

ASSESSMENT PROTOCOL BACHELOR'S FINAL PROJECT BSC APPLIED PHYSICS (version Sept. 2022)

This protocol replaces the protocol Bachelor's Final Project BSc Applied Physics 2021-2022

The assessment of the Bachelor's Final Project Applied Physics comprises the following aspects:

- (1) **Project duration:** regulations regarding finalizing the project
- (2) **Assessment committee, report & presentation:** examiners and planning
- (3) **Assessment procedure & rubrics, assessment form:** determination and communication of the grades

1. Project duration: In the BEP registration form, the student after discussion with the responsible Applied Physics supervisor (also first TU/e examiner) fills in the agreed end date, based on 280 hrs (10EC) / 420 hrs (15EC), and the extended end date, that is the agreed end date + allowed extra time, based on adding 120 hrs (equivalent to 3 full-time working weeks). For both dates (public) holidays should be considered. If by the agreed end date including allowed extra time the report is insufficient or the report and presentation are not delivered, the student receives an insufficient final grade (NVD). This grade will be communicated to CSA by the first TU/e examiner and will be administered in Osiris. The student has the opportunity for a retake, for a limited time of 120 hrs (equivalent to 3 full-time working weeks). If by the end date of the retake the report is insufficient or the report and presentation are not delivered, the student fails the Bachelor's Final Project (NVD). In general, a new project should be started. If special circumstances play a role, a customized route should be followed. See the [study guide](#) for more info.

2. Assessment committee, report & presentation. The "Report" and "Presentation" components are assessed by two TU/e examiners. The responsible Applied Physics supervisor is the first TU/e examiner. The second TU/e examiner (at least at assistant professor level) can be from inside or outside the Applied Physics department. A daily supervisor (e.g. PhD or Post-Doc) may act as an advisor and can be consulted by the first TU/e examiner. The student sends the final report and the [signed TU/e code of scientific conduct BEP form](#) at least 5 working days before the presentation to the first and second TU/e examiner. The student delivers a presentation of approx. 20 minutes followed by a discussion of approx. 10 minutes, where at least both TU/e examiners are present.

3. Assessment procedure & rubrics. The assessment has 3 components, A. Report (40%), B. Presentation (20%), C. Implementation of the work itself (40%). The grade for the Report (A) is determined by the first TU/e examiner (in consultation with the daily supervisor), and the second TU/e examiner based on the rubrics. The grade for the Implementation of the work itself (C) is determined by the first TU/e examiner, in consultation with the daily supervisor. Both TU/e examiners grade the Presentation (B). After the presentation, both TU/e examiners discuss the individual grade(s), after which the first TU/e examiner determines the final grade. The grades for the 3 components are determined on a scale of 0 to 10, in 1 decimal. The assessment of professional skills is embedded in the 3 components. The final grade is the weighted average, rounded to the nearest 1/2 grade. When rounding is ambiguous, the first TU/e examiner decides. The student passes when the final grade of the Bachelor's Final Project is ≥ 6.0 , and all 3 components are at least graded with a 6.0. The first TU/e examiner explains and motivates the grades to the student in a separate meeting. This will be documented in the assessment form (see below).

Assessment form. The grades of the 3 components and final grade should be registered on the assessment form. The first TU/e examiner includes an elaborate written motivation per component, based on the discussions with the second TU/e examiner and the daily supervisor. In case the final grade is 6.0 or 10.0, a separate motivation should be given. Both TU/e examiners sign the assessment form. The first TU/e examiner sends the report, the signed TU/e code of scientific conduct BEP form, the completed assessment form including a motivation to the student, second TU/e examiner and CSA no later than 5 working days after the presentation. The grades will be processed by CSA in Osiris. If the student does not meet the requirements for passing (see above), the student fails the Bachelor's Final Project and the same procedure as described before (sending completed assessment form to CSA, student and second TU/e examiner, grades in Osiris) applies. The student will enter a retake procedure; see the study guide for more information.

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1. Surname student + initials:
2. Student ID number:
3. Date of assessment (presentation date):
4. Start date Bachelor's Final Project:
5. Expected end date (*as indicated on the registration form*):
6. Expected end date incl. allowed extra time (*as indicated on the registration form*):
7. Course code and corresponding study load:
8. Title report:

9. Responsible Applied Physics supervisor/first TU/e examiner, cap. group:

10. Second TU/e examiner, cap. group:

11. Daily supervisor(s):
12. Grades (components in 1 decimal, final grade 1/2 integer):

Report 40%	Presentation 20%	Implementation 40%	FINAL GRADE*

* If one or more of the 3 components (Report, Presentation, Implementation) are graded <6.0, the final grade will be NVD.

13. Additional requirements:

Motivation 3 components included on separate sheet below (approx. > 5 sentences / component); optional additional motivation for final grade (compulsory when grade is 6.0 or 10.0)

All components are graded ≥ 6.0

Report & Presentation assessed by second TU/e examiner

Title page report according to guidelines ([see study guide](#))

Project in accordance with [TU/e Code of Scientific Conduct BEP](#)

Fraud and plagiarism check on report ([Ouriginal](#)) has been conducted by 1st TU/e examiner

Report, signed code of conduct, completed assessment form + motivation (pdf) sent by 1st TU/e examiner to CSA, student, and second TU/e examiner

Signature of the first TU/e examiner

Signature of the second TU/e examiner

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To be filled in by the first TU/e examiner. Feedback of the second TU/e examiner on the components "Report" and "Presentation" is incorporated. Motivation on the 3 components included (approx. > 5 sentences / component). Additional motivation for final grade is compulsory when final grade is 6.0 or 10.0)

Feedback on Report (40%)

Feedback on Presentation (20%)

Feedback on Implementation of the work itself (40%)

Additional motivation (compulsory for final grade 6.0 or 10.0)

APPENDIX 1. RUBRICS BACHELOR'S FINAL PROJECT BSc APPLIED PHYSICS

1. REPORT (40%) All at level 1 = 4, 2 = 6, 3 = 8, 4 = 10	Level 1 – Insufficient (4)	Level 2 – Sufficient (6)	Level 3 – Good (8) Criteria on top of level 2	Level 4 – Excellent (10) Criteria on top of Level 3
1a. Introduction of research question and methods	Student is not able to meet level 2 requirements	<p>A basic overview of the topic leads to a valid research question in a logical fashion.</p> <p>The used methods and analyses are sufficiently described; the reader can understand the procedure.</p>	<p>A concise overview of relevant research is provided.</p> <p>The information about the methodology, research and/or design is set-up in such a way that replication of the study is possible.</p>	<p>A comprehensive overview of the topic is provided, which naturally leads to a valid research question.</p> <p>Original/creative analyses and research ideas are proposed by the student.</p>
1b. Results & conclusio(s)	Student is not able to meet level 2 requirements	<p>The text contains logical interpretations of the data, measurements or models/calculations, leading to answers to the research questions, hypotheses. The interpretation is based on the existing literature.</p> <p>Results and analysis of data are shown via formulas, figures, and tables to support the discussed and explained results of the research.</p> <p>The main outcomes of the project are given in a concise form, not in the form of a summary.</p>	<p>The interpretations are plausible and valid and based on the existing literature. Clear links to the research questions and/or hypotheses, including the introduction, are made.</p> <p>Student structures and handles results/data logically and carefully and puts data in perspective of existing literature.</p> <p>The conclusions and outlook are logically substantiated by the results and are clearly formulated.</p>	<p>Results are put into perspective using a critical evaluation of the existing literature, with unresolved and/or new arisen problems that should be further examined.</p> <p>The full analysis of all data and results is perfectly documented and creatively illustrated, clearly referring to earlier work.</p> <p>The student is able to critically describe the scientific implications, including limitations of the research.</p>
1c. Structure, style	Student is not able to meet level 2 requirements	<p>The report is organized.</p> <p>Language is precise and correct.</p>	<p>The report is logically connected and organized to the reader, with a functional layout and data presentation.</p> <p>Language is concise and the student uses logical argumentation.</p>	<p>The report is well-structured with an excellent overall layout: the reader can identify the clear and unique function of each section.</p> <p>Language is precise, correct, and on scientific literature level.</p>

2. PRESENTATION (20%) All at level 1 = 4, 2 = 6, 3 = 8, 4 = 10	Level 1 – Insufficient (4)	Level 2 – Sufficient (6)	Level 3 – Good (8) Criteria on top of level 2	Level 4 – Excellent (10) Criteria on top of Level 3
2a. Content and structure	Student is not able to meet level 2 requirements	The student introduces the content and purpose of the research project.	The student introduces and explains the research content and purpose of the research project in a logical way, such that the motivation of the project is clear.	The opening, introduction and motivation of the presentation contain unique, creative elements.
		The student delivers a structured presentation in a logical sequence.	The student provides a well-structured and organized presentation and is able to limit the presentation to the essential elements for addressing the key results.	The student provides a consistent narrative structure supported by clear, accurate and concise explanations.
2b. Performance	Student is not able to meet level 2 requirements	The level of the presentation fits the target audience, viz. the members of the principal-investigator group or capacity research group of the supervisor.	The student manages to keep the overall attention of the targeted audience.	The student keeps the targeted audience continuously engaged and involved.
		The used visual aids help the audience to follow the storyline.	The student uses visual aids that accurately support the message (e.g. keywords on slides, strong visualizations, no abundant information).	Visual aids that captivate the audience are carefully and successfully applied throughout the presentation. .
		The personal performance of the student sufficiently helps the audience to appreciate the outcome of the project.	The student appears comfortable and has a professional and engaging presentation style.	The student appears confident while presenting, with a presentation style that adds to the liveliness of the presentation.

3. Implementation of the work itself (40%) All at level 1 = 4, 2 = 6, 3 = 8, 4 = 10	Level 1 – Insufficient (4)	Level 2 – Sufficient (6)	Level 3 – Good (8) Criteria on top of level 2	Level 4 – Excellent (10) Criteria on top of Level 3
3a. Scientific independence and creativity (10/15 EC)	Student is not able to meet level 2 requirements	<p>10 EC: Student has fulfilled the basic parts of the project to finish the assignment, as formulated by the supervisor.</p> <p>15 EC: Part of the work can be identified to originate from ideas originating from discussions of student and supervisor.</p>	<p>10 EC: Part of the work can be identified to originate from ideas originating from discussions of student and supervisor.</p> <p>15 EC: The student independently proposes concrete steps to be taken to further proceed or optimize the project.</p>	<p>10 EC: like 15 EC level 3.</p> <p>15 EC: The student contributes creatively and independently towards new approaches or analysis.</p>
3b. Transferable skills (Planning & organizing, reflecting, and collaboration)	Student is not able to meet level 2 requirements	Student needs direction in project planning but is able to make progress once guided. The student is basically able to follow the agreed planning. Interim goals are partially met.	Student plans ahead in the project and manages to meet short-term goals. The student is able to stick to the project planning and timing.	The student is able to set priorities in the project and actively plans the steps and monitor the process of carrying out the project.
		The student is not proactive in communicating the progress. He/she does ask for help from the supervisor if necessary.	The student actively and efficiently communicates the progress of the work. Seeks input when needed.	The student is able to discuss the results in group meetings and to incorporate feedback from peers, supervisor or other scientific staff members, into the project.
		During the project, the student reflects and acts on the approach and choices/decisions including its consequences.	By reflecting on performances during the project, the student can identify strengths and weaknesses. Feedback from supervisor(s) is carefully considered to improve the project/performances.	The student is proactively reflecting and acting on feedback from supervisor(s) to make an optimal performance and is able to identify a path for further personal development.
3c. Impact and extent of the work (10/15 EC)	Student is not able to meet level 2 requirements	<p>0 EC: The project generated data for the supervisor</p> <p>15 EC: The project generated trustable data and/or scientific insight for the supervisor</p>	<p>10 EC: The project generated trustable data and/or scientific insight for the supervisor</p> <p>15 EC: The data set is of sufficient quality and is complete enough to be part of future output, such as a publication or patent.</p>	<p>10 EC: Like 15 EC level 3</p> <p>15 EC: When data is actually used for a publication or patent in progress by the supervisor(s), level 4 can be adequately justified.</p>