Thesis ist fristgerecht in zwei gebundenen Exemplaren im Prüfungsamt abzugeben. Zusätzlich ist ein Exemplar auf einem digitalen Datenträger im Format eines gängigen Textverarbeitungsprogramms abzugeben.

Bei der Abgabe der Master-Thesis hat die Studierende oder der Studierende eine eigenhändig unterschriebene Versicherung abzugeben, dass sie oder er die Arbeit selbständig verfasst und keine anderen als die angegebenen Quellen und Hilfsmittel benutzt hat.

(7) Kann der Abgabetermin aus Gründen, welche die Studierende oder der Studierende nicht zu vertreten hat, nicht eingehalten werden, so wird auf Antrag der oder des Studierenden die Bearbeitungszeit nach Maßgabe des § 23 Abs. 8 S. 1 AB Bachelor/Master um die Zeit der Verhinderung, längstens jedoch um acht Wochen verlängert. Dauert die Verhinderung länger, so kann die Studierende oder der Studierende von der Prüfungsleistung zurücktreten.

(8) Das Thema der Master-Thesis kann nur einmalig und nur innerhalb des ersten Drittels der Bearbeitungszeit zurückgegeben werden. Wird infolge des Rücktritts gem. Absatz 7 Satz 2 ein neues Thema für die Master-Thesis ausgegeben, so ist die Rückgabe dieses Themas ausgeschlossen.

(9) Die Master-Thesis wird von zwei Prüferinnen oder Prüfern bewertet. Bei unterschiedlicher Bewertung der Master-Arbeit wird von der Vorsitzenden oder dem Vorsitzenden des Prüfungsausschusses die Note aus dem arithmetischen Mittel der Einzelnoten gebildet. Der Prüfungsausschuss holt die Stellungnahme einer dritten Prüferin oder eines dritten Prüfers ein, wenn die Beurteilungen der Prüfenden um mehr als zwei Noten voneinander abweichen oder wenn nur eine oder einer der Prüfenden die Master-Thesis als "nicht ausreichend" beurteilt. Die Note wird in diesem Fall aus den Noten der Erstprüferin oder des Erstprüfers, der Zweitprüferin oder des Zweitprüfers und der Drittprüferin oder des Drittprüfers aus dem arithmetischen Mittel der Einzelnoten gebildet.

(10) Die Master-Thesis ist Gegenstand eines Abschluss-Kolloquiums. Die Dauer des Kolloquiums beträgt mindestens 30 Minuten, höchstens 60 Minuten. Das Kolloquium setzt das Bestehen der Master-Thesis voraus und findet vor zwei Prüferinnen oder Prüfern statt. Das Kolloquium soll spätestens sechs Wochen nach Abgabe der Master-Thesis stattfinden. Das Ergebnis des Kolloquiums geht mit einem Gewicht von einem Fünftel in die Bewertung des Moduls Master Thesis and Colloquium ein.

§ 9 Bildung der Gesamtnote

Die Gesamtnote der Master-Prüfung wird gebildet aus der Summe der Produkte der Noten der einzelnen Module mit ihren Gewichtungsfaktoren gemäß der ECTS-/Workload-Übersicht (Anlage 2), dividiert durch die Summe der Gewichte.

Lesefassung der Prüfungsordnung

§ 10 Zeugnis, Urkunde und Diploma Supplement

(1) Nach bestandener Master-Prüfung erhält die Studierende oder der Studierende ein Zeugnis, die Master-Urkunde und ein Diploma Supplement (Anlage 4) nach Maßgabe des § 23 AB Bachelor/Master.

(2) In das Zeugnis über die Master-Prüfung sind ergänzend zu den Angaben nach § 23 Abs. 1 S. 2 AB Bachelor/Master auf Antrag der Studierenden oder des Studierenden die Ergebnisse der Prüfungen in den Zusatzmodulen aufzunehmen.

§ 11 Inkrafttreten

(1) Diese Prüfungsordnung tritt am 1. April 2020 zum Sommersemester 2020 in Kraft und wird auf einem zentralen Verzeichnis auf der Internetseite (in den amtlichen Mitteilungen) der Frankfurt University of Applied Sciences veröffentlicht.

Frankfurt am Main, _____

Prof. Achim Morkramer

Dekan des Fachbereichs 2:

Informatik und Ingenieurwissenschaften – Computer Science and Engineering

Frankfurt University of Applied Sciences

Lesefassung der Prüfungsordnung

Modulübersicht: Information Technology (dreisemestrig)

Anlage 1 zur Prüfungsordnung[1]

Information Technology (dreisemestrig) (M.Eng.)							
							ECTS Punkte (CP)
Semester 3	13 **Master Thesis and Colloquium** 30 CP						30
Semester 2	7 **Machine Learning** 5 CP	8 **Mobile Computing** 5 CP	9 **Field Theory for Optical and Microwave Communication Systems** 5 CP	10 **Autonomous Intelligent Systems** 5 CP	11 **Optional Technical Subject** 5 CP	12 **Project** 5 CP	30
Semester 1	1 **Vector Analysis** 5 CP	2 **Stochastic Signals and Systems** 5 CP	3 **Digital Baseband Transmission and Modulation Methods** 5 CP	4 **Cloud Computing** 5 CP	5 **Digital Switching and Routing** 5 CP	6 **Computational Intelligence** 5 CP	30

Lesefassung der Prüfungsordnung

[1] Diese Anlage beinhaltet die thematischen Zusammenhänge der Module sowie die empfohlene Reihenfolge der Module im Studienverlauf.
.

ECTS-/Workload-Übersicht Information Technology (dreisemestrig)

- Anlage 2 zur Prüfungsordnung –

(Module – ECTS – Dauer – Prüfungsform – Sprache d. Moduls)

Nr.	Module Title	ECTS (CP)	Duration [Sem.]	Examination Type	Language	Weight
Semester 1						
1	Vector Analysis	5	1	Written examination	English	1
2	Stochastic Signals and Systems	5	1	Written examination	English	1
3	Digital Baseband Transmission and Modulation Methods	5	1	Written examination	English	1
4	Cloud Computing	5	1	written project report, presentation	English	1
5	Digital Switching and Routing	5	1	Written examination	English	1
6	Computational Intelligence	5	1	Written paper, presentation	English	1
Semester 2						
7	Machine Learning	5	1	written project report, presentation	English	1
8	Mobile Computing	5	1	Written project report, presentation	English	1
9	Field Theory for Optical and Microwave Communication Systems	5	1	Written examination	English	1
10	Autonomous Intelligent Systems	5	1	Written project report	English	1
11	Optional Technical Subject	5	1	Variable depending on elective module	English	1
12	Project	5	1	Written Project report, presentation	English	1

Lesefassung der Prüfungsordnung

Nr.	Module Title	ECTS (CP)	Duration [Sem.]	Examination Type	Language	Weight
Semester 3						
13	Master Thesis and Colloquium	30	1	Master thesis and colloquium	English	6

Lesefassung der Prüfungsordnung

Modulbeschreibungen Information Technology (dreisemestrig)

- Anlage 3 zur Prüfungsordnung –

Module 1

Module title	Vector Analysis
Module number	1
Study program	Information Technology (dreisemestrig)
Module usability	Information Technology (viersemestrig)
Module duration	One semester
Recommended semester	1st semester
Module type	Compulsory module
ECTS (CP) / Workload (h)	5 CP / 150 h
Module prerequisites	none
Module examination requirements	none
Module examination	Written examination (90 minutes)
Learning outcomes and skills	Upon completion of the module the students are able to: • summarize the basic ideas of Vector Spaces. • explain the concepts of Linear Independency, Coordinates and Bases of Vector Spaces. • use the scalar product and dot product in Euclidian Spaces to solve geometric problems in 3 dimensional spaces. • apply vector equations of lines and planes to describe geometric problems. • recognize vector functions in the subject-specific environment of the program and apply the methods of integral and differential calculus to them. In particular, describe movements, speeds and accelerations of objects in space using parametric curves and determine their properties such as arc length and curvature. name and explain the concepts of scalar fields and vector fields • describe the extensions of the Differential Calculus to scalar fields. • compute extrema and extrema with constraints of scalar fields. • name the concepts of multiple integrals. • apply Iterated Integrals and integration by substitution to calculate volumes.

Lesefassung der Prüfungsordnung

	• recognize the different types of integrals volume (integral, line integral and surface and the integral theorems) relating to these types of integrals. • transfer the integral theorems to applications and to the context of electrical engineering. transfer the mathematical knowledge about scalar and vector fields to describe and solve engineering problems.
Module contents	Vector analysis
Module teaching methods	Lectures combined with exercises in Vector Analysis
Module language	English
Module availability	Summer semester

Lesefassung der Prüfungsordnung

Module 2

Module title	Stochastic Signals and Systems
Module number	2
Study program	Information Technology (dreisemestrig)
Module usability	Information Technology (viersemestrig)
Module duration	One semester
Recommended semester	1st semester
Module type	Compulsory module
ECTS (CP) / Workload (h)	5 CP / 150 h
Module prerequisites	None
Module examination requirements	Exercises (processing time: 30 hours)
Module examination	Written examination (120 minutes)
Learning outcomes and skills	Upon completion of the module the students are able to: • analyze stochastic processes in information and communication systems, judge estimation methods for parameter estimation on stochastic signals, summarize the theory of non-recursive and recursive optimum systems, • choose appropriate optimum systems for information and communication, • create recursive estimators and predictors, describe colored noise as well as correlated measurement noise, create extended Kalman filters.
Module contents	Stochastic Signals and Systems Lecture Stochastic Signals and Systems Exercises
Module teaching methods	Lectures, exercises
Module language	English
Module availability	Summer semester

Lesefassung der Prüfungsordnung

Module 3

Module title	Digital Baseband Transmission and Modulation Methods
Module number	3
Study program	Information Technology (dreisemestrig)
Module usability	Information Technology (viersemestrig)
Module duration	one semester
Recommended semester	1st semester
Module type	compulsory module
ECTS (CP) / Workload (h)	5 CP / 150 h
Module prerequisites	None
Module examination requirements	None
Module examination	Written examination, 90 minutes
Learning outcomes and skills	Upon completion of the module the students are able to • explain the purpose for modulation either in baseband or in another frequency band. • choose an appropriate transmission method for a given use case. • design the system architecture and specify the hardware and the software structure of transmission nodes. • justify the choice of the modulation technique according to the transmission channel. • estimate the correctness of the received signals.
Module contents	Digital Baseband Transmission and Modulation Methods Lectures
Module teaching methods	Lectures combined with exercises
Module language	English
Module availability	Summer semester

Lesefassung der Prüfungsordnung

Module 4

Module title	Cloud Computing
Module number	4
Study program	Information Technology (dreisemestrig)
Module usability	Information Technology (viersemestrig)
Module duration	One semester
Recommended semester	1st semester
Module type	Compulsory module
ECTS (CP) / Workload (h)	5 CP / 150 h
Module prerequisites	None
Module examination requirements	None
Module examination	written project report (submission period 8 weeks, processing time 20 hours), with presentation (min. 5, max. 10 minutes)
Learning outcomes and skills	Upon completion of the module the students are able to: • analyze, design, validate and judge cloud computing systems, • facilitate situation-specific problem-solving solutions by acting in a constructive and conceptual manner, • assess their own project management capabilities, • use fact-based frameworks of actions and decisions autonomously and develop them further under guidance, • present results to a specialist audience and discuss conclusions, • assess the ethical and societal dimensions of applications.
Module contents	Cloud Computing Lecture Cloud Computing Project
Module teaching methods	List the forms of teaching of the individual units (PO/ER)
Module language	English
Module availability	Summer semester

Lesefassung der Prüfungsordnung

Module 5

Module title	Digital Switching and Routing
Module number	5
Study program	Information Technology (dreisemestrig)
Module usability	Information Technology (viersemestrig)
Module duration	One semester
Recommended semester	1st semester
Module type	Compulsory module
ECTS (CP) / Workload (h)	5 CP / 150 h
Module prerequisites	None
Module examination requirements	Laboratory exercises (processing time 20 hours)
Module examination	Written examination, 90 minutes
Learning outcomes and skills	Upon completion of the module the students are able to: • explain the development, planning and operation of switching and routing systems; • analyse, specify and develop protocols and network nodes for switching and routing • identify correlations in complex systems • analyse systems and their optimization potential • manage application-oriented projects in a largely self-directed manner. • integrate existing – Ethernet, IPv4, MPLS – and new knowledge – IPv6, SDN – and handle complexity in networks based on the mentioned technologies • apply switching and routing networks in a largely self-directed manner, • assess the ethical and societal dimensions of massive networking.
Module contents	Lectures in Digital Switching and Routing Digital Switching and Routing Laboratory
Module teaching methods	Lectures combined with exercises Lab experiments
Module language	English
Module availability	Summer semester

Lesefassung der Prüfungsordnung

Module 6

Module title	Computational Intelligence
Module number	6
Study program	Information Technology (dreisemestrig)
Module usability	Mechatronik und Robotik (Master), Information Technology (viersemestrig)
Module duration	One semester
Recommended semester	1st semester
Module type	Compulsory module
ECTS (CP) / Workload (h)	5 CP / 150 h
Module prerequisites	None
Module examination requirements	None
Module examination	Written paper (submission period 6 weeks, processing time 20 hours) with presentation (min 15, max.20 minutes).
Learning outcomes and skills	Upon completion of the module the students are able to: • describe the theory of computational intelligence, • analyze real-world problems to develop strategies and algorithms for a problem solution and specify the respective hardware and software structure, • communicate their conclusions, the underlying assumptions and their reasoning to specialists and non-specialists both clearly and unambiguously on the basis of the state of research and application, • assess sociological aspects of intelligent algorithms, • analyze and reflect on his/her own communication style.
Module contents	Computational Intelligence Seminar
Module teaching methods	Presentation and supervised discussion
Module language	English
Module availability	Summer semester

Lesefassung der Prüfungsordnung

Module 7

Module title	Machine Learning
Module number	7
Study program	Information Technology (dreisemestrig)
Module usability	Information Technology (viersemestrig)
Module duration	One semester
Recommended semester	2nd semester
Module type	Compulsory module
ECTS (CP) / Workload (h)	5 CP / 150 h
Module prerequisites	Module 2: Stochastic Signals and Systems
Module examination requirements	Module 2: Stochastic Signals and Systems
Module examination	Written project report (submission period 8 weeks, processing time 20 hours) with presentation (min. 5, max. 10 minutes).
Learning outcomes and skills	Upon completion of the module the students are able to: • explain, compare and choose machine learning algorithms, • predict the efficiency of machine learning strategies, integrate existing and new knowledge, • handle complexity, even on the basis of limited information, • acquire new knowledge and skills independently, • develop research questions, • choose adequate ways of operationalizing research and explain their choices, • explain research results and interpret them critically, • present problem solutions in a structured manner, • communicate their conclusions, and the acquired knowledge to specialist and non-specialist audiences in a clear and unambiguous way, • evaluate the social economic and ethical consequences of deep learning
Module contents	Machine Learning Project
Module teaching methods	Project
Module language	English
Module availability	Winter semester

Lesefassung der Prüfungsordnung

Module 8

Module title	Mobile Computing
Module number	8
Study program	Information Technology (dreisemestrig)
Module usability	Information Technology (viersemestrig)
Module duration	One semester
Recommended semester	2nd semester
Module type	Compulsory module
ECTS (CP) / Workload (h)	5 CP / 150 h
Module prerequisites	None
Module examination requirements	None
Module examination	Software project report (submission period 10 weeks, processing time 20 hours) with presentation (min. 15, max. 20 minutes)
Learning outcomes and skills	Upon completion of the module the students are able to: • define and interpret the special features, limits, terminologies and schools of thought in the area of mobile computing communication technologies, GSM/UMTS cellular mobile networks, 5 G incl. NFV and SDN • communicate project results, conclusions as well as the underlying assumptions and reasoning to a specialist audience • manage an application-oriented project acc. to Mobile Computing topics in a largely self-directed manner • assess the ethical and societal dimensions of ubiquitous computing.
Module contents	Lectures in Mobile Computing Mobile Computing Project incl. Presentation
Module teaching methods	Lectures Project
Module language	English
Module availability	Winter semester

Lesefassung der Prüfungsordnung

Module 9

Module title	Field Theory for Optical and Microwave Systems
Module number	9
Study program	Information Technology (dreisemestrig)
Module usability	Information Technology (viersemestrig)
Module duration	One semester
Recommended semester	2nd semester
Module type	Compulsory module
ECTS (CP) / Workload (h)	5 CP / 150 h
Module prerequisites	None
Module examination requirements	None
Module examination	Written examination, 90 minutes
Learning outcomes and skills	By the end of the course, students are able to: • explain Maxwell's Equations, • formulate all boundary conditions, • formulate and solve the wave equation of a plane wave, • classify different wave solutions, • explain the modes of different wavequides • explain radiation of different antennas
Module contents	Lecture of Field Theory and Microwave Systems
Module teaching methods	Lecture, exercises
Module language	English
Module availability	Winter semester

Lesefassung der Prüfungsordnung

Module 10

Module title	Autonomous Intelligent Systems
Module number	10
Study program	Information Technology (dreisemestrig)
Module usability	Information Technology (viersemestrig)
Module duration	One semester
Recommended semester	2nd semester
Module type	Compulsory module
ECTS (CP) / Workload (h)	5 CP / 150 h
Module prerequisites	None
Module examination requirements	None
Module examination	Written project report (submission period 14 weeks, processing time 20 hours)
Learning outcomes and skills	Upon completion of the module the students are able to: • identify and explain the architecture, hardware and software of autonomous systems, • generate intelligent algorithms and apply them to intelligent sensors, action planning and decision making, • structure, write and deliver a project report within a given timeframe, • judge the impact of decision-making in autonomous systems on society, • evaluate the social-economic consequences of an industry highly automated by autonomous systems.
Module contents	Lectures in Autonomous Intelligent Systems Project in Autonomous Intelligent Systems
Module teaching methods	Lectures and project
Module language	English
Module availability	Winter semester

Lesefassung der Prüfungsordnung

Optional Module 11

Module title	**Optional Module 11**
Module number	27

Das Wahlpflichtmodul kann aus einem vom Fachbereichsrat genehmigten Wahlpflichtpool gewählt werden. Der Fachbereichsrat beschließt jedes Semester die Module des nächsten Semesters und veröffentlicht eine Liste der angebotenen Module per Aushang spätestens vier Wochen vor Semesterbeginn. Die Wahl des Wahlpflichtmoduls erfolgt mit der Anmeldung zur Modulprüfung. Die Wahl wird nach Ablauf des Rücknahmezeitraums verbindlich; ein Wechsel ist nicht mehr möglich.

Lesefassung der Prüfungsordnung

Module 12

Module title	Project
Module number	12
Study program	Information Technology (dreisemestrig)
Module usability	Information Technology (viersemestrig)
Module duration	One semester
Recommended semester	2nd semester
Module type	Compulsory module
ECTS (CP) / Workload (h)	5 CP / 150 h
Module prerequisites	None
Module examination requirements	None
Module examination	Written project report (submission period 22 weeks, processing time 20 hours) with presentation (min. 10, max. 20 minutes)
Learning outcomes and skills	Upon completion of the module the students are able to • do requirements engineering and to evolve problem solution strategies, • present technical projects to an expert audience, • integrate existing and new knowledge, • handle complexity, even on the basis of limited information, • acquire new knowledge and skills independently, • develop research questions, choose adequate ways of operationalizing research and explain their choices, • explain research results and interpret them critically, • respect cultural and societal aspects of project work in international R&D teams
Module contents	Project
Module teaching methods	Project
Module language	English
Module availability	Every semester

Lesefassung der Prüfungsordnung

Module 13

Module title	Master Thesis and Colloquium
Module number	13
Study program	Information Technology (dreisemestrig)
Module usability	Information Technology (viersemestrig)
Module duration	One semester
Recommended semester	3rd semester
Module type	Compulsory module
ECTS (CP) / Workload (h)	30 CP / 900 h
Module prerequisites	Successful completion of modules 1 to 12
Module examination requirements	Successful completion of modules 1 to 12
Module examination	Master Thesis (processing time 22 weeks) and colloquium (min. 30, max. 45 minutes)
Learning outcomes and skills	Upon completion of the master thesis the student is able to: • plan, organize, develop, operate and present information technology systems answering to real world requirements. • assess the science-based correctness by weighing up scientific and methodological considerations. • solve practical and scientific problems by taking into account these considerations.
Module contents	Master Thesis
Module teaching methods	Master Thesis
Module language	English
Module availability	Every semester

Lesefassung der Prüfungsordnung

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 First Name

<<Nachname>>, <<Vorname>>

1.3 Date, Place, Country of Birth

<<TT. MMMM YYYY>>, <<Geburtsort>>, <<Geburtsland>>

1.4 Student ID Number or Code

<<Matrikel-Nummer>>

2. INFORMATION IDENTIFYING QUALIFICATION

2.1 Name of Qualification / Title conferred (in original language)

Information Technology (dreisemestrig) (M.Eng.)

2.2 Main Field(s) of Study

Information Technology (three semesters)

2.3 Name and Status of awarding Institution

Frankfurt University of Applied Sciences

Faculty of Computer Science and Engineering

University of Applied Sciences, State Institution

2.4 Name and status of Institution Administering Studies (in original language)

See 2.3

2.5 Language(s) of Instruction/Examination

English (90 credits [ECTS])

3. INFORMATION ON THE LEVEL AND DURATION OF THE QUALIFICATION

3.1 Level of the qualification

second level degree (1,5 years) by research with Master - Thesis>>

3.2 Official duration of programme in credits and years

1,5 years = 3 semesters, 90 (ECTS) Credit Points

3.3 Access Requirements

First academic degree or equivalent, a final grade of "gut", English requirements of B2 (GER) or equivalent

4. INFORMATION ON THE PROGRAMME COMPLETED AND THE RESULTS OBTAINED

4.1 Mode of Study

Full-time

4.2 Programme learning outcomes

On successful completion of the Master-Program "Information Technology (dreisemestrig)" the students have acquired a post graduate qualification to be technical specialists and technical managers for positions in the information technology industry.

The students have gathered profound knowledge in advanced mathematics and information and communication technology. They have improved and enhanced their knowledge in advanced theoretical methods of engineering and specialized their applied engineering knowledge, which serve as a base for further innovative approaches.

Graduates are competent and qualified to think in a multi- and interdisciplinary way when applying laws and principles of information technology in order to solve challenging and complex technical problems, particularly in reference to the development of new technologies, products, and services. They possess skills and experiences in digital communication systems, optical and microwave systems or in intelligent systems, intelligent sensors and pattern recognition.

Specific courses like the "Project Course" enable the Students to be qualified in the design of projects, processes, the mastering of change management and the creation of new strategic approaches. They will be able to contribute to the enhancement of technical knowledge and lead and manage international teams and projects. They are able to master complex and unpredictable problems with innovative solutions. They are able to apply modern project management methods and respect cultural and social aspects of project work in international R&D teams.

By experiencing a variety of situations in laboratories, during specific project work the students acquire specific skills in innovative engineering methods and strategies and will be reflective practitioners who assess the ethical and societal dimensions of their work.

The students identify and reflect the professional requirements and are prepared for lifelong learning. They are able to use presentation skills, apply self and project management, gather information that is suited for academic discussion, and describe requirements, problems and results in English language. They dispose of key competences in technical English, in social interaction (team work, project work) and in professional presentation and communication.

The prospective engineers are qualified for positions in academia, public administration and industry e.g. technical specialists or technical managers or for pursuing a PhD.

They have acquired and applied different methods that allow them to work in research and development of integrated product and service concepts in the area of information technology. Career opportunities include research and development of technical systems and the management of such projects. They qualified as technical specialists and technical managers in the information technology industry.

4.3 Programme Details, individual credits gained and grades/marks obtained

Lesefassung der Prüfungsordnung

See “Transcript of records” and “Prüfungszeugnis” (Final Examination Certificate) for the list of courses and grades, as well as the topic and grade of the final thesis

4.4 Grading system and, if available, grade distribution table

See general grading scheme cf. Sec. 8.6.

Grade distribution tables as described in the ECTS Users’ Guide:

The calculation only takes place if the reference group consists of at least 50 graduates.

4.5 Overall Classification of the qualification (in original language)

Beispiel: The result of the <Bachelor/Master> Examination is based on the accumulation of grades received during the study program and the “<Bachelor/Master>-Thesis with Colloquium” (See „Transcript of Records” for details).

5. INFORMATION ON THE FUNCTION OF THE QUALIFICATION

5.1 Access to Further Study

Master: Qualifies to apply for admission for Ph.D.(doctorate)

5.2 Access to a regulated profession (if applicable)

<<bitte Text ergänzen>>

6. ADDITIONAL INFORMATION

6.1 Additional Information

100 % of the programme is taught in English.

6.2 Further Information Sources

On the institution: https://www.frankfurt-university.de/en/

On the programme: https://www.frankfurt-university.de/de/studium/master-studiengange/information-technology-meng/fuer-studieninteressierte/

For national information sources cf. Sect. 8.8

7. CERTIFICATION

This Diploma Supplement refers to the following original documents:

Degree issued: …

Certificate issued: …

Transcript of records issued: …

Certification Date: _____

Chairperson Examination Comittee

Official Stamp/Seal

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.

Lesefassung der Prüfungsordnung

8. INFORMATION ON THE GERMAN HIGHER EDUCATION SYSTEM[1]

8.1 Types of Institutions and Institutional Status

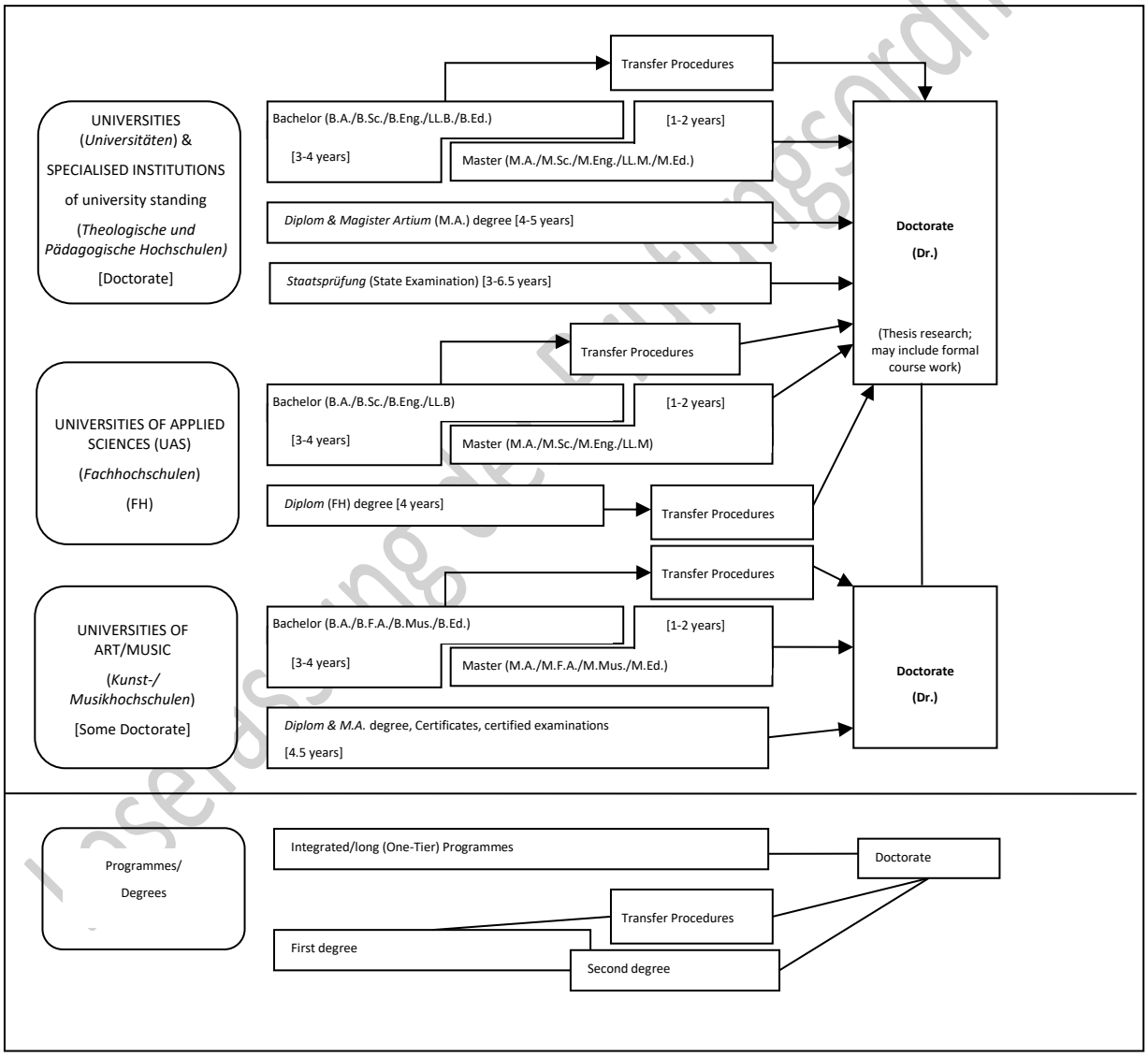
Higher education (HE) studies in Germany are offered at three types of Higher Education Institutions (HEI).[2]

- *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.

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



Rosenstiehl Prüfungsordnung

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[iii], the German Qualifications Framework for Lifelong Learning[iv] and the European Qualifications Framework Lifelong Learning[v] 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).[vi] 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.[vii]

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 Credit Points corresponding to one semester.

8.4.1 Bachelor

Bachelor degree study qualifications related to the professional field. The Bachelor degree is awarded after 3 to 4 years.

The Bachelor degree programme includes a Arbeit 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.[viii]

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.

programmes lay the academic foundations, provide methodological skills and lead to

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 Arbeit 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.[ix]

Second degree programmes (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 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 Arbeit (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

Lesefassung der Prüfungsordnung

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.[x]

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
- German information office of the Länder in the EURYDICE Network, providing the national dossier on the education system; www.kmk.org; 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.

[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.

[iii] 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 16 February 2017).

[iv] 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 http://www.dqr.de

[v] 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).

[vi] 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).

[vii] "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).

[viii] See note No. 7.

[ix] See note No. 7.

[x] 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)

Lesefassung der Prüfungsordnung