Announcements of the Bauhaus-Universität Weimar

Academic Regulations
READING VERSION

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<tr>
<td rowspan="2">☒ The President
☐ The Chancellor</td>
<td colspan="2">Study regulations for the consecutive degree programme
»Digital Engineering«
(MSc)</td>
<td>Issue

26/2017</td>
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19 July 2017</td>
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In accordance with § 3, par. 1 in conjunction with § 34, par. 3 of the Thuringian Higher Education Act (ThürHG) in its version of 13 September 2016 (GVBl. p. 437) the Bauhaus-Universität Weimar issues the following study regulations, based on the President's approval of the examination regulations for the degree programme »Digital Engineering« with the conferral of a Master of Science (MSc) degree.

These regulations were approved by the Faculty Boards of the Faculty of Media and the Faculty of Civil Engineering on 12 April 2017 and 10 May 2017.

The President of the Bauhaus-Universität Weimar approved the regulations on 21 June 2017.

Contents

Annex: Curriculum

§ 1 - Scope

The following study regulations specify the objectives, content, and structure of the English-language Master's degree programme »*Digital Engineering*«. Once completed, candidates receive a Master of Science (MSc) degree in accordance with the corresponding examination regulations.

§ 2 - Admission requirements

(1) To be eligible for admission to this programme, a candidate must have attained -- with an overall final grade of at least 2.5 -- his or her first subject related degree from an institution of higher education, a degree from a Technical College for Administration [Verwaltungsfachhochschule] or a degree from a public or state accredited university of cooperative education [Berufsakademie]. »Subject related« applies to degree programmes in Civil Engineering, Mechanical Engineering, Computer Science, Computer Science and Media, and other technical-scientific degree programmes from the areas of engineering or computer science.
The examination committee decides on the equivalence of degrees and exceptions and may also state additional requirements to be met by the student.

(2) To be eligible for admission to this programme, a candidate must provide proof of English language proficiency at the B2 level as put forth by the Common European Framework of Reference for Languages (GER) in the form of
   a) proof of mastery as a native speaker (acquisition of a certificate of higher education entrance qualification or first-level professional qualification (i.e. undergraduate degree) from an English-speaking country) or
   b) proof by means of one of the following internationally recognised certificates
          - TOEFL (internet-based score 80 or better)
          - Cambridge Certificate First Certificate in English (FCE)
          - IELTS, volume 6.0
      or by means of an equivalent certificate.

(3) The candidate must submit a one-page letter of motivation in English. The letter of motivation must include an overview of the previous academic and vocational/practical training, such as completed projects related to construction informatics and/or internships, international experience during the first-degree programme, student activities, and/or academic work. Documentation of all activities is to be provided. The letter of motivation must also detail the personal future (research) perspectives about the main areas of study.

(4) The selection of the applicants is conducted by a selection committee, which comprises two professors and two teaching associates of the degree programme »*Digital Engineering*«. The selection committee establishes which applicants meet the requirements and determines which modules from the thematic area »*Fundamentals*« are to be completed individually in order to achieve the adaptation of qualifications.

§ 3 - Beginning of the degree programme

Candidates can begin their degree programme at the start of both the winter semester and the summer semester.

§ 4 - Duration and volume of the degree programme

(1) The standard duration of study is four semesters. The Master's degree programme is comprised of courses worth 120 credit points (CP).

(2) Pursuant to § 11 of the valid matriculation order of the Bauhaus-Universität Weimar part-time study is possible for this degree programme.

§ 5 - Subject matter and objective of the degree programme

(1) The objective of the Master's degree programme »*Digital Engineering*« is to function as an intensely supervised and research-oriented study programme, in which in-depth knowledge is conveyed. In this programme, students are to further develop the expertise and methodological competence acquired in their first-degree programmes as applicable to the computer-assisted modelling, simulation, and visualisation of problems in the field of engineering. Students are also to apply their competences to the information-theoretical methods of data treatment which are necessary in this context.

(2) Conveying the required methods for a consistent digitisation of design, production, and usage processes in engineering forms the core of the degree programme »*Digital Engineering*«. By using digital technologies and interactive design, environments prognosis models can be created, design variants can be compared, and design processes can be supported. The accuracy of the required models and complex simulation processes is to be assessed and the influence of stochastically scattering influence variables is to be identified and evaluated. The large datasets thus generated are to be treated reliably and are to be processed for decision making.
Consequently, the graduates achieve a high degree of competence in recognising engineering-scientific and methodological connections, in the engineering-technological modelling of these connections on the basis of various concepts, and in the presentation and interpretation of complex findings.

(3) Additionally, the students are taught to assume their scientific, social, and ecological responsibility, and to actively contribute to shaping civil society.

(4) The students are taught to understand and solve research questions. They will be able to understand application-specific issues and to independently develop possible solutions. They will be able to assess various problem-solving approaches and are to be able to make an appropriate choice and to justify this choice to third parties clearly and concisely.

(5) The project-oriented degree programme enables students to work in a team as well as independently, to express criticism with regard to the subject matter and to handle professional criticism directed at them. The students should be able to present their findings in a comprehensible form and to identify connecting factors beyond the delineation of their own subject.

(6) A »*Master of Science*« degree (MSc) is awarded following the successful completion of the Master's examination.

§ 6 - Structure and content of the degree programme

(1) The degree programme is comprised of modules totalling 120 credit points (CP). One credit point is equivalent to approximately 30 hours of course work, which includes course attendance and private study as well as preparation for the examination and taking the examination.

(2) The course language is English.

(3) The content of the degree programme is taught in modules. Modules designate a compound of courses which are time-limited, self-contained courses with a methodological or thematic approach. Modules are issued with an amount of credit points that correspond with the extent of work to be performed by the students. They are completed with a module examination which consists of one or several examination requirements, on the basis of which credit points are achieved. A module is comprised of work totalling three credit points or a multiple thereof.
There are two basic structural forms of modules:
    1. Compulsory elective modules: students must select from a thematically limited area;

2. Elective modules: students can select freely from the Master's module courses of the Bauhaus-Universität Weimar, in particular those offered by the Faculty of Media and the Faculty of Civil Engineering. Language courses in English or German totalling a maximum of 6 CP can also be selected as elective modules.

(4) For approximating previous subject-specific knowledge, students must enrol in modules totalling 12 credit points (CP), which are deemed missing due to their previous subject-specific qualification. They are to be completed in the first two semesters of the degree programme. The modules which are to be completed are individually determined by a selection committee (§ 2, para. 4) based on the content of the degree course completed as part of the previous university degree.

(5) Modules are further divided into four thematic areas based on content-related aspects: »*Fundamentals*«, »*Modelling*«, »*Simulation & Validation*«, and »*Visualization & Data Science*«. The basic modules (»*Fundamentals*«) are intended to convey the essential components of both main parts of the programme (Computer Science and Engineering), which may be lacking for students depending on their previous university degree (cf. § 6, para. 4). Students must select, enrol in, and successfully complete compulsory elective modules totalling 18 CP from each of the three other thematic areas. The thematic areas and the available modules are listed in the module catalogue.

(6) Examples of course schedules, which are to be put together individually, are listed in the attachment.

(7) A project totalling 12 CP is to be completed during the degree programme. In coordination with the academic advisor, it can be completed externally with partners in industry.

(8) The degree programme concludes with the Master's module (24 CP). It consists of the Master's thesis, preparatory research, and the presentation.

§ 7 - Linguistic requirements

(1) All courses, all exams as well as the final thesis are generally to be completed in English.

(2) To be eligible for admission to the Master's thesis, English language proficiency at the C1 level as put forth by the Common European Framework of Reference for Languages (GER) is mandatory and must be documented in the form of:
   a)   Mastery as a native speaker (acquisition of a certificate of higher education entrance qualification or first-level professional qualification (i.e. undergraduate degree) from an English-speaking country) or
   b)   In the form of one of the following certificates
               - IELTS: volume 7.0 or better,
               - TOEFL Internet-Based Score: 110 or better
               - Cambridge Certificate (CAE)
       or in the form of an equivalent certificate.

(3) To be eligible for admission to the Master's thesis, German language proficiency at the A1 level as put forth by the Common European Framework of Reference for Languages (GER) is mandatory and must be documented.

(4) Students have the opportunity to meet this requirement before working on the Master's thesis (usually in the 1st - 3rd semester) by participating in language courses and taking the respective examinations offered by the university's Language Centre. These language courses can be counted as an elective module worth a total of 6 credit points.

§ 8 - International course work

(1) The international approach of the degree programme is also characterised by the fact that some of the course work can be completed abroad. International course work is credited to the curriculum pursuant to § 9 of the examination regulations.

(2) Students are responsible for organizing periods spent abroad themselves. The academic advisor can provide support in particular with regard to the crediting of course work and the general organization of course work.

(3) Prior to commencing periods abroad, students must present a Learning Agreement stating that the course work completed abroad can be recognised and credited to the degree programme. The individual coordination must take place between the student and the academic advisor as well as any involved professors. This must be done before beginning the period abroad.

§ 9 - Disability compensation

(1) Applicants with disabilities and/or chronic illness can submit an application requesting compensation for disability.

(2) The Bauhaus-Universität Weimar provides general advice concerning the degree programme. In addition to general counselling provided by the university, support and advice for chronically ill and disadvantaged students—including advice on the issue of disability compensation— is provided by the Studentenwerk Thüringen (Student Services Thuringia). The working group "Studying with Disabilities« at the Bauhaus-Universität Weimar also offers special counselling services to students who are chronically ill or handicapped.

(3) The structure of the degree programme, including teaching and learning methods, considers the specific needs of students (e.g. disabled or chronically ill students) whose special circumstances limit their ability to organise their studies.

(4) In consultation with the body responsible for admission, the responsible examination committee decides on the issue of compensation for disadvantage upon application submitted by the applicant and/or student. The applicant can propose a specific form of compensation. The application is to be submitted in writing, the decision is notified in writing and, in the event of a rejection, the reasons for the rejection are also given in writing.

§ 10 - Completion of the Master's degree programme

The Master's degree programme is completed with the Master's examination, which comprises the module examinations administered during the degree programme and the Master's thesis including the preparatory research and the presentation.

§ 11 - Academic counselling

(1) At the beginning of the first semester, there is an introductory event which offers an overview of the individual areas of teaching and research of »*Digital Engineering*« as well as the structure of the Master's degree programme.

(2) The academic advisor conducts individual counselling.

(3) Individual subject-related counselling is provided to students by professors and academic staff of the Faculty of Media and the Faculty of Civil Engineering.

(4) Teaching staff participates in a discussion event with student representatives concerning content and structure of the degree programme at least once per year.

§ 12 - Equal treatment clause

Terms of status and function as applied in these regulations equally pertain to both sexes.

§ 13 – Statement of effect

(1) These regulations enter into effect on the first day of the month following their public announcement by the Bauhaus-Universität Weimar. They apply for the first time in the winter semester 2017/2018.

Approved by resolution of the Faculty Board on 12 April 2017

Prof. Dr.-Ing. Volker Rodehorst
Dean of the Faculty of Media

Approved by resolution of the Faculty Board on 10 May 2017

Prof. Dr.-Ing. Volker Rodehorst Dean of
the Faculty of Civil Engineering

The statutes are approvable.

Dipl.-Jur. Rainer Junghanß
Legal Advisor

approved
Weimar, 21 June 2017

Prof. Dr. Winfried Speitkamp
President

Attachment: Course schedule

Students are required to attain no fewer than 120 credit points in the four thematic areas in the 1st to 4th semester.

The courses on offer for each thematic area are announced in the module catalogue and in the currently valid course catalogue. After admission to the degree programme has been granted, up to two modules from the thematic area »*Fundamentals*«, which the student must complete, are individually determined (cf. § 6, para. 4). All other courses are offered as compulsory elective modules. The elective module permits the selection of Master's courses from, in particular, the Faculty of Media and the Faculty of Civil Engineering of Bauhaus-Universität Weimar and graded language courses worth a maximum of 6 credit points (cf. § 6, para. 3).

The Master's module includes the preparatory research, the Master's thesis and its presentation (cf. § 6, para. 7).

Name	Credit points
Fundamentals (F)	18
Modelling (M)	18
Simulation and Validation (SaV)	18
Visualization and Data Science (VaDS)	18
Elective modules	12
Project	12
Master's module	24

Total	120

Examples - Semester course schedules

Course	1. FS		2. FS		3. FS		4. FS	
	Credit	CP	Credit	CP	Credit	CP	Credit	CP
Individually assigned module	3	6						
Individually assigned module	6	6						
Compulsory elective module (F)	4	6						
Compulsory elective module (M)	4	6						
Compulsory elective module (M)	2	3						
Compulsory elective module (M)	1	3						
Compulsory elective module (M)			4	6				
Compulsory elective module (SaV)			4	6				
Compulsory elective module (SaV)			4	6				
Compulsory elective module (VaDS)			3	6				
Compulsory elective module (VaDS)			3	6				
Compulsory elective module (VaDS)					3	6		
Project						12		
Elective module					4	6		
Elective module					2	3		
Research Master's module (non-graded)						3		
Elective module							2	3
Compulsory elective module (SaV)							4	6
Master's thesis and presentation							-	21
Total	**20**	**30**	**18**	**30**	**9**	**30**	**6**	**30**

Example 2

Course	1. FS		2. FS		3. FS		4. FS	
	Credit	CP	Credit	CP	Credit	CP	Credit	CP
Individually assigned module	3	6						
Individually assigned module	6	6						
Compulsory elective module (M)	2	3						
Compulsory elective module (VaDS)	3	6						
Compulsory elective module (SaV)	4	6						
Elective module	2	3						
Compulsory elective module (M)			2	3				
Compulsory elective module (F)			4	6				
Compulsory elective module (M)			4	6				
Compulsory elective module (M)			4	6				
Compulsory elective module (SaV)			3	6				
Compulsory elective module (VaDS)			4	6				
Compulsory elective module (VaDS)					3	6		
Compulsory elective module (SaV)					4	6		
Project						12		
Research Master's module (non-graded)						3		
Elective module							2	3
Elective module							4	6
Master's thesis and presentation							-	21
Total	**20**	**30**	**21**	**33**	**7**	**27**	**6**	**30**