

# Study and Examination Regulations

## for the Bachelor programs of Hochschule Ravensburg-Weingarten University of Applied Sciences

dated June 27, 2019

On July 2<sup>nd</sup>, 2015, pursuant to § 8 Sect. 5 in conjunction with § 30 Sect. 1 and § 32 Sect. 1 of the Baden-Württemberg Higher Education Act (Landeshochschulgesetz - LHG) of January 1<sup>st</sup>, 2005 (law gazette, page 1 ff) as amended from time to time, the Senate of the Hochschule Ravensburg-Weingarten – University of Applied Sciences enacted the following changes to the Study and Examination Regulations in compliance with § 19 Sect. 1 No. 9 LHG.

The Rector has approved the Study and Examination Regulations pursuant to § 32 Sect. 3 Sent. 1 LHG.

### **Table of contents**

§ 1 Scope of Application and Organizational Structure .....	3
A. General Part .....	4
§ 2 Objective of the Study, Purpose of the Examination, Academic Degree .....	5
§ 3 Official Length of Program, Organization of Studies .....	6
§ 4 Pre-University Internship .....	6
§ 5 Compulsory Practical Semester .....	7
§ 6 Type and Structure of the Examination .....	8
§ 7 Scope of the Examination, Intermediate Assessment, Deadlines for Course Achievements during the Course of the Studies .....	8
§ 8 Repeatability of Examinations .....	8
§ 9 Forms of Examination .....	9
§ 10 Oral Examinations .....	9
§ 11 Written Examinations and other Written Papers .....	9
§ 12 Bachelor's Thesis .....	10
§ 13 Evaluation of Examinations .....	10
§ 14 Withdrawal, Default, Deceit, Breach of Regulations .....	12
§ 15 Passing of Examinations .....	12
§ 16 Definite Failure of the Bachelor's Examination .....	12
§ 17 Recognition of Study Periods, Courses and Examinations .....	13
§ 18 Examination Committee .....	13
§ 19 Examiners and Observers .....	14
§ 20 Responsibilities .....	14
§ 21 Provision of the Range of Courses .....	15
§ 22 Organization of Examinations .....	15
§ 23 Admission to Examinations .....	15
§ 24 Information about Examination Results .....	16
§ 25 Certificates, Bachelor Diploma .....	16
§ 26 Invalidity of the Bachelor's Examination .....	17
§ 27 Inspection of Examination Records .....	17
§ 28 Special Provisions for Students with Family Care Responsibilities .....	17

§ 29 Special Protection during Pregnancy .....	18
§ 30 Students with Disabilities or Chronic Illness .....	18
§ 31 Special Provisions for Elected Student Members in Statutory Bodies and Organs of the University or the Student Services .....	19
B. Special Part .....	20
§ 36 Bachelor Study Program Electrical Engineering and Information Technology .....	21
§ 37 Bachelor Study Program E-Mobility and Green Energies .....	26
§ 38 Bachelor Study Program Physical Engineering (Technik Entwicklung) .....	30
C. Final Provisions .....	36
§ 50 Entry into Force .....	36
§ 51 Entry into Force of the first Amendment of 13 July 2006 .....	36
§ 52 Entry into Force of the second Amendment of 16 January 2007 .....	36
§ 53 Entry into Force of the third Amendment of 26 June 2007 .....	36
§ 54 Entry into Force of the fourth Amendment of 29 January 2008 .....	36
§ 55 Entry into Force of the fifth Amendment of 31 March 2008 .....	36
§ 56 Entry into Force of the sixth Amendment of 26 June 2008 .....	36
§ 57 Entry into Force of the seventh Amendment of 23 January 2009 .....	36
§ 58 Entry into Force of the eighth Amendment of 29 June 2009 .....	36
§ 59 Entry into Force of the ninth Amendment of 27 November 2009 .....	36
§ 60 Entry into Force of the tenth Amendment of 31 March 2010 .....	36
§ 61 Entry into Force of the eleventh Amendment of 25 June 2010 .....	36
§ 62 Entry into Force of the twelfth Amendment of 26 November 2010 .....	36
§ 63 Entry into Force of the thirteenth Amendment of 21 January 2011 .....	37
§ 64 Entry into Force of the fourteenth Amendment of 1 April 2011 .....	37
§ 65 Entry into Force of the fifteenth Amendment of 1 July 2011 .....	37
§ 66 Entry into Force of the sixteenth Amendment of 22 June 2012 .....	37
§ 67 Entry into Force of the seventeenth Amendment of 13 December 2012 .....	37
§ 68 Entry into Force of the eighteenth Amendment of 25 January 2013 .....	37
§ 69 Entry into Force of the nineteenth Amendment of 2 July 2013 .....	37
§ 70 Entry into Force of the twentieth Amendment of 24 January 2014 .....	37
§ 71 Entry into Force of the twentyfirst Amendment of 9 April 2014 .....	37
§ 72 Entry into Force of the twentysecond Amendment of 1 July 2014 .....	37
§ 73 Entry into Force of the twentythird Amendment of 2 July 2015 .....	37
§ 74 Entry into Force of the twentyfourth Amendment of 30 June 2016 .....	37
§ 75 Entry into Force of the twentyfifth Amendment of 1 June 2017 .....	37
§ 76 Entry into Force of the twenty-sixth Amendment of 26 October 2017 .....	38
§ 77 Entry into Force of the twenty-seventh Amendment of 28 June 2018 .....	38
§ 78 Entry into Force of the twenty-eighth Amendment of 27 June 2019 .....	38

## **§ 1 Scope of Application and Organizational Structure**

The present Study and Examination Regulations apply to the following Bachelor's programs:

1. Energy and Environmental Engineering
2. Business/Management
3. Mechanical Engineering
4. Automotive Engineering
5. Electrical Engineering and Information Technology
6. Business Informatics
7. Applied Computer Science
8. Technology Management
9. Social Work
10. Applied Psychology
11. Automotive Engineering PLUS
12. Business Informatics PLUS Vocational Training and Education I
13. Health Economics
14. Electrical Engineering/Applied Physics PLUS Vocational Training and Education I
15. Nursing
16. Physical Engineering (Technik-Entwicklung)
17. E-Mobility and Green Energies
18. Digital Design and Media

- (2) The academic year is divided into semesters commencing on March 1<sup>st</sup> and September 1<sup>st</sup> respectively. The date on which the course of study can actually be commenced is laid down for each study program in the Admission Regulations.
- (3) The provisions as laid down in the General Part (A) shall apply unless otherwise stipulated in the Special Part of the present Study and Examination Regulations.

## **A. General Part**

## § 2 Objective of the Study, Purpose of the Examination, Academic Degree

- (1) The Bachelor study program aims to convey specialized knowledge and skills corresponding to Level 1 of the German Qualifications Framework for Higher Education Degrees enabling the students to take up skilled employment, develop their personality and pursue academic work.
- (2) The Bachelor's examination terminates the studies by conferring a professional qualification in the following study programs:
  1. Energy and Environmental Engineering
  2. Business/Management
  3. Mechanical Engineering
  4. Automotive Engineering
  5. Electrical Engineering and Information Technology
  6. Business Informatics
  7. Applied Computer Science
  8. Technology Management
  9. Social Work
  10. Applied Psychology
  11. Automotive Engineering PLUS
  12. Electrical Engineering/Applied Physics PLUS Vocational Training and Education I
  13. Health Economics
  14. Business Informatics PLUS Vocational Training and Education I
  15. Nursing
  16. Physical Engineering (Technik-Entwicklung)
  17. E-Mobility and Green Energies
  18. Digital Design and Media
- (3) The examination is meant to verify that the student has achieved the objectives defined for his program.
- (4) Successful pass of the Bachelor's examination leads to the award of an academic degree, i.e.
  1. "Bachelor of Engineering", abbreviated "B.Eng." for the study programs "Mechanical Engineering", "Automotive Engineering", "Automotive Engineering PLUS", "Electrical Engineering and Information Technology", "Electrical Engineering/ Applied Physics PLUS Vocational Training and Education I", "Technology Management", "Energy and Environmental Engineering" and "E-Mobility and Green Energies",
  2. "Bachelor of Science", abbreviated "B.Sc." for the study programs "Physical Engineering (Technik-Entwicklung)", "Business Informatics and E-Business", "Applied Computer Science" and "Business Informatics PLUS Vocational Training and Education" as well as "Digital Design and Media",
  3. "Bachelor of Arts", abbreviated "B.A." for the study programs "Business/Management", "Social Work", "Nursing Education", "Health Economics" and "Nursing".

### **§ 3 Official Length of Program, Organization of Studies**

- (1) The official length of program including the time provided for completing the Bachelor thesis and passing all examinations is laid down in the Special Part of the present Study and Examination Regulations.
- (2) At all stages, the study is structured modularly. A module designates an individual course or a group of courses which are interrelated in terms of topic and time and to which a certain number of credits are assigned depending on the expenditure of time required for the successful completion of the course. These credits are not awarded for mere attendance, but as a rule only if proof of a specific accredited examination can be provided. Assignment of credits is effected in compliance with ECTS (European Credit Transfer System), with one credit point corresponding to the sixtieth part of the student's annual workload (30 hours).
- (3) Upon decision by the responsible faculty council, courses can also be offered in the English language.
- (4) In particular cases and upon decision by the responsible faculty council, the sequence and the type of modules/courses and examinations as laid down in the Special Part hereof can be changed for one academic semester and for compelling reasons to ensure the smooth running of the study.
- (5) The attendance of courses can be made compulsory if and only if the nature of the course imperatively requires the students' presence. Compulsory attendance is documented in the Reference Book of Modules for the respective module.

### **§ 4 Pre-University Internship**

- (1) As a rule, the pre-university internship, if required in the Special Part hereof, should be completed prior to the commencement of the study program, however, evidence must be given by the end of the 3<sup>rd</sup> subject-related semester at the latest. The examination entitlement and admission to the study program will expire if the pre-university internship has not been completed by the end of the 3<sup>rd</sup> subject-related semester unless the student cannot be held responsible for his failure to observe the deadline. In cases of doubt, the Central Examination Committee will decide if the student will be held responsible for missing the deadline. The examination office will verify if a confirmation by the internship supervisor exists. Evidence of completion of a pre-university internship must also be provided by students commencing their studies at the Hochschule Ravensburg-Weingarten – University of Applied Sciences with a higher semester due to the transfer of credits and study periods. The internship supervisor of the study program will then fix the deadline for the subsequent completion of the pre-university internship.
- (2) During the pre-university internship, the intern will work in suitable firms or government agencies (training institutions or companies) to acquire practical knowledge and skills from the occupational field of his study program. A completed vocational training in the relevant occupational area of the study program or an activity equivalent to the pre-university internship can be recognized as a pre-university internship.
- (3) Periods of school education, vacations, times of illness and other leaves of absence are not considered as internship for the purpose of these regulations. For the pre-university internship to be recognized, the training institution or company must issue a confirmation of internship stating the times worked and the fields of activity. Vacations, sickness periods and other days absent must be shown separately.
- (4) Upon the student's request, the internship supervisor of the relevant faculty will decide upon the recognition of the pre-university internship.

## § 5 Compulsory Practical Semester

- (1) The sixth-months' compulsory practical semester shall comprise practical activities from the student's line of profession (at training institution or company) as well as accompanying academic courses at the university held as block courses. The weekly/daily attendance time at the training institution or company may be flexible as agreed between the student and the company/institution offering the placement. However, for the compulsory practical semester to be recognized with regard to examination requirements, the student must give evidence of at least 95 attendance days. A higher number of attendance days necessary for the compulsory practical semester to be recognized as complying with the examination requirements may be defined in the Special Part hereof. Lack of evidence or failure to achieve the required number of attendance days will not affect the compulsory nature of the compulsory practical semester.

During their compulsory practical semester, students will usually be supervised by a professor for a time period of 4 hours. For all study programs, the compulsory practical semester may not be completed prior to the 5<sup>th</sup> semester unless otherwise stipulated in the Special Part of this Study and Examination Regulations. Any preponement is subject to written approval by the head of the competent Examination Committee.

- (2) The University will cooperate with the companies and institutions offering the placement in all issues concerning the work-related practical education of the student. During the compulsory practical semester, accompanying academic courses will be provided according to the Special Part hereof.
- (3) During the compulsory practical semester, students must draw up written reports on their training. These reports must be confirmed by the training institution or company. At the end of the compulsory practical semester, the training institution/company will issue a proof of activity stating the type and the content of the activity, beginning and end dates of the training period as well as times of absence. On the basis of the training report and the proof of activity, it will be determined if the students have successfully completed the compulsory practical semester. Should the compulsory practical semester not be recognized as successfully completed, it can be repeated once with the internship supervisor being responsible for the decision.
- (4) It is the student's responsibility to obtain a placement for the compulsory practical semester. The student must propose the training institution or company and obtain the internship supervisor's approval; in case of doubt, the final decision lies with the Examination Committee.
- (5) The University will establish Interns Offices for the various study programs. These Interns Offices will be responsible for the organisational aspects of the compulsory practical semester, the coordination of the training contents and for maintaining the relationship with the training institutions and companies.
- (6) The student will conclude a training agreement with the company or institution offering the placement according to the specimen defined by the Interns Office. A copy of the training agreement must be submitted to the Interns Office prior to the commencement of the compulsory practical semester.
- (7) The training institution or company commits to grant the student a leave of absence of up to ten work days during the compulsory practical semester to prepare and review lectures. The student will not be entitled to any vacation.
- (8) Subject to prior approval by the internship supervisor, the student is allowed to change the training institution or company during the compulsory practical semester provided that such change would be beneficial to the pursuit of the studies or necessary in well-founded exceptional circumstances. In case of doubt, the final decision lies with the Examination Committee.

## **§ 6 Type and Structure of the Examination**

- (1) The Bachelor's examination consists of the examinations in the different modules and the Bachelor's thesis.
- (2) A module encompasses defined skills to be acquired and concludes with a single accredited course achievement/examination. Nature, form and scope of the accredited course achievement/examination for the individual modules are laid down in the Special Part B hereof.

## **§ 7 Scope of the Examination, Intermediate Assessment, Deadlines for Course Achievements during the Course of the Studies**

- (1) Insofar as the official course of the studies is observed, the students will normally take a maximum of six formal performance tests according to § 6 hereof.
- (2) At the end of the first year of study, an intermediate assessment will take place covering the course achievements of the first two semesters as specified in the Special Part hereof accounting for 60 credit points.
- (3) Students must have passed all parts covered by the intermediate assessment by the end of their fourth semester. The study programs Social Work and Nursing Education, where the students must have passed all parts of the intermediate assessment by the end of their fifth semester, are an exception. The examination entitlement and the admission to the study program will expire should the student not have obtained all credits required for the intermediate assessment by the end of his/her fourth semester or, in the study programs of Social Work and Nursing Education, by the end of his/her fifth semester unless the student cannot be held responsible for his/her failure to observe the deadline. If the student is to be held responsible for exceeding the deadline will be determined by the Central Examination Committee in the event of a dispute.
- (4) To successfully complete the study program, it is necessary to earn a specific total of credits as defined in the Special Part hereof. Credits are awarded for passed module examinations as well as, where applicable, for the successfully accomplished compulsory practical semester, the applicable number of credit points being defined in the Special Part hereof.
- (5) Students who have not obtained the required number of credits by the end of the official length of the program plus 3 semesters will lose their examination entitlement for the study program concerned unless they cannot be held responsible for their failure to observe the deadline. If the student is to be held responsible for exceeding the deadline will be determined by the Central Examination Committee.

## **§ 8 Repeatability of Examinations**

- (1) Failed examinations can be repeated once. It is not possible to repeat a passed exam. Failures in the same study program at other German universities will be taken into account.
- (2) Failed compulsory examinations and compulsory examinations deemed failed must be retaken. A module examination cannot be repeated in parts, but only as a whole. A failed Bachelor's thesis can be repeated once.
- (3) The repeat test must be completed at the latest in the framework of the examination dates of the following semester. Exceptions exist for cases as laid down in § 6 (2) of the University's directive on the recognition of academic achievements earned abroad by a student enrolled at the University of Applied Sciences Ravensburg-Weingarten (*Richtlinie der Hochschule Ravensburg-Weingarten über die Anerkennung im Ausland erbrachter Studienleistungen an der Hochschule Ravensburg-Weingarten immatrikulierter Studierender*). During the compulsory practical semester, only repeat



examinations may be sat. Failure to observe the deadline for resitting the examination will lead to expiry of the examination entitlement, unless the examination candidate cannot be held responsible for the failure, the decision being made by the Central Examination Committee.

- (4) Upon the student's application (hardship claim), the Examination Committee can allow a second resit of a failed examination if it can be expected from the student's previous academic performance as a whole that he/she is in the position to successfully complete his/her studies and if evidence has been given to show that a special hardship exists resulting from an extraordinary impairment of the first repeat examination. The hardship claim must be filed by the student in writing within 21 days after notification of the examination results. The corresponding letter of notification will be deemed received three days after the date of posting. Section 3 will apply accordingly.

## **§ 9 Forms of Examination**

- (1) In compliance with the Special Part hereof, accredited examinations can have the following forms:
  1. oral examination and
  2. written examination or any other written paper (e.g. term paper, report)
  3. seminar paper
  4. laboratory work
  5. designs and
  6. practical work or
  7. portfolio or
  8. team work.
- (2) As a rule, the examinations shall be taken during the examination weeks outside the lecture period of the academic semester.

## **§ 10 Oral Examinations**

- (1) By taking oral examinations, students shall prove their ability to understand the contexts of the field to be tested and to deal with specific issues in the light of these contexts. Furthermore, it shall be determined if the student has a broad basic knowledge.
- (2) As a rule, oral examinations shall be taken before at least two examiners or before one examiner and one competent observer, as a group or as an individual examination. Before determining the grade pursuant to § 13, each examiner will hear the other examiners who attended the exam or the competent observer.
- (3) Oral examinations shall have a duration of at least 20 minutes for each candidate and course, maximum 30 minutes.
- (4) The major contents and the results of the oral examinations must be laid down in the minutes. The tested candidate must be informed of the result subsequent to the examination.
- (5) Students wishing to take the same examination on an examination date later than the ongoing examination period shall be admitted as listeners unless the tested candidate disagrees. However, such admission will not include consultation and announcement of the examination results.

## **§ 11 Written Examinations and other Written Papers**

- (1) Through the written examinations and the other written papers, students shall prove their ability to solve problems and work on topics within a limited period of time and with limited auxiliary means, thereby using the established methods of their subject. Moreover, the written examination aims to verify if the student possesses the required basic knowledge.

- (2) The assessment procedure shall not exceed four weeks.
- (3) The duration of the written examinations and the other written papers are defined in the Special Part hereof.

## § 12 Bachelor's Thesis

- (1) The Bachelor thesis is an accredited examination which shall prove the candidate's ability to solve problems and work on a topic from the subject-matter of his major field of study within a specified period of time using adequate methods. Credits are earned for the Bachelor's thesis according to the Special Part hereof.
- (2) The topic for the Bachelor's thesis will be issued by a professor. The thesis shall be supervised by same professor and another professor or a contract instructor, insofar as the contract instructor works at the Hochschule Ravensburg-Weingarten – University of Applied Sciences in a field relating to the study program concerned. Should the Bachelor's thesis be completed at an institution other than the University, the chairperson of the Examination Committee must give his consent. It must be ensured that the student be released from work for the purpose of attending the required courses.
- (3) The number of weeks allowed for completing the Bachelor's thesis is laid down in the Special Part hereof. Upon the candidate's request, the Examination Committee, in consultation with the supervisor, can extend the completion time by a maximum of four weeks, in which case it must be ensured that the official length of the study program be observed.
- (4) The topic can only be returned once within the first two weeks of the completion time. A new topic must be agreed upon without delay, however within 4 weeks at the latest.
- (5) The Bachelor's thesis must be submitted to the Examination Committee in due time and in two copies in printed form as well as in digital form (CD-ROM). The time of handing in the paper must be officially recorded. On submittal, the student will be required to assure in writing that he/she has written the work presented in this thesis independently and that he/she did not use any sources or auxiliary means other than those referenced. Non-observance of the time limit fixed for handing in the Bachelor thesis will lead to the paper being graded with "fail" (5.0).
- (6) As a rule, the Bachelor's thesis will be graded by two examiners to be appointed by the Examination Committee. Usually, one of the examiners will be the supervisor of the Bachelor's thesis. At least one of the examiners shall be a professor or university lecturer of the faculty concerned. The evaluation procedure shall not exceed four weeks.
- (7) In order to pass their Bachelor's thesis, candidates will need an overall grade of at least "fair" (4.0). It is possible to repeat it, a second repetition being excluded. A new topic for the Bachelor's thesis must be applied for in writing with the chairperson of the Examination Committee within a period of two months after notification of the failure. Failure to observe the application deadline will result in the student losing his entitlement to take the examination unless the person to be tested cannot be held responsible for the non-observance.

## § 13 Evaluation of Examinations

- (1) The grades for the different examinations will be determined by the examiners involved. The following grades must be used for the assessment of the exams:

1 = very good	An excellent performance
2 = good	A performance well above average requirements

3 = satisfactory	A performance which fulfills all normal requirements
4 = fair	A performance which meets the requirements despite some weaknesses
5 = fail	A performance which due to considerable weaknesses does not meet the requirements

To differentiate the evaluation of the examinations, it is possible to use decimal grades in 1/10 increments with 1.0 being the best and 5.0 the worst grade.

- (2) If an examination is evaluated by more than one examiner (each examiner evaluates the entire examination), the grade shall be calculated from the average of the grades fixed by each examiner. To determine the grade of an examination, where several examiners assess different parts of the examination, the grade shall be determined on the basis of the total number of points to be achieved. If a course achievement/examination consists of several tests, the grade for that course achievement/examination is calculated on the basis of the average grades of the individual tests weighted according to the number of ECTS credits. The following grades shall be used:

for an average of up to 1.5	= very good;
for an average from 1.6 to 2.5	= good;
for an average from 2.6 to 3.5	= satisfactory;
for an average from 3.6 to 4.0	= fair;
for an average of 4.1 or worse	= fail.

- (3) When fixing the grades only the first decimal will be taken into account; all other decimals will be dropped without rounding.
- (4) The overall Bachelor grade is calculated on the basis of the module grades achieved during the basic and main study periods weighted according to the number of ECTS credits (weighted arithmetic mean) as laid down in the Special Part hereof and the grade for the Bachelor's thesis weighted according to the Special Part hereof. Ungraded partial tests of a module will not be taken into account for the calculation of the module grades. However, as the weight of these grades contributes to the weight of the entire module, they will affect the calculation of the overall Bachelor grade.
- (5) For outstanding performances (overall grade 1.3 or better), the overall assessment "pass with distinction" (*"mit Auszeichnung bestanden"*) will be awarded.
- (6) The final grade as documented in the Diploma Supplement will be awarded as relative grade according to the following table set up by the HRK (Association of Universities and other Higher Education Institutions in Germany):

A the best 10 % of the graduates
B the next 25 % of the graduates
C the next 30 % of the graduates
D the next 25 % of the graduates
E the next 10 % of the graduates

This relative grading system is used if the number of graduates of the past three semesters is at least 30. Otherwise no relative grade will be awarded; instead the grades will be determined as follows:

A for an average of up to 1.5
B for an average from 1.6 to 2.0
C for an average from 2.1 to 2.5
D for an average from 2.6 to 3.5

E for an average from 3.6 to 4.0.

- (7) Recognition and conversion into the German grading system of examinations taken abroad and stated as ECTS grades are based on the following table:

A	=	1.2
B	=	1.8
C	=	2.3
D	=	3.0
E	=	3.8
F	=	4.5

## § 14 Withdrawal, Default, Deceit, Breach of Regulations

- (1) An examination will be graded with "fail" (5.0) if the candidate fails to attend the examination without valid grounds or if he/she withdraws after registration for the examination without valid grounds. This applies accordingly if a written examination is not completed within the prescribed length of time.
- (2) The good reason brought forward for the withdrawal or default must be immediately notified to the chairperson of the Examination Committee in writing and evidence must be furnished. In cases of illness, a certificate of incapacity to sit the examination, completed by a doctor, will be required and must be submitted within 14 days. In case of doubt, such attestation can be requested from a doctor named by the University. Should the reason given be accepted, a new examination date will be fixed with the examination results already obtained being taken into account.
- (3) Should the candidate try to influence examination results through deceit or use of auxiliary means other than those referenced, the examination concerned will be graded with "fail" (5.0). Whoever disturbs the orderly course of the examination can be excluded from continuing the examination by the responsible examiner or supervisor, in which case the examination will be graded with "fail" (5.0). In severe cases, the Examination Committee can exclude the candidate from taking further examinations.
- (4) The person concerned by the decision may, within a period of one month, request the decision to be reviewed by the Examination Committee in compliance with section 4, sentences 1 and 2. Decisions to their disadvantage must be notified to the candidate without delay and in writing stating the reasons and providing information on the legal remedies available.

## § 15 Passing of Examinations

- (1) An accredited examination is deemed to be passed if it has been graded with "fair" (4.0) or better.
- (2) A candidate has passed a module examination if all related tests have been passed. Credits can only be earned for passed module examinations.
- (3) The Bachelor's examination is deemed to be passed if the Bachelor's thesis and all the required module examinations have been passed, subject to the ancillary conditions specified in the Special Part hereof.

## § 16 Definite Failure of the Bachelor's Examination

- (1) The Bachelor examination is deemed definitely failed if
  - the candidate's second attempt at passing the Bachelor's thesis was unsuccessful or deemed unsuccessful

- the second repetition of a module examination or other accredited examinations has failed
  - the candidate has forfeited his examination entitlement for reason of non-observance of the deadlines.
- (2) The candidate will be notified in writing about his definite failure in the examination and informed about the legal remedies available.

## **§ 17 Recognition of Study Periods, Courses and Examinations**

- (1) Periods of study, course achievements and accredited examinations will be transferred without verification of equivalency if the same have been completed at another German institution of higher education of the same type and in the same study program.
- (2) Periods of study, course achievements and accredited examinations in study programs not covered by section 1 will be accredited in compliance with the statutes on the recognition of courses and examinations (*Satzung über die Anrechnung von Studien- und Prüfungsleistungen*) at the University of Applied Sciences Ravensburg-Weingarten as applicable from time to time, if the competencies acquired do not differ significantly from the course achievements/examinations to be replaced.

## **§ 18 Examination Committee**

- (1) An examination committee shall be set up for each study program to organize the Bachelor's examinations and to complete the tasks assigned through these Study and Examination Regulations. The Examination Committee comprises seven members appointed for a term of four years.
- (2) The chairperson (Head of study program), his/her deputy, the other members of the Examination Committee and their deputies shall be appointed by the faculty to which the study program belongs from the ranks of the corresponding faculty's professors as well as from the ranks of the professors of other faculties holding lectures in that study program on a regular basis. The head of the Interns Office shall ex officio be member of the Examination Committee. It is possible to call upon the head of the Central Examination Office, other professors, contract instructors and teachers for special assignments to obtain their opinion. As a rule, the chairperson will be responsible for the day-to-day business of the Examination Committee.
- (3) The Examination Committee shall ensure that the provisions of the Study and Examination Regulations be adhered to. It will make suggestions for the reform of the syllabus or the study and examination regulations. The Examination Committee can entrust the chairperson with some of its tasks.
- (4) The members of the Examination Committee have the right to attend examinations.
- (5) The members of the Examination Committee and their deputies are bound to professional discretion. Insofar as they are not employed in the public sector, they will be committed to confidentiality by the chairperson.
- (6) A Central Examination Committee will be created to support the Examination Committee. Academic advice will be provided by the Vice-Rector for Student Affairs and Quality Management.
- (7) The Central Examination Committee consists of the Vice-Rector for Student Affairs and Quality Management as chairperson, the Vice-Rector for Teaching, Further Education & Student Affairs and Well-being and the deans. The Head of Student Administration Office will attend the meetings of the Central Examination Committee in an advisory capacity. It is possible, in individual cases, to call upon contract instructors or other professors to obtain their opinion. The Central Examination Committee can appoint a representative who will be in charge of the organizational and academic coordination of the examinations.

## § 19 Examiners and Observers

- (1) As a rule, only professors are entitled to conduct examinations which are not directly course-related. Contract instructors and teachers for special assignments may be appointed as examiners, if no professor is available as examiner. It is likewise possible to appoint experienced persons who have the necessary academic and professional qualifications to conduct the examination and who possess at least the same (or an equivalent) qualification as the one to be determined through the examination.
- (2) The examiners' names shall be disclosed to the candidate in due time.
- (3) To be appointed observer, it is necessary to possess at least the same or an equivalent qualification as the one to be determined through the examination.
- (4) § 18 Sect. 5 shall apply accordingly to examiners and observers.

## § 20 Responsibilities

- (1) The tasks of the Central Study Committee are as follows:
  1. Recommendations concerning the development of the individual study programs with regard to the guidelines of the Standing Conference of the Ministers for Education and Cultural Affairs (*Kultusministerkonferenz*) and the Accreditation Council.
  2. Coordination to ensure a uniform implementation of the Study and Examination Regulations.
  3. Preparation of the resolutions by the Senate on the Study and Examination Regulations if cross-faculty issues are concerned. The preparation of the resolutions lies primarily with the deans represented in the Committee (cf. § 26 (4) Baden-Württemberg Higher Education Act – LHG). Members of the Central Study Committee are: the dean of each faculty (cf. § 24 (5) S. 4 Baden-Württemberg Higher Education Act – LHG), Vice-Rector for Teaching, Further Education & Student Affairs and Wellbeing, the Vice-Rector for Student Affairs and Quality Management (chairperson) as well as the Head of Student Administration Office in an advisory capacity.
- (2) The tasks of the Central Examination Committee are as follows:
  1. Coordination of the organization and the conduct of the module examinations and other accredited examinations.
  2. Decision on study and examination issues in cases of objection.
  3. Recommendations on the further development of examination regulations with regard to number, type and structure of examinations.
- (3) The tasks of the examination committees of the individual study programs are as follow:
  1. Decision on the consequences of breaches of examination regulations (§ 14)
  2. Decision on pass and fail (§ 14 and § 15)
  3. Decision on a second repetition (§ 8 Sect. 4)
  4. Decision on the appointment of examiners and observers (§ 19)
  5. Decision on the organization and conduct of examinations and course achievements
  6. Decision on the withdrawal from examinations (§ 14)
  7. Approval of the training institution/company for internship and compulsory practical semester in cases of doubt
  9. Decision on the admission to examinations and course achievements in cases of doubt
  10. Decision on the transfer of course achievements and examinations
  11. Decision on the recognition of other periods of study
  12. Decision on the issue of Bachelor's theses and the extension of the completion time
  13. Decision on the invalidity of the Bachelor's examination

14. Comment on study and examination issues in cases of objection
  15. Comment with regard to the compatibility of deviating courses of studies according to § 30.
- (4) The tasks of the Central Examination Office are as follows:
1. Management of all examination-related documents
  2. Admission to course achievements and other examinations
  3. Preparation and issue of examination-related notifications, attestations, certificates and other documents
  4. Proceedings concerning examination deadlines and official lengths of program
  5. Support of the examination committees
- (5) The Internship Offices are responsible for
1. Organizational aspects of the compulsory practical semester
  2. Coordination of the training contents
  3. Maintenance of relationships to the training institutions and companies
  4. Approval of training institutions and companies
  5. Decision about the recognition of the pre-university internship
  6. Decision on the successful pass of the compulsory practical semester.

## **§ 21 Provision of the Range of Courses**

- (1) The University shall ensure by the range of courses offered that examinations can be performed within the time limits defined in the present Examination Regulations and that the courses can be offered to the extent necessary.
- (2) New modules must be assigned to the different examination stages. If applicable, the equivalency with module examinations or other accredited examinations of previous semesters shall be determined. Furthermore, the nature of the examination and the number of ECTS credits assigned must be defined.

## **§ 22 Organization of Examinations**

- (1) The decision on the university-wide examination period as well as the related periods of time provided for exam registration and cancellation of an exam registration lies with the Senate. As a rule, the university-wide examination period, for each semester, will commence at the beginning of the lecture-free period. The period provided for exam registration and cancellation of an exam registration is published on the University homepage, under "University calendar". It is the students' responsibility to inform themselves about the periods of time stated. Exam registration and cancellation of an exam registration is effected electronically via "My Campus (LSF)". In exceptional cases, it is possible to register for an examination or cancel an examination registration in writing, within the deadlines provided. Reasons for such exception must be given by the students and evidence must be provided.
- (2) Students will be notified of the place and time of the individual examinations taking place during the university-wide examination period in the form defined by the Examination Office.
- (3) Examinations organized by the examiner himself/herself shall be held during or at the end of the lecture period.

## **§ 23 Admission to Examinations**

- (1) Students enrolled for the corresponding study program who have not forfeited their examination entitlement in this or a related study program will be permitted to take examinations under the present

Examination Regulations. Prerequisites for admission as may be specified in the Special Part hereof must be fulfilled.

- (2) After dis-enrollment effected upon the student's request, students cannot sit any examination(s) unless they had already registered for the examination(s) in the form defined by the Examination Office while still enrolled at the University in the study program concerned and unless they have not, at that point of time, forfeited their entitlement for the examination in the same or a related study program. Repetition of any failed examination taken after dis-enrollment shall be excluded on the grounds that the student is no more enrolled in the study program.
- (3) Students who have already passed the final examination of the corresponding study program will not be admitted.
- (4) Students shall be notified of their admission or non-admission in the form defined by the Examination Office.

## **§ 24 Information about Examination Results**

- (1) The examiner will inform the Examination Office of the examination results according to the modalities defined for the various examination types within the scheduled time frame.
- (2) The Examination Office will inform the candidates of the examination results according to the modalities defined for the various examination types.
- (3) After passing an examination, the student's account will be credited with the corresponding ECTS credits. Provided that it is feasible from an organizational point of view, students can inspect their accounts at any time.

## **§ 25 Certificates, Bachelor Diploma**

- (1) The student will receive a certificate of the passed Bachelor examination without delay, if possible within four weeks. The certificate shall state the major field of study chosen and shall include the modules with the corresponding grades, the topic and the grade of the Bachelor thesis as well as the overall grade. The certificate shall bear the date of the day on which the last examination was taken and must be signed by the Rector and the dean of the graduate's faculty.
- (2) Together with the certificate, the graduate will receive the Bachelor diploma showing the date of the certificate and certifying the award of the Bachelor's degree pursuant to § 2 Sect. 4. The Bachelor diploma will be signed by the Rector and the faculty dean and bear the official University seal.
- (3) In addition, the graduate will receive a "Diploma Supplement" in English and German containing a detailed uniform description of higher education degrees. This provides information on course contents, the study process and the academic and professional qualifications acquired with the degree. The Diploma Supplement will be signed by the chairperson of the Examination Committee.
- (4) Upon request, the candidate will receive attestations on passed examinations prior to the delivery of the certificate.
- (5) The Bachelor certificate will only be delivered on the condition that an attestation of discharge from administration exists.
- (6) Upon request, a maximum of five subjects other than the prescribed subjects (optional subjects) shall be shown in the Bachelor certificate. The results of these subjects will not be taken into account for the determination of the overall grade.



## § 26 Invalidity of the Bachelor's Examination

- (1) In the event that a candidate has cheated in an examination and should this fact be disclosed only after delivery of the certificate, the grade of the corresponding examination can be rectified pursuant to § 14 Sect. 3. This may include the particular examination to be declared as "fail" (5.0) and the Bachelor's examination as failed. The same applies accordingly to the Bachelor's thesis.
- (2) In the event that the prerequisites for admission to the examination have not been fulfilled without any attempt by the candidate to cheat and should this fact be disclosed only after delivery of the certificate, then this error will be remedied by successful passing of the examination. If the student has deliberately wrongfully obtained admission to the examination, the examination may be declared as "fail" (5.0) and the Bachelor examination as failed.
- (3) Before a decision is taken, the person concerned shall be given the opportunity to comment.
- (4) The incorrect examination certificate shall be withdrawn and, if applicable, a new one handed out. The Bachelor diploma shall also be withdrawn together with the incorrect examination certificate, if the examination was declared "failed" due to the deceit. A decision under section 1 and section 2, sentence 2 is excluded after a period of 5 years from the date of the examination certificate.

## § 27 Inspection of Examination Records

- (1) Upon request, the candidate will be granted inspection of his/her written examinations, the relating examiners' evaluations and the minutes of the examination within six months after completion of the examination procedure.
- (2) The application for inspection shall be filed with the chairperson of the Examination Committee who will fix the time and place of the inspection.
- (3) The examination documents have to be stored 5 years.

## § 28 Special Provisions for Students with Family Care Responsibilities

- (1) Students using their right to paternal leave under § 15 Sections 1 to 3 of the German Federal Law on Parental Benefit and Parental Leave (*Bundeseltern- und Elternzeitgesetz*) and students in charge of nursing a close relative within the meaning of § 7 Sect. 3 of the German Home Care Leave Act (*Pflegezeitgesetz*) are entitled to take advantage of the special provisions as laid down in sections 2 to 5 hereof. The entitlement will commence at the beginning and expire at the end of the semester in which the conditions as mentioned in sentence 1 are given or do not apply any more. Beneficiaries must provide evidence thereof and are obligated to notify the Examination Office without delay of any occurrence, changes or non-applicability of the conditions as mentioned in sentence 1 hereof. Any notifications shall be addressed exclusively to the Examination Committee.

In derogation from the provisions of the Federal Law on Parental Benefit and Parental Leave, the entitlement persists until the child receiving care has reached the age of nine. The need for nursing care is governed by §§ 14 and 15 of Volume 11 of the German Social Security Statutes (*Elftes Buch Sozialgesetzbuch*).

- (2) Students belonging to the group of people as defined in section 1 shall be entitled to take individual examinations at a time later than the deadlines laid down in Part B hereof; the same applies accordingly to the deadlines for completing course achievements. The following regulations shall apply:
  1. Deadlines for repeat examinations may be extended by up to two semesters.

2. The deadline for completing the intermediate examination, the deadline for commencing the compulsory practical semester and the deadline for completing the Bachelor's examination shall be extended by half a semester for each semester in which the student was entitled to said special provisions. Consequently, the deadline for completing the basic study period will be extended by up to 2 semesters, the deadline for commencing the compulsory practical semester by up to 3 semesters and the deadline for completing the main study period by up to 5 semesters. § 23 (2) shall remain unaffected by the provisions of § 28 (2).
- (3) Students who, before the final thesis has been issued to them, furnish evidence of the fact that their family obligations will extend beyond the length of time provided for the completion of the thesis, can apply for the issue of a final thesis for which the completion time can be extended by 50 % (fifty per cent). In the event that the care obligations occur after the commencement of the completion time of the thesis, the student can file an application with the Examination Office for the remaining completion time to be extended by 50 % (fifty percent), calculated from the time of commencement of the care obligation until the time of handing in the thesis. Alternatively, upon request by the student, the thesis will be deemed as not issued. The student will receive a new topic after expiration of the care period.
- (4) Insofar as the observance of deadlines for the first examination registration, the repetition of examinations and the reasons for default on examinations already registered for is concerned, any illness of the student shall be deemed equivalent to an illness of a child under their care.
- (5) Students belonging to the group of people as mentioned in section 1 are entitled to attend courses, sit examinations and use University institutions during a semester off, if the leave of absence has a causal link with their duty of care.

## **§ 29 Special Protection during Pregnancy**

- (1) Students are entitled to periods of protection according to § 3 Section 1, § 6 Section 1 of the German Maternity Protection Act (*Mutterschutzgesetz*). To this effect, notification must be given to the Examination Office and a doctor's certification must be provided. With respect to the study progress, this shall be deemed equivalent to a leave of absence. During such times, students are entitled to attend courses, sit examinations and use University institutions.
- (2) In the framework of work completed in laboratories or studios, the protective provisions of § 4 of the Maternity Protection Act shall apply. Notification of the pregnancy must be given to the person in charge of the laboratory or the studio.

## **§ 30 Students with Disabilities or Chronic Illness**

- (1) In the case that a student is handicapped by a permanent disability or a chronic illness specially aggravating the completion of courses or examinations within the time limits as defined in § 9, the Central Examination Committee may, upon written request, declare an individual study plan to be binding. The individual study plan must comprise at least two course achievements in each subject-related semester.
- (2) Should the examination candidate be handicapped by a permanent or temporary disability or chronic illness aggravating the completion of an examination in the prescribed form, then the competent examination committee may, upon written request, take appropriate measures to compensate for the handicap or – insofar as proof can be given that equivalent examination objectives can also be achieved through a different examination form – permit the completion of the examination in a different form. Production of proof that the skills relating to the performance level of the examination have been acquired must not be waived.

- (3) Any application under section 1 must be addressed to the Central Examination Committee. Applications under Section 2 must be addressed to the examination committee of the study program concerned. The following evidence must be provided:
1. In the case of a disability a copy of the valid certificate of disability must be enclosed.
  2. A doctor's certificate including the necessary findings and stating the handicaps and their impact on the study or the individual examinations. The form for requesting a compensation for disadvantages made available by the University, must be used to this effect. In addition, the Examination Committee may request an attestation by a doctor named by the Committee.
  3. When filing an application under section 1, the student must additionally submit a draft of the individual study plan signed by the head of the study program.

### **§ 31 Special Provisions for Elected Student Members in Statutory Bodies and Organs of the University or the Student Services**

- (1) An activity as elected member in statutory bodies or organs of the University or the Student Services during at least one year can be taken into account for the calculation of the examination deadlines pursuant to § 32 (6) LHG, however this will be limited to one year. The decision lies with the Rector upon the student's request.
- (2) Through their active participation in bodies and organs as mentioned in section 1, the students will acquire core competencies, which can be accredited as partial course achievement in the framework of a module aiming at conveying such competencies, and up to five ECTS credits can be granted for this. The decision lies with the Rector upon the student's request.
- (3) The special provisions as laid down in section (1) and (2) may only be used alternatively.

## **B. Special Part**

## § 36 Bachelor Study Program Electrical Engineering and Information Technology

### (1) Structure of the Study Program

The Bachelor study program Electrical Engineering and Information Technology comprises the basic study period with a duration of three semesters and the main study period which concludes with the Bachelor's examination in the 7th semester.

A pre-study internship (only for German students) of at least eight weeks and academic courses worth 180 credits are required for successful graduation. For non-German students, no pre-study internship is required, but the duration of the compulsory practical semester is minimum 26 weeks (overrides § 5). The total number of 210 credits is made up of six theoretical semesters with 30 credits each and one practical semester worth 30 credits. There are two course specializations possible: automation and communication. The students have to choose one of both with the re-matriculation for the 4th. semester (recorded).

### (2) Courses

The lectures for non-German students will be given in English on a yearly basis, exceptions can be decided by the faculty board (according: General part of the SPO §3.3). The lectures from semester six and seven will be given in German, exceptions can be decided by the faculty board (according: General part of the SPO §3.3).

All courses comprise a proportion of exercises between 20% (minimum) and 40% (maximum). The required courses as well as the related accredited examinations are shown in the tables. The following abbreviations are used:

Type of course	V	Lecture
	S	Seminar
	P	Practical, exercises
	PR	Project
Type of accredited examination	B	Bachelor thesis
	K	Written examination, duration in minutes
	M	Oral examination
	R	Seminar paper
	PA	Practical work (lab, term or seminar paper or project work)
	RPA	Practical work documented by a seminar paper.
	PF	Portfolio
Further abbreviations used	SWS	Number of semester hours
	E	Medium of instruction is English
	D	Medium of instruction is German

### (3) Elective Modules

The elective modules available are announced by display on the notice board at the beginning of each semester.

If students wish to choose elective modules from the offer of other universities, a special permission by the Examination Committee will be required. Tutorials held by the student can be recognized as elective module, whereby the maximum number of ECTS credits to be earned is five. The elective modules can be chosen across the specializations (automation or communication) from all

subjects of electrical engineering and informatics.

#### **(4) Accredited Examinations**

The type of accredited examination and course achievements is shown in the tables 1 to 4. Every accredited examination must be passed. § 8 of this SPO is still valid. The rating of the examinations is according § 13 of this SPO.

#### **(5) Practical Semester (Compulsory)**

The 5th semester is a practical semester. A prerequisite for beginning the practical semester is that, by the end of the 4th semester, the student has passed examinations of the first two semesters amounting to 60 credits.

During their practical semester, the students shall work on an engineering task from the fields of electrical or automotive engineering, thereby becoming acquainted with the professional requirements, industrial work methods and the operational environment with regard to the planning, development and application of electronic networks and systems.

The fields of work can be as follows:

- Planning and implementation of electronic and information technology systems
- Planning, design and development of electronic circuits
- Testing of networks and systems
- Software development
- Use of computers for the design of circuits and systems (CAD)
- Computer simulations
- Planning, design and development of electric drives
- Planning and implementation of mechatronic systems in automotive engineering

Total duration: 26 weeks.

#### **(6) Bachelor Thesis**

Prior to beginning the Bachelor thesis, all examinations and course achievements of the first four semesters as well as the practical semester must have been completed. The professor assigning the Bachelor thesis must limit the topic, the task and the extent of the thesis in such way that it can be completed in approx. 360 hours of work corresponding to 12 credits. The thesis must be handed in to the Examination Office of Hochschule Ravensburg-Weingarten – University of Applied Sciences no later than six months from the date of issue.

#### **(7) Validity**

This SPO is valid starting from winter semester 2019/20.

**Table 1: Bachelor Program Electrical Engineering and Information Technology  
Basic: for Non-German Speaking Students**

			Curricular semester assigned			Graded examination
			EC TS	ECT S	EC TS	
Module	Course	Typ/SWS	1	2	3	
Electrical Engineering 1: Basics	Analysis of Electric Networks	V/4	5			K90
Electrical Engineering/ Physics 2: Electrodynamics	Electrodynamics	V/4		5		K90
Electrical Engineering 3: Time and Frequency Domains	Circuit Analysis in the Time and Frequency Domains	V/4			5	K90
Metrology 1: Basics	Metrology 1	V/2		5		K90
	Metrology Practical	P/2				
Metrology 2: Advanced	Metrology 2	V/2			5	K90
	Electronics Practical: linear Metrology	P/2				
Mathematics 1: Analysis 1	Analysis 1 with Exercises	V/4	5			K90
Mathematics 2: Linear Algebra	Linear Algebra with Exercises	V/4	5			K90
Mathematics 3: Analysis 2	Analysis 2 with Exercises	V/4		5		K90
Robotics	Robotics	V+P/4			5	PF
Programming	Programming	V+P/4	5			K90
Electrical Engineering Practical	Basic Practical Electrical Engineering 1: Basic Circuits	P/2			5	PF
	Basic Practical Course Electrical Engineering 2: Implementation & Verification	P/2				
Object-Oriented Programming	Object-Oriented Programming	V+P/4		5		K90
Digital Technology	Digital Technology	V/4	5			K90
Digital Practical	Digital Technology Practical	P/2			5	PF
	Computer Technology Practical	P/2				
Computer Technology	Computer Technology	V/4		5		K90
Electronics	Electronics	V/4			5	K90
Computer-Aided Circuit Design 1	Basic Practical Electrical Engineering 3: Programming of uC	P/2		5		PF
	Circuit Design Practical	P/2				
Physics Mechanics	Physics Mechanics	V/4	5			K90
<b>Totals</b>			<b>30</b>	<b>30</b>	<b>30</b>	

**Table 2: Bachelor Program Electrical Engineering and Information Technology  
Main: for Non-German Speaking Students**

Module	Course	Typ/ SWS	Curricular semester assigned				Graded examination	
			SWS/ ECTS	SWS/ ECTS	SWS/ ECTS	SWS / ECTS		
			4	5	6	7		
Digital Signal Processing	Digital Signal Processing	V+P/ 4		Practical semester	5		PF	
Computer-Aided Circuit Design 2	Circuit Design	V+P/ 4	5					PF
Language	German	V+P/ 4	5					PF
Communication Technology	Communication Technology	V/4	5					K90
High Frequency Engineering	High Frequency Engineering	V/4				5		K90
	High Frequency Engineering Practical	P/2						
Project-Seminar	Scientific Work	S+P/ 4				5		M
Communication networks	Communication networks	V/4				5		K90
Power Electronics	Power Electronics	V/4	5					K90
Control Engineering	Control Engineering with Exercises	V/4					6	K90
	Control Engineering Practical	P/2						
Microcontroller	Microcontroller	V/2				5		K60
	Microcontroller Practical	P/2						
Automation	Introduction to Automation	V/2					7	K90
	SPS-Systems	V/2						
	SPS-Systems Practical	P/2						
Modul 1 Study Focus	Compulsory Subject 1 on Study Focus	-					5	K90
Modul 2 Study Focus	Compulsory Subject 2 on Study Focus	-				5		K90
Elective Module	Elective Module	-	5				K90	
Seminar	Project-Seminar	PR/2	5				M	
	Seminar	S/2						
Bachelor Thesis	Bachelor Thesis incl. Final Colloquium (15% of grade)					12	B + R	
<b>Totals</b>			<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>12</b>	



**Table 3: Bachelor Program Electrical Engineering and Information Technology  
Main: Study Focus Communication for Non-German Speaking Students (2 out of x)**

Module	Course	Typ/ SWS	SS or WS		Graded examination
			ECTS	ECTS	
			SS	W S	
Internet	Internet	V+P/ 4	5		PF
Communication Systems	Communication Systems	V/4	5		K90
Automotive Electronics Controls	Automotive Electronics Controls	V/4		5	K90
Traffic Telematics	Traffic Telematics	V/4	5	5	M
Selected Topics	Special Topics - see announcements	V+P	announcement	announcement	announcement
Project-Seminar	Project: Communication	P	5	5	M
<b>Summen</b>			<b>20</b>	<b>15</b>	

**Table 4: Bachelor Program Electrical Engineering and Information Technology  
Main: Study Focus Automation for Non-German Speaking Students (2 out of x)**

Module	Course	Typ/ SWS	SS or WS		Graded examination
			ECTS	ECTS	
			SS	W S	
Power Train Engineering	Power Train Engineering	V+P/ 4	5		K90
Real-Time Programming	Real-Time Programming	V/2	5	5	K90 or PF
	Real-Time Programming Practical	P/2			
Selected Topics	Special Topics - see announcements	V+P	announcement	announcement	announcement
Project-Seminar	Project: Automation	P	5	5	M
<b>Sum</b>			<b>15</b>	<b>10</b>	

## § 37 Bachelor Study Program E-Mobility and Green Energies

### (1) Structure of the Study Program

The Bachelor study program E-Mobility and Green Energies comprises the basic study period with a duration of three semesters and the main study period which concludes with the Bachelor's examination in the 7th semester.

A pre-study internship (only for German students) of at least eight weeks and academic courses worth 180 credits are required for successful graduation. For non-German students, no pre-study internship is required, but the duration of the compulsory practical semester is minimum 26 weeks (overrides § 5). The total number of 210 credits is made up of six theoretical semesters with 30 credits each and one practical semester worth 30 credits.

### (2) Courses

The lectures for non-German students will be given in English on a yearly basis, exceptions can be decided by the faculty board (according: General part of the SPO §3.3). The lectures from semester six and seven will be given in German, exceptions can be decided by the faculty board (according: General part of the SPO §3.3).

All courses comprise a proportion of exercises between 20% (minimum) and 40% (maximum).

The required courses as well as the related accredited examinations are shown in tables 1 and 2 below.

The following abbreviations are used:

Type of course	V	Lecture
	S	Seminar
	P	Practical, exercises
	PR	Project
Type of accredited examination	B	Bachelor thesis
	K	Written examination, duration in minutes
	M	Oral examination
	R	Seminar paper
	PA	Practical work (lab, term or seminar paper or project work)
	RPA	Practical work documented by a seminar paper
	PF	Portfolio
Further abbreviations used	SWS	Number of semester hours
	E	Medium of instruction is English
	D	Medium of instruction is German

### (3) Elective Modules

The elective modules available are announced by display on the notice board at the beginning of each semester.

If students wish to choose elective modules from the offer of other universities, a special permission by the Examination Committee will be required. Tutorials held by the student can be recognized as elective module, whereby the maximum number of ECTS credits to be earned is five.

#### **(4) Accredited Examinations**

The type of accredited examination and course achievements is shown in tables 1 and 2. Every accredited examination must be passed. § 8 of this SPO is still valid. The rating of the examinations is according § 13 of this SPO.

#### **(5) Practical Semester (Compulsory)**

The 5th semester is a practical semester. A prerequisite for beginning the practical semester is that, by the end of the 4th semester, the student has passed examinations of the first two semesters amounting to 60 credits.

During their practical semester, the students shall work on an engineering task from the fields of electrical or automotive engineering, thereby becoming acquainted with the professional requirements, industrial work methods and the operational environment with regard to the planning, development and application of electronic networks and systems.

The fields of work can be as follows:

- Planning and implementation of electronic and information technology systems
- Planning, design and development of electronic circuits
- Testing of networks and systems
- Software development
- Use of computers for the design of circuits and systems (CAD)
- Computer simulations
- Planning, design and development of electric drives
- Planning and implementation of mechatronic systems in automotive engineering

Total duration: 26 weeks.

#### **(6) Bachelor Thesis**

Prior to beginning the Bachelor thesis, all examinations and course achievements of the first four semesters as well as the practical semester must have been completed. The professor assigning the Bachelor thesis must limit the topic, the task and the extent of the thesis in such way that it can be completed in approx. 360 hours of work corresponding to 12 credits. The thesis must be handed in to the Examination Office of Hochschule Ravensburg-Weingarten – University of Applied Sciences no later than six months from the date of issue.

#### **(7) Validity**

This SPO is valid starting from winter semester 2019/20.

**Table 1: Bachelor Program E-Mobility and Green Energies - Basic: for Non-German Speaking Students**

Module	Course	Typ/ SWS	Curricular semester assigned				Graded exami- nation
			ECTS 1	ECTS 2	ECTS 3		
Electrical Engineering 1: Basics	Analysis of Electric Networks	V/4	5				K90
Electrical Engineering/ Physics 2: Electrodynamics	Electrodynamics	V/4		5			K90
Electrical Engineering 3: Time and Frequency Domains	Circuit Analysis in the Time and Frequency Domains	V/4			5		K90
Metrology 1: Basics	Metrology 1	V/2		5			K90
	Metrology Practical	P/2					
Mathematics 1: Analysis 1	Analysis 1 with Exercises	V/4	5				K90
Mathematics 2: Linear Algebra	Linear Algebra with Exercises	V/4	5				K90
Mathematics 3: Analysis 2	Analysis 2 with Exercises	V/4		5			K90
Robotics	Robotics	V+P/4			5		PF
Programming	Programming	V+P/4	5				K90
Electrical Engineering Practical	Basic Practical Electrical Engineering 1: Basic Circuits	P/2			5		PF
	Basic Practical Course Electrical Engineering 2: Implementation & Verification	P/2					
Digital Technology	Digital Technology	V/4	5				K90
Design	Digital Design: Digital Technology Practical	P/2			5		PF
	Design: CAD	P/2					
	Analog Design: Electronics Practical	P/2					
Electronics	Electronics	V/4			5		K90
Materials Science	Materials Science	V/4		5			K90
Machinery Design	Machinery Design	V/4		5			K90 or PF
Automotive Engineering	Automotive Engineering	V/4			5		K90
Computer-Aided Circuit Design 1	Basic Practical Electrical Engineering 3: Programming of uC	P/2		5			PF
	Circuit Design Practical	P/2					
Physics Mechanics	Physics Mechanics	V/4	5				K90
<b>Totals</b>			<b>30</b>	<b>30</b>	<b>30</b>		

**Table 2: Bachelor Program E-Mobility and Green Energies  
Main: for Non-German Speaking Students**

Module	Course	Typ/ SWS	Curricular semester assigned				Graded examination	
			SWS/ ECTS	SWS/ ECTS	SWS/ ECTS	SWS/ ECTS		
			4	5	6	7		
Automotive Electronics	Automotive Electronics Controls	V/4			5		K90	
Digital Signal Processing	Digital Signal Processing	V+P/4			5		PF	
Image Processing	Basics of Image Processing	V+P/4				5	PF	
Language	German	V+P/4	5				PF	
Energy Storage	Energy Storage	V/4			5		K90	
Project-Seminar	Scientific Work	S+P/4	5				M	
Green Energies	Photovoltaics	V/2		Praktisches Studien- semes- ter			K90	
	Green Energies	V+P/4				7		
Traffic Telematics	Traffic Telematics	V/4			5		M	
Power Electronics	Power Electronics	V/4	5				K90	
Control Engineering	Control Engineering with Exercises	V/4					6	K90
	Control Engineering Practical	P/2						
Microcontroller	Microcontroller	V/2				5		K60
	Microcontroller Practical	P/2						
Electric Power Trains	Hybrids in Cars	V/4	5					K90
Electric Drives	Electric Drives	V/4	5					K90
Real-Time Programming	Real-Time Programming	V/2			5		K90	
	Real-Time Programming Practical	P/2						
Elective Module	Elective Module	-	5				see electives	
Bachelor Thesis	Bachelor Thesis incl. Final Colloquium (15% of grade)					12	B + R	
<b>Totals</b>			<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>12</b>	

## § 38 Bachelor Study Program Physical Engineering (Technik Entwicklung)

### (1) Structure of the Study Program

The study program has a modular structure. Content and structure are described in Table 1 and Table 2. The study program comprises two study stages.

The first stage is the basic study period and includes the midterm examinations pursuant to § 7(2). The courses of the first three semesters are taught in English for students beginning the program in the summer semester and in German for students beginning the program in the winter semester. The second study stage is the main study period. Apart from compulsory and elective subjects, it includes the compulsory practical semester as well as the Bachelor's examination. All courses of the main study period are offered in German.

The standard period of study is 7 semesters. 210 ECTS credits are required for a successful graduation. The study program concludes with the Bachelor's examination. It is also possible to acquire a double degree at a partner university provided a cooperation agreement with this university exists.

### (2) Courses and Accredited Examinations

The courses of the two study stages as well as the related examinations to be passed for successful graduation are shown in Tables 1 to 3 below. The following abbreviations are generally used:

<u>Type of course</u>		<u>Type of accredited examination</u>		<u>Further abbreviations used</u>	
V	Lecture	D	Documentation	SWS	Number of semester hours
P	Practical, exercises	K(xx)	Written examination, duration in minutes	ECTS	Number of credit points required (§ 3)
VP	Lecture with integrated exercises	MBK(xx)	Written examination accompanying the module, total duration in minutes		
S	Seminar	PA	Practical work in combination with tests		
PRO	Project work in combination with a written report and/or presentation	PF	Portfolio		
		PB	Report on practical semester		
		B	Bachelor's thesis		

The lecturer can, at his/her own discretion determine voluntary examinations, which students can take during the course as partial module examination, in addition to the accredited examinations as stated in Tables 1 to 4. Students must be informed of the decision as well as the type, extent and weighting of the partial module examinations at the beginning of the course, and the faculty shall announce it by display on the notice board. The results of the partial module examinations shall be considered for the module examination in proportion to their weighting.

If a double degree is acquired at a partner university, the required courses will be recognized by the head of the study program in the framework of the recognition process as set forth in the Lisbon Convention.

Compulsory attendance of a course is determined on a case-by-case basis and for the respective semester by the Faculty Council. Attendance can only be made compulsory if this is an indispensable prerequisite for the acquisition of the competence. Irrespective of the foregoing regulations, attendance is compulsory at the opening classes of seminars, when the topics are assigned. Failure to appear at the opening class for the assignment of topics will lead to the student being excluded from participation in the seminar. Also, attendance of laboratory courses is generally compulsory.

### **(3) Elective Modules**

A number of compulsory elective modules as well as individual elective modules is available for the students to determine their profile.

#### **a) Compulsory elective modules**

The range of compulsory elective modules (specialization) offered consists of modules from the fields of "Imaging Technology" and "Mechatronics" (see Table 3). Students choose one of the two study focuses by the end of the third semester.

In addition to the three modules of the specialization chosen, students must enroll in one module of the other specialization.

Whether a compulsory elective module takes place may be subject to a minimum number of participants.

#### **b) Individual elective modules**

To determine their individual profile, students must take accredited examinations or perform course work in subjects from the further course offer at Hochschule Ravensburg-Weingarten or another university to the extent of 10 ECTS credits. 5 of these ECTS credits must be earned in the field of natural sciences/engineering and a further 5 credits in a non-technical field.

Prior approval by the Examination Committee will be required if students wish to choose elective modules from the offer of a university other than Hochschule Ravensburg-Weingarten.

Only elective modules, whose content is not identical or where there is only a slight overlap with compulsory subjects may be chosen.

In addition, upon the student's request, the Examination Committee of the study program can, in individual cases, recognize other achievements (e.g. tutorials held, voluntary work ect.), whereby the maximum number of ECTS credits which can be recognized is five.

### **(4) Compulsory Practical Semester**

Students having begun their studies in the summer semester must complete their practical semester in the sixth and those who have started in the winter semester in the fourth curricular semester.

A prerequisite for beginning the practical semester is that the midterm examination according to § 7 (2) has been passed.

The practical semester comprises hands-on activities in a company. These activities must correspond to the occupational profile of the study program. The competencies acquired during the study shall be applied and extended by working on suitable projects in the company. The students shall become acquainted with the professional requirements, work methods and the operational environment and shall work as independently and responsibly as possible in consideration of the specific situation of the company.

During the practical semester, the students are supported by the Interns Office. For the practical semester to be recognized, students are required to provide various achievements. The Interns Office will determine what kind of work must be provided (e.g. preparation of an intermediate or a final report) and also when and in what form. The students are informed accordingly via intranet and at an information session.

At the end of the practical semester, Interns Days are organized to follow up the practical semester and to make the final presentations. Attendance at the Interns Days is compulsory. In exceptional cases and subject to a special permission by the head of the Interns Office, a soundtrack can be added to the final presentation and played instead of participation on the Interns Days. The student must ensure approval of the final presentation by his/her company.

After completion of the internship in the company, the student must submit an activity report on his/her in-company training to the Interns Office. On the basis of the student's performance and the activity report, the head of the Interns Office will decide if the student has successfully completed the practical semester.

### **(5) Bachelor's Thesis**

Prior to beginning the Bachelor's thesis, all examinations and course achievements of the first four subject-related semesters as well as the practical semester must have been successfully completed. The professor assigning the Bachelor's thesis must limit the topic, the task and the extent of the thesis in such way that it can be completed in approx. 360 hours of work corresponding to 12 ECTS credits. The thesis must be handed in to the Examination Office of Hochschule Ravensburg-Weingarten no later than six months from the date of issue.



Table 1: 1 <sup>st</sup> study stage		Type	Curricular semester assigned with SWS and ECTS						Ungraded examination	Graded examination
			SWS/ECTS		SWS/ECTS		SWS/ECTS			
Module	Course		1	2	3					
Analysis 1	Differential and Integral Calculus	VP	4	5					K90	
Linear Algebra	Linear Algebra	VP	4	5					K90	
Analysis 2	Differential Equations and Vector Analysis	VP			4	5			K90	
Analysis 3	Series Expansions and Transformations	VP					4	5	K90	
Physics 1	Mechanics	VP	4	5					MBK120	
Physics 2	Electrodynamics	VP			4	5			MBK120	
Physics 3	Optics and Waves	VP					4	5	MBK120	
Physics 4	Quantum Physics	VP					2	5	MBK120 <sup>1</sup>	
	Practical Physics	P					2			
Chemistry	Chemistry	VP	4	5					K90	
Foreign Languages	Professional English or German <sup>2</sup>	V			4	5			PF	
Materials Science	Materials	VP					4	5	K90	
Design 1	CAD	P			2	5			D	
	Technical Mechanics	VP			2					
Design 2	Machine Design	VP					4	5	K90	
Electrical Engineering TE	Electrical Engineering	VP	4	5					MBK120	
Electronics TE 1	Electronics TE1	VP			2	5			MBK120	
	Practical Electrical Engineering / Electronics	P			2					
Electronics TE2	Electronics TE2	VP					4	5	K90	
Computer Science	Basic Principles of Computer Science	VP	2	5					K90	
	Practical Computer Science	P	2							
Software Development	Software Development	VP			2	5			PA	
	Practical Software Development	P			2					
Total			24	30	24	30	24	30		

1) Examination together with "Optics and Waves"

2) German-speaking students choose Professional English, English-speaking students choose German

3) For the compulsory practical semester, see paragraph 3

Table 2: 2 <sup>nd</sup> study stage		Type	Curricular semester assigned with SWS and ECTS				Ungraded examination	Graded examination	
			SWS/ECTS	SWS/ECTS	SWS/ECTS	SWS/ECTS			
Module	Course		4 (5)	5 (6)	6 (4)	7			
Physical Measurement Techniques	Physical Measurement Technique	VP	4	5				K90	
Control Engineering	Control Engineering	VP	4	5				K90	
Digital Technologies	Digital Technologies	VP	4	5				K90	
Development 1	Technical Documentation	VP	2	5				D	
	Scientific Working Methods	VP	2						
Development 2	Patents	VP		2	5			K90	
	Techn. Project Management	VP		2					
Business Administration	Business Administration	VP		4	5			K90	
Modelling and Simulation	Modelling and Simulation	VP		4	5			K90	
Microcontrollers	Microcontrollers	VP		3	5			PA	
	Practical Electronics	P		1					
Spezialization	2 subjects from Table 3			10					
	2 subjects from Table 3				10				
Elective Module Technology						4	5		
Elective Module Non-Tech.						4	5		
Project	Project	PRO				4	5	MPA	
Practical Semester	Interns Seminar	PRO				1 / 30		PB	
Bachelor's Thesis and Seminar for Bachelor's Degree Candidates	Seminar for Bachelor's Degree Candidates	S				2	15	B	
	Bachelor's Thesis	B							
	Total		24	30	24	30	1	30	

Table 3: Compulsory electives of the 4 <sup>th</sup> or 6 <sup>th</sup> curricular semester, respectively			SWS/ ECTS		Ungraded examination	Graded examination
Module block	Module / Course	Type				
<b>Specialization Imaging Technology</b>	Imaging and Spectroscopy	VP	4	5		PA
	Imaging Technology	VP	4	5		K90
	3D and Image Processing	VP	4	5		K90
	Course from the Mechatronics specialization	VP	4	5		
<b>Specialization Mechatronics</b>	Mechatronics	VP	4	5		K90
	Robotics	VP	4	5		K90
	Microsystems / Optoelectronics	VP	4	5		K90
	Course from the Imaging Technology specialization	VP	4	5		

## **C. Final Provisions**

### **§ 50 Entry into Force**

The present Study and Examination Regulation will become effective on 1 September 2005. Simultaneously, the previous Study and Examination Regulation for the novel Bachelor programs of 19 July 2004 will cease to have effect.

### **§ 51 Entry into Force of the first Amendment of 13 July 2006**

This amendment will become effective on 1 September 2006.

### **§ 52 Entry into Force of the second Amendment of 16 January 2007**

This amendment will become effective on 1 March 2007.

### **§ 53 Entry into Force of the third Amendment of 26 June 2007**

This amendment will become effective on 1 September 2007.

Students enrolled in the Bachelor program "Social Work" who took up their studies in the first semester in the summer semester 2007 can, upon application, complete their study course according to the present amended Study and Examination Regulations. The corresponding application must be filed by the end of the summer semester 2007.

### **§ 54 Entry into Force of the fourth Amendment of 29 January 2008**

This amendment will become effective on 1 March 2008.

### **§ 55 Entry into Force of the fifth Amendment of 31 March 2008**

This amendment will become effective on 1 September 2008.

### **§ 56 Entry into Force of the sixth Amendment of 26 June 2008**

This amendment will become effective on 1 September 2008.

### **§ 57 Entry into Force of the seventh Amendment of 23 January 2009**

This amendment will become effective on 1 March 2009.

### **§ 58 Entry into Force of the eighth Amendment of 29 June 2009**

This amendment will become effective on 1 September 2009.

### **§ 59 Entry into Force of the ninth Amendment of 27 November 2009**

This amendment will become effective on 1 March 2010.

### **§ 60 Entry into Force of the tenth Amendment of 31 March 2010**

This amendment will become effective on 1 March 2010

### **§ 61 Entry into Force of the eleventh Amendment of 25 June 2010**

This amendment will become effective on 1 September 2010. § 33 will become effective on 1 September 2009.

### **§ 62 Entry into Force of the twelfth Amendment of 26 November 2010**

This amendment will become effective on 1 December 2010

**§ 63 Entry into Force of the thirteenth Amendment of 21 January 2011**

This amendment will become effective on 1 February 2011

**§ 64 Entry into Force of the fourteenth Amendment of 1 April 2011**

This amendment will become effective on 1 February 2011

**§ 65 Entry into Force of the fifteenth Amendment of 1 July 2011**

This amendment will become effective on 2 July 2011

**§ 66 Entry into Force of the sixteenth Amendment of 22 June 2012**

This amendment will become effective on 23 June 2012

**§ 67 Entry into Force of the seventeenth Amendment of 13 December 2012**

This amendment will become effective on 14 December 2012

**§ 68 Entry into Force of the eighteenth Amendment of 25 January 2013**

This amendment will become effective on 26 January 2013

**§ 69 Entry into Force of the nineteenth Amendment of 2 July 2013**

This amendment will become effective on 3 July 2013

**§ 70 Entry into Force of the twentieth Amendment of 24 January 2014**

This amendment will become effective on 25 January 2014

**§ 71 Entry into Force of the twentyfirst Amendment of 9 April 2014**

This amendment will become effective on 10 April 2014

**§ 72 Entry into Force of the twentysecond Amendment of 1 July 2014**

This amendment will become effective on 2 July 2014

**§ 73 Entry into Force of the twentythird Amendment of 2 July 2015**

This amendment will become effective on 3 July 2015

**§ 74 Entry into Force of the twentyfourth Amendment of 30 June 2016**

This amendment will become effective on 1 July 2016

**§ 75 Entry into Force of the twentyfifth Amendment of 1 June 2017**

This amendment will become effective on 1 September 2017

**§ 76 Entry into Force of the twentysixth Amendment of 26 October 2017**

This amendment will become effective on 1 September 2017

**§ 77 Entry into Force of the twentyseventh Amendment of 28 June 2018**

This amendment will become effective on 1 September 2018

**§ 78 Entry into Force of the twentyeighth Amendment of 27 June 2019**

This amendment will become effective on 1 September 2019

Weingarten, on June 27, 2019

Prof. Dr.-Ing. Thomas Spägle  
Rector

Prof. Dr. rer. pol. Theresia Simon  
Vice-Rector for Student Affairs and  
Quality Management