

ASSESSMENT PROTOCOL EXTERNAL INTERNSHIP MSc APPLIED PHYSICS (version September 2023)

This protocol replaces the protocol External Internship MSc Applied Physics 2022-2023

The assessment of the External Internship Applied Physics comprises the following aspects:

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

1. Project duration: In the External Internship 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 420 hrs (15EC) / 840 hrs (30EC), and the extended end date, that is the agreed end date + allowed extra time, based on adding 160 hrs (equivalent to 4 fulltime 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 hrs, 15 credits: 160 hrs (equivalent to 4 fulltime working weeks), 30 credits: 240 hrs (equivalent to 6 fulltime 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 External Internship (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 information.

2. Assessment committee, report & presentation. The External Internship is assessed by the responsible Applied Physics supervisor, this is the first TU/e examiner, in consultation with the external supervisor. The external supervisor is the supervisor from the company, research institute or university at which the student carried out the External Internship. The first TU/e examiner must have informed the external supervisor about the assessment procedures and rubrics before the start of the internship. In case of a 15 credits project, the Presentation is also assessed by a second TU/e examiner. In case of a 30 credits project, the Report and Presentation are also assessed by a second authorized TU/e examiner. The second TU/e examiner (at least assistant professor level) can be from inside or outside the Applied Physics department. The student sends the final report at least 5 working days before the presentation to both TU/e examiners and external supervisor. 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 (30%), B. Presentation (20%), C. Implementation of the work itself (50%). Before the presentation takes place, the grade for the Report (A) is determined by the first TU/e examiner, in consultation with the external supervisor, and for a 30 credits project also by the second TU/e examiner. Before the presentation takes place, the grade for the Implementation of the work itself (C) is determined by the first TU/e examiner, in consultation with the external supervisor. The advice of the external supervisor on component A and C should be based on the criteria in the rubrics in the appendix. The first and second TU/e examiner both grade the Presentation (B). After the presentation, the first and second TU/e examiner discuss and determine the grade(s). The first TU/e examiner explains and motivates the grades to the student, if possible, immediately after the presentation. The grades for the 3 components are decided on a scale of 0 to 10, in 1 decimal (or less). 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 External Internship is ≥ 6.0 , and all 3 components are at least graded with a 6.0.

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 external supervisor. In case the final grade is 6.0 or 10.0, a separate motivation should be given. The first TU/e examiner sends the report, the completed assessment form including a motivation to the student, second TU/e examiner, external supervisor, 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 External Internship and the same procedure as described before (sending completed assessment form to CSA, student and second examiner, grades in Osiris) applies. The student will enter a retake procedure; see the [study guide](#) for more information.

ASSESSMENT FORM EXTERNAL INTERNSHIP MSc APPLIED PHYSICS (version September 2023)

1. Surname student + initials:
2. Student ID number:
3. Date of assessment (*presentation date*):
4. Start date internship:
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. Name of Masters' program, track:
9. Title report:

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

11. External supervisor, institution:

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

13. Grades (components in 1 decimal, final grade 1/2 integer):

Report 30%	Presentation 20%	Implementation 50%	FINAL GRADE*

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

14. 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 ≥ 6.0

15 EC: Presentation is assessed by second TU/e examiner; 30 EC: Report & Presentation assessed by second TU/e examiner

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

Fraud and plagiarism check on report ([Ouriginal](#)) has been conducted by first TU/e examiner or manually in case of a confidential report

Report, completed assessment form + motivation (pdf) sent by first TU/e examiner to CSA, student, second examiner, external supervisor

Confidential report (see the [study guide External Internship](#) for more information):

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 component(s) "Presentation" (15 EC) or "Presentation" and "Report" (30 EC) 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 (30%)

Feedback on Presentation (20%)

Feedback on Implementation of the work itself (50%)

Additional motivation (compulsory for grade 6.0 or 10.0)

APPENDIX 1. RUBRICS EXTERNAL INTERNSHIP MSc APPLIED PHYSICS

A. REPORT (30%) 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	A basic overview of the current state of knowledge leads to a valid research question in a logical fashion.	A comprehensive overview of the state of knowledge is provided, which leads naturally to a valid research question with anticipated answers.	A complete, concise overview of relevant state-of-the-art research is provided.
		The used methods and analyses are sufficiently described.	The information about the methodology, research and/or design is set-up in such a way that replication of the study is possible.	Original/creative analyses and research methods are proposed and applied by the student.
1b. Results & conclusion(s)	Student is not able to meet level 2 requirements	The text contains plausible and valid interpretations of the data, measurements or models/calculations, leading to answers to the research questions, hypotheses.	Clear links to the research questions and/or hypotheses, including the introduction, are made.	Results are put into a broad perspective, with unresolved and/or new arisen problems that should be further examined.
		Results and analysis of data are shown via formulas, figures and tables to support the discussed and explained results of the research.	Student structures and handles results/data logically and carefully, and critically confronts research results to existing literature.	The full analysis of all data and results is perfectly documented and creatively illustrated, clearly and critically referring to earlier work and current developments.
		The conclusions are logically substantiated by the results and are clearly formulated.	In the conclusions and outlook, the student identifies the impact of the research and its societal impact.	The student is able to extensively describe the broad scientific and societal implications, including limitations of the research, taking into account strengths and weaknesses.
1c. Structure, style	Student is not able to meet level 2 requirements	The report is organized.	The report is logically connected and organized to the reader, with a functional layout and data presentation.	The report is well-structured with an excellent overall layout: the reader can identify the clear and unique function of each section.
		Language is precise and correct.	Language is concise and the student uses logical argumentation.	Language is precise, correct, and on excellent scientific level.

B. 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 relevance/motivation of the project is a natural extension.	The opening, introduction and actual motivation of the presentation contain unique, exceptionally strong and creative elements.
		The student points out the relevance of the research project.	The student provides an accurate and complete explanation of key concepts and theories.	The student points out and explains the strengths and weaknesses of (the outcomes) of the research projects.
		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, scientifically 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 group members at the research group at TU/e	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. key words 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 fully confident while presenting, with a presentation style that strongly adds to the liveliness and impact of the presentation.

C. IMPLEMENTATION OF THE WORK ITSELF (50%) 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 (15/30 EC)	Student is not able to meet level 2 requirements	The student has a hesitant attitude towards the research process	The student has the correct, critical attitude towards most of the findings within the project.	The student has the correct, critical attitude towards the findings within the project, and the feedback of the supervisor.
		15 EC: Student has fulfilled the basic parts of the project to finish the assignment 30 EC: Student has put the extra time (15EC) to good use to have a self-initiated contribution to the project.	15 EC: Part of the work can be identified to originate from the student's creative ideas. 30 EC: The direction of the research is augmented/guided by insights of the student.	15 EC: The student has contributed significantly in choosing the direction of the research. 30 EC: The student is in the lead in choosing the direction of the research.
3b. Planning, communication and teamwork	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 and deliver interim products. The student is able to stick to the project planning and timing.	The student is actively planning important milestones during the project and sets individual goals, monitors, regulates and controls the process of carrying out the project.
		The student is not proactive in communicating the progress.	The student communicates the progress of the project work and reflects on individual ideas within the working environment.	The student communicates the progress of the work and reflects on the individual ideas within the working environment. Seeks input when needed.
		The student is coping with teamwork or adapting to the environment at the place of	The student works well within the new working environment as a team player.	The student is proactive in the new working environment, seeks resources and feedback when needed, uses teamwork to achieve superior results.
3c. Impact and extent of the work Scientific independence and creativity (15/30 EC)	Student is not able to meet level 2 requirements	15/30 EC: The progress in this project is a small incremental step for the supervisor.	15 EC: The progress is an incremental step for the supervisor. 30 EC: The project entails progress in the field	15 EC: like 30 EC level 3 30 EC: The project entails significant progress in the field.