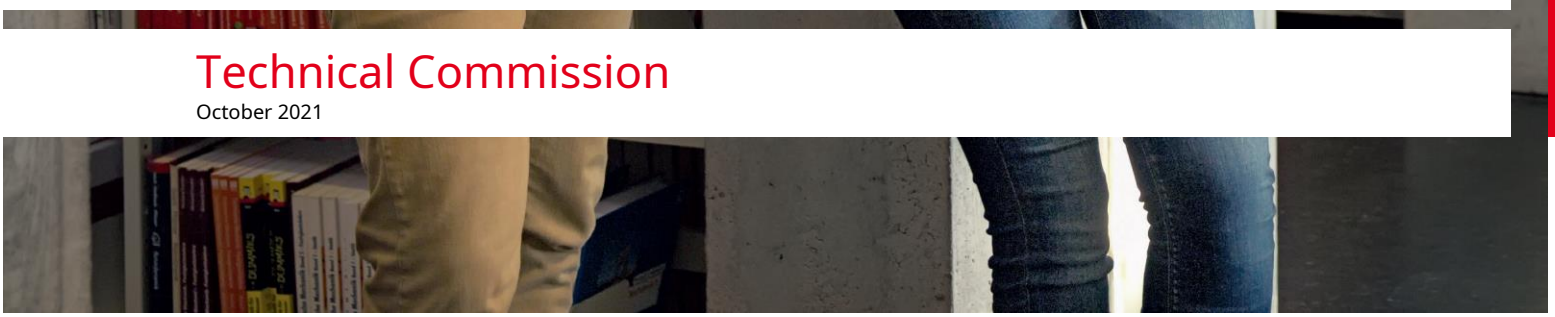
DHBW
Duale Hochschule
Baden-Württemberg

GUIDELINES

for processing and documenting the modules

Practical project Iuntil
III Study work I/II
Bachelor's thesis



Technical Commission

October 2021

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Change notes

September 2010	- Integration of Chapters 8 to 11 from separate documents into this document - Clarification of important reasons for postponing a deadline (2.4) - Alternative formats for references (9.1.4) and bibliographies (10.10) - Editorial error corrections
Jan 2011	-Editorial adjustments
Feb 2011	- Editorial revision, changes/moves in individual subchapters - Consideration of new module descriptions and examination regulations as of October 1st, 2011 - Addition of the scientific work unit for all practical modules
Feb 2013	- Inclusion of the settlement and valuation principles in 4.5 - Additions in chap. 8.3 and 8.4
May 2013	-8.2 adapted to 2.7 – Declaration of personal contribution in all work
September 2015	- Editorial adjustments - Declaration of personal contribution - Evaluation of practical reports
May 2016	-Editorial adjustments
October 2017	-Additions to the curriculum from the 2017 academic year
April 2019	-Correction to practical project III, editorial changes
June 2019	-Section 5.2 adapted according to FK decision
Aug 2019	-Editorial revision, adaptation of gender-appropriate language
December 2019	-Editorial adjustments, corrections to the overview and additions
October 2021	-Correction overview table chapter 2.9

1 Introduction

These guidelines are intended to make the essential requirements and expectations clear to everyone involved in the implementation, creation and assessment of the modules mentioned.

The guidelines therefore have a recommendatory character, particularly for the preparation of the work; sensible and justifiable deviations are permitted, but should be agreed with all those involved. The regulations of the study and examination regulations for the bachelor's degree programs in the field of technology at the Baden-Württemberg Cooperative State University (DHBW) (study and examination regulations DHBW Technology) as well as the module descriptions must be adhered to.

This edition of the guidelines correlates with the DHBW Technik study and examination regulations of October 1st, 2015 and those of October 1st, 2017 including all amended statutes in the currently valid version.

For the technical commission

Prof. Dr. J. Frech, DHBW CAS Heilbronn
Chairman of the Technical Commission

Prof. Dr. C. Mühlhan, DHBW Mannheim
Managing Director of the Technical Commission

Please note:

The current version this Guidelines and all Forms find She under http://www.dhbw.de/die-dhbw/documents.html#Documents_Technology

Please send suggestions to further improve this guidelinejoachim.frech@cas.dhbw.de or claus.muehlhan@dhbw-mannheim.de .

Thanks!

2 General information about the modules

2.1 General requirements and support in the practical modules

Through the Practical Project I, II and III modules, the students should achieve the learning objectives stated in the modules and acquire the corresponding skills (see the descriptions of the modules T3_1000, T3_2000 and T3_3X00 for the study cohorts from 2017 onwards, in the appendix).

The modules are documented in the form of a “tabular overview of the course of the practical phase”, the “student reflection on the practical phase” and the project work to be completed in the respective module. The topic of the project work is usually set by the dual partner and is based on the training plans of the relevant course of study.

The basics for creating qualified documentation are taught in the “Scientific Work I, II and III” seminars in the respective academic year.

The study academy appoints a scientifically qualified examiner to supervise the project work. This person must be a professionally and scientifically proven representative of the practice, a professor or academic employee of a university. The company supervisor usually belongs to the dual partner in which the project work is created and supports the students in carrying out the project work. If necessary, organizational and administrative questions can also be discussed with those responsible for training at the dual partner.

The DHBW's full-time and part-time lecturers are also available, particularly for the scientific aspects.

It is also possible to work for your own company or a subsidiary or partner company abroad. The project work can be created in German or a foreign language. The foreign language is to be determined at the beginning of the module by the study academy after consultation with the student and the supervisor of the dual partner.

The creation of the project work and the bachelor's thesis are examinations of the course. Students must be given sufficient opportunity to complete the course to the extent specified in the “Guidelines for the aptitude requirements and the admission process of practice partners (training centers) of the Baden-Württemberg Cooperative State University for a Bachelor’s degree” (DHBW study contract – version 07/2018, paragraph 5.6).

2.2 Grading and assessment criteria

The modules are assessed in accordance with the DHBW Technology study and examination regulations with one grade in most modules. This is given with one decimal place and can be between 1.0 (very good) and 5.0 (poor). The “Instructions for the evaluation of project, study and bachelor theses” contain the evaluation scheme of the Technology Commission for assessing the work.

2.3 Documentation and external form

The instructions presented in Chapter 8 must be adhered to for all work. Bachelor theses, project work, coursework and term papers must be submitted to the Study Academy once in printed form and once in electronic form (text file and, if necessary, other digital attachments). The study academy defines deviations.

All scope information is a guideline value and should in no way result in trivialities being documented in order to achieve the specified information. On the other hand, students should not be forced to shorten significant parts of their work in order to achieve the information. As a rule, however, the work can be completed without any problems within the specified scope. In the event of exceptions, students should critically analyze the work with the help of their supervisor, if necessary.

2.4 Task and changes to task and title

The students can adapt the approved title of the work in coordination with the company supervisor of the project, study or bachelor's thesis, especially if reasons for the content require this. The supervisor checks that no or only minor changes to the subject matter are accompanied by the change in the title.

Changed titles must be reported to the degree program office so that the correct information can be included in the certificate.

For project and bachelor theses, a copy of the registration form and, if necessary, a written justification for the change in title or content must be included at the beginning of the work.

Any more than minor changes to the content of work requiring approval after its release must be made - like a first registration - must be approved in writing by the university.

2.5 Confidentiality, secrecy

All reports and papers are accessible for assessment and evaluation by the full-time employees of the DHBW and any part-time lecturers or members of the examination committee who may be entrusted with supervision or evaluation. They are obliged to maintain confidentiality.

Restrictions regarding disclosure for assessment and evaluation purposes, e.g. exclusion of certain people or members of certain dual partners from participation in the examination committee, will be taken into account when planning, if possible, but cannot be guaranteed. If necessary, the work must be formulated accordingly or, in extreme cases, a different topic must be chosen.

If necessary, the works can be marked with a corresponding embargo notice (on the title page or on the second page). This ensures that the work is not made accessible to other groups of people after the assessment (e.g. displayed in the library).

Further information can be found in the**Information sheet: Confidentiality of student work**.

http://www.dhbw.de/fileadmin/user_upload/Documents/Broschueren_Handbuch_Betriebe/Infoblatt_Vertraulichkeit.pdf

2.6 Appointments and cancellation

The submission deadlines for each work and, if applicable, the dates for assessment by supervisors and examiners will be announced in good time - at the latest when the work begins - by the program director.

These deadlines must be adhered to, otherwise for legal reasons the work will be graded as “insufficient” (5.0) or “failed” and this will result in the work being repeated. Project work that has not been passed can be repeated once and must be revised again. However, coursework and bachelor's theses cannot be repeated with the same topic.

If a paper has to be stopped due to the student's fault, it will be assessed as failed.

For important reasons - such as long-term illness - you can request a postponement of the submission date by submitting an application (including a sick note if necessary) to the responsible secretariat. The important reason must be made credible to the university immediately in writing. In the event of illness, a medical certificate must be presented immediately. If you are unable to take an examination for an important reason, you can take the examination later (§ 13 DHBW Technology Study and Examination Regulations).

The statements in the DHBW Technology study and examination regulations must be observed.

2.7 Submission of work

The works can be sent in by post. Alternatively, the work can also be handed in personally to the responsible office during the theory phases; at other times, if necessary, by prior arrangement. The work must be submitted to the Study Academy once in printed form and once in electronic form (text file and, if necessary, other digital attachments).

A confirmation of receipt will not be issued. If necessary, the form of registered mail must be chosen.

The date of the postmark is decisive for the timely submission by post.

2.8 Personal contribution

For bachelor's, coursework and project work, the student must declare in writing that the examination was written independently and only with the sources and resources specified.

The text of this declaration must read on the second page of the work:

Explanation

I hereby certify that I wrote my bachelor's thesis (or project work or coursework or term paper) with the topic: (...) independently and did not use any sources or resources other than those specified. I also certify that the submitted electronic version corresponds to the printed version.

---------- ----------

Location *Date* *Signature*

Figure 1: Sample declaration

According to Section 11 Paragraphs 5, 6 and 7 of the DHBW Technology Study and Examination Regulations, impermissible use of sources (plagiarism) will result in a grade of “insufficient” (5.0) or “failed”!

2.9 Overview of the reports and work to be created for the 2017 curriculum (study years from 2017)

module	Practical project I (T3_1000) 1st year of study	Practical project II (T3_2000) 2nd year of study[5]	Practical project III (T3_3000) 3rd year of study	Study work(s) (T3_3100 or T3_3200) 3rd year of study	bachelor thesis (T3_3300) 3rd year of study
time[1]	Practical phase 1 and 2	Practical phase 3 and 4	Practical phase 5	Theory phase 5 and/or 6	Practical phase 6
Unit 1	**Project work 1**	**Project work 2**	**House work**	**Study work**	**bachelor thesis**
Unit 2	40 hours	30 hours	20 hours	-	-
	Of that **Scientific work** (4 attendance hours per academic year)			-	-
Length of time[2] (Unit 1)	560 hours	560 hours	220 hours	150h (5 ECTS) *or.* 300 hours (10 ECTS)	360h 12 weeks
Scope Documentary (Unit 1)	approx. 25 – 35 pages[3]	approx. 50 – 70 pages[3] or 25 – 35 pages each[3.4]	approx. 3 – 7 pages[3]	approx. 40 – 70 pages[3] approx. 60 – 80 pages[3] (with 10 ECTS)	approx. 60 – 80 pages[3]
character	Supervised but essentially independent creation of project work		Supervised but essentially independent preparation of homework	Essentially independent processing and creation of the work(s)	Mostly self-employed editing and creation work
documentation	-Project work -Process and reflection of the practical phase - Part A - Tabular overview of the process of the practical phase -Process and reflection of the practical phase - Part B - Student reflection of the practical phase	-Project work(s)[4] -Process and reflection of the practical phase - Part A - Tabular overview of the process of the practical phase -Process and reflection of the practical phase - Part B - Student reflection of the practical phase	-House work -Process and reflection of the practical phase - Part A - Tabular overview of the process of the practical phase -Process and reflection of the practical phase - Part B - Student reflection of the practical phase	-Scientific Work (see Chapter 6)	-Scientific Work (see Chapter 7)
literature researcher che	Necessary (To a small extent)	Necessary	Necessary	Comprehensively necessary	Comprehensively necessary
Evaluation	Assessment suggestion (passed/failed) by the supervisor, assessment by the examination board	Evaluation suggestion (different graded grade with report) by supervisor, assessment by examination board. Grade oral examination by the examination board	Evaluation (pass/fail passed) by the lecturer for academic work or the examiner of the term paper	Grade from the lecturer for academic work or the supervisor of the coursework	One assessor each from the dual partner and the DHBW
Location	Dual partner (also abroad)	Dual partner (also abroad)	Dual partner (also abroad)	usually DHBW	Dual partner (also abroad)
Registration + permit	Through a practice plan at the start of your studies	Through individual registration, approval by DHBW	Through individual registration, approval by DHBW	Awarded by DHBW	Individual registration, examination and approval by DHBW

1 *The term “Practical Phase 5”, for example, refers to those practical phases that fall in the fifth semester of the course. The specific situation of practical assignments in the relevant academic year can vary from course to course.*

2 *The specification of the duration refers to the underlying workload of attendance hours and self-study hours of the project, study or bachelor's theses from Unit 1 (see also the workload table and module descriptions in the appendix).*

3 *without directories and attachments*
Please note: The scope information for a work is a rough guideline; under no circumstances should a good work be stretched with filler or shortened by deleting qualified content based on these guideline values.

4 *Instead of one project work, two small project works are also possible.*

5 *The Practical Project II module also includes an oral examination unit, which includes 1 hour of attendance and 9 hours of self-study.*

The overview of outstanding achievements from the 2011 curriculum (study years up to 2016) can be found in the appendix)

3 Module practical project I (T3_1000 in the 1st and 2nd practical phase)

3.1 Requirements

The students know the most important technical and organizational processes in some areas of their dual partner and can explain their function. The project work in the first year of study is intended to create a technically sound elaboration that enables subject-oriented reflection on the company's processes and structures.

This cannot simply be a report on the course of the practical phases. Rather, the project work proves that the students can establish the connection between practice and theory and can find academic topics in operational processes as well as classify operational practice against the background of course content. For this purpose, individual key areas of activity in the first and/or second practical phase should be examined in more detail as examples.

The topic of the practical work in T3_1000 is specified by the dual partner in accordance with the “practical plans of the study programs”.

3.2 Documentation

The following structure (see 8.2) is expected for the documentation:

- Cover page with information on essential data such as name, dual partner and the main areas of activity
- Overview of activities in the practical phases (Process and reflection of the practical phase part A)
- Table of contents
- If necessary, other directories
- Focus of activity 1
    - O Task
    - O Classification of the task into higher-level processes/business goals
    - O Link to lecture content
    - O Practical solution
    - O Critical, substantive reflection of theory and practice
- Focus of activity 2
    - O...
- If necessary, summary and outlook
- bibliography
- If necessary, appendix

The project work for the first year of study should consist of 25 to 35 pages (excluding lists and appendices) and include all necessary figures and tables. Sources used must be cited formally correctly. Important basics must be proven using suitable literature.

In addition to the project work, a “process and reflection report” must be submitted separately (Process and reflection of the practical phase).

3.3 Processing time

The activities must be listed in the activity record for each practical phase (i.e. for each semester of study). The form in the process and reflection of the practical phase - Part A - Tabular overview of the process of the practical phase documents the focus of activity(s).

3.4 Submission and evaluation

The works can be sent in by post. Alternatively, the work can also be handed in personally to the responsible office during the theory phases; at other times, if necessary, by prior arrangement. The work must be submitted to the Study Academy once in printed form and once in electronic form (text file and, if necessary, other digital attachments).

A confirmation of receipt will not be issued. If necessary, the form of registered mail must be chosen.

The date of the postmark is decisive for the timely submission by post.

The company supervisor uses the report to check whether the requirements set in terms of technical content, acquired and documented skills and documentation are met. The company supervisor creates an evaluation proposal (pass/fail). The examination committee evaluates the project work taking into account the evaluation proposal, which means that the evaluation proposal can be adopted, but can also be changed in justified cases. If the examination is positive, the examination performance will be graded as “passed”.

4 Module Practical Project II (T3_ 2000 in the 3rd and 4th practical phase)

4.1 Requirements

With the project work in the 2nd year of study, the ability to apply the previously acquired knowledge from various subject areas to projects and to work on a problem from the respective subject area using scientific methods under supervision within a given period of time is achieved.

Students learn how an engineer or computer scientist works and how they combine theoretical, technical and practical business content.

The project work is intended to document qualified work on a small, largely independent project.

4.2 Finding topics, registering and approving project work

Starting from a given problem, the goal of the project work must be clearly defined. The description of the planned procedure must also clearly indicate the students' own contribution to the project.

When specifying and structuring the content of the task, care must be taken to ensure that the essential aspects of project work, such as the analysis of the given problem and the reflection and evaluation of the results obtained, are taken into account appropriately

The task defined in this way is presented to the responsible course director. This checks and approves the topic and gives the final approval.

The project work is carried out by the dual partner.

The formalities to be followed when registering will be communicated in good time by the study program. All forms can be found athttp://www.dhbw.de/die-dhbw/documents.html#Documents_Technology.

4.3 Documentation

The project work(s)

- document the task, approach, proposed solutions and results in detail.
- demonstrate that students can establish the connection between practice and theory and can find academic topics in operational processes as well as classify operational practice against the background of science and research.
- are sufficient in terms of content, form and language for a scientific work. Particular attention must be paid to the use of gender-appropriate language.
- Should be 25 – 35 pages each for two papers or 50 – 70 pages for one paper (excluding lists and appendices),

Please note: The scope information for a work is a rough guideline; under no circumstances should a good work be stretched with filler or shortened by deleting qualified content based on these guideline values.

In addition to the homework, a “process and reflection report” must be submitted separately (Process and reflection of the practical phase).

4.4 Processing time

The activities must be listed in the activity record for each practical phase (i.e. for each semester of study). The form in the process and reflection of the practical phase - Part A - Tabular overview of the process of the practical phase documents the focus of activity(s).

4.5 Submission and evaluation

The works can be sent in by post. Alternatively, the work can also be handed in personally to the responsible office during the theory phases; at other times, if necessary, by prior arrangement. The work must be submitted to the Study Academy once in printed form and once in electronic form (text file and, if necessary, other digital attachments).

A confirmation of receipt will not be issued. If necessary, the form of registered mail must be chosen.

The date of the postmark is decisive for the timely submission by post.

The examiner (company supervisor) appointed by the study academy or the examiner (company supervisor) appointed by the study academy evaluates the project work based on the evaluation scheme set by the technology department (“schematic evaluation” underhttp://www.dhbw.de/diedhbw/documents.html#Documents_Technology) and justifies the assessment. This suggested grade is confirmed by the examination board or, in justified cases, can be changed by the board.

A second part of the assessment of practical phases 3 and 4 takes place through an oral examination. The oral examination consists of two parts:

Part 1: Presentation of the project work

Part 2: Questions that primarily relate to the practical course content and the underlying theoretical concepts.

The grade weighting of the oral exam:

30% for the presentation (1st part)

70% for the questions (2nd part)

The organization and process is determined by the examination committee. Reference is also made to the DHBW Technology study and examination regulations.

5 Module practical project III (T3_3000 in the 5th practical phase)

5.1 Requirements

Students can relate theoretical knowledge to practical application and thus develop and evaluate qualified problem solutions. The associated examination performance of the module in the form of the homework is intended to demonstrate scientific work and documentation for a practical problem. This can be done in the practical phase itself, in the “Scientific Working” seminar, as part of the coursework or bachelor’s thesis.

5.2 Documentation

The documentation is developed in the “Scientific Work III” seminar, in the practical project III or during the course or bachelor’s thesis and submitted by the students as homework.

The following structure is recommended for the documentation:

- Structure of the work, alternative to the structure a work plan
- Scientific approach (methods, literature)
- If necessary, also a short feedback on what was implemented
- Scope: 3 – 7 pages

In addition to the homework, a “process and reflection report” must be submitted separately (Process and reflection of the practical phase).

5.3 Processing time

The activities must be listed in the activity record for each practical phase (i.e. for each semester of study). The form in the process and reflection of the practical phase - Part A - Tabular overview of the process of the practical phase documents the focus of activity(s).

5.4 Submission and evaluation

The works can be sent in by post. Alternatively, the work can also be handed in personally to the responsible office during the theory phases; at other times, if necessary, by prior arrangement. The work must be submitted to the Study Academy once in printed form and once in electronic form (text file and, if necessary, other digital attachments).

A confirmation of receipt will not be issued. If necessary, the form of registered mail must be chosen.

The date of the postmark is decisive for the timely submission by post.

The homework is graded as “passed” or “failed”.

6 Module course work (T3_3100 or T3_3200 in the 5th/6th theory phase)

6.1 Requirements and process

During the fifth and/or sixth theoretical phase, students should independently produce academic papers. This is intended to help them achieve the learning objectives stated in the relevant module and acquire the relevant skills.

The topics of the coursework are provided by the DHBW; topic suggestions from the dual partner or part-time lecturers are welcome. The tasks are based on the study plans of the degree programs. The study academy assigns the topics to the students.

As part of the course work, in addition to the technical examination of the topic, students should also be able to independently familiarize themselves with a new topic, search for and evaluate suitable information, link underlying theoretical considerations with practical circumstances and the scientifically correct presentation and preparation of their results be in the foreground.

6.2 Support

Each course work is supervised individually by a full-time or part-time member of the teaching staff. The supervisors are regularly informed about the status, development and further progress of the work through meetings. If there is an urgent need, the scope of the task can be adjusted at these times.

6.3 Documentation

The module is documented through written coursework. These document the task, approach, proposed solutions and results in detail and show a thorough analysis of the theoretical background of the topic. This includes, above all, appropriate literature research and discussion and the selection of suitable solution approaches for the specific question of the work, prove that the students establish the connection between practice and theory and can find academic topics in operational processes as well as operational practice against the background of science and research are sufficient in the content, form and language of a scientific work. Care must be taken to use gender-appropriate language.

The coursework should each contain 40 – 70 pages (excluding lists and appendices).

Please note: The scope information for a work is a guideline; under no circumstances should a good work be stretched with filler material based on these guideline values or shortened by deleting qualified content.

6.4 Processing time

The coursework is processed in the fifth and/or sixth theoretical phase. The time required to work on the topic of a thesis and document the results should be in the order of 150 working hours (5 ECTS) or 300 working hours (10 ECTS).

The documentation must be submitted on time (see Chapter 2.6).

6.5 Submission of the coursework and assessment

The works can be sent in by post. The work must be submitted to the Study Academy once in printed form and once in electronic form (text file and, if necessary, other digital attachments).

A confirmation of receipt will not be issued. If necessary, the form of registered mail must be chosen.

The date of the postmark is decisive for the timely submission by post.

The submission deadline is set by the DHBW when the topic is issued. The supervisor creates an evaluation in the form of a grade using the “Instructions for the evaluation of project, study and bachelor theses”. The grade must be justified in a short, written assessment.

7 Bachelor's thesis module (T3_3300 in the 6th practical phase)

7.1 Requirements and process

In the bachelor's thesis, the students should show that they are able to independently and independently carry out a task suggested from the operational application through economic and technical scientific thinking and work with the help of the material content taught at the university, scientific literature and the skills and knowledge acquired in the training company to be solved in a timely manner (see the description of the module T3_3300). The bachelor's thesis applies the technical and methodological skills acquired during the course in an experimental, theoretical or constructive manner, taking into account the skills specifically acquired depending on the course of study. It can therefore consist of any combination of these options.

The topic and title of the bachelor's thesis are formulated by the dual partner and submitted to the university for approval along with the task and approach. It can be of a theoretical, practical or constructive nature - adapted to the training plans of the relevant course of study - or consist of any combination of these 3 options. After checking and approving, the university issues the topic to the students. The DHBW sets deadlines for the approval and release process.

When formulating the title, pay attention to the following:

- Length: The title should be around 5 to 10 words long; longer titles indicate an extreme limitation of the topic.
- An activity verb or noun that describes the activity should be included.
- General comprehensibility: The title should enable an external third party (e.g. the recipient of the application) to roughly classify the work.
- Product and company names: The title should not contain product and company names, as these reduce comprehensibility and limit the topic.
- Abbreviations: The title should not contain abbreviations; Exceptions are generally understandable abbreviations for technologies and processes (e.g. CAD, RFID or IFRS)

The title of the bachelor's thesis will be included in the final certificate, so a title should be developed that will be understandable and comprehensible for many years to come.

If a change to the title or topic becomes necessary, see Chapter 2.4.

7.2 Documentation

The written documentation of the bachelor's thesis must

- Document the task, approach, proposed solutions and results in detail,
- show a thorough analysis of the theoretical background of the topic. This primarily includes appropriate literature research and discussion and the selection of suitable solution approaches for the specific question of the work,
- demonstrate that the student can establish the connection between practice and theory and can find academic topics in operational processes as well as classify operational practice against the background of science and research,
- the content, form and language of a scientific work are sufficient. Care must also be taken to use gender-appropriate language.

The documentation of the work should contain an orderly presentation and discussion of the investigations and results carried out in a concise form, but should be so detailed that a detailed review is possible. Just as in practice, others should be able to understand, check and use these documents.

The presentation should be limited to the essential and necessary. Detailed derivations that can be found in the literature are not part of the elaboration. However, there must be a discussion of the current state of the art in the subject area being worked on.

It is always important to ensure that the explanations are limited to the essential points, problems and results in a strict manner. The bachelor's thesis should generally consist of 60 - 80 pages (excluding lists and appendices); If the task requires more extensive documentation, this must be agreed with the course director.

Details on how to create qualified documentation are taught in the “Scientific Work III” seminar in the third year of study.

Please note: The scope information for a work is a guideline; under no circumstances should a good work be stretched with filler material or shortened by deleting qualified content based on these guideline values.

7.3 Processing time

According to the DHBW Technology study and examination regulations, a processing time of 12 weeks is planned for the bachelor's thesis. In justified exceptional cases, such as long-term illness, the DHBW Technology study and examination regulations allow an extension of the processing time based on an informal application (if necessary including sick note/certificate) to the study academy. The application must be submitted before the end of the processing time and must be accompanied by a statement from the dual partner.

7.4 Support

During the processing period, students have an assigned company supervisor whose qualifications in the technical and scientific areas meet the requirements of a part-time lecturer. If necessary, organizational and administrative questions can also be discussed with those responsible for training at the dual partner.

In addition, the study academy appoints a second supervisor (assessor) for each work. These experts are regularly informed about the status, development and further progress of the work at meetings and company visits.

7.5 Submission of work and assessment

The works can be sent in by post. The work must be submitted to the Study Academy once in printed form and once in electronic form (text file and, if necessary, other digital attachments).

A confirmation of receipt will not be issued. If necessary, the form of registered mail must be chosen.

The date of the postmark is decisive for the timely submission by post.

Please take into account the necessary times for copying, binding and logistics in your work schedule!

If the bachelor's thesis is not submitted on time, it is considered to be graded “insufficient” (5.0) and must be repeated.

The bachelor's thesis is evaluated by the named examiners. If there is a difference of up to a whole grade value between the two assessments, the grade is determined as the arithmetic mean. Only the first decimal place is taken into account without rounding. If there is a difference of more than one whole grade, the examination board will appoint a third examiner to determine the grade. The grades awarded by the first examiner and the second examiner are considered limit values. (see § 19 paragraph 3 DHBW Technology study and examination regulations).

If aids other than those mentioned are used in the work or parts are taken from other sources without labeling/indication of the source, they will be viewed as an attempt at deception. The graded examination performance in question is considered to be graded “insufficient” (5.0).

8 Structure and execution of the work

All works addressed in this document should meet the requirements of scientific work in terms of their external form, structure, language, editorial design and indication of sources.

Below are some key recommendations that have proven to be effective across study programs and locations.

Binding requirements can be made by individual study programs or locations.

8.1 External form

White typewriter paper DIN A 4 (weight approx. 80 g/sqm), only written on one side. Format: 1.5 lines, approx. 70 characters per line, font size usually 12 points (e.g. for Arial, if necessary adapt for other fonts). Edge distance at least 2.5 cm on all sides. There can be minimal differences between the different writing programs (e.g. under Windows, Mac OS or Linux).

Under “Title page of the bachelor’s thesis sample”.http://www.dhbw.de/die-dhbw/documents.html#Documents_Technology A sample for the title page of the bachelor's theses is included.

All work must be submitted to the Study Academy once in printed form and once in electronic form (text file and, if necessary, other digital attachments).

Any construction drawings or other attachments that cannot be meaningfully reduced to DIN A4 format can be enclosed with the work in a loose-leaf binder. In the bound part, each sheet of the separate appendix must be noted in a list. The submission of the printed form is specified by the study academy.

8.2 Structure of the work

The work should be divided into the following rough blocks

- Introduction (title page, possibly blocking notice, declaration of personal contribution [see Chapter 2.8], summary in German and English, table of contents, list of abbreviations, list of figures and tables, possibly formula sizes, possibly preface)
- Problem, aim and approach of the work (subject and objectives of the work/task description, planned approach, introduction to the topic, motivation of the task/foresight)

- Basics (e.g. state of the art/research, requirements for the dual partner)
- Main part (requirements definition, requirements analysis, solution generation, solution evaluation, implementation), if necessary in several useful bullet points
- Critical reflection and outlook
- Bibliography
- Attachments

8.3 Rules for the editorial section

8.3.1 Table of Contents

DIN 1421 is recommended for the structure and section numbering. A breakdown of more than three digits should be avoided for reasons of clarity.

Individual subnumbers may not appear. For example, if there is a chapter 5.1, there must also be a chapter 5.2.

Chapter	headline	remark
	Summary Abstract	In German and English language! Max. one page and understandable independently!
	Table of contents	If possible, only one page
	Formula sizes and units	
	Abbreviations	
	Form of the task, if necessary justification for deviations	
1	Problem, goal and approach of the work	Start page count
2	Basics (e.g. state of the art)	
3	Bulk	
4	Critical reflection and outlook	
5	bibliography	Research and integration of literature is one of the most important goals of the bachelor's thesis!
6	Attachment	

Figure 1: Example of a table of contents

8.3.2 Abstract

An abstract is a short and meaningful description of the content of the work. The length is usually 200 to 250 words and includes the question of the work, the methodological approach and the main results of the work.

8.3.3 Formula sizes and units, abbreviations

All designations used in the text, images or formulas must be arranged in a table alphabetically by abbreviation, including indexing, and listed with the unit and name. Latin names appear before the Greek ones. Abbreviations that do not represent formula symbols must be listed separately and also introduced upon first use.

Common colloquial abbreviations are excluded.

Example formula sizes:

A	mm^2	Area
D	mm	Workpiece diameter
d_{min}	mm	smallest shaft diameter
L_1	mm	Length of workpiece No. 1
	Degree	clearance angle
	Degree	wedge angle

Example abbreviations:

UP	subprogram
WZM	machine tools

Symbols are italicized, abbreviations are upright.

8.4 Design of the content sections/chapters

Problem, goal and approach of the work

The introduction should outline the starting point of the work, briefly explain the problem and arouse the reader's interest in the work. General introduction to the topic, no company or product descriptions, organizational charts, etc. if these do not lead directly to the topic. Do not mix goals and approach.

Task

The question of the task must be specified. In particular, the environment, the existing boundary conditions and observation limits must be presented.

Basics

Based on the task, the current state of the art for finding a solution must be described. For example, the advantages and disadvantages of previous solutions or fundamental solution principles must be explained from and, if necessary, other sources.

Bulk

The text should be concise and clear and contain the main ideas of the work. A chosen procedure or a particular solution must be justified. It is not necessary to describe all preliminary tests individually. For experiments, prerequisites and neglects as well as the arrangement, performance and measurement accuracy of the experimental setup must be specified.

The results of the work must be discussed in detail, taking into account the requirements, and compared with the views and experiences already known.

The aim of the work is to find clear conclusions and guidelines for practice.

Critical reflection and outlook

The task, procedure and essential results are presented briefly and precisely and critically reflected on. The summary is understandable on its own. Length approx. 1 to 1.5 pages (problem, goals, approach, results and outlook).

Style of elaboration

It is important to ensure that the elaboration is of a scientific nature. In particular, a narrative style (“I have ….”) or experience report should be avoided.

8.4.1 Figures and tables, formulas and equations, cross-references

Figures and tables

All illustrations (sketches, drawings, diagrams, measurement curves, etc.) and tables must be numbered consecutively. The main chapter numbering can also be set here. Every figure and every table has a signature (legend) next to the number. This caption must be concise and understandable without the main text. Every figure and every table must be referred to at the appropriate places in the text, stating the corresponding number.

For figures and tables that were taken from other authors, the source is cited immediately after the legend.

Example: caption

Figure 3.1: Pressure curve over the support surface

Formulas and equations

Whenever possible, formulas should be stated as size equations. Numerical value equations should be avoided. Each formula symbol used must be defined (see formula sizes and units).

Important formulas are identified the first time they appear by numbers in brackets at the end or beginning of the line. The chosen labeling must be maintained consistently throughout the work.

Example: Labeling important formulas

M = Fr (12) or (12) M = Fr

This numbering serves, among other things, to explain which formula was used in which equation. Individual lines of a continuous invoice do not need to be numbered.

Cross-references

When referring to passages in the work, the corresponding page number or the relevant section or chapter must be mentioned. A reference to equations that have already been given is given by stating their number.

9 Sources and citation methods

The need to cite sources arises from the quality standards of scientific work and from copyright law. It is generally assumed that the entire text, all figures and tables are the author's own ideas, unless they have been identified as someone else's ideas.

Statements, considerations and results that are taken from external sources must be identified by stating their origin. Original works should be cited if possible.

By providing well-founded references to sources, the extent of research on the topic can be identified in a work. This has an enormous impact on the scientific quality of a work and is therefore also very important for the grading.

Any foreign ideas from scientifically recognized literature must be quoted (scientific books, high-quality textbooks, handbooks, encyclopedias, articles in scientific journals, important newspaper articles e.g. in the business section, reports from associations or stock corporations, legal texts, etc
- comments, court decisions and administrative instructions). If there are no quotations, but the ideas can be identified as third-party, there is no intellectual achievement of your own and it can be assumed that it is intellectual theft and a violation of copyright. These papers will be graded with a significant reduction in grades; the work may have to be repeated.

In the context of scientific work, it is expressly desired to rely on external ideas and to build on the “state of the art”/“state of research”. Existing findings and methods are the foundation of a scientific work. This results in demands on the quality and quantity of the sources. Sources should not be taken over without reflection, but should be discussed as part of the work.

The aim of all sources is, on the one hand, to make the use of someone else's ideas visible. On the other hand, interested readers should be given the opportunity to find the sources mentioned as quickly as possible. This means that page numbers in particular cannot be dispensed with for more extensive sources (books, articles, etc.).

In addition, citing sources should not make the work more difficult to read, but should provide the reader with as much information as possible by citing the source.

To achieve this, various options are established and commonly used in science. The following chapters only explain a few possibilities.

9.1 Sources

9.1.1 Source references in the text

If a formula, a table or a figure is copied from a book or publication, this is usually stated behind the quoted text or behind the quoted formula or in the title of the figure/table by stating the Source (source number in square brackets in the bibliography).

(e.g. "... can be calculated using the following equation [3]: -----$_2$--2-r).

In the**bibliography**The book or publication can then be found under the number given. No source needs to be specified for simple or trivial formulas (e.g. U=RI).

The bibliography lists all sources used and referred to in the text. This means that if you want to cite a source, you must do so in the text and not globally cite a series of books or scripts in the bibliography that you think fit the topic. At the same time, this means that sources that do not appear in the text (or in the footnotes) generally do not belong in the bibliography.

The individual sources are usually numbered in the bibliography and arranged in the order in which they appear in the text.

To summarize again: Reference can be made to a source directly in the text by placing the number of the source in the bibliography in square brackets after the quote, e.g. “The basics of microcontroller technology are described in detail in [1], [2] and [3]. shown.”.

9.1.2 Sources in footnotes (alternative to Chapter 9.1.1)

In order to keep the “footnote apparatus” small, the sources for literal or analogous quotations (see below) are generally given in the text part as**SHORT RECEIPT**(Reference to the bibliography) in footnotes at the bottom of the page (separated from the text by an approx. 4 cm long line). This footnote should be indicated in the text using a (preferably) superscript Arabic numeral (if necessary with a closing bracket).

The footnotes should be written on a single line; a smaller font size than the actual text is permitted.

The reference to the bibliography must be clear; This means that the sources of the footnotes must also be found in the bibliography. In addition, the source information in the footnotes (in contrast to the bibliography) must contain the specific page number (or column number, e.g. in essays) to which reference is made in the relevant place.

In principle, only the following should be stated in the footnote of the short document:

Author with abbreviated first name (year of publication), page(s)

Multiple author names are separated by a slash.

Examples: $_{1)}$Pleil, G. (2014), p. 17 f.

$_{2)}$See Böttcher, E. / Homann, K. (2015), p. 23 ff.

Several different works by an author with the same year of publication are distinguished by trailing lowercase letters (which also appear in the bibliography for relevant sources).

Examples: 1)Schmidt, G. (2013a), p. 35

2)Schmidt, G. (2013b), p. 19 f.

When references to different literature sources in a footnote, the individual sources are separated by a semicolon (;); after the last source there is a termination point. Explanatory notes (e.g. “see also...”) are permitted.

For sources without an author's name, but with a recognizable publisher, the following should be cited:

Publisher (year of publication), page(s)

In the case of sources without an indication of the author and without a recognizable publisher, the note “o. V.” (without specifying the author):

Untitled (year of publication), page(s)

For sources without a year of publication, the note “o. J.” (without specifying the year), if necessary with distinguishing lowercase letters:

Author (n.d.), page(s)

Examples: 1)o. V. (2015), p. 8

2)IBM-Deutschland GmbH (no yes), p. 3

3)See IBM-Deutschland GmbH (n.d.), p. 9 ff.

9.1.3 Citation of sources for figures, tables and appendices

Figures, tables and appendices must have a clear description of their contents. Particular attention must be paid to a precise spatial, temporal and factual demarcation of what is depicted. Immediately below the table or figure, a brief explanation of the symbols used (without prejudice to their detailed explanation in the text), the comments added or adopted by the author and the source citation(s) must be placed. The figures and tables must be numbered consecutively.

Illustrations, diagrams, tables, etc. are to be treated like textual quotations and documented like literal quotations or analogous quotations.

It is generally assumed that all figures and tables as well as other text**The author's own thoughts**if they have not been identified as foreign ideas.

9.1.4 Alternative formats

As an alternative to the formatting of the source citations described, one of the following formats can also be used: ISO 690, APA, Harvard, Chicago, Turabian, IEEE or MLA. The chosen format must be adhered to consistently throughout the entire work.

9.2 Citation method

9.2.1 Appropriate citation

Meaningful (indirect) quotations should be used much more often than literal quotations in student work. However, the analogous reproduction of third-party intellectual property must also be identified by specifying the source. It must be unmistakably clear that it is a reproduction of someone else's thoughts (e.g. formulation in the subjunctive); The scope of a corresponding takeover must also be clearly identifiable.

The labeling can be done in two different ways. Either by citing the source in the text according to Chapter 9.1.1 (mainly found in scientific and technical works) or by using a superscript Arabic numeral, if necessary with a bracket “)” at the end to indicate the source. Appropriate citation is usually made visible at the end of the mental extraction.

If longer, third-party ideas are quoted appropriately, the footnote number can also be placed at the beginning of the extract (after an introductory sentence or half-sentence).

Example: Haberfellner breaks down the tasks of the organizational methodology as follows:1)

When quoting analogously, the addition “comparisons” is inserted in the footnote before the source citation in the abbreviation “cf.”; The quotation marks are omitted in the text itself.

However, other explanatory additions are also possible in the footnote, such as “Cf. also: ...", "Cf. also: ...” or “Cf. about this in detail: ...”. These additions are useful if they are intended to refer to additional literature sources (several different authors) or if the reader is to be informed that the other author comments on this specific topic in more detail than is stated is possible at this point.

Example of meaningful quotation:	In July, bank liquidity was characterized by the strongest inflow of foreign currency to date.2)

When specifying the page number, it is important to pay close attention to whether only one passage is quoted (e.g. p. 20), whether the passage taken also affects the following page of the work (p. 20 f.) or whether statements extend over several pages (p. 20 ff.). The same applies to the indication of column numbers (e.g. in the case of collected works or encyclopedias as literary sources, which are then referred to as “Sp.”).

9.2.2 Quoting verbatim

Any text taken verbatim (direct quotation) must be enclosed in double quotation marks. The source citation in the footnote begins directly after the footnote number (in contrast to the indirect citation method, which uses a “cf.” when naming the literary source). When specifying the page number, it is important to pay close attention to whether only one passage is quoted (e.g. p. 20) or whether the copied passage also touches on the following page of the work (e.g. p. 20 f.). The use of longer direct quotations should be avoided; It is then often better to present the context in a referential manner (with a reference to the source “Cf. ...” in the footnote).

As a rule, direct quotations should only be used when the exact wording is important or when particularly succinct sentences are involved. If a longer text (more than five lines) needs to be quoted, it is best to indent it by three characters and write it on a single line.

If the quotation is reproduced verbatim, no changes may be made to the original quote, even if the spelling is outdated and the punctuation is incorrect. Only obvious printing errors may be corrected.

Quotations must not be taken out of context. The quote must not have any other meaning in the original than when it has been incorporated into your own text. The omission of a word in the quotation must be marked by two dots; if several words are omitted, it must be marked by three dots. If the original text is supplemented with your own inserts, the author's additions must be placed in square brackets.

Example: In July, "...the development of bank liquidity...was influenced by the strongest inflow of foreign exchange [until then]".[1)]

Your own emphases must be marked with the addition "(emphasis by the author)" or "(emphasis by the author)" at the end of the footnote (if necessary in the abbreviated form "Herv. v. Verf ." or "Herv. by the author.").

Example: In July, "...the development of bank liquidity...was influenced by the strongest inflow of foreign currency."[2)]

If emphases (blocking, bold or italic type) are not adopted from the original, this must be noted in brackets after the source in the footnote with a corresponding note: "blocked in the original" or "italicized in the original", etc.

Quotations within a quotation are preceded by an apostrophe ('...') at the beginning and end.

Example: Dietrich von Kyaw, economic envoy at the German embassy in Washington, said, quoting then US Secretary of State George Shultz: "Even if the current US administration does not apply the protectionist parts of the law, we do not know how later governments would handle. ... 'Protectionism is the wrong way to protect industries that are no longer competitive'."[3)]

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1) Deutsche Bundesbank (1957a), p. 3

2) Deutsche Bundesbank (1957a), p. 3 (Credit by author)

3) o. V. (2015a), p. 8

In foreign language quotations (except for quotations from English) a translation is included in the text and the original quotation is included in the footnote. The translation can also come from another publication (this must also be cited in the footnote). Otherwise, it is up to the author to create a translation that can be literal or that can convey the meaning of the quote.

9.2.3 Citing secondary literature

In principle, you should quote from the original text. Only if the original work is not accessible can the source be cited in the secondary literature. The reference to the source in the footnote first names the original source with all bibliographic information (e.g. title, place and year of publication) and then with the addition “quote. after ..." also the secondary literature (each in the form of SHORT BELEGS). The

Original source is contrasted with secondary literature**not**included in the bibliography (see Chapter 10).

_____

1)See Haberfellner, R. (2014), Col. 1701
2)See Deutsche Bundesbank (1957), p. 3

9.2.4 Repeated citation

If the same source is cited repeatedly, the reference to the source in the short reference is always the same; It must therefore be stated with every quotation:

Author(s) (year of publication), page(s)

If the same writing is quoted several times in immediate succession on the same page of text, instead of the name of the author and the year of publication, the reference “Ibid” (if quoted verbatim) or “Cf. ibid” (with an analogous quote), followed by the (exact) page number.

Example: 1)Schmidt, G. (2014), p. 19
2)Ibid., p. 27
3)See ibid., p. 41 ff.

10 Bibliography

All sources referred to in the work are listed in the bibliography, either in the order in which they appear in the text according to Chapter 9.1.1 or in alphabetical order for sources with footnotes according to Chapter 9.1.2. At the same time, this means that sources that do not appear in the text, footnotes or appendix do not belong in the bibliography. The following example shows how a bibliography can be structured. Alternatively, other citation styles can of course also be used in consultation with the supervisors. Reference management programs (such as Citavi) are helpful here.

The**Requirements**to the bibliography can be identified by the following criteria:

- accuracy (error-free information);
- Completeness (all information required for retrieval);
- uniformity (maintaining a certain schema);
- Clarity (e.g. naming the authors in alphabetical order by their family name; possibly in 2 columns).

All sources are listed in the bibliography without subgroups. In alphabetical order, sorted by the last name of the (first-mentioned) author. The first names of the authors are sensibly abbreviated. Academic titles are not given.

For sources without an author's name, but with a recognizable editor, the name of the editor is replaced by the name of the author, followed by the addition of “ed.” (in brackets). The alphabetical order is based on the last name of the (first-named) editor. The bracket “ed.” only appears in the bibliography, but not in the footnotes of the text section.

If there are several authors (or editors) of a source:

- Note “and” or slash “/” after the (abbreviated) first name of the first named author (if there are 2 authors);
- Separation after the (abbreviated) first name with a slash “/” (for 3 authors);
- Mention only the first-named author with their last name and (abbreviated) first name with the note “ua”; “et al.” (if more than 3 authors).

For sources without an author and no identifiable publisher, the source citation begins with the reference “OV” (without an author’s name).

For sources without a location, the note “o. O.” (without location information). If there are several places of publication, there is a slash (“/”) or the word “and” between the individual locations.

The publisher is specified optionally, the ISBN number is not.

For sources without a year of publication, the note “o. J.” (without specifying the year).

Several different works by authors with the same year of publication are distinguished by lowercase letters (immediately after the year of publication). The year of publication and, if applicable, the lower case letter are in brackets after the author's name(s). The distinguishing lowercase letters must also be included in the footnotes of the text in the same form.

Note: the information about the place and year of publication (and often the CIP short title recording from the German Library) can usually be found together with the ISBN number on page 4 of a book (left side of the book, bottom).

The citation method, ie the scope and order of naming the required source data, varies depending on the type of sources used. More details can be found in the following statements.

10.1 Books and writings

Last name First Name: Title of the work, subtitle if applicable, series of publications if applicable, (ed.:), volume, edition, place of publication, year of publication

Explanations:

- Editor with the note “Ed.:” in brackets;
- Volume number only for multi-volume works;
- Number of the edition (+ if necessary additions such as “completely reworked”) only if not the first edition;
- no comma between place and year of publication.

Examples:

Bargel, H.-J./Schulze, G.:	Materials Science, Springer, 11th edition, Heidelberg, 2013
Hahn, D./Taylor, B. (eds.):	Strategic corporate planning, status and development trends, 4th edition, Heidelberg and Vienna 2005
Schmidt, G.:	Methods and techniques of organization, 8th edition, Giessen 2000

(But: in the footnotes in the text part as well as in the sources of figures and tables the con-
specific page reference of the relevant reference is mandatory.)

10.2 Articles in journals

Last name First Name: Article title, subtitle if applicable, in: journal title, volume (year), issue number, page(s)

Explanations:

- There is no comma between the year and the annual edition (placed in brackets);
- Page number of the entire essay (for multi-page essays) always in the form: “S. XX - YY“ .
  (S. = pages).

(But: in the footnotes in the text as well as in the sources of figures and tables, the specific page number of the relevant reference is mandatory instead of the “From-To” page number.)

Examples:

Eichhorn, S.:	Hospital management, leadership tasks and management organization, in: leadership & management, 8th year (1991a), issue 4, pages 244-250 or: 8 (1991) 4.
Eichhorn, S.:	Hospital management, current situation and perspectives, in: Business Administration, Volume 51 (1991b), Issue 4, pp. 455-465 or: ...51 (1991) 4...
o. V.:	Turning of steel, in VDI-Z, (2015), No. II, p.29

10.3 Contributions to collections and reference works

Last name First Name: Title or keyword, subtitle if applicable, in: collected work, (editor if applicable), volume if applicable, edition, place of publication, year of publication, page(s) or column(s)

Explanations:

- Volume number only for multi-volume collections;
- Edition number only if not 1st edition;
- Page or column information for the entire article (for multi-page articles) always in the form: "S. XX - YY" or "Sp. XX - YY" (S. = Pages; Col. = Columns).

(But: in the footnotes in the text part as well as in the sources of figures and tables the concrete page reference of the relevant reference is mandatory instead of the "From-To" page reference.)

Examples:

Günther, H.-O.:	Material flow control in individual production, in: Logistik, (ed. Isermann, H.), Landsberg 2003
Hoffmann, F.:	Organization, in: Handbook the Organization, (Ed.: Grochla, E.), 2nd, completely revised edition, Stuttgart 1980, columns 1425 - 1431
Scharfenberg, H.:	(Ed.) (1988): Yearbook of Office Communication, Volume 4, Baden-Baden 1988

10.4 Dissertations

Last name First Name: Title of the work, subtitles if applicable, diss., place of publication, year of publication

Explanations:

- Reference to the dissertation using the abbreviation "Diss.";
- It is possible to specify the subject and university after the note "Diss." (e.g. "Diss. rer. pol.");
- no comma between place and year of publication.

Example:

Bagh, A.:	Design of PVD-coated spur gears, diss., RWTH Aachen 2015

(But: in the footnotes in the text part as well as in the sources of figures and tables the con-
specific page reference of the relevant reference is mandatory.)

If a dissertation is published (usually in later editions) as part of a series of publications, the
Additional information (series of publications, if applicable, publisher, if applicable, volume and edition) must be inserted after the note "Diss." and before the place and year of publication.

10.5 Newspaper articles

Last name First Name:	Heading/title of the article, subtitle if applicable, in: "Newspaper" number of the day. Month. Year, page(s)

Explanations:

- "O. V." = without author information if there is no identifiable author;
- Date of newspaper issue always complete (DD.MM.YYYY); The month can be written out as a number or in full (retention of the chosen form is mandatory);
- For newspaper articles covering several pages, the page number is in the form: "S. XX-YY"

(But: in the footnotes in the text part as well as in the source information for figures and tables, in multi-page newspaper articles, the specific page number of the reference in question is mandatory instead of a "From-To" page number.)

Examples:

Lobenstein, C.:	Economy and Crises, in: "Die Zeit" No. 53 from December 23, 2014, p. 28
o. V.:	China's steel exports are flooding the world markets, in: "VDI Nachrichten" No. 33/34 from August 14, 2015, p. 7

10.6 Legal publications

Common legal texts do not need to be included in the bibliography. It is sufficient to mention the paragraphs (articles), paragraphs and sentences of the law used (latest!) in the text part (e.g. in brackets or in footnotes).

In contrast to common legal texts, comments on laws, court decisions and administrative instructions must also be included in the bibliography.

Legal commentaries are quoted analogously like independent books and writings (see Chapter 10.1).

Court decisions and administrative instructions must be kept in a separate list at the end of the bibliography (if necessary separated by decision-making institution). The same information must be provided as for the citation in the text part in the form of the special full reference.

Example of court decisions:

1) BFH judgment of December 17, 1986, VII R 34/86,

BStBl II 1986, p. 123

2) BFH judgment of October 27, 1977, IV R 60/74,

BStBl 1978 II, pp. 100 - 102

Example of administrative instructions:

1) Federal Minister of Finance, letter dated July 11, 1974, IV C l - pp. 1340-32/74, BStBl 1974 I, pp. 442 - 492

10.7 Internet sources

Last name First Name:	Title/topic of the website/source, internet address, year of publication, access: DD.MM.YYYY

Explanations:

- Internet address generally indicates a web page (http address) or a web document (http address for PDF, docx, ... document);
- The author and year of publication can often be found at the end of a web page; (if author/year of publication is missing: “n.d.” / “n.d.”)

Examples:

Alliance:	Two steps on once :Dual University, http://perspektiven.allianz.de/karriere/schueler/DHBW/index.html 2003, inspection: June 2, 2003
o. V.:	Homepage of the DHBW Stuttgart, http://www.DHBW-stuttgart.de, undated, accessed: September 1, 2015
o. V.:	training contract, http://www.dhbw-stuttgart.de/zielgruppen/duale-partner/studien-und-bildungsvertrag-verguetung/, undated, accessed: September 4, 2015

All sources, including internet sources, should be handled and cited with caution. It doesn't correspond to that scientific standard to cite Internet sources of any origin as secured knowledge without critical reflection. If possible, internet sources should not be used for definitions of basic terms, but appropriate specialist literature should be used.

If essential core statements of a work are based on Internet sources, the corresponding pages should or corresponding parts of it can be added to the work in the appendix or in the electronic documentation.

10.8 Other Sources

This includes, for example, generally inaccessible documents such as:

- internal company writings and publications;
- Product descriptions or training materials from manufacturers (e.g. software providers), etc.;
- Lecture notes (if distributed by the lecturer);
- own student work (e.g. diploma theses);
- own interviews and conversations.

The citation of these other sources must contain a clear reference to the editor of the publication or the interviewer; The above information on the order of entries applies accordingly. In principle, original sources should be used.

Examples:

Jordt, A. / Gscheidle, K.:	Correspondence course for organization, teaching letter 2, Wiesbaden n.d.
Müller, A.:	Tour I, manuscript (lecture companion) of a lecture at the DHBW Stuttgart, Stuttgart 2013
Meixner, B.:	Interview/conversation with the author on April 12, 2015 at Computerservice, Stuttgart (if applicable, job title of the interview partner)
Microsoft:	Microsoft Windows 286/386, data sheet Microsoft GmbH, Unterschleißheim 1989
Siemens:	Siemens - track record, in: Siemens consultant letter, December, Munich 1989, p. 6

10.9 Appendix

If this appears necessary, preliminary tests, mathematical derivations, work instructions, Computer programs etc. are reproduced in detail. Extensive results of similar experiments can also be summarized in diagram or table form.

The work included in the appendix must be listed in a special appendix list.

10.10Alternative formats

As an alternative to the formatting of the bibliography described, one of the following formats can also be used: DIN 1505-2, APA, Harvard, Chicago, Turabian or MLA.

11 Notes on finding and obtaining sources

The creation of a scientific work fundamentally requires an examination of the current knowledge published in sources (books, dissertations, magazines or even the Internet).

Corresponding research is therefore a basis for such work.

Research options can be found in specialist libraries or in the online libraries on the Internet, as well as via the general search options on the Internet. Sources can also be unpublished materials, letters, lecture manuscripts.

Danger: Simply searching the Internet via search engines is not complete source research.

The measures to ensure the "**Confidentiality of student work**" are summarized in the information sheet of the same name.

http://www.dhbw.de/fileadmin/user_upload/Documents/Broschueren_Handbuch_Betriebe/Infoblatt_Vertraulichkeit.pdf

If you have any further questions about this work, please contact your supervisor, the responsible secretariats or the course directors for clarification.

12 Appendix – Difference between Curriculum 2011 and Curriculum 2017

Module descriptions of the modules T2_1000, T2_2000 and T2_3X00 for the 2011-2017 academic years or from the 2017 academic year: corresponding to T3_1000, T3_2000 and T3_3X00

<table>
<tr><td rowspan="2">Module-
designation</td><td colspan="4">workload [h]</td></tr>
<tr><td colspan="2">Unit 1</td><td colspan="2">Unit 2
Scientific work</td><td>Total [h]</td></tr>
<tr><td rowspan="2">Practice (project) I</td><td>T2_1000</td><td>T3_1000</td><td>T2_1000</td><td>T3_1000</td><td rowspan="2">600</td></tr>
<tr><td colspan="2">560 hours</td><td colspan="2">4 hours presence,
36 hours of self-study</td></tr>
<tr><td rowspan="2">Practice (project) II</td><td>T2_2000</td><td>T3_2000</td><td>T2_2000</td><td>T3_2000</td><td rowspan="2">600</td></tr>
<tr><td colspan="2">560 hours</td><td>4 hours presence,
36 h self-studies</td><td>5 hours presence,
35 self-studies</td></tr>
<tr><td rowspan="2">Practice (project) III</td><td>T2_3000</td><td>T3_3000</td><td>T2_3000</td><td>T3_3000</td><td rowspan="2">240</td></tr>
<tr><td>200 hours</td><td>220 hours</td><td>4 hours presence,
36 h self-studies</td><td>4 hours presence,
16 h self-studies</td></tr>
<tr><td rowspan="2">Study work
(5 ECTS)</td><td>T2_3100 and T2_3200</td><td>T3_3100 and T3_3200</td><td colspan="2" rowspan="2">-</td><td rowspan="2">150</td></tr>
<tr><td colspan="2">150 hours</td></tr>
<tr><td rowspan="2">(Large) coursework
(10 ECTS)</td><td>T2_3101</td><td>T3_3101</td><td colspan="2" rowspan="2">-</td><td rowspan="2">300</td></tr>
<tr><td colspan="2">300 hours</td></tr>
<tr><td rowspan="2">bachelor thesis</td><td>T2_3300</td><td>T3_3300</td><td colspan="2" rowspan="2">-</td><td rowspan="2">360</td></tr>
<tr><td colspan="2">360h</td></tr>
</table>

13 Appendix – Module descriptions Curriculum 2017 (from 2017 academic years)

Practical project I (T3_1000)

Work Integrated Project I

Formal information about the module			
Module name	**Module number**	**Language**	**Module responsibility**
Practical project I	T3_1000	German	Prof. Dr.-Ing. Joachim Frech

Positioning of the module in the course of your studies	
academic year	**Module duration in semesters**
1st year of study	2

Forms of teaching and examination used	
Forms of teaching	Internship, seminar
Teaching methods	Lecture, discussion, project

Examination performance	Scope of the exam (in minutes)	Grading
Project work	See examination regulations	Pass/Fail Pass/Fail
Process and reflection report	See examination regulations	

Workload and ECTS credit points			
Total workload (in hours)	**of which presence time (in hours)**	**of which self-study (in hours)**	**ECTS credit points**
600.0	4.0	596.0	20

Qualification goals and competencies	
Expertise	Graduates understand industrial problems in their context and with appropriate complexity. You critically analyze which influencing factors must be taken into account to solve the problem and assess to what extent individual theoretical models can contribute to solving the problem. The students know the central manual and mechanical basic skills of the respective course of study, they can apply these to practical tasks and have learned about their importance for the processes in the company. You know the most important technical and organizational processes in some areas of your training company can explain their function. The students can basically describe technical problems of the respective course of study and explain subject-related connections.
Methodological competence	Graduates know common industrial practices and can implement them independently. They build on their theoretical knowledge and professional experience.
Personal and social skills	The students are aware of the relevance of human resources and social skills for the smooth running of industrial processes and can identify their own strengths and weaknesses. The students succeed in learning from experience, they take responsibility for the assigned tasks, with which they also identify personally. The students take responsibility in the team, integrate and contribute through their behavior to achieving common goals.
Comprehensive action competence	The students demonstrate competence to act by: use their theoretical specialist knowledge to act appropriately, authentically and successfully in practical professional situations. This also includes independent critical observation, the systematic search for alternative solutions and an initial assessment of the applicability of theories in practice.

Learning units and content

Teaching and learning units	Presence time	Self-study
Project work I	**, 0**	**560.0**
Reference is made to the respective practical plans for the degree programs in the Faculty of Technology		
Scientific work I	**4.0**	**36.0**

The seminar “Scientific Work I” takes place during the theory phase. It is possible to carry out the entire course in one semester or to divide it into two semesters. The DHBW’s WBT “Scientific Work” can be used for some basics.

- Guidelines for scientific work
- Choosing and finding topics for the T1000 work
- Typical content and requirements for a T1000 work
- Structure and structure of a T1000 work
- Literature search, procurement and selection
- Use of the DHBW library offerings
- Form of a scientific work (e.g. citation method, bibliography)
- Notes on data processing tools (e.g. reference management and generation of directories in word processing)

Special features and requirements

particularities

Reference is made to the “Guidelines for the processing and documentation of the modules practical project I to III, course work and bachelor’s thesis” from the Technology Commission of the Baden-Württemberg Cooperative State University.

The paragraph "1.2 Deviations" from Appendix 1 to the study and examination regulations for the bachelor's degree programs in the technology field of study at the Baden-Württemberg Cooperative State University (DHBW) does not apply to the examinations for this module.

requirements

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literature

-

- Web-based training “Scientific work”
- Kornmeier, M., Scientific writing made easy for bachelors, masters and dissertations, Bern

Practical project II (T3_2000)

Work Integrated Project II

Formal information about the module			
Module name	**Module number**	**Language**	**Module responsibility**
Practical project II	T3_2000	German	Prof. Dr.-Ing. Joachim Frech

Positioning of the module in the course of your studies	
academic year	**Module duration in semesters**
2nd year of study	2

Forms of teaching and examination used	
Forms of teaching	Internship, lecture
Teaching methods	Lecture, discussion, group work, project

Examination performance	Scope of the exam (in minutes)	Grading
Project work	See examination regulations	Yes
Process and reflection report	See examination regulations	Pass/fail yes
Oral examination	30	

Workload and ECTS credit points			
Total workload (in hours)	**of which presence time (in hours)**	**of which self-study (in hours)**	**ECTS credit points**
600.0	5.0	595.0	20

Qualification goals and competencies	
Expertise	Students grasp industrial problems in an appropriate context and with appropriate complexity. You critically analyze which influencing factors need to be taken into account to solve the problem and can assess to what extent theoretical models can contribute to solving the problem.
Methodological competence	The students know the methods, techniques and skills common in the business environment and can assess their strengths and weaknesses when selecting them, so that they select the methods appropriately and appropriate to the situation. The students successfully implement the tasks assigned to them through well thought-out concepts, sound planning and good project management. They build on their theoretical knowledge and their growing professional experience.
Personal and social skills	The students are aware of the relevance of human resources and social skills for the smooth running of industrial processes and their own careers; you can name your own strengths and weaknesses. The students succeed in learning from experience, they independently take responsibility for the assigned tasks, with which they also personally identify. The students take on responsibility in the team, integrate others and contribute to achieving common goals through their thoughtful behavior.
Comprehensive action competence	The students demonstrate increasing competence to act by demonstrating their theoretical specialist knowledge and their growing Use experience to act appropriately and successfully in social, professional situations. This also includes independent critical observation, the systematic search for alternative ways of thinking and solving problems, and questioning previous approaches. The students are characterized by personal responsibility and drive; they are also able to act in the context of a globalized working world.

Learning units and content		
Teaching and learning units	**Presence time**	**Self-study**
Project work II	**, 0**	**560.0**
Reference is made to the respective practical plans for the degree programs in the Faculty of Technology.		
Scientific work II	**4.0**	**26.0**
The seminar “Scientific Work II” takes place during the theory phase. It is possible to carry out the entire course in one semester or to divide it into two semesters. The DHBW’s WBT “Scientific Work” can be used for some basics. - Guidelines for scientific work - Choosing and finding topics for the T2000 work - Typical content and requirements for a T2000 work - Structure and structure of a T2000 work - Preparation for the T2000 oral exam		
Oral exam	**1.0**	**9.0**
-		

Special features and requirements

particularities

In accordance with the applicable study and examination regulations for the bachelor's degree programs in the field of technology at the Baden-Württemberg Cooperative State University (DHBW), the oral examination and the project work must be passed separately. The module grade is calculated from these two examinations with a weighting of 50:50.

Reference is made to the “Guidelines for the processing and documentation of the modules practical project I to III, course work and bachelor’s thesis” from the Technology Commission of the Baden-Württemberg Cooperative State University.

requirements

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literature

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Practical project III (T3_3000)

Work Integrated Project III

Formal information about the module			
Module name	**Module number**	**Language**	**Module responsibility**
Practical project III	T3_3000	German	Prof. Dr.-Ing. Joachim Frech

Positioning of the module in the course of your studies	
academic year	**Module duration in semesters**
3rd year of study	1

Forms of teaching and examination used	
Forms of teaching	Internship, seminar
Teaching methods	Lecture, discussion, project

Examination performance	Scope of the exam (in minutes)	Grading
House work	See examination regulations	Pass/Fail Pass/Fail
Process and reflection report	See examination regulations	

Workload and ECTS credit points			
Total workload (in hours)	**of which presence time (in hours)**	**of which self-study (in hours)**	**ECTS credit points**
240.0	4.0	236.0	8th

Qualification goals and competencies	
Expertise	Students grasp industrial problems in a broad context and with moderate complexity. You have a good understanding of organizational and content-related contexts as well as organizational structures, products, procedures, measures, processes, requirements and legal principles. You critically analyze which influencing factors need to be taken into account to solve the problem and can assess to what extent theoretical models can contribute to solving the problem.
Methodological competence	The students know the methods, techniques and skills common in the business environment and can assess their strengths and weaknesses when selecting them, so that they select the methods appropriately, appropriate to the situation and prudently. The students systematically and successfully implement the tasks assigned to them through well-thought-out concepts, sound planning and good project management, even with frequently changing requirements. They build on their theoretical knowledge and their growing professional experience.
Personal and social skills	The students also demonstrate a high degree of reflexivity with regard to their personal and social skills, which is used as a basis for independent personal development. The students succeed in learning from experience, they independently take responsibility for the assigned tasks, with which they also personally identify. The students take responsibility for themselves and others. They are capable of conflict and criticism.
Comprehensive action competence	The students demonstrate comprehensive operational competence by demonstrating their theoretical specialist knowledge and their growing Use experience to act appropriately and successfully in practical professional situations. This also includes independent critical observation, the systematic search for alternative ways of thinking and solving problems, and questioning previous approaches. The students are characterized by personal responsibility and drive; they are also able to act in the context of a globalized working world. They demonstrate a reflective attitude towards the societal, social and ecological implications of their own actions.

Learning units and content		
Teaching and learning units	**Presence time**	**Self-study**
Project work III	**, 0**	**220.0**
Reference is made to the respective practical plans for the degree programs in the Faculty of Technology		
Scientific work III	**4.0**	**16.0**
The seminar “Scientific Work III” takes place during the theory phase. It is possible to carry out the entire course in one semester or to divide it into two semesters. The DHBW’s WBT “Scientific Work” can be used for some basics. - What is science? - Theory and theory formation - Overview of research methods (interviews, etc.) - Quality criteria of science - Use scientific findings sensibly (reference system, state of research/technology) - Structure and structure of a bachelor's thesis - Project planning as part of the bachelor's thesis - Collaboration with carers and stakeholders		

Special features and requirements

particularities

Reference is made to the “Guidelines for the processing and documentation of the modules practical project I to III, course work and bachelor’s thesis” from the Technology Commission of the Baden-Württemberg Cooperative State University.

requirements

-

literature

- Web-based training “Scientific work”

- Kornmeier, M., Scientific writing made easy for bachelors, masters and dissertations, Bern

- Minto, B., The Pyramid Principle: Logic in Writing, Thinking and Problem Solving, London

- Zelazny, G., Say It With Charts: The Executives's Guide to Visual Communication, Mcgraw-Hill Professional.

Kornmeier, M., Scientific writing made easy for bachelors, masters and dissertations, Bern

Study work (T3_3100)

Student Research Project

Formal information about the module			
Module name	**Module number**	**Language**	**Module responsibility**
Study work	T3_3100	German	Prof. Dr.-Ing. Joachim Frech

Positioning of the module in the course of your studies	
academic year	**Module duration in semesters**
3rd year of study	1

Forms of teaching and examination used	
Forms of teaching	Individual care
Teaching methods	Project

Examination performance	Scope of the exam (in minutes)	Grading
Study work	See examination regulations	Yes

Workload and ECTS credit points			
Total workload (in hours)	**of which presence time (in hours)**	**of which self-study (in hours)**	**ECTS credit points**
150.0	6.0	144.0	5

Qualification goals and competencies	
Expertise	Under limited guidance, students can delve deeper into a fairly complex but narrowly defined area and acquire a general level of knowledge. You can develop solutions and evaluate alternatives. To do this, they use existing specialist knowledge and develop it independently in the topic of the coursework. The students know and understand the need for scientific research and work. You are able to control scientific work and document it in a scientifically correct and understandable way.
Methodological competence	The students have acquired the competence to collect relevant information using scientific methods and to interpret it taking scientific findings into account.
Personal and social skills	The students can carry out even larger tasks independently with perseverance and persistence. You can manage yourself and complete tasks on schedule. You can argue soundly and appropriately, present results in a plausible manner and provide comprehensible reasons for even complex issues.
Comprehensive action competence	-

Learning units and content		
Teaching and learning units	**Presence time**	**Self-study**
Study work	**6.0**	**144.0**
-		

Special features and requirements

particularities

Reference is made to the “Guidelines for the processing and documentation of the modules practical project I to III, course work and bachelor’s thesis” from the Technology Commission of the Baden-Württemberg Cooperative State University.

requirements

-

literature

Kornmeier, M., Scientific writing made easy for bachelors, masters and dissertations, Bern

Study work (T3_3101)

Student Research Project

Formal information about the module			
Module name	**Module number**	**Language**	**Module responsibility**
Study work	T3_3101	German	Prof. Dr.-Ing. Joachim Frech

Positioning of the module in the course of your studies	
academic year	**Module duration in semesters**
3rd year of study	2

Forms of teaching and examination used	
Forms of teaching	Individual care
Teaching methods	Project

Examination performance	Scope of the exam (in minutes)	Grading
Study work	See examination regulations	Yes

Workload and ECTS credit points			
Total workload (in hours)	**of which presence time (in hours)**	**of which self-study (in hours)**	**ECTS credit points**
300.0	12.0	288.0	10

Qualification goals and competencies	
Expertise	Under limited guidance, students can delve deeper into a complex but narrowly defined area and acquire a general level of knowledge. You can independently develop solutions and evaluate alternatives. To do this, they use existing specialist knowledge and develop it independently in the topic of the coursework. The students know and understand the need for scientific research and work. You are able to manage scientific work efficiently and document it in a scientifically correct and understandable way.
Methodological competence	The students have acquired the competence to collect relevant information using scientific methods and to interpret it taking scientific findings into account.
Personal and social skills	The students can carry out even larger tasks independently with perseverance and persistence. You can manage yourself and complete tasks on schedule. You can argue soundly and appropriately, present results in a plausible manner and provide comprehensible reasons for even complex issues.
Comprehensive action competence	-

Learning units and content		
Teaching and learning units	**Presence time**	**Self-study**
Study work	**12.0**	**288.0**
-		

Special features and requirements

particularities

Reference is made to the “Guidelines for the processing and documentation of the modules practical project I to III, course work and bachelor’s thesis” from the Technology Commission of the Baden-Württemberg Cooperative State University.

The “Large Study Paper” can be used as a designated module in accordance with the study and examination regulations. In addition, the “Large Study Paper” can also be used instead of the “Study Paper I” and “Study Paper II” modules after approval by the program director.

requirements

-

literature

Kornmeier, M., Scientific writing made easy for bachelors, masters and dissertations, Bern

Study paper II (T3_3200)

Student Research Project II

Formal information about the module			
Module name	**Module number**	**Language**	**Module responsibility**
Study work II	T3_3200	German	Prof. Dr.-Ing. Joachim Frech

Positioning of the module in the course of your studies	
academic year	**Module duration in semesters**
3rd year of study	1

Forms of teaching and examination used	
Forms of teaching	Individual care
Teaching methods	Project

Examination performance	Scope of the exam (in minutes)	Grading
Study work	See examination regulations	Yes

Workload and ECTS credit points			
Total workload (in hours)	**of which presence time (in hours)**	**of which self-study (in hours)**	**ECTS credit points**
150.0	6.0	144.0	5

Qualification goals and competencies	
Expertise	Under limited guidance, students can delve deeper into a complex but narrowly defined area and acquire a general level of knowledge. You can independently develop solutions and evaluate alternatives. To do this, they use existing specialist knowledge and develop it independently in the topic of the coursework. The students know and understand the need for scientific research and work. You are able to manage scientific work efficiently and document it in a scientifically correct and understandable way.
Methodological competence	The students have acquired the competence to collect relevant information using scientific methods and to interpret it taking scientific findings into account.
Personal and social skills	The students can carry out even larger tasks independently with perseverance and persistence. You can manage yourself and complete tasks on schedule. You can argue soundly and appropriately, present results in a plausible manner and provide comprehensible reasons for even complex issues.
Comprehensive action competence	-

Learning units and content		
Teaching and learning units	**Presence time**	**Self-study**
Study work II	**6.0**	**144.0**
-		

Special features and requirements

particularities

Reference is made to the “Guidelines for the processing and documentation of the modules practical project I to III, course work and bachelor’s thesis” from the Technology Commission of the Baden-Württemberg Cooperative State University.

requirements

-

literature
Kornmeier, M., Scientific writing made easy for bachelors, masters and dissertations, Bern

Bachelor's thesis (T3_3300)

Bachelor thesis

Formal information about the module			
Module name	**Module number**	**Language**	**Module responsibility**
bachelor thesis	T3_3300		

Positioning of the module in the course of your studies	
academic year	**Module duration in semesters**
-	1

Forms of teaching and examination used	
Forms of teaching	Individual care
Teaching methods	Project

Examination performance	Scope of the exam (in minutes)	Grading
Bachelor thesis	See examination regulations	Yes

Workload and ECTS credit points			
Total workload (in hours)	**of which presence time (in hours)**	**of which self-study (in hours)**	**ECTS credit points**
360.0	6.0	354.0	12

Qualification goals and competencies	
Expertise	-
Methodological competence	-
Personal and social skills	-
Comprehensive action competence	Students grasp industrial problems in a broad context and in realistic complexity. She have a good understanding of organizational and content-related contexts as well as organizational structures, products, procedures, measures, processes, requirements and legal principles. You critically analyze which influencing factors need to be taken into account to solve the problem and can assess to what extent theoretical models can contribute to solving the problem. The students can independently, with little guidance, delve deeper into the theoretical fundamentals of a subject area and acquire the general level of knowledge. You can independently develop solutions and evaluate alternatives based on theory and practice. You are able to efficiently manage scientific work as part of a practical project and document it in a scientifically correct and understandable manner. The students are characterized by personal responsibility and drive; they are also able to act in the context of a globalized working world. They demonstrate a reflective attitude towards the societal, social and ecological implications of their own actions.

Learning units and content		
Teaching and learning units	**Presence time**	**Self-study**
bachelor thesis	**6.0**	**354.0**
-		

Special features and requirements

particularities

Reference is made to the “Guidelines for the processing and documentation of the modules practical project I to III, course work and bachelor’s thesis” from the DHBW Technology Commission.

requirements

-

literature

Kornmeier, M., Scientific writing made easy for bachelors, masters and dissertations, Bern

14 Appendix – Curriculum 2011 (study years 2011 to 2016)

14.1 Overview of the reports and work to be prepared for the 2011 curriculum (study years up to and including 2016)

module	**Practice I (T2_1000) 1st year of study**	**Practice II (T2_2000) 2nd year of study**	**Practice III (T2_3000) 3rd year of study**	**Study work(s) (T2_3100 or T2_3200) 3rd year of study**	**Bachelor's thesis (T2_3300)**
time[1]	Practical phase 1 and 2	Practical phase 3 and 4	Practical phase 5	Theory phase 5 and/or 6	Practical phase 6
Unit 1	**Project work 1**	**Project work 2**	**Project work 3**	**Study work**	**bachelor thesis**
Unit 2	**Scientific work**(4 hours of presence per academic year)			**-**	**-**
Length of time[2] (Unit 1)	560h	560h	200h 220h	150h(5 ECTS) *or.*300 hours(10 ECTS)	360h 12 weeks
Scope Documentary (Unit 1)	approx. 25 – 35 pages[3]	approx. 50 – 70 pages[3] or 25 – 35 pages each[3.4]	approx. 25 – 35 pages[3]	approx. 40 – 70 pages[3] approx. 60 – 80 pages[3] (with 10 ECTS)	approx. 60 – 80 pages[3]
character	Supervised but essentially independent creation of project work			Essentially independent editing and creation of the Work	
documentation	-Project work -Tabular overview of the practical phase -reflection the practical phase	-Project work(s)[4] -Tabular overview of the practical phase -reflection the practical phase	-Project work *or* Annotated presentation[5] -Tabular overview of the practical phase -Reflection on the practical phase -House work[5]	-Scientific Work (see Chapter 6)	-Scientific Work (see Chapter 7) -Tabular overview of the practical phase -Reflection on the practical phase
literature researcher che	Necessary (To a small extent)	Necessary	Necessary	Comprehensively necessary	Comprehensively necessary
Evaluation	Assessment suggestion (passed/failed) by the supervisor, assessment by the examination board	Evaluation suggestion (different graded grade with report) by supervisor, assessment by examination board. Grade oral examination by the examination board	Evaluation suggestion (different graded grade with report) by supervisor, assessment by examination board.	grade the care staff son of the examiner	Two professionally and scientifically qualified experts from the Dual Partner and DHBW
Location	Dual partner (also abroad)	Dual partner (also abroad)	Dual partner (also abroad)	usually DHBW	Dual partner (also abroad)
Registration + permit	Through a practice plan at the start of your studies	Through individual registration, approval by DHBW	Through individual registration, approval by DHBW	Awarded by DHBW	Individual registration, examination and approval by DHBW

14.2 Module T2_3000 in the 5th practical phase for the study years 2011 to 2016

14.2.1 Requirements

Students can relate theoretical knowledge to practical application and thus develop and evaluate qualified problem solutions. The project work is intended to document work on a small, largely independent project.

14.2.2 Documentation

The following structure is recommended for the documentation:

- Cover page with information on essential data such as name, company and the documented project
- Overview of activities in the practical phases (form on the internet)
- Project
    - O Task
    - O Classification of the task into higher-level processes/business goals
    - O Project process
    - O Results

The documentation should consist of 25 to 35 pages (excluding lists and appendices) and contain all necessary figures and tables. An annotated presentation of 25 to 35 pages as well as associated lists and appendices can also be submitted as documentation.

In addition to the project work according to the structure above, a “student reflection on the practical phase” must be submitted separately.

14.2.3 Processing time

For the practical phase, activities amounting to at least 200 hours must be listed in the activity record. The documented project should cover at least 150 hours.

14.2.4 Submission and evaluation

The examiner (company supervisor) appointed by the study academy or the examiner (company supervisor) appointed by the university evaluates the project work on the basis of the evaluation scheme set by the technology department (“schematic evaluation” underhttp://www.dhbw.de/die-dhbw/documents.html#Documents_Technology) and explains his or her assessment. This suggested grade is confirmed by the examination board or, in justified cases, can be changed by the board.

14.3 Appendix – Module descriptions Curriculum 2011 (from study years 2011 to 2016)

Practice I (T2_1000)

Work Integrated Learning I

Formal information about the module			
Module name	**Module number**	**Language**	**Module responsibility**
Practice I	T2_1000	German	Prof. Dr.-Ing. Joachim Frech

Positioning of the module in the course of your studies	
academic year	**Module duration in semesters**
1st year of study	2

Forms of teaching and examination used	
Forms of teaching	Internship, lecture
Teaching methods	Lecture, discussion, practice

Examination performance	Scope of the exam (in minutes)	Grading
Project work	See examination regulations	Pass/Fail Pass/Fail
Process and reflection report	See examination regulations	

Workload and ECTS credit points			
Total workload (in hours)	**of which presence time (in hours)**	**of which self-study (in hours)**	**ECTS credit points**
600.0	4.0	596.0	20

Qualification goals and competencies	
Expertise	-
Methodological competence	-
Personal and social skills	-
Comprehensive action competence	Students can participate in and understand the exchange of information and ideas.

Learning units and content		
Teaching and learning units	**Presence time**	**Self-study**
Project work I	**, 0**	**560.0**
Reference is made to the respective practical plans for the degree programs in the Faculty of Technology		
Scientific work I	**4.0**	**36.0**

The seminar “Scientific Work 1” takes place during the theory phase. It is possible to carry out the entire course in one semester or to divide it into two semesters. The DHBW’s WBT “Scientific Work” can be used for some basics.

- Guidelines for scientific work
- Choosing and finding topics for the T1000 work
- Typical content and requirements for a T1000 work
- Structure and structure of a T1000 work
- Literature search, procurement and selection
- Use of the DHBW library offerings
- Form of a scientific work (e.g. citation method, bibliography)
- Notes on data processing tools (e.g. reference management and generation of directories in word processing)

Special features and requirements

particularities

Reference is made to the “Guidelines for processing and documentation of practical modules, study and bachelor theses” of the Technology Commission of the Baden-Württemberg Cooperative State University.

1.2 Deviations from Appendix 1 to the study and examination regulations for the bachelor's degree programs in the field of technology at the Baden-Württemberg Cooperative State University (DHBW) (study and examination regulations DHBW Technology - StuPrO DHBW Technology) from September 22nd, 2011 do not apply to the examinations in this module.

requirements

-

literature

-

- Web-based training “Scientific work”
- Kornmeier, M. (2008): Scientific writing made easy for bachelors, masters and dissertations, 1st edition, Bern 2008.

Practice II (T2_2000)

Work Integrated Learning II

Formal information about the module			
Module name	**Module number**	**Language**	**Module responsibility**
Practice II	T2_2000	German	Prof. Dr.-Ing. Joachim Frech

Positioning of the module in the course of your studies	
academic year	**Module duration in semesters**
2nd year of study	2

Forms of teaching and examination used	
Forms of teaching	Internship, lecture
Teaching methods	Lecture, discussion, group work, project

Examination performance	Scope of the exam (in minutes)	Grading
Project work	See examination regulations	Yes
Process and reflection report	See examination regulations	Pass/fail yes
Oral examination	30	

Workload and ECTS credit points			
Total workload (in hours)	**of which presence time (in hours)**	**of which self-study (in hours)**	**ECTS credit points**
600.0	5.0	595.0	20

Qualification goals and competencies	
Expertise	-
Methodological competence	-
Personal and social skills	-
Comprehensive action competence	From knowledge of the technical and organizational core processes of a company, students can Capture and analyze interdisciplinary connections and investigate alternative courses of action. The students can work with colleagues from other departments, with customers and suppliers, even abroad if necessary, and have the necessary communication and, if necessary, language skills.

Learning units and content		
Teaching and learning units	**Presence time**	**Self-study**
Project work II	**, 0**	**560.0**
Reference is made to the respective practical plans for the degree programs in the Faculty of Technology.		
Scientific work II	**4.0**	**26.0**
The seminar “Scientific Work 2” takes place during the theory phase. It is possible to carry out the entire course in one semester or to divide it into two semesters. The DHBW’s WBT “Scientific Work” can be used for some basics. - Finding topics for the T2000 work - Formulation of the problem and objective (research question) - Structure and structure of a project work - Research, evaluate and use literature sensibly - Describe the methodology of the work - Structuring argumentation (induction, deduction, “Pyramid Principle”) - Evaluation scheme for project, study and bachelor theses - Prepare and deliver presentations (with regard to the T2000)		
Oral exam	**1.0**	**9.0**
-		

Special features and requirements

particularities

In accordance with the study and examination regulations for the bachelor's degree programs in the field of technology at the Baden-Württemberg Cooperative State University (DHBW) (study and examination regulations DHBW Technology - StuPrO DHBW Technology) from September 22nd, 2011, the oral examination and the project work must be passed separately. The module grade is calculated from these two examinations with a weighting of 50:50.

1.2 Deviations from Appendix 1 to the study and examination regulations for the bachelor's degree programs in the field of technology at the Baden-Württemberg Cooperative State University (DHBW) (study and examination regulations DHBW Technology - StuPrO DHBW Technology) from September 22nd, 2011 do not apply to the examinations in this module.

Reference is made to the “Guidelines for processing and documentation of practical modules, study and bachelor theses” of the Technology Commission of the Baden-Württemberg Cooperative State University.

requirements

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literature

-

- Web-based training “Scientific work”
- Kornmeier, M. (2008): Scientific writing made easy for bachelors, masters and dissertations, 1st edition, Bern 2008.
- Minto, B. (2002): The Pyramid Principle: Logic in Writing, Thinking and Problem Solving, London 2002.
- Zelazny, G. (2001): Say It With Charts: The Executives's Guide to Visual Communication, Mcgraw-Hill Professional.

Practice III (T2_3000)

Work Integrated Learning III

Formal information about the module			
Module name	**Module number**	**Language**	**Module responsibility**
Practice III	T2_3000	German	Prof. Dr.-Ing. Joachim Frech

Positioning of the module in the course of your studies	
academic year	**Module duration in semesters**
3rd year of study	1

Forms of teaching and examination used	
Forms of teaching	Internship, lecture
Teaching methods	Lecture, discussion, project

Examination performance	Scope of the exam (in minutes)	Grading
Project work	See examination regulations	Yes
Process and reflection report	See examination regulations	Pass / Fail

Workload and ECTS credit points			
Total workload (in hours)	**of which presence time (in hours)**	**of which self-study (in hours)**	**ECTS credit points**
240.0	4.0	236.0	8th

Qualification goals and competencies	
Expertise	-
Methodological competence	-
Personal and social skills	-
Comprehensive action competence	As project managers, students can define, coordinate and maintain necessary activities Evaluate work results. Students can use their knowledge and understanding in their professional field in a targeted manner in order to adapt quickly and flexibly to the constantly changing requirements of a globalized working world.

Learning units and content		
Teaching and learning units	**Presence time**	**Self-study**
Project work III	**, 0**	**200.0**
Reference is made to the respective practical plans for the degree programs in the Faculty of Technology		
Scientific work III	**4.0**	**36.0**

The seminar “Scientific Work 3” takes place during the theory phase. It is possible to carry out the entire course in one semester or to divide it into two semesters. The DHBW’s WBT “Scientific Work” can be used for some basics.

- What is science?
- Theory and theory formation
- Overview of research methods (interviews, etc.)
- Quality criteria of science
- Use scientific findings sensibly (reference system, state of research and technology)
- Structure and structure of a study or bachelor's thesis
- Project planning as part of study and bachelor's theses
- Collaboration with carers and stakeholders

Special features and requirements

particularities

Reference is made to the “Guidelines for processing and documentation of practical modules, study and bachelor theses” of the Technology Commission of the Baden-Württemberg Cooperative State University.

1.2 Deviations from Appendix 1 to the study and examination regulations for the bachelor's degree programs in the field of technology at the Baden-Württemberg Cooperative State University (DHBW) (study and examination regulations DHBW Technology - StuPrO DHBW Technology) from September 22nd, 2011 do not apply to the examinations in this module.

requirements

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literature

-

- Kornmeier, M. (2008): Scientific writing made easy for bachelors, masters and dissertations, 1st edition, Bern 2008.
- Carlile, P./Christensen. C. (2005): The Cycles of Theory Building in Management Research, Working Paper, Boston 2005.
- Christensen. C./Raynor, E. (2003): Why Hard-nosed Executives Should Care About Management Theory, Harvard Business Review, September 2003
- Singleton, R./Straits, B. (2005): Approaches to Social Research, 4th ed., Oxford 2005.
- Bortz, J./Döring, N. (2001). Research methods and evaluation, Springer

Study paper I (T2_3100)

Student Research Project I

Formal information about the module			
Module name	**Module number**	**Language**	**Module responsibility**
Study work I	T2_3100	German	Prof. Dr.-Ing. Joachim Frech

Positioning of the module in the course of your studies	
academic year	**Module duration in semesters**
3rd year of study	1

Forms of teaching and examination used	
Forms of teaching	Individual care
Teaching methods	Project

Examination performance	Scope of the exam (in minutes)	Grading
Study work	See examination regulations	Yes

Workload and ECTS credit points			
Total workload (in hours)	**of which presence time (in hours)**	**of which self-study (in hours)**	**ECTS credit points**
150.0	12.0	138.0	5

Qualification goals and competencies	
Expertise	-
Methodological competence	-
Personal and social skills	-
Comprehensive action competence	Students can use project management methods to plan and implement their work, to achieve your work goals in limited time and with limited resources.

Learning units and content		
Teaching and learning units	**Presence time**	**Self-study**
Study work I	**12.0**	**138.0**
-		

Special features and requirements

particularities

Reference is made to the “Guidelines for processing and documentation of practical modules, study and bachelor theses” of the Technology Commission of the Baden-Württemberg Cooperative State University.

1.2 Deviations from Appendix 1 to the study and examination regulations for the bachelor's degree programs in the field of technology at the Baden-Württemberg Cooperative State University (DHBW) (study and examination regulations DHBW Technology - StuPrO DHBW Technology) from September 22nd, 2011 do not apply to the examinations in this module.

requirements

-

literature

- Kornmeier, M. (2008): Scientific writing made easy for bachelors, masters and dissertations, Bern, UTB

Study paper II (T2_3200)

Student Research Project II

Formal information about the module			
Module name	**Module number**	**Language**	**Module responsibility**
Study work II	T2_3200	German	Prof. Dr.-Ing. Joachim Frech

Positioning of the module in the course of your studies	
academic year	**Module duration in semesters**
3rd year of study	1

Forms of teaching and examination used	
Forms of teaching	Individual care
Teaching methods	Project

Examination performance	Scope of the exam (in minutes)	Grading
Study work	See examination regulations	Yes

Workload and ECTS credit points			
Total workload (in hours)	**of which presence time (in hours)**	**of which self-study (in hours)**	**ECTS credit points**
150.0	12.0	138.0	5

Qualification goals and competencies	
Expertise	-
Methodological competence	-
Personal and social skills	-
Comprehensive action competence	Students can use project management methods to plan and implement their work, to achieve your work goals in limited time and with limited resources.

Learning units and content		
Teaching and learning units	**Presence time**	**Self-study**
Study work II	**12.0**	**138.0**
-		

Special features and requirements

particularities

Reference is made to the “Guidelines for processing and documentation of practical modules, study and bachelor theses” of the Technology Commission of the Baden-Württemberg Cooperative State University.

1.2 Deviations from Appendix 1 to the study and examination regulations for the bachelor's degree programs in the field of technology at the Baden-Württemberg Cooperative State University (DHBW) (study and examination regulations DHBW Technology - StuPrO DHBW Technology) from September 22nd, 2011 do not apply to the examinations in this module.

requirements

-

literature

- Kornmeier, M. (2008): Scientific writing made easy for bachelors, masters and dissertations, Bern, UTB

Large study paper (T2_3201)

Student Research Project

Formal information about the module			
Module name	**Module number**	**Language**	**Module responsibility**
Great coursework	T2_3201	German	Prof. Dr.-Ing. Joachim Frech

Positioning of the module in the course of your studies	
academic year	**Module duration in semesters**
3rd year of study	2

Forms of teaching and examination used	
Forms of teaching	Individual care
Teaching methods	Project

Examination performance	Scope of the exam (in minutes)	Grading
Study work	See examination regulations	Yes

Workload and ECTS credit points			
Total workload (in hours)	**of which presence time (in hours)**	**of which self-study (in hours)**	**ECTS credit points**
300.0	24.0	276.0	10

Qualification goals and competencies	
Expertise	-
Methodological competence	-
Personal and social skills	-
Comprehensive action competence	Students can use project management methods to plan and implement their work, to achieve your work goals in limited time and with limited resources.

Learning units and content		
Teaching and learning units	**Presence time**	**Self-study**
Great coursework	**24.0**	**276.0**
-		

Special features and requirements

particularities

Reference is made to the “Guidelines for processing and documentation of practical modules, study and bachelor theses” of the Technology Commission of the Baden-Württemberg Cooperative State University.

1.2 Deviations from Appendix 1 to the study and examination regulations for the bachelor's degree programs in the field of technology at the Baden-Württemberg Cooperative State University (DHBW) (study and examination regulations DHBW Technology - StuPrO DHBW Technology) from September 22nd, 2011 do not apply to the examinations in this module.

requirements

-

literature

Kornmeier, M. (2008): Scientific writing made easy for bachelors, masters and dissertations, Bern, UTB

Bachelor's thesis (T2_3300)

Bachelor thesis

Formal information about the module			
Module name	**Module number**	**Language**	**Module responsibility**
bachelor thesis	T2_3300		Prof. Dr.-Ing. Joachim Frech

Positioning of the module in the course of your studies	
academic year	**Module duration in semesters**
-	1

Forms of teaching and examination used	
Forms of teaching	Individual care
Teaching methods	Project

Examination performance	**Scope of the exam (in minutes)**	**Grading**
Bachelor thesis	See examination regulations	Yes

Workload and ECTS credit points			
Total workload (in hours)	**of which presence time (in hours)**	**of which self-study (in hours)**	**ECTS credit points**
360.0	6.0	354.0	12

Qualification goals and competencies	
Expertise	-
Methodological competence	-
Personal and social skills	-
Comprehensive action competence	Graduates can apply project management methods in their work to achieve results in limited time and with achieve goals with limited resources and budgets. You can take responsibility for projects in your field and thus work independently as an engineer.

Learning units and content		
Teaching and learning units	**Presence time**	**Self-study**
bachelor thesis	**6.0**	**354.0**
-		

Special features and requirements

particularities

Reference is made to the “Guidelines for processing and documentation of practical modules, study and bachelor theses” of the Technology Commission of the Baden-Württemberg Cooperative State University.

1.2 Deviations from Appendix 1 to the study and examination regulations for the bachelor's degree programs in the field of technology at the Baden-Württemberg Cooperative State University (DHBW) (study and examination regulations DHBW Technology - StuPrO DHBW Technology) from September 22nd, 2011 do not apply to the examinations in this module.

requirements

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literature

- Kornmeier, M. (2008): Scientific writing made easy for bachelors, masters and dissertations, Bern, UTB
- Bortz, J./Döring, N. (2001). Research methods and evaluation, Springer

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