ASSESSMENT RUBRICS
DEPARTMENT OF INDUSTRIAL DESIGN

TU/e
EINDHOVEN UNIVERSITY OF TECHNOLOGY

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INDEX

ASSESSMENT RUBRICS

Click here to go back to the Index ↑

Click here to go back to the Index ↑

EXPERTISE AREA RUBRICS

GENERAL INTRODUCTION

DEVELOPMENT HISTORY

After the introduction of draft rubrics during the education day of 2015-2016 the editors have worked together with many colleagues to create rubrics for the expertise areas (5+DRP) and the examinations at the end of the first year; third year bachelor and second year master. We received advice of the core-chairs on the rubrics for the third-year bachelor and the second-year master. Furthermore, the Board of Examiners provided advice. For 2016- 2017, the Board of Examiners and Educational Committee have been consulted before the first semester. Their advice was processed in version 1.0. and implemented in the first semester of the academic year 2016-2017.

EVALUATION

The editors have evaluated the rubrics after semester A of academic year 2016-2017. For this purpose, the student year councils were consulted, Associate Professors of our department were interviewed, and comments, feedback and tips of engaged students and staff-members were processed. Furthermore, both the Program Committee and the Board of Examiners provided elaborate feedback.

ADJUSTMENTS

After careful consideration of all the feedback we decided to take a two-step approach in improving the rubrics. It was decided to take the time to carefully prepare content related changes and to eventually implement these changes in rubrics version 2.0.

For the short term, we also made improvements and published these versions on the online education guide.

For the second semester of academic year 2016-2017, we wrote elaborate instructions for the whole competence assessment procedure including the usage of the rubrics. Furthermore, it was decided to provide templates for the pre-master, project-3 of the Bachelor and project-2 in the Master. Cooperating for FBP and FMP is changed from a group perspective to an individual perspective including working with third parties. Finally, we have reduced the diversity in deliverables we ask for to 1) facilitate communication processes; 2) enhance clarity about the assessment deliverables, and 3) better align with the current practice of the squads. These changes were implemented in **version 1.2** of the rubrics. For the second semester of academic year 2017-2018 the project-1 rubrics are revised. Furthermore, cell descriptions that linked to other cells in the project rubrics are removed and rewritten without affecting the meaning of the cell. These changes were implemented in **version 1.3** of the rubrics. For the first semester of academic year 2018 - 2019 the general introduction has been updated with changes in the procedure for the FMP assessment with three examiners replacing the procedure with an FMP panel of two examiners + a plenary session. Finally, the verdicts for administration 'P+E' and 'C+H' have been replaced by 'E' and 'C' without affecting the meaning of the verdicts. These changes were implemented in **version 1.4** of the rubrics. In first semester of academic year 2019-2020, **version 1.5** was introduced. The standards were mirrored, so the content of the rubrics appears similar in the booklet as on Canvas. In this version the bachelor internship rubrics was added, as well as rubrics for the FMP Proposal and M21 Option. The latter two apply to master students that started in September 2018 or later. Furthermore, the FMP assessment instructions were adapted to the new FMP procedure in place. The FMP procedure can be downloaded from our online education guide. In the first semester of the academic year 2020-2021, **version 1.6** was introduced. In this version, the criteria Professional Identity and Vision were added to the Rubrics of Bachelor Project 2, Bachelor Project 3, Master Project 1 and Master Project 2. Also, the criterium Professionalization Activities was added to the Bachelor Rubrics, to incorporate the Career Points. The FMP Proposal and M21 Project Rubrics were adjusted. Furthermore, in this version the roles of the FBP examiners have been clarified. The first examiner is (now) the teacher/project coach while the second examiner role is fulfilled by a different staff member. Finally, it has been clarified in the rubrics that Professional Identity and Vision and Individual Competence of Design are of

Click here to go back to the Index ↑

equal importance as Overall Competence of Designing and Professional Skills. In the second semester of the academic year 2020-2021, **version 1.7** is introduced. The group and individual parts are made more explicit in the layout of the booklet. Before academic year 2021-2022 **version 1.8** is introduced. The lacking criteria for Scientific and Professional Skills were added to all Master Project rubrics. Also, the rubrics for the Preparation FMP are added and the rubrics are made gender neutral. For academic year 2022-2023 **version 1.9** is introduced. The rubrics are not changed. Changes in deliverables (leaving the squad presentation as an option) have been added.

CONTENT OF THE DOCUMENT

Following the advice of the Program Committee and requests of numerous students and staff members we wrote one manual for rubrics and the Competence Assessments.
The Competence Assessment is an investigation into the student's academic and professional competence development. The Competence Assessment results in a verdict and is based on oral, written, digital and/ or physical information and evidence.

In this guide, we inform you about deliverables for the projects, explicate what you need to do, outline the steps of the assessment procedure, and provide rubrics that can be used. We present both the rubrics for the competence assessments split per project and the expertise areas and would like to instruct you on how to use the rubrics for the competence assessments. The booklet is written for examiners but is informative for other staff members /students.

END-TERMS: GENERIC DIFFERENCES BETWEEN BACHELOR AND MASTER

The differences in levels (descriptions) between our Bachelor and Master students reflect the end-terms of graduate students as defined by Dublin Descriptors and the AQUA framework for Bachelor and Master Students (Meijers, Overbeek, Perrenet, et al. (2005)). The differences in levels between Ba and Ma students, as operationalized in the rubrics, can be summarized as follows:

TABLE 1 DIFFERENCE IN LEVELS BETWEEN BACHELOR AND MASTER STUDENTS, AS OPERATIONALIZED IN THE RUBRICS

Bachelor	*Master*
Can apply knowledge in various familiar situations	Can apply knowledge in new situations
Can work under supervision; average level of autonomy	Can work independently; high level of autonomy
Can approach/tackle and solve (relatively) basic (design) problems/questions	Can approach/tackle and solve (more) complex (design) problems
Can develop knowledge and skills/competences from related disciplines	Can develop knowledge and skills/competences from various disciplines
Can integrate and apply knowledge and skills/ competences in relatively basic (design)	Can integrate and apply knowledge and skills/competences in more complex (design) problems
Can participate in the design and/or research process	Can adjust the design and/or research process to meet the demands of the task at hand
Has sufficient knowledge of the disciplines to judge the relevance of new developments, and can	Has sufficient deep - seated knowledge of the disciplines to be able to form a (scientific) judgment,
Can use scientific research findings in the design process and can perform a simple research project	Can plan and perform scientific research and can reflect on the phases of the research process
Can communicate opinions, ideas, information and results clearly	Can communicate conclusions, including the underlying knowledge, motives and deliberations, clearly, convincingly (and unambiguously)

GENERAL INSTRUCTIONS ABOUT THE ASSESSMENTS

Table 2 provides a summary of the steps in the competency assessment procedure. Consequently, the different steps of the procedure are briefly explained. Additional details can be found through the links to the online study guide.

CREATE, COMMUNICATE AND EXPLAIN RUBRICS

In this booklet we present rubrics for the competence assessments split per project and the expertise areas. Rubrics are a tool to describe in words where we assess our students on and what we expect of them in terms of levels of performance. In the project and expertise area rubrics we use the following terms:

- The term **criterion** is used to address what is assessed.
- The term **topic** refers to a cluster of criteria.
- The term **standard** is used to indicate a description of the performance/development level of the student.
- The term **rubrics** is used to describe the **combination of topics, criteria, and standards**.

Rubrics are useful because they assure that all our staff members address the same issues and assess the students based on the same content. Furthermore, rubrics help in making clear to students what is expected of them and provide our teachers with a means to assess student work more efficiently. It is important that rubrics are viewed as a tool and are used as such. Rubrics always need to be translated to the specific context of the squad, the projects of the students and their individual learning processes. Consequently, rubrics can never entirely capture the individual nature of projects.

- For the competence assessments of the examination projects (bachelor project-1; final bachelor project and final master project) the topics, criteria for each topic and the level descriptions for each criterion are fixed. The competence assessment of the final bachelor project is on the development over the total bachelor program. The competence assessment of the final master project is on the development over the total master program.

- For the other competence assessments, the topics are fixed and the fixed criteria for each topic are provided. Additional criteria may be added to the topics and level descriptions of each criterion can be adjusted or changed.

TABLE 2 STEPS IN COMPETENCE ASSESSMENT PROCEDURE

Step	*Deliverables*	*Goals*	*Moment*	*Result*
1. Mid-Term	To be determined by squad leader	Formative assessment	Half-way the semester (to be determined by squad leader)	Verbal feedback
2. Demo Day	• Demonstrator • Poster • Video	Formative assessment	Semester A, Friday of week 16 Semester B, Friday of week 17	Verbal feedback
3. Assessment Presentations and durations: • Internship 30 minutes • FMP Proposal: 30 minutes • Preparation FMP 40 minutes • FMP 90 minutes • FBP 75 minutes	• Demo *(if required by examiner)* • Internship Report *(deadline semester A, week 17; deadline semester B, week 17)* • Group/Individual, Design/Research Report Individual Reflection and/or Paper *(deadline semester A, week 17; deadline semester B, week 18)* • FMP Proposal: *(deadline semester A, week 7 or week 17; semester B, week 7 or week 18)* • Portfolio *(deadline semester A, week 18; deadline semester B, week 19)*	Summative assessment	• Internship *(semester A, week 17; semester B, week 18)* • Projects (including Pre-Master) *(semester A, week 18; semester B, week 19)* • FBP *(semester A, week 20; semester B, week 21)* • FMP Proposal: *(semester A, week 8 or week 18; semester B, week 8or week 19)* • FMP *(semester A, week 19; semester B, week 20)*	Written/verbal feedback
4. Determining the verdict/grade			After deliverables are handed in	Tentatively filled out rubrics (Note: do not communicate verdict or grade.)
5. Confirming the verdict/grade			• Internship after oral exam • Projects (including Pre-Master and FMP Proposal) after deliverables are handed in • FPB at plenary graduation meeting; FMP during deliberation Graduation Committee	Completing rubrics and verdict/grade
6. Communicating the verdict/grade				Verdict E / P / C / H or grade An E verdict is not possible for FMP Proposal
7. Recording of grade/verdict				Result list to CSA-ID for recording in Osiris
8. Right of inspection			20 working days after communicating the verdict	
9. Retake *(if applicable)*	• Demo • Report • Portfolio	Summative assessment	Within 3 weeks after communicating the verdict	Verdict *P or H or grade*

STEPS IN THE COMPETENCE ASSESSMENT

Midterm

The midterm is the first opportunity for students to present their process and deliverables. Squad leaders are responsible for organizing the midterm and decide upon the structure, what students should present, how they present it and when. The midterm is intended as a moment for formative assessment and results in oral feedback to the student.

Demo Day

The demo day is the second opportunity for students to present their process and deliverables. All students show their work (demonstrator) to coaches, stakeholders and clients, (scientific) staff members, and other students in an exhibition-like setting. Students pitch their project and present their demonstrator (or at least an experiential outcome of the project) to demonstrate how they have integrated different expertise areas. Students can support their exhibition with additional materials such as posters and videos, which can consequently be submitted for participation in awards (e.g. iF or IxDA) or exhibitions (Design United/Drivers of Change). The pitch (maximum 2-minutes) and the deliverables are formative assessed by at least one of the examiners. If applicable, students should process the feedback given by the examiner in the final deliverables handed in before the oral exam. Consequently, the demo day is the second instance for formative assessment and results in oral feedback to the student.

Final Deliverables

Before the final presentation, and in order to perform the Competence Assessment, the following deliverables are required:

- A demonstrator (as presented on the demo day);
- A written report or (short) paper describing the design and/or design research process (Table 3 provides an overview of the type of reports per project) to be delivered; further information can be found on the bachelor project and master project pages of the Online Education Guide.
- For bachelor project 1, the final bachelor project and final master project a portfolio is required, including a professional identity, vision and a reflection on the overall competence of designing and the (planned) development in relation to the expertise areas supported by evidence from learning activities, both curricular and extra-curricular. For the competence assessment of the pre-master project a portfolio can be requested when the examiners have doubts about the development of the student.

What can we assess with each deliverable?

Through the **demonstrator** students demonstrate their Overall Competence of Design and their capability of integrating expertise areas. Through the **report** students demonstrate their design and research process as well as the professional skills reporting and dealing with scientific information. The **reflection** (may include images) contributes to the assessment of the students' competence development, professional identity and vision development and ability to reflect. However, depending on the goal of the reflection it can be used to assess other topics/criteria as well. For example, the Overall Competence of Design can be assessed when students explicate and motivate important decisions in their design process. In group projects students, for example, can reflect on their competencies with respect to teamwork and communication. In their reflection students should include how they have integrated knowledge and skills in their projects and how (external) learning activities contributed to their competence development.

TABLE 3 OVERVIEW OF REPORTS PER TYPE OF PROJECT

Assessment	*Type of report*	*Authors*
Bachelor Project 1 Design (BP1)	Group Design Report *(and Portfolio)*	Group Individual
Bachelor Project 2 Design (BP2)	Group Design Report and Individual Reflection	Group
Bachelor Project 3 Design Research (BP3)	Group Research Report and Individual Reflection	Group
Internship	Internship Report and Individual Reflection	Individual
Exchange	Grading by hosting university	Individual
Final Bachelor Project (FBP)	Design Report *(and Portfolio)*	Individual
Pre-master	Group Design Report and Individual Reflection	Group Individual
Master Project 1 Design (MDP)	Report Reflection	Group Individual
Master Project 2 Design Research (MDRP)	Design Research Report Reflection	Individual
FMP Proposal*	Final Master Project Proposal and Planning	Individual
M21 Option*	(Interim) report of activities and Reflection	Individual
Preparation Final Master Project (PFMP)** (cohort 2021)	(Interim) report of activities, FMP Proposal and Planning, Reflection on Competence and PI&V development	Individual
Final Master Project (FMP)	Report *(and Portfolio)*	Individual

** Only applicable to students who started in September 2018 or later.*

*** Only applicable to students who started in or after September 2021.*

The **presentation** is meant to provide insight into the student's contribution to the project (in the case of a team effort) and their personal reflection on their competence development, using evidence from expertise areas they integrated into their design, how and to what extent. Furthermore, the professional skill presenting is demonstrated. Students should also indicate how external learning activities contributed to their competence development. Through the **oral exam,** examiners can clarify aspects that were unclear from the different deliverables, or they can use the oral exam to challenge the student to demonstrate excellence. The whole of the deliverables contributes to the student's ability to organize their learning and plan their activities. Finally, in the case of examinations for bachelor project 1, final bachelor and final master project, the **portfolio** is used to assess the student's professional identity, vision and overall competence of designing as developed during the first year, whole bachelor, or whole master program.

Presentation and Oral Exam

Presentations/oral exams are expected at the end of an internship, FBP, Preparation FMP, M21 Option (project), FMP Proposal and FMP. In order to conduct the competence assessment both examiners are expected to be acquainted with the content of the report (and/or portfolio). *In case of the FMP: the independent examiner is acquainted with the content of the portfolio, the graduation mentor is acquainted with both the portfolio and report, the expert (examiner) is acquainted with the content of the report. Examiners are allowed to deviate from this division.*

The first part of the final assessment is a presentation. The content of the presentation should be based on the outcomes of the project. If required by the examiners, the demonstrator should be brought to the presentation. During the presentation of a final bachelor project (FBP) and final master project (FMP) the student should also present a portfolio. After presentations, the oral exam takes place, in which the examiners ask questions about the project and/or the development of the student. The oral exam is a summative assessment and results in a verdict for regular projects. For the FBP, the final grade will be discussed in a plenary session; either in their totality or for a repository of high and low grades to assure consistency of quality over multiple years. For the FMP, the final grade is decided upon during the deliberation of the graduation committee consisting of the three examiners. The result is communicated afterwards through Osiris.

Scoring rules

Although student work might differ per project, we use similar guidelines and scoring rules for rubrics of all projects. The rubrics are not the norm but a guideline. The assessor does not need to execute the steps in the described order.

- Pick the cells that are most applicable for each criterion
- Consider the text in the cells as arguments and decide which arguments are the most applicable
- Reach an insufficient, sufficient, good or excellent level for each topic
- Students need to be assessed as sufficient on each topic in order to pass
- Students can score insufficient in some criteria, as long as the overall topic is scored sufficient.
- As a condition for participating in a retake the criterion Design and Research Processes needs to be scored as sufficient.

Composing and Communicating the Rubric

Except from the final examination moments, criteria can be added to the topics. Furthermore, the descriptions belonging to the combination of topic, criterion and standard can be altered, as long as the provided description matches with the expected level. Consequently, the examiners need to inform the students about this change and what they will assess at the beginning of the semester.

Completing the Rubric

One examiner completes the rubrics based on the results of the investigation and evaluation of the demonstrator, report, presentation, portfolio (if applicable) and oral exam for each individual student or each group.

Determining the Verdict or Grade

The verdict or grade is not automatically generated by the sum of the selected standards. The results of a Competence Assessment are expressed in one of the following verdicts:

- **Promotion with excellence (E):** the student is promoted with excellence and receives the assigned credits;
- **Promotion (P):** the student is promoted and receives the assigned credits;
- **Conditional Hold (C):** the student is not promoted unless conditions are sufficiently met within a maximum of three weeks (some topics are assessed as insufficient); or
- **Hold (H):** the student is not promoted

The results of Final Bachelor and Final Master project are expressed in a grade rounded to the nearest half grade on a scale of 1- 10.

Confirming the Verdict or Grade

For non-examination moments and regular projects, the verdict is confirmed after all exams have taken place to enable comparison between the assessed students.

For the FBP, the final grade will be discussed in a plenary session; either in their totality or for a repository of high and low grades to assure consistency of quality over multiple years. During the meeting examiners deliberate on the grades and should achieve consensus on their distribution. For the final master project, the grade is determined during the deliberation between the three examiners at the FMP graduation session.

Communicating the Verdict or Grade

The first examiner communicates the rubrics to the student within five working days after the last examination activity (oral exam or plenary graduation meeting). The examiners do not communicate the verdict/grade with the rubric. If the examiner is unable to communicate the rubrics in time an email should be sent to the student to inform about the delay. The email should include a term within which the assessment conclusions and rubrics will be communicated. The Examination Committee (Examination.Committee.ID@tue.nl) should receive a carbon copy (cc.) of the email.

Recording the Verdict or Grade

The first examiner delivers the result lists to CSA-ID, where they will record the verdict/grade in the TU/e education information system (Osiris). After the verdicts/grades are recorded, students and can view them in Osiris.

Right of Inspection

Students have the right of inspection and should be notified of this right by their examiner. Consequently, students can request a meeting with the examiner to clarify the arguments for the verdict. If the student has an objection against the verdict, they can submit an appeal to the Examination Committee.

Retake

When the verdict is a C, the student is entitled to do a retake.

Note: This is only possible if the student has received a sufficient for the criterion Design and Research Process. The first examiner advises on the feasibility of doing a retake after consulting with the second examiner. If the student accepts the retake, the examiner should clearly describe the conditions for receiving a P. The retake result has a time-limit of three weeks after the verdict or grade is recorded in Osiris.

Role of the Examiners: Projects (Except Final Master Project)

In these Competence Assessments, two examiners are involved. The first examiner carries the main responsibility for the judgment and the quality of (preparing, performing and finalizing) the assessment. The second examiner it there to assure that a fair and sound verdict is reached. The second examiner acts as a critical friend.

Examiners: Final Bachelor Project

In the Competence Assessment of the final bachelor project, two examiners are involved.

- The first examiner is the project/teacher coach.
- The second examiner is another staff member.

Examiners: Final Master Project

In the Competence Assessment of the final master project, three examiners are involved.

- The independent examiner is the chair of the graduation committee, this examiner provides complementary expertise to that of the other examiners and safeguards that the FMP procedure is followed. The independent examiner will read the portfolio.
- The graduation mentor of the student will complete the rubrics with approval of the independent examiner. They will read both the report and portfolio. At least one of the other examiners are not part of the same research group as the graduation mentor. The mentor publishes the feedback on Canvas and the distributes the grades to CSA-ID.
- The expert examiner completes the graduation committee. This examiner is an expert in one or more expertise areas that are relevant for the student's project but can provide any input that this examiner deems relevant. The expert examiner will read the report.

ASSESSMENT RUBRICS

BACHELOR PROJECT 1 DESIGN (GROUP)

BASED ON PROJECT WORK AND CORRESPONDING DELIVERABLES

Note: All group members are responsible for the content of the group report.

		Excellent	Good	Sufficient	Insufficient
OVERALL COMPETENCE OF DESIGNING	**Integration of five Expertise Areas** *Creativity and Aesthetics* *Technology and Realization* *User and Society* *Business and Entrepreneurship* *Math, Data and Computing*	Can convincingly demonstrate how knowledge and skills from three expertise areas or more were considered during the process. Evidence demonstrates how the integration of expertise areas contributed to a convincing final design.	Can demonstrate how knowledge and skills from three expertise areas (CA, US and TR) were considered during the process. Can demonstrate how the integration of expertise areas contributed to the final design.	Can sufficiently demonstrate how knowledge and skills from three expertise areas were considered (CA, US and TR) during the process. Can argue how each expertise area separately contributed to the final design, but integration between expertise areas is not strong.	Can not sufficiently demonstrate how knowledge and skills from more than two expertise areas were considered during the process and/or cannot convincingly argue how more than two areas contributed to the final design.
	Design and Research Processes	Managed the design process by proposing an appropriate design approach based on an understanding of the design context and different design methodologies. Can motivate design decisions based on awareness of systematic inquiry. The design process has led to a convincing final design.	Has adjusted the suggested Iterative Design Process and can clearly motivate how the decisions lead to an improved design. The decisions are supported with insights derived from (an attempt to) systematic inquiry.	Has conducted the Iterative Design Process as suggested in the Student Guide, and is able to describe relations between design decisions and process activities.	Is unable to describe the conducted design process and/or cannot argue for the conducted design process.
	Demonstrator	Develops an integrated prototype of an interactive system with multiple inputs/outputs, which shows careful attention for engineering and aesthetics.	Can prototype simple functional interactive systems (input/output) that communicates the intended experience (proof of concept). Input/output refers to user action or data that is transformed into experiential output, i.e. addressing (at least one of) the senses.	Can prototype simple functional interactive systems (input/output) that communicate a part of the experience (proof of concept). Input/output refers to user action or data that is transformed into experiential output, i.e. addressing (at least one of) the senses.	Is unable to design a simple functional interactive system that communicates a part of the experience (proof of concept). Input/output refers to user action or data that is transformed into experiential output, i.e. addressing (at least one of) the senses.

Examination Moment: The topics, criteria for each topic and the level descriptions for each criterion are fixed.

		Excellent	Good	Sufficient	Insufficient
	Design Quality (project-specific)	The design demonstrates novelty and risk-taking, and does have potential to show: the development of the designer, desirability for the user and/or technical feasibility. This is also recognized by external experts. Within the context of project-1	The design demonstrates novelty and risk-taking, and does have potential to show: the development of the designer, desirability for the user and/or technical feasibility. Within the context of project-1	The design expresses aspects of novelty and risk-taking, and does have some potential to show: the development of the designer, desirability for the user and/or technical feasibility. Within the context of project-1	The design does not express novelty and risk-taking, and does not have the potential to show: the development of the designer, desirability for the user and/or technical feasibility. Within the context of project-1
SCIENTIFIC & PROFESSIONAL SKILLS	**Presenting** *e.g. supported by training* *DJC05 Pitching your Project*	Is able to engage the audience in an argument that is based on funded examples. The presentation is using a clear (visual) design identity.	Is able to give an argument that is based on funded examples. Demonstrates understanding of different media use and uses this effectively.	Builds an argument within time requirements supported by effective media.	Is unable to build an argument within time requirements supported by effective media.
	Reporting and Dealing with Scientific Information *e.g. supported by training* *DJC07 Dealing with Scientific Information*	Presents a scientific report of the design process, with descriptions of the design context (e.g. theory and/or analysis of the current situation); using different types of media (text, figures, photos, videos etc.) in which the group describes specific design decisions and provides valid arguments for these choices. Alternatives for design decisions are considered. Students are able to show the influence of scientific sources on design decisions. References are present; using correct reference style.	Presents a scientific report of the design process, with descriptions of the design context; using different types of media (text, figures, photos, videos etc.) in which the group describes specific design decisions and provides valid arguments for these choices. Students are able to link design decisions to the used scientific sources. References are present; using correct reference style.	Presents a scientific report of the design process using different types of media (text, figures, photos, videos etc.) in which the group describes specific design decisions and provides arguments for these choices. Refers to scientific sources; influence of these sources on decisions made in the process are unclear or missing. References are present; but a coherent structure is missing.	Is unable to report the design process sufficiently. The use of different types of media (text, figures, photos, videos etc.) is not supportive. Design decisions lack arguments and evidence. Scientific sources are unclear or missing. References are not present.

		Excellent	Good	Sufficient	Insufficient
	Planning and Organizing (SDL) *e.g. supported by training* *DJC01 Planning and Setting Goals*	The student group organizes project work based on an extensive planning. The group demonstrates that they are able to perform and redirect the planning.	The student group organizes project work based on a planning. The group demonstrates that they are able to perform and redirect the planning.	The student group organizes project work based on a simple planning.	There is insufficient evidence that the student group makes a planning and organizes their work.
	Collaboration (Group) *e.g. supported by training* *DJC03 Meeting Skills*	Constructive atmosphere in the group, members share ideas and suggestions and collaboration advances the quality of the work beyond individual contributions. Group members bring-out the best in each other. The group demonstrates how external collaboration (e.g. with users, experts, stakeholders, clients) makes major contributions to the process. External parties involved in the process acknowledge value in the collaboration.	Constructive atmosphere in the group, members share ideas and suggestions and collaboration advances the quality of the work beyond individual contributions. The group demonstrates how external collaboration (e.g. with users, experts, stakeholders, clients) makes major contributions to the process.	Constructive atmosphere in the group, members share ideas and suggestions. External collaboration (e.g. with users, experts, stakeholders, clients) makes minor contributions to the process.	No constructive atmosphere in the group and external collaboration (e.g. with users, experts, stakeholders, clients) is missing or does not help the process move forward.

ASSESSMENT RUBRICS

BACHELOR PROJECT 1 DESIGN (INDIVIDUAL)

BASED ON PORTFOLIO

		Excellent	Good	Sufficient	Insufficient
SCIENTIFIC & PROFESSIONAL SKILLS	**Collaboration** *(Individual)*	Does reflect and can demonstrate a constructive contribution to teamwork in the project and courses via multiple examples. Takes feedback of tutor into account.	Does reflect and can demonstrate a constructive contribution to teamwork in the project and courses. Takes feedback of tutor into account.	Does reflect and can demonstrate own contribution to teamwork in the project and courses. Takes feedback of tutor into account.	Does not reflect on or cannot demonstrate a positive contribution to teamwork in the project and courses.
	Reflection and Critical Attitude	Demonstrates understanding of the past, describes, organizes and critically evaluates evidence of the present in order to direct future learning activities and goals. Reflections are based on internal and external framing.	Demonstrates understanding of the past, describes and evaluates evidence and learnings of the present in order to direct future learning activities and goals.	Demonstrates understanding of the past, describes evidence of the present in order to direct future activities.	There are no reflections, evidence is missing, reflections are not relevant or reflections lack coherency between past, present and future.

		Excellent	Good	Sufficient	Insufficient
PROFESSIONAL IDENTITY & VISION	**Professional Identity**	Understands the importance, is aware of their own strengths and weaknesses, actively searches and explores PI, can link it to the PDP, project and vision. The student is able to communicate the PI well in text/verbally and can defend it during assessment. The student is developing a corresponding visual language that expresses links to vision.	The student sees the importance, undertakes activities to explore PI, knows their strengths and weaknesses and includes them in approach. The student is able to express/communicate the PI in text/verbally and can relate to project/PDP.	The student sees the importance of PI, awareness of strengths and weaknesses, relates to goals but cannot improve significantly. The student can communicate PI (textually/verbally), but still has trouble explaining it.	The student does not see the relevance of PI, cannot explain their own strengths and weaknesses, does not relate to goals in PDP, project, vision, and/or does not undertake activities to explore PI, and/or is unable to communicate the PI.
	Vision	Has a substantiated vision based on personal motives, past experiences and past activities. The vision is supported by examples of current design and technology trends and societal issues. The student is able to explain how the vision can be brought to reality and which activities are needed to do so.	Has made a start for a substantiated vision based on personal motives, past experiences and past activities. The vision is supported by examples of current design and technology trends and societal issues. The student is not able to convincingly explain how the vision can be brought to reality and which activities are needed to do so.	Has made a start for a vision based on personal motives. There is a reference to current design and technology trends and societal issues. The student is not able to convincingly explain how the vision can be brought to reality and which activities are needed to do so.	Not able to formulate their vision in a consistent way. Personal interests, motives and past-experiences are either not well presented or missing. Reference to societal relevance is missing, as well as reflections on current design and technology, societal trends and issues. The bridge between vision and reality is missing.

Examination Moment: The topics, criteria for each topic and the level descriptions for each criterion are fixed.

		Excellent	Good	Sufficient	Insufficient
COMPETENCE DEVELOPMENT	**Integration of Expertise Areas** *Individual*	Can describe the expertise areas separately, is aware of connections between the expertise areas and is able to explain the connections either in reflection on project/courses/extracurricular activities or portfolio.	Can describe the expertise areas separately either in reflection on project/courses/extracurricular activities or portfolio and is aware of connections between the expertise areas.	Can describe the expertise areas separately either in reflection on project/courses/extracurricular activities or portfolio.	Cannot describe the expertise areas separately either in reflection on project/courses/extracurricular activities or portfolio.
	Personal Development Plan	Understands how to further develop professional identity, vision, competencies within framework of expertise areas and is able to explain it. Takes action in this development by looking for links within project/extra-curricular activities.	Understands how to further develop professional identity, vision, competencies within framework of expertise areas and is able to explain it.	Knows how to further develop professional identity, vision and competencies within the framework of the expertise areas but is unable to explain it clearly.	No awareness of how to further develop professional identity, vision, competencies within the framework of the expertise areas.
	Organizing Learning	Understands the value of goals, can formulate them independently (formulated as SMART goals when needed) and is able to link these goals to their personal development in project, expertise areas, professional identity and vision and is able to demonstrate this via examples.	Understands the value of goals, can individually formulate them (formulated as SMART goals when needed) and is able to link these goals to their personal development in project and/or other activities.	Understands the value of goals, needs support to formulate relevant learning goals based on their weaknesses and strengths.	Does not understand the relevance of setting goals; cannot define learning goals based on their strengths and weaknesses and relevance for personal development.

ASSESSMENT RUBRICS

BACHELOR PROJECT 2 DESIGN (GROUP)

BASED ON PROJECT WORK, PRESENTATION ON DEMO DAY AND GROUP REPORT

Note: All group members are responsible for the content of the group report.

		Excellent	Good	Sufficient	Insufficient
OVERALL COMPETENCE OF DESIGNING	**Integration of Expertise Areas** *Project*	Are able to apply and demonstrate the integration of three expertise areas to their design research process and deliverables and to convincingly explain how these areas are considered and addressed.	Need minor guidance to apply and demonstrate the integration of three expertise areas to their design research process and deliverables convincingly explain how these areas are considered and addressed.	Need guidance to apply and demonstrate the integration of at least two expertise areas to their design research process and deliverables and to convincingly explain how these areas are considered and addressed.	There is too little evidence that the group can apply and demonstrate the integration of at least two expertise areas to their design process and deliverables and cannot convincingly explain how these areas are considered and addressed.
	Design and Research Processes	Manages the design process for a real-life challenge but needs guidance to choose the appropriate methods and tools to conduct design (research) activities. Is aware of underlying knowledge and the methodology is recognizable and/or all elements of the design process are skill-fully and critically developed.	Chooses the appropriate methods and tools when conducting design research activities to support decisions for simple design cases. Critical elements of the methodology or theoretical framework are appropriately developed however more subtle elements are ignored or unaccounted for.	Needs guidance in choosing the appropriate methods and tools when conducting design (research) activities to support decisions for simplified cases. The methodology or theoretical framework is recognizable. Critical elements may be missing, incorrectly developed or unfocused.	There is too little evidence that the group chooses the appropriate methods and tools when conducting design (research) activities to support decisions. Approach demonstrates a misunderstanding of the methodology or theoretical framework.
	Demonstrator	Develops a robust prototype that features (parts of) an interactive system; and/or provides a clear experience (of a service) for the considered stakeholders.	Develops an integrated prototype that features (parts of) an interactive system; and/or provides a clear experience (of a service) for the considered stakeholders.	Develops a functional prototype that features (parts of) an interactive system; and/or provides a partial experience (of a service) for the considered stakeholders.	There is too little evidence that the group develops a functional prototype that features (parts of) an interactive system; and/or does not provide an experience (of a service) for the considered stakeholders.

Additional criteria may be added to the topics and level descriptions of each criterion can be adjusted or changed.

		Excellent	Good	Sufficient	Insufficient
SCIENTIFIC & PROFESSIONAL SKILLS	**Presenting**	Tells a convincing story targeted at a professional audience and directs the structure and content of the presentation. Uses a personal and attractive (visual) design identity.	Tells a convincing story for the appropriate target group and directs the structure and content of the presentation. Uses an attractive (visual) design identity.	Tells a clear story for the appropriate target group and directs the structure and content of the presentation. Uses a clear (visual) design identity.	Tells an unclear story for the appropriate target group and/or does not direct the structure and content of the presentation. Visual design identity is missing or unclear.
	Reporting and dealing with scientific information	Independently draws a clear and professional picture of the design (research) challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly. Coach and examiner could argue for: • The financial viability of a business plan • The product being taken further by a company • The ability to publish the design research results	Draws a clear picture of the design (research) challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly.	Draws an adequate picture of the design (research) challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly.	Does not draw an adequate picture of the design challenge. Does not provide a clear description of different perspectives and potential approaches. Does not argument choices that have been made. Uses references to external sources incorrectly.

ASSESSMENT RUBRICS

BACHELOR PROJECT 2 DESIGN (INDIVIDUAL)

BASED ON INDIVIDUAL REFLECTION AND ORAL EXAM

		Excellent	Good	Sufficient	Insufficient
SCIENTIFIC & PROFESSIONAL SKILLS	**Reflecting**	Independently writes a clear and structured reflection. The description, analysis and evaluation of important topics, learning process and outcomes and missed opportunities for learning are included as well. The reflection demonstrates insight in the afore-mentioned topics and leads to intentions for learning that logically follow from the analysis and evaluation.	Needs minor guidance to write a clear and structured reflection. Needs minor guidance to include the description, analysis and evaluation of important topics, learning process and outcomes; and the addition of missed opportunities for learning. Needs minor guidance to demonstrate insight in the afore-mentioned topics and how these insights lead to intentions for learning that logically follow from the analysis and evaluation.	Needs guidance to write a clear and structured reflection. Needs guidance to include the description, analysis and evaluation of important topics, learning process and outcomes; and the addition of missed opportunities for learning. Needs guidance to demonstrate insight in the afore-mentioned topics and how these insights lead to intentions for learning that logically follow from the analysis and evaluation.	There is too little evidence that the student writes a clear and structured reflection. (Elements of) the description, analysis and evaluation of important topics and missed opportunities for learning are lacking. The reflection demonstrates insufficient insight in the afore-mentioned topics and does not lead to intentions for learning that logically follow from the analysis and evaluation.
	Cooperating	Constructive atmosphere in the group, members share ideas and suggestions, and collaboration advances the work of the group. Group members bring-out the best in each other.	Constructive atmosphere in the group, members share ideas and suggestions, and collaboration advances the quality of the work. Individual members do not build upon each other's knowledge and skills.	Constructive atmosphere in the group, members share ideas and suggestions. Quality of deliverables is a product of the contribution of individual group members. Collaboration did not advance the quality of work.	No constructive atmosphere in the group and collaboration does not help the team move forward.

Additional criteria may be added to the topics and level descriptions of each criterion can be adjusted or changed.

		Excellent	Good	Sufficient	Insufficient
PROFESSIONAL IDENTITY & VISION	**Professional Identity**	Understands the importance very well, is very much aware of their own strengths and weaknesses, actively searches and explores PI, can easily link it to the PDP, project, and vision. The student is perfectly able to communicate the PI well in text/verbally and can defend it easily during assessment. The student is developing a corresponding visual language that expresses links to vision.	Understands the importance, is aware of their own strengths and weaknesses, actively searches and explores PI, can link it to the PDP, project, and vision. The student is able to communicate the PI well in text/verbally and can defend it during assessment. The student is developing a corresponding visual language that expresses links to vision.	The student sees the importance, undertakes activities to explore PI, knows their strengths and weaknesses and includes them in approach. The student is able to express/communicate the PI in text/verbally and can relate to project/PDP.	The student does not see the relevance of PI, cannot explain their own strengths and weaknesses, does not relate to goals in PDP, project, vision, and/or does not undertake activities to explore PI, and/or is unable to communicate the PI.
	Vision	Has a very well argumented vision based on personal motives, past experiences, and past activities. The vision is extensively supported by examples of current design and technology trends and societal issues. The student is able to elaborately explain how the vision can be brought to reality and which activities are needed to do so.	Has an argumented vision based on personal motives, past experiences, and past activities. The vision is supported by examples of current design and technology trends and societal issues. The student is able to explain how the vision can be brought to reality and which activities are needed to do so.	Has made a start for an argumented vision based on personal motives, past experiences, and past activities. The vision is supported by examples of current design and technology trends and societal issues. The student is not able to convincingly explain how the vision can be brought to reality and which activities are needed to do so.	Not able to formulate their vision in a consistent way. Personal interests, motives and past experiences are either not well presented or missing. Reference to societal relevance is missing, as well as reflections on current design and technology, societal trends and issues. The bridge between vision and reality is missing.

ASSESSMENT RUBRICS

BACHELOR PROJECT 3 DESIGN RESEARCH (GROUP)

BASED ON PROJECT WORK, PRESENTATION ON DEMO DAY AND GROUP REPORT

Note: All group members are responsible for the content of the group report.

		Excellent	Good	Sufficient	Insufficient
OVERALL COMPETENCE OF DESIGNING	**Integration of Expertise Areas** *Project*	The group convincingly demonstrates how knowledge and skills from all expertise areas were considered in process and deliverables and convincingly explains how all expertise areas are considered. The group demonstrates integration of at least two expertise areas on an advanced level.	The group needs minor guidance to apply and demonstrate the contribution of at least four expertise areas to their process and deliverables and convincingly explains how these areas are considered and addressed. The group demonstrates integration of at least one expertise area on an advanced level.	The group needs guidance to apply and demonstrate the contribution of at least three expertise areas to their process and deliverables and convincingly explains how these areas are considered and addressed.	There is too little evidence that the group can apply and demonstrate the contribution of at least three expertise areas to their process and deliverables and cannot convincingly explain how these areas are considered and addressed.
	Design and Research Processes	Manages the design research process but needs minor guidance to frame their research and/or to choose the appropriate methods and tools to conduct design research activities to contribute (new) knowledge. Is aware of underlying knowledge and the methodology is recognizable and/or all elements of the design research process are skill-fully and critically developed.	Need minor guidance to frame their research and/or choose the appropriate methods and tools when conducting design research activities to contribute (new) knowledge. Critical elements of the methodology or theoretical framework are appropriately developed however more subtle elements are ignored or unaccounted for.	Need guidance to frame their research and/or choose the appropriate methods and tools when conducting design research activities to contribute (new) knowledge. The methodology or theoretical framework is recognizable. Critical elements may be missing, incorrectly developed or unfocused.	There is too little evidence that the group is able to frame their research and choose the appropriate methods and tools when conducting design research activities to contribute (new) knowledge. Approach demonstrates a misunderstanding of the methodology or theoretical framework.
	Demonstrator	Develops a robust prototype that features (parts of) an interactive system; and/or provides a clear experience (of a service) for the considered stakeholders.	Develops an integrated prototype that features (parts of) an interactive system; and/or provides a clear experience (of a service) for the considered stakeholders.	Develops a functional prototype that features (parts of) an interactive system; and/or provides a partial experience (of a service) for the considered stakeholders.	There is too little evidence that the group develops a functional prototype that features (parts of) an interactive system; and/or does not provide an experience (of a service) for the considered stakeholders.

Additional criteria may be added to the topics and level descriptions of each criterion can be adjusted or changed.

		Excellent	Good	Sufficient	Insufficient
SCIENTIFIC & PROFESSIONAL SKILLS	**Presenting**	Tells a convincing story targeted at a professional audience and directs the structure and content of the presentation.	Tells a convincing story for the appropriate target group and directs the structure and content of the presentation.	Tells a clear story for the appropriate target group and directs the structure and content of the presentation.	Tells an unclear story for the appropriate target group and/or does not direct the structure and content of the presentation.
	Reporting and dealing with scientific information	Draws an adequate picture of the design research challenge by positioning their work in the relevant design research literature. Documents and convincingly argues their methodological choices. Reports novel insights and critically evaluates them. Writing is clear, structured, and concise. Uses references to external sources correctly. Suitable for publication with only minor corrections.	Draws a clear picture of the design research challenge by positioning their work in the relevant design research literature. Documents and argues their methodological choices in sufficient depth. Reports relevant insights and draws valid conclusions. Writing is clear, structured, and concise. Uses references to external sources correctly.	Draws an adequate picture of the design research challenge by positioning their work in the relevant design research literature. Documents their methodology but fails to (convincingly) argue their choices. Reports some insights and draws partially valid conclusions. Writing is clear, structured, and concise. Uses references to external sources correctly.	Does not draw an adequate enough picture of the design research challenge by positioning their work in the relevant design research literature. Only partially documents their methodology and fails to (convincingly) argue their choices. Does not report insights and/ or draws invalid conclusions. Writing is unclear, lacks a structure and/or exceeds the page limit. Uses references to external sources incorrectly.

ASSESSMENT RUBRICS

BACHELOR PROJECT 3 DESIGN RESEARCH (INDIVIDUAL)

BASED ON INDIVIDUAL REFLECTION

		Excellent	Good	Sufficient	Insufficient
SCIENTIFIC &PROFESSIONAL SKILLS	**Reflecting**	The student writes a clear, structured and concise reflection. Includes the description, analysis and evaluation of (the) important topics [– e.g. collaboration, design research process -] The reflection demonstrates excellent insight in the afore-mentioned topics and leads to intentions for learning that logically follow from the analysis and evaluation.	The student writes a clear, structured and concise reflection. Includes the description, analysis and evaluation of (the) important topics [– e.g. collaboration, design research process -] The reflection demonstrates good insight in (the) important topics and leads to intentions for learning that logically follow from the analysis and evaluation.	The student writes a mostly clear, structured and concise reflection. Includes (elements of) the description, analysis and evaluation of (the) important topics [- e.g. collaboration, design research process -] The reflection demonstrates sufficient insight in (the) important topics and leads to intentions for learning that logically follow from the analysis and evaluation.	There is too little evidence that the student writes a clear, structured and concise reflection. (Elements of) the description, analysis and evaluation of (the) important topics [– e.g. collaboration, design research process -] The reflection demonstrates insufficient insight in (the) important topics and does not lead to intentions for learning that logically follow from the analysis and evaluation.
	Cooperating	Constructive atmosphere in the group, members share ideas and suggestions and collaboration advances the work of the group. Group members bring-out the best in each other.	Constructive atmosphere in the group, members share ideas and suggestions and collaboration advances the quality of the work. Individual members do not build upon each other's knowledge and skills.	Constructive atmosphere in the group, members share ideas and suggestions. Quality of deliverables is a product of the contribution of individual group members. Collaboration did not advance the quality of work.	No constructive atmosphere in the group and collaboration does not help the team move forward.

		Excellent	Good	Sufficient	Insufficient
PROFESSIONAL IDENTITY & VISION	**Professional Identity**	Needs minor guidance to understand its importance and to use her PI to steer their work and career. Needs minor guidance to develop their PI; to define who the student is as a designer; to know their strengths and weaknesses. Needs minor guidance to describe how their beliefs, norms and values influence their design activities and to connect their PI to their vision and to personal development and project goals. Needs minor guidance to develop a visual language.	Needs guidance to understand its importance and to use their PI to steer their work and career. Needs guidance to develop their PI; to define who the student is as a designer; to know their strengths and weaknesses. Needs guidance to describe how their beliefs, norms and values influence their design activities and to connect their PI to their vision and to personal development and project goals. Needs guidance to develop a visual language.	Shows first steps in understanding its importance and is aware of how to use their PI to steer their work. Is aware of how to develop their PI and actively searches and explores PI. Shows first steps in defining who the student is as a designer; to know their strengths and weaknesses. Links between their beliefs, norms and values and their design activities are visible. Shows first steps in connecting PI to their vision and to personal development and project goals. PI, vision, personal development and project goals are present. Is developing a corresponding visual language that expresses links to PI	Is not aware of its importance and does not explore the connection between PI and their work. Does not explore how to develop their PI, to define who the student is as a designer; does not know their strengths and weaknesses. Is not aware of how their beliefs, norms and values influence their design activities. Does not link between PI, vision, personal development and project goals are visible. Is not able to communicate PI.
	Vision	Needs minor guidance to elaborate on their vision, to be critical on existing visions, trends in design and needs minor guidance in supporting their vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes. Needs minor guidance in connecting vision and design activities.	Needs guidance to elaborate on their vision, to be critical on existing visions, trends in design and needs guidance in supporting their vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes. Needs guidance in connecting vision and design activities. Furthermore,, the student needs guidance to explain how their vision can be brought to reality and which points of action can be made to do so or to explain how the actualization of their vision can have an impact on a societal level and/or generate new knowledge.	Has an substantiated vision based on personal experiences and believes. The vision is supported by examples of existing visions, trends in design, reflected in history and societal contexts. Shows first steps in how their vision can be brought to reality and which (design) activities are needed to do so.	Has not made a start for an substantiated vision based on personal experiences and believes. The vision is not supported by examples of existing visions, trends in design, reflected in history and societal contexts. The student is not able to convincingly explain how the vision can be brought to reality and which (design) activities are needed to do so.

INTERNSHIP

ASSESSMENT RUBRICS

The internship assessment rubrics are meant to translate and transfer a non-academic activity, such as an internship at a company or institute, back into the academic system of Industrial Design so that the student can obtain academic credit for their external learning activity. The following rubrics take into account the original goals set by the student before starting their internship and verify if and how they have been achieved, as well as how relevant they are both for the student's development and for the study path within ID. This is why, for example, we use the same terminology and the same competency areas used within ID. The company is also giving feedback on the internship through the company coach form, however this feedback is not part of the assessment. It can be used to verify the student's success within the company's objectives, which may or may not correspond to the academic successes. For example, it is possible that a very unsuccessful internship experience has provided excellent reflection and personal/ professional growth opportunities for the student, who can now use the experience to guide their academic and career choices differently.

The coach assigned to the student during the B2.2 semester remains as a coach during the B3.1 semester and coaches the student throughout the internship, monitoring that the student is not neglecting their own goals or the requirements of ID. This coach is also responsible for filling out the rubrics after all the internship deliverables have been handed in, and after the final oral presentation of the internship report. The oral presentation is carried out together with a second examiner, whose role is to assure clarity of the activity and overall fairness. The second examiner thus also uses the rubrics to assess the student and has input in the final evaluation, however only one assessment is handed in per student.

For further information on the internship requirements, process and deliverables, please visit our online education guide.

For any questions you may also contact the ID internship coordinator at:
ID.internshipcoordinator@tue.nl

ASSESSMENT RUBRICS

INTERNSHIP

		Excellent	Good	Sufficient	Insufficient
INTERNSHIP PROCESS & DELIVERABLES	**Learning outcomes/competences**	Clear ability to frame learning outcomes / skills, use and/or apply appropriate methods and tools. Manages design process in articulated and critical ways in most of its elements. Needs minor guidance.	Evidence of ability to frame learning outcomes / skills, use and/or apply appropriate methods and tools. Pertinent use of theoretical framework, critical elements are developed appropriately. Needs minor guidance.	Sufficient evidence of ability to frame learning outcomes / skills to achieve, use and/or apply appropriate methods and tools. Pertinent use of theoretical framework although still needs guidance.	Insufficient evidence of ability to frame assignment and reach learning outcomes or skills, no use or application of appropriate methods and tools.
	Deliverables (to company)	The company coach/form states the student has conducted their assignment appropriately, professionally and in an independent way. Student has delivered agreed upon assignments and reached (or has gone beyond) goals set with minimal support.	The company coach/form states the student has conducted their assignment appropriately and professionally. Student has delivered agreed upon assignments and reached goals set with normal/substantial assistance or support.	The company coach/form states the student has conducted their assignment appropriately or in a professional way. However, student has not delivered all agreed upon assignments and not reached all the goals set even with assistance or support due to unforeseen causes.	The company coach/form states the student has not conducted their assignment appropriately or in a professional way. Student has not delivered agreed upon assignments and not reached goals set even with assistance or support.
	Deliverables and Communication (to TU/e)	The coach has received communications or regular updates from student during the internship in a way that helped steer the deliverable outcomes, excellent flow between student's PDP and academic internship results.	The coach has received constructive communications or regular updates from student during the internship. There is correspondence between student's PDP and internship results.	The coach has not received communications or regular updates from student during the internship. The internship assignment only partially complies with ID framework but can be relevant to student's personal study path.	The coach has not received communications or updates from student during the internship in a way that damaged the deliverable outcomes, student's PDP and academic internship results. OR internship assignment does not comply with ID framework and student's study path.

		Excellent	Good	Sufficient	Insufficient
SCIENTIFIC & PROFESSIONAL SKILLS	**Presenting**	Convincing and clear story, directed at target group, interesting and insightful. Professional conduct during presentation.	Clear story, appropriate for target group and with a directed structure and content. Professional conduct during presentation.	Clear, linear story. Appropriate for target group but mainly a summary with little insight. Appropriate but not insightful.	Unclear story, lacking in structure and/or content.
	Reporting	Report/reflection and forms are correct and aesthetically coherent. Student has put clear effort in visual language, content and layout/graphics of deliverables.	Report/reflection and forms are correct, student has put clear effort in visual language, content and layout/graphics of deliverables.	Report/reflection and forms are handed in correctly but have (minor) mistakes, student has put some effort in visuals/ content of deliverables, but it is not consistent	Report/reflection or forms are missing or have serious mistakes (references, spelling, content)
	Organizing and Planning	Independently makes or redirects planning, is able to organize work and is able to discuss and take appropriate actions when necessary.	Is able to make or stick to a planning, needs minor guidance to organize work or modify planning when necessary.	Needs guidance to make or stick to a planning, needs guidance to organize work or modify planning when necessary.	Little or no evidence that student has a planning OR student is unable to organize or modify planning when necessary.
	Reflecting	Is able to relate choices to activities, assignment, PDP or PI and Vision. There is a strong connection between conclusions and PDP/ future direction/activities and they are coherent.	Is able to relate choices to activities, assignment, PDP or PI and Vision. There is a connection between conclusions and PDP/ future direction/ activities but needs guidance in making it coherent.	Needs guidance to relate choices to activities, assignment, PDP or PI and Vision. There is little connection between conclusions and PDP/ future direction/ activities	Little or no evidence of reflection upon their choices, activities and assignment. No clear connection of conclusions to PDP, PI, Vision or future activities.
	Cooperating	Reflects and applies feedback, has good teamwork skills, pro-actively seeks third parties or stakeholders and convincingly includes the value of the skills/contributions of the collaborations in the assignment in multiple ways.	Reflects and applies feedback, has good teamwork skills, pro-actively seeks third parties or stakeholders and correctly includes their skills/contributions in the assignment.	Reflects on feedback, is able to demonstrate positive contributions of teamwork on the assignment, takes into account third parties.	Unable to take in or understand feedback, cannot demonstrate a positive contribution with third parties nor teamwork.

		Excellent	Good	Sufficient	Insufficient
PROFESSIONAL IDENTITY & VISION	**Professional Identity**	Clearly communicates, describes and utilizes PI. Is independently able to further develop PI and corresponding visual language.	Clearly communicates and includes the PI in their choices and assignment. Awareness of SWOT and personal goals. Needs minor guidance for continuing the development of PI and visual language.	Able to communicate the PI, is aware of how it relates to the assignment and decisions. Still needs lots of guidance to describe or explain beliefs, norms and point of view. Needs guidance to further improve PI and visual language.	Unable to communicate the PI; does not use to inform decisions or understand how it relates to the activities and goals of the internship assignment.
	Vision	The student has and is comfortable with their personal vision, they able to develop it further and make it relevant to a societal context.	The student's vision is clear and needs minor guidance in creating more coherence or connect it to their assignment / PI /relevance to a societal context.	The student has a vision but needs guidance to further improve it or connect it to their assignment / PI /relevance to a societal context.	Vision is lacking or has no consistency. There is no reflection on or correspondence or relevance to PI or assignment.
COMPETENCE DEVELOPMENT	**Integration of Expertise Areas** *Individual*	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/ extracurricular activities or portfolio and demonstrates in-depth knowledge in at least two areas.	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/ extracurricular activities or portfolio and demonstrates in-depth knowledge in at least one area.	Can describe the expertise areas separately, is aware of connections between the expertise areas and is able to explain the connections either in reflection on project/courses/ extracurricular activities or portfolio.	Cannot describe the expertise areas separately, is unaware of connections between the expertise areas and is unable to explain the connections either in reflection on project/courses/ extracurricular activities or portfolio.

		Excellent	Good	Sufficient	Insufficient	N/A*
	Business and Entrepreneurship	Student has understood, interpreted and applied the expertise area's principles in a correct, innovative and personally relevant way.	Student has understood and applied the expertise area's principles in a correct and pertinent way.	Student has understood and applied expertise area's basic principles.	Student has not understood/ misused expertise area's basic principles.	
	Creativity and Aesthetics	Student has understood, interpreted and applied the expertise area's principles in a correct, innovative and personally relevant way.	Student has understood and applied the expertise area's principles in a correct and pertinent way.	Student has understood and applied expertise area's basic principles.	Student has not understood/ misused expertise area's basic principles.	
	Math, Data, and Computing	Student has understood, interpreted and applied the expertise area's principles in a correct, innovative and personally relevant way.	Student has understood and applied the expertise area's principles in a correct and pertinent way.	Student has understood and applied expertise area's basic principles.	Student has not understood/ misused expertise area's basic principles.	
	Technology and Realization	Student has understood, interpreted and applied the expertise area's principles in a correct, innovative and personally relevant way.	Student has understood and applied the expertise area's principles in a correct and pertinent way.	Student has understood and applied expertise area's basic principles.	Student has not understood/ misused expertise area's basic principles.	
	User and Society	Student has understood, interpreted and applied the expertise area's principles in a correct, innovative and personally relevant way.	Student has understood and applied the expertise area's principles in a correct and pertinent way.	Student has understood and applied expertise area's basic principles.	Student has not understood/ misused expertise area's basic principles.	
	Has met goals as described in PDP	Has gone above and beyond all the self- prescribed goals and defined/developed new ones OR has changed trajectory and is happier with their new PDP developments.	Has met all the self-prescribed goals OR has changed trajectory and is satisfied with PDP development.	Has not met all the self-prescribed goals but is aware of why/ what happened OR has changed trajectory and is in re-development of a more fitting PDP.	Has not met self-prescribed goals and is unaware of why/ what could've been done to prevent this.	

*N/A can be used for any criteria without penalty to the student or project. It should not be used for the other criteria. Please note that each assessment has to include at least two expertise areas in order to be sufficient.

ASSESSMENT RUBRICS

FINAL BACHELOR PROJECT

		Excellent	Good	Sufficient	Insufficient
OVERALL COMPETENCE OF DESIGNING	**Integration of Expertise Areas** *Project*	Convincingly demonstrates how knowledge and skills from all expertise areas were considered in the designed system and convincingly explains how all expertise areas are considered in the designed system. Demonstrates integration of at least two expertise areas on an advanced level.	Needs minor guidance to apply and demonstrate the contribution of at least four expertise areas to their process and deliverables and to convincingly explain how these areas are considered and addressed. Demonstrates integration of at least one expertise area on an advanced level.	Needs guidance to apply and demonstrate the contribution of at least three expertise areas to their process and deliverables and to convincingly explain how these areas are considered and addressed.	There is too little evidence that the student can apply and demonstrate the contribution of at least three expertise areas to their process and deliverables and cannot convincingly explain how these areas are considered and addressed.
	Design and Research Processes	Manages the design process for a real-life challenge but needs guidance to choose the appropriate methods and tools to conduct design (research) activities. Is aware of underlying knowledge and the methodology is recognizable and/or all elements of the design process are skill-fully and critically developed.	Individually chooses the appropriate methods and tools when conducting design research activities to support decisions for simple design cases Critical elements of the methodology or theoretical framework are appropriately developed however more subtle elements are ignored or unaccounted for.	Needs guidance in choosing the appropriate methods and tools when conducting design (research) activities to support decisions for simplified cases. The methodology or theoretical framework is recognizable. Critical elements may be missing, incorrectly developed or unfocused.	There is too little evidence that the student chooses the appropriate methods and tools when conducting design (research) activities to support decisions. Approach demonstrates a misunderstanding of the methodology or theoretical framework.
	Demonstrator	Develops a robust prototype that features (parts of) an interactive system; and/or provides a clear experience (of a service) for the considered stakeholders.	Develops an integrated prototype that features (parts of) an interactive system; and/or provides a clear experience (of a service) for the considered stakeholders.	Develops a functional prototype that features (parts of) an interactive system; and/or provides a partial experience (of a service) for the considered stakeholders.	There is too little evidence that the student develops a functional prototype that features (parts of) an interactive system; and/or does not provide an experience (of a service) for the considered stakeholders.

Examination Moment: The topics, criteria for each topic and the level descriptions for each criterion are fixed.

		Excellent	Good	Sufficient	Insufficient
SCIENTIFIC & PROFESSIONAL SKILLS	**Presenting**	Tells a convincing story targeted at a professional audience and directs the structure and content of the presentation. Uses a personal and attractive (visual) design identity.	Tells a convincing story for the appropriate target group and directs the structure and content of the presentation. Uses an attractive (visual) design identity.	Tells a clear story for the appropriate target group and directs the structure and content of the presentation. Uses a clear (visual) design identity.	Tells an unclear story for the appropriate target group and/or does not direct the structure and content of the presentation. Visual design identity is missing or unclear.
	Reporting and Dealing with Scientific Information	Independently draws a clear and professional picture of the design (research) challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly. Coach and examiner could argue for: • The financial viability of a business plan • The product being taken further by a company • The ability to publish the design research results	Draws a clear picture of the design (research) challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly.	Draws an adequate picture of the design (research) challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly.	Does not draw an adequate picture of the design challenge. Does not provide a clear description of different perspectives and potential approaches. Does not argument choices that have been made. Uses references to external sources incorrectly.
	Organizing and Planning	Individually makes, performs and redirects their planning, organizes their work and undertakes action if needed.	Needs minor guidance to make, perform and redirect their planning. Needs minor guidance to organize their work and to undertake action if needed.	Needs guidance to make, perform and redirect their planning. Needs guidance to organize their work and to undertake action if needed.	There is too little evidence that the student makes, performs and redirects their planning, organizes their work and undertakes action if needed.

Examination Moment: The topics, criteria for each topic and the level descriptions for each criterion are fixed.

		Excellent	Good	Sufficient	Insufficient
	Reflecting	Individually organizes future learning (as described in the student's PDP) and consistently relates their choices of learning activities and work activities to her professional identity and vision.	Needs minor guidance to organize future learning (as described in the student's PDP) and needs minor guidance to consistently relate their choices of learning activities and work activities to their professional identity and vision.	Needs guidance to organize future learning (as described in the student's PDP) and needs guidance to consistently relate their choices of learning activities and work activities to their professional identity and vision.	There is too little evidence that the student organizes future learning (as described in the student's PDP) and consistently relates their choices of learning activities and work activities to their professional identity and vision.
	Cooperating	Is pro-active in finding collaboration with third parties. Constructive atmosphere in the collaboration. The student is able to demonstrate and convincingly explains the value of the collaboration with third parties in the deliverables and process.	Is pro-active in finding collaboration with third parties. Constructive atmosphere in the collaboration. The student is able to demonstrate the value of the collaboration with third parties in the deliverables and process.	Is pro-active in finding collaboration with third parties. Constructive atmosphere in the collaboration. The student is able to apply the knowledge and skills of the third parties in the deliverables and process.	There is no collaboration with third parties (experts, stakeholders, clients) or no constructive atmosphere in the collaboration with third parties. The collaboration does not support the project.
PROFESSIONAL IDENTITY AND VISION	**Professional Identity**	Understands its importance and uses their PI to steer their work and career. Continuously develops their PI. Defines who they are as a designer. Knows their strengths and weaknesses. Describes how their beliefs, norms and values influence their design activities. Connects their PI to their vision and to personal development and project goals. Has a corresponding visual language.	Needs minor guidance to understand its importance and to use their PI to steer their work and career. Needs minor guidance to develop their PI; to define who they are as a designer; to know their strengths and weaknesses. Needs minor guidance to describe how their beliefs, norms and values influence their design activities and to connect their PI to their vision and to personal development and project goals. Needs minor guidance to develop a visual language.	Needs guidance to understand its importance and to use their PI to steer their work and career. Needs guidance to develop their PI; to define who they are as a designer; to know their strengths and weaknesses. Needs guidance to describe how their beliefs, norms and values influence their design activities and to connect their PI to their vision and to personal development and project goals. Needs guidance to develop a visual language.	There is too little evidence that she understands its importance and uses their PI to steer their work and career. Furthermore, there is no evidence that she continuously develops their PI. The student does not define who they are as a designer and/or does not demonstrate knowledge of their strengths and weaknesses and/or does not describe how the student's beliefs, norms and values influence their design activities. The link between their PI, vision, and personal development and project goals is lacking or unclear and illogical and/or has no corresponding visual language.

Examination Moment: The topics, criteria for each topic and the level descriptions for each criterion are fixed.

		Excellent	Good	Sufficient	Insufficient
	Vision	Elaborates on their vision, by being critical on existing visions, trends in design and supports their vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes. There are clear and regular connections between vision and design activities.	Needs minor guidance to elaborate on their vision, to be critical on existing visions, trends in design and needs minor guidance in supporting their vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes. Needs minor guidance in connecting vision and design activities.	Needs guidance to elaborate on their vision, to be critical on existing visions, trends in design and needs guidance in supporting their vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes. Needs guidance in connecting vision and design activities. Furthermore, the student needs guidance to explain how their vision can be brought to reality and which points of action can be made to do so or to explain how the actualization of their vision can have an impact on a societal level and/or generate new knowledge.	There is too little evidence that the student elaborates their vision based on personal believes and past experiences. The student's motives do not (always) support their vision and the link with the societal relevance is not fully elaborated and clear. The examples the student brings to explain how to bring their vision to reality through design are not present or vague. The vision is still cluttered, too specific and impersonal. Connections between vision and design activities are too incidental.

		Excellent	Good	Sufficient	Insufficient
COMPETENCE DEVELOPMENT	**Integration of Expertise Areas** *Individual*	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/ extracurricular activities or portfolio and demonstrates in-depth knowledge in at least two areas.	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/ extracurricular activities or portfolio and demonstrates in-depth knowledge in at least one area.	Can describe the expertise areas separately, is aware of connections between the expertise areas and is able to explain the connections either in reflection on project/courses/ extracurricular activities or portfolio.	Cannot describe the expertise areas separately, is unaware of connections between the expertise areas and is unable to explain the connections either in reflection on project/courses/ extracurricular activities or portfolio.

ASSESSMENT RUBRICS

PRE-MASTER DESIGN PROJECT (GROUP)

BASED ON PROJECT WORK, PRESENTATION ON DEMO DAY AND GROUP REPORT (AND POSSIBLE OTHER DELIVARBLES AS REQUESTED BY THE SQUAD)

Note: All group members are responsible for the content of the group report.

		Excellent	Good	Sufficient	Insufficient
OVERALL COMPETENCE OF DESIGNING	**Integration of Expertise Areas** *Project*	Focus on those EA's that require attention as pointed out by the DAC: No guidance needed to apply and demonstrate the integration of the expertise areas to the design process and deliverables and to convincingly explain how these areas are considered and addressed.	Focus on those EA's that require attention as pointed out by the DAC: Needs minor guidance to apply and demonstrate the integration of the expertise areas to the design process and deliverables and to convincingly explain how these areas are considered and addressed. Demonstrates advanced level of integration of the expertise areas.	Focus on those EA's that require attention as pointed out by the DAC. Needs guidance to apply and demonstrate the integration of the expertise areas to the design process and deliverables. The students convincingly explain how these areas are considered and addressed.	Focus on those EA's that require attention as pointed out by the DAC: There is too little evidence that the students can apply and demonstrate the integration of at least two expertise areas to the design process and deliverables and cannot convincingly explain how these areas are considered and addressed.
	Design and Research Processes	Manages the design process for a real-life challenge but needs guidance to choose the appropriate methods and tools to conduct design (research) activities. Is aware of underlying knowledge and the methodology is recognizable and/or all elements of the design process are skill-fully and critically developed.	Chooses the appropriate methods and tools when conducting design (research) activities to support decisions for simple design cases. Critical elements of the methodology or theoretical framework are appropriately developed however more subtle elements are ignored or unaccounted for.	Needs guidance in choosing the appropriate methods and tools when conducting design (research) activities to support decisions for simplified cases. The methodology or theoretical framework is recognizable. Critical elements may be missing, incorrectly developed or unfocused.	There is too little evidence that the group chooses the appropriate methods and tools when conducting design (research) activities to support decisions. Approach demonstrates a misunderstanding of the methodology or theoretical framework.
	Demonstrator	Develops a robust prototype that features (parts of) an interactive system; and/or provides a clear experience (of a service) for the considered stakeholders.	Develops an integrated prototype that features (parts of) an interactive system; and/or provides a clear experience (of a service) for the considered stakeholders.	Develops a functional prototype that features (parts of) an interactive system; and/or provides a partial experience (of a service) for the considered stakeholders.	There is too little evidence that the group develops a functional prototype that features (parts of) an interactive system; and/or does not provide an experience (of a service) for the considered stakeholders.

Additional criteria may be added to the topics and level descriptions of each criterion can be adjusted or changed.

		Excellent	Good	Sufficient	Insufficient
SCIENTIFIC & PROFESSIONAL SKILLS	**Presenting**	Tells a convincing story targeted at a professional audience and directs the structure and content of the presentation. Uses a personal and attractive (visual) design identity.	Tells a convincing story for the appropriate target group and directs the structure and content of the presentation. Uses an attractive (visual) design identity.	Tells a clear story for the appropriate target group and directs the structure and content of the presentation. Uses a clear (visual) design identity.	Tells an unclear story for the appropriate target group and/or does not direct the structure and content of the presentation. Visual design identity is missing or unclear.
	Reporting and Dealing with Scientific Information	Independently draws a clear and professional picture of the design (research) challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly. Coach and examiner could argue for: • The financial viability of a business plan • The product being taken further by a company • The ability to publish the design research results	Draws a clear picture of the design (research) challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly.	Draws an adequate picture of the design (research) challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly.	Does not draw an adequate picture of the design challenge. Does not provide a clear description of different perspectives and potential approaches. Does not argument choices that have been made. Uses references to external sources incorrectly.

ASSESSMENT RUBRICS

PRE-MASTER DESIGN PROJECT (INDIVIDUAL)

BASED ON INDIVIDUAL REFLECTION; IN CASE OF DOUBTS BY THE EXAMINERS AN UPDATED PORTFOLIO CAN BE REQUESTED

		Excellent	Good	Sufficient	Insufficient
SCIENTIFIC & PROFESSIONAL SKILLS	**Organizing and Planning**	Individually organizes future learning (as described in the student's PDP) and consistently relates their choices of learning activities and work activities to their professional identity and vision.	Needs minor guidance to organize future learning (as described in the student's PDP) and needs minor guidance to relate their choices of learning activities and work activities to their professional identity and vision.	Needs guidance to organize future learning (as described in the student's PDP) and needs guidance to relate their choices of learning activities and work activities to their professional identity and vision.	There is too little evidence that the student makes, performs and redirects their planning, organizes their work and undertakes action if needed.
	Reflecting	Independently writes a clear and structured reflection. The description, analysis and evaluation of important topics and missed opportunities for learning are included as well. Claims are underscored with strong arguments and supporting illustrations. The reflection demonstrates insight in the afore-mentioned topics and leads to intentions for learning that logically follow from the analysis and evaluation.	Needs minor guidance to write a clear and structured reflection. Needs minor guidance in the description, analysis and evaluation of important topics and missed opportunities for learning. Needs minor guidance in underscoring claims with strong arguments and supporting illustrations. The reflection demonstrates insight in the afore-mentioned topics and leads to intentions for learning that logically follow from the (under minor guidance developed) analysis and evaluation.	Needs guidance to write a clear and structured reflection. Needs guidance in the description, analysis and evaluation of important topics and missed opportunities for learning. Needs guidance in underscoring claims with strong arguments and supporting illustrations. The reflection demonstrates insight in the afore-mentioned topics and leads to intentions for learning that logically follow from the (under guidance developed) analysis and evaluation.	There is too little evidence that the student writes a clear and structured reflection. (Elements of) the description, analysis and evaluation of important topics and missed opportunities for learning are lacking. Claims are insufficiently underscored with arguments and illustrations. The reflection demonstrates insufficient insight in the afore-mentioned topics and does not lead to intentions for learning that logically follow from the analysis and evaluation.
	Cooperating	Worked in a group with an extraordinary degree of synergy attained; team members developed skills and ideas through interactions with others.	Worked in a group with high degree of synergy attained; team members developed skills and ideas through interactions with others.	Worked in a group with a moderate synergy attained, either at low level or sporadically; the team realized some benefit from working together beyond simple division of labour	Worked in a group that was a collection of individuals that merely divided the work to be done.

Additional criteria may be added to the topics and level descriptions of each criterion can be adjusted or changed.

		Excellent	Good	Sufficient	Insufficient
PROFESSIONAL IDENTITY & VISION	**Professional Identity**	Understands its importance and uses the student's PI to steer their work and career. Continuously develops their PI. Defines who the student they are as a designer. Knows their strengths and weaknesses. Describes how their beliefs, norms and values influence their design activities. Connects their PI to their vision and to personal development and project goals. Has a corresponding visual language.	Needs minor guidance to understand its importance and to use the student's PI to steer their the student's work and career. Needs minor guidance to develop their PI; to define who the student is as a designer; to know their strengths and weaknesses. Needs minor guidance to describe how their beliefs, norms and values influence their design activities and to connect the student's PI to their vision and to personal development and project goals. Needs minor guidance to develop a visual language.	Needs guidance to understand its importance and to use the student's PI to steer their work and career. Needs guidance to develop their PI; to define who they are as a designer; to know their strengths and weaknesses. Needs guidance to describe how their beliefs, norms and values influence their design activities and to connect the student's PI to their vision and to personal development and project goals. Needs guidance to develop a visual language.	There is too little evidence that the student understands the importance of and use their PI to steer their activities. Furthermore, there is no evidence that the student continuously develops their PI. The student does not define who they are as a designer and/or does not demonstrate knowledge of their strengths and weaknesses and/or does not describe how their beliefs, norms and values influence their design activities. The link between the student's PI, vision, personal development, and project goals are lacking or unclear and illogical and/or have no corresponding visual language.
	Vision	Elaborates on their vision, by being critical on existing visions, trends in design and supports their vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes. There are clear and regular connections between vision and design activities.	Needs minor guidance to elaborate on their vision, to be critical on existing visions, trends in design and needs minor guidance in supporting their vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes. Needs minor guidance in connecting vision and design activities.	Needs guidance to elaborate on their vision, to be critical on existing visions, trends in design and needs guidance in supporting their vision by bringing arguments, which are reflected in history and societal contexts, combined with personal experiences and believes. Needs guidance in connecting vision and design activities. Furthermore, they need guidance to explain how their vision can be brought to reality and which points of action can be made to do so or to explain how the actualization of the student's vision can have an impact on a societal level and/or generate new knowledge.	There is too little evidence that the student elaborates their vision based on personal believes and past experiences. The student's motives do not (always) support their vision and the link with the societal relevance is not fully elaborated and clear. The examples the student brings to explain how to bring their vision to reality through design are not present or vague. The vision is still cluttered, too specific and impersonal. Connections between vision and design activities are too incidental.

		Excellent	Good	Sufficient	Insufficient
COMPETENCE DEVELOPMENT	**Integration of Expertise Areas** *In the Competence Profile of the student*	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/extracurricular activities or portfolio and demonstrates in-depth knowledge in at least two areas.	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/ extracurricular activities or portfolio and demonstrates in-depth knowledge in at least one area.	Can describe the expertise areas separately, is aware of connections between the expertise areas and is able to explain the connections either in reflection on project/courses/ extracurricular activities or portfolio.	Cannot describe the expertise areas separately, is unaware of connections between the expertise areas and is unable to explain the connections either in reflection on project/courses/ extracurricular activities or portfolio.

ASSESSMENT RUBRICS

MASTER PROJECT 1 DESIGN (GROUP)

BASED ON PROJECT WORK, PRESENTATION ON DEMO DAY, AND GROUP REPORT (AND POSSIBLE OTHER DELIVARBLES AS REQUESTED BY THE SQUAD)

Note: All group members are responsible for the content of the group report.

		Excellent	Good	Sufficient	Insufficient
OVERALL COMPETENCE OF DESIGNING	**Integration of Expertise Areas** *Project*	The group is able to apply and demonstrate the integration of all expertise areas to their design process and deliverables and convincingly explains how all expertise areas are considered in the designed system. Demonstrates integration of at least three expertise areas on an advanced level.	The group needs minor guidance to apply and demonstrate the integration of all expertise areas to their design process and deliverables and is able to convincingly explain how these areas are considered and addressed. Demonstrates integration of at least two expertise area on an advanced level.	The group needs guidance to apply and demonstrate the integration of at least four expertise areas to their design process and deliverables and is able to convincingly explain how these areas are considered and addressed. Demonstrates integration of at least one expertise area on an advanced level.	There is too little evidence that the group can apply and demonstrate the integration of at least four expertise areas to their design process and deliverables and cannot convincingly explain how these areas are considered and addressed. The group is not able to demonstrate the integration of at least one expertise area on an advanced level.
	Design and Research Processes	The group manages the design process for a complex real-life challenge, chooses the appropriate methods and tools to conduct design research activities. All elements of the design (research) methodology are appropriately and critically developed.	The group manages the design process for a real-life challenge but needs guidance to choose the appropriate methods and tools to conduct design research activities. Critical elements of the methodology or theoretical framework are appropriately developed and understood.	The group manages the design process for a real-life challenge but needs guidance to choose the appropriate methods and tools to conduct design research activities. Is aware of underlying knowledge and the methodology is recognizable.	The group is unable to manage the design process for a real-life challenge without guidance. The group does not choose the appropriate methods and tools when conducting design (research) activities. The approach demonstrates a misunderstanding of the methodology or theoretical framework.

		Excellent	Good	Sufficient	Insufficient
	Demonstrator	There is appreciation from external experts for at least one of three aspects: • Well-engineered; • Fully experiential; or • With high communication potential (museum-quality)	• Well-engineered; • Fully experiential; or • With high communication potential (museum-quality)	The group develops a robust prototype that features (part of) an intelligent system; and/or provides a clear experience (of a service) for the considered stakeholders.	The group does not develop a robust prototype that features (part of) an intelligent system; and/or does not provide a clear experience (of a service) for the considered stakeholders.
SCIENTIFIC & PROFESSIONAL SKILLS	**Presenting**	At least one of the areas: • Attractive and enjoying impressive presentation that can get commitment from stakeholders or audience; • Can direct attention and interest of audience; or • Personal and innovative presentation style.	The group tells a convincing story targeted at a professional audience and directs the structure and content of the presentation.	The group tells a convincing story and directs structure and content of the presentation.	The group does not tell a convincing story targeted at a professional audience and/or direct structure and content of the presentation.
	Reporting and Dealing with Scientific Information	The group draws a clear and professional picture of the design challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly. There is external evidence (investor support, company feedback or reviewer comments) for at least one of the three aspects: • The financial viability of a business plan; • The product being taken further by a company; • The ability to publish the design research results.	The group draws a clear and professional picture of the design challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly. The coach and examiner could argue for: • The financial viability of a business plan; • The product being taken further by a company; • The ability to publish the design research results.	The group draws a clear and professional picture of the design challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly.	The group does not draw a clear and professional picture of the design challenge; and/or provides an unclear description of different perspectives and potential approaches; does not argument choices that have been made or provides illogical or inadequate arguments. Uses references to external sources incorrectly.

ASSESSMENT RUBRICS

MASTER PROJECT 1 DESIGN (INDIVIDUAL)

BASED ON INDIVIDUAL REFLECTION

		Excellent	Good	Sufficient	Insufficient
SCIENTIFIC & PROFESSIONAL SKILLS	**Organizing and Planning**	Manages the process of making, performing and redirecting the planning, organizing work and undertaking action if needed.	Individually makes, performs and redirects their planning, organizes their work and undertakes action if needed.	Needs minor guidance to make, perform and redirect their planning. Needs minor guidance to organize their work and to undertake action if needed.	Needs guidance to make, perform and redirect their planning. Needs guidance to organize their work and to undertake action if needed.
	Reflecting	The student writes a very clear and structured reflection. The description, analysis, and evaluation of [important topics] are included. Missed opportunities for learning are included as well. The reflection demonstrates insight and leads to the right intentions for learning that logically follow from the analysis and evaluation. The reflections are in-depth and expresses a critical attitude. There are hardly opportunities missed for more in-depth reflection or being (more) critical. The student presents evidence for all relevant statements (including pictures).	The student writes a very clear and structured reflection. The description, analysis, and evaluation of [important topics] are included. Missed opportunities for learning are included as well. The reflection demonstrates insight and leads to the right intentions for learning that logically follow from the analysis and evaluation. The reflections are deep but could have been more in-depth. In general, the reflection expresses a critical attitude but some opportunities for being critical are missed. The student presents sufficient evidence for their statements (including pictures).	The student writes a clear and structured reflection. The description, analysis, and evaluation of [important topics] are included. Missed opportunities for learning are included as well. The reflection demonstrates insight in the fore-mentioned topics and leads to intentions for learning that logically follow from the analysis and evaluation. The reflections though are now and then superficial and could have been deeper and more critical and statements should be evidenced more.	The student writes a reflection that lacks clarity and structure. The description, analysis, and evaluation of the [important topics] are lacking, too limit or too superficial. The reflection demonstrates too little insight in the fore-mentioned topics and leads to intentions for learning that do not always follow from the analysis and evaluation.

Additional criteria may be added to the topics and level descriptions of each criterion can be adjusted or changed.

		Excellent	Good	Sufficient	Insufficient
	Cooperating	Constructive atmosphere in the group, members share ideas and collaboration advances the work of the group. Group members bring-out the best in each other. Constructive collaboration external stakeholders/third parties and manages the interests and expectations of them in the deliverables and process.	Constructive atmosphere in the group, members share ideas and suggestions, and collaboration advances the quality of the work. Individual members do not build upon each other's knowledge and skills. Constructive collaboration with external stakeholders/third parties.	Constructive atmosphere in the group, members share ideas and suggestions. Quality of deliverables is a product of the contribution of individual group members. Collaboration did not advance the quality of the work. Collaboration with external stakeholders/third parties.	No constructive atmosphere in the group and collaboration does not help the team move forward. No collaboration with external stakeholders/third parties.
PROFESSIONAL IDENTITY & VISION	**Professional Identity**	Understands its importance and uses the student's PI to steer their work and career. Continuously develops their PI. Defines who the student is as a designer. Knows their strengths and weaknesses. Describes how their beliefs, norms and values influence the student's design activities. Connects their PI to their vision, to personal development-and project goals for this project. Has a corresponding visual language. Demonstrates (the development of) the student's PI through the project.	Understands its importance and uses the student's their PI to steer their work and career. Continuously develops their PI. Defines who the student is as a designer. Knows their strengths and weaknesses. Describes how their beliefs, norms and values influence the student's design activities. Connects their PI to their vision and to personal development and project goals. Has a corresponding visual language.	Needs minor guidance to understand its importance and to use the student's PI to steer their work and career. Needs minor guidance to develop their PI; to define who the student is as a designer; to know their strengths and weaknesses. Needs minor guidance to describe how their beliefs, norms and values influence the student's design activities and to connect their PI to their vision and to personal development and project goals. Needs minor guidance to develop a visual language.	Needs guidance to understand its importance and to use their PI to steer her work and career. Needs guidance to develop their PI; to define who the student is as a designer; to know their strengths and weaknesses. Needs guidance to describe how the student's beliefs, norms and values influence the student's design activities and to connect their PI to their vision and to personal development and project goals. Needs guidance to develop a visual language.

		Excellent	Good	Sufficient	Insufficient
	Vision	Is able to explain their vision by being critical on existing visions, trends in design and supports their vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes. Convincingly relates the project to (the development of) their vision.	Elaborates on their vision, by being critical on existing visions, trends in design and supports their vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes. There are clear and regular connections between vision and design activities.	Needs minor guidance to elaborate on their vision, to be critical on existing visions, trends in design and needs minor guidance in supporting their vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes. Needs minor guidance in connecting vision and design activities.	Needs guidance to elaborate on their vision, to be critical on existing visions, trends in design and needs guidance in supporting their vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes. Needs guidance in connecting vision and design activities. Furthermore, the student needs guidance to explain how their vision can be brought to reality and which points of action can be made to do so or to explain how the actualization of the student's vision can have an impact on a societal level and/or generate new knowledge.
COMPETENCE DEVELOPMENT	**Integration of Expertise Areas** *In the Competence Profile of the student*	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/extracurricular activities or showcase and demonstrates awareness of the academic state-of-the-art in at least two areas.	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/ extracurricular activities or portfolio and demonstrates in-depth knowledge in at least two areas.	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/ extracurricular activities and demonstrates in-depth knowledge in at least one area.	Can describe the expertise areas separately, is aware of connections between the expertise areas and is able to explain the connections either in reflection on project/courses/ extracurricular activities or portfolio.

ASSESSMENT RUBRICS

MASTER PROJECT 2 DESIGN RESEARCH

BASED ON PROJECT WORK, PRESENTATION ON DEMO DAY, DESIGN RESEARCH REPORT, REFLECTION

		Excellent	Good	Sufficient	Insufficient
OVERALL COMPETENCE OF DESIGNING	**Integration of Expertise Areas** *Project*	Are able to apply and demonstrate the integration of all expertise areas to their design research process and deliverables and to argue how their deliverables contribute (new) knowledge to/confirm knowledge of at least one expertise area.	Need minor guidance to apply and demonstrate the integration of all expertise areas to their design research process and deliverables .and to convincingly explain how these areas are considered and addressed. Demonstrates advanced level of integration of the expertise areas.	Need guidance to apply and demonstrate the integration of at least four expertise areas to their design research process and deliverables and to argue how their deliverables contribute (new) knowledge to/confirm knowledge of at least one expertise area.	There is too little evidence that the student can apply and demonstrate the integration of at least four expertise areas to their design research process and deliverables and is able to argue how and their deliverables contribute/confirm (new) knowledge to/of at least one expertise area.
	Design and Research Processes	Individually manages the design research process for a complex real-life challenge, individually chooses the appropriate methods and tools to conduct design research activities. All elements of the design (research) methodology are appropriately and critically developed.	Manages the design research process for a real-life challenge but needs guidance to choose the appropriate methods and tools to conduct design research activities. Critical elements of the methodology or theoretical framework are appropriately developed and understood.	Manages the design research process for a real-life challenge but needs guidance to choose the appropriate methods and tools to conduct design research activities. Is aware of underlying knowledge and the methodology is recognizable.	Needs guidance to manage the design research process for a real-life challenge and the student does not choose the appropriate methods and tools when conducting design (research) activities. Approach demonstrates a misunderstanding of the methodology or theoretical framework.
	Demonstrator	The demo or research prototypes were especially crafted for their specific purpose and roles in the acquisition of knowledge or the creation of value and the prototype(s) make a strong contribution in itself, according to external experts/reviewers.	The demo or research prototypes were especially crafted for their specific purpose and roles in the acquisition of knowledge or the creation of value and the prototype(s) make a strong contribution in itself.	The demo or research prototypes were especially crafted for their specific purpose and roles in the acquisition of knowledge or the creation of value.	The demo or research prototypes were not especially crafted for their specific purpose and roles in the acquisition of knowledge or creation of value.

Additional criteria may be added to the topics and level descriptions of each criterion can be adjusted or changed.

		Excellent	Good	Sufficient	Insufficient
SCIENTIFIC & PROFESSIONAL SKILLS	**Presenting**	At least two of the areas: • Attractive and enjoying impressive presentation that can get commitment from stakeholders or audience; • Can direct attention and interest of audience; or • Personal and innovative presentation style.	At least one of the areas: • Attractive and enjoying impressive presentation that can get commitment from stakeholders or audience; • Can direct attention and interest of audience; or • Personal and innovative presentation style.	Tells a convincing story targeted at a professional audience and directs structure and content of the presentation.	Does not tell a convincing story targeted at a professional audience and/or direct structure and content of the presentation.
	Reporting and Dealing with Scientific Information	Independently draws a clear and professional picture of the design (research) challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly. There is external evidence (investor support, company feedback or reviewer comments) for at least one of the three aspects: • The financial viability of a business plan; • The product being taken further by a company; • The ability to publish the design research results.	Independently draws a clear and professional picture of the design (research) challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly. The coach and examiner could argue for: • The financial viability of a business plan; • The product being taken further by a company; • The ability to publish the design research results.	Independently draws a clear and professional picture of the design (research) challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly.	The student does not draw a clear and professional picture of the design challenge; and/or provides an unclear description of different perspectives and potential approaches; does not argument choices that have been made or provides illogical or inadequate arguments. Uses references to external sources incorrectly.
	Organizing and Planning	Manages the process of making, performing and redirecting the planning, organizing work and undertaking action if needed. Challenges experts with substantiated arguments.	Manages the process of making, performing and redirecting the planning, organizing work and undertaking action if needed.	Individually makes, performs and redirects their planning, organizes their work and undertakes action if needed.	Needs guidance to make, perform and redirect their planning, organize their work and undertake action if needed.

		Excellent	Good	Sufficient	Insufficient
	Reflecting	Individually and continuously organizes future learning (as described in the student's PDP) and consistently relates their choices of learning activities and work activities to the student's professional identity and vision.	Individually organizes future learning (as described in the student's PDP) and consistently relates their choices of learning activities and work activities to the student's professional identity and vision.	The student organizes future learning (as described in the student's PDP) and relates their choices of learning activities and work activities to their professional identity and vision.	Needs guidance to organize future learning (as described in the student's PDP) and relate their choices of learning activities and work activities to their professional identity and vision.
	Cooperating	Constructive atmosphere in the collaboration. The student is able to demonstrate and convincingly explain the value of the collaboration with third parties/stakeholders (e.g. users/participants, clients) and manages the interests and expectations of them in the deliverables and process.	Constructive atmosphere in the collaboration. The student is able to demonstrate the value of the collaboration with third parties/stakeholders (e.g. users/participants, clients) and manages the interests and expectations of them in the deliverables and process.	Constructive atmosphere in the collaboration. The student is able to apply the knowledge and skills of third parties/stakeholders (e.g. users/participants, clients) and manages the interests and expectations of them in the process.	There is no constructive atmosphere in the collaboration with third parties/stakeholders (e.g. users/participants, clients). The student is not able to apply the knowledge and skills of third parties/stakeholders in the deliverables and process. The student is not able to manage the interests and expectations of third parties/stakeholders.
PROFESSIONAL IDENTITY & VISION	**Professional Identity**	Understands its importance and uses their PI to steer their work and career. Continuously develops their PI. Defines who the student is as a designer. Knows their strengths and weaknesses. Describes how the student's beliefs, norms and values influence the student's design activities. Connects their PI to their vision, to personal development- and project goals for this project, as well as to the preparation for the Final Master Project, graduation and/or career. Has a corresponding visual language. Demonstrates (the development of) the student's PI through the project.	Understands its importance and uses their PI to steer their work and career. Defines who the student is as a designer. Knows their strengths and weaknesses. Describes how the student's beliefs, norms and values influence the student's design activities. Connects their PI to their vision, to personal development- and project goals for this project, as well as to the preparation for the Final Master Project, graduation and/or career. Has a corresponding visual language.	Understands its importance and uses their PI to steer their work and career. Continuously develops their PI. Defines who the student is as a designer. Knows their strengths and weaknesses. Describes how the student's beliefs, norms and values influence the student's design activities. Connects their PI to their vision and to personal development and project goals. Has a corresponding visual language.	Needs guidance to understand its importance and does not use their PI to steer their work and career. Needs guidance to develop their PI; to define who the student is as a designer; to know their strengths and weaknesses. Needs guidance to describe how the student's beliefs, norms and values influence the student's design activities and to connect their PI to their vision and to personal development and project goals. Has not developed a visual language.

		Excellent	Good	Sufficient	Insufficient
	Vision	Convincingly explains their vision by being critical on existing visions, trends in design and supports the student's vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes. Convincingly relates the project and other (design) activities to (the development of) the student's vision.	Is able to explain their vision by being critical on existing visions, trends in design and supports the student's vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes. Convincingly relates the project to (the development of) the student's vision.	Elaborates on their vision, by being critical on existing visions, trends in design and supports the student's vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes. There are clear and regular connections between vision and design activities.	Needs guidance to elaborate on their vision, is not critical on existing visions, trends in design. Needs guidance in supporting the student's vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes. Does not connect vision and design activities.
COMPETENCE DEVELOPMENT	**Integration of Expertise Areas** *In the Competence Profile of the student*	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/extracurricular activities or showcase and demonstrates awareness of the academic state-of-the-art in at least three areas.	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/extracurricular activities or showcase and demonstrates awareness of the academic state-of-the-art in at least two areas.	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/ extracurricular activities or portfolio and demonstrates in-depth knowledge in at least two areas.	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/ extracurricular activities and demonstrates in-depth knowledge in at least one area.

ASSESSMENT RUBRICS

PREPARATION FMP (applicable to students started in or after September 2021)

■ DFPM210 PREPARATION FMP (FE) ■ DSPM210 PREPARATION FMP (SC)

BASED ON PROJECT WORK, PRESENTATION ON DEMO DAY, (INTERIM) REPORT ON ACTIVITIES, REFLECTION, AND PRESENTATION/ORAL EXAM

Criteria	Topic	Standards			
OVERALL COMPETENCE OF DESIGNING	**Integration of Expertise Areas** *Project*	Excellent	Good	Sufficient	Insufficient
	Design and Research Processes	Excellent	Good	Sufficient	Insufficient
	Demonstrator	Excellent	Good	Sufficient	Insufficient
SCIENTIFIC & PROFESSIONAL SKILLS	**Presenting**	Excellent	Good	Sufficient	Insufficient
	Reporting and Dealing with Scientific Information	Excellent	Good	Sufficient	Insufficient
	Organizing and Planning	Excellent	Good	Sufficient	Insufficient
	Reflecting	Excellent	Good	Sufficient	Insufficient
	Cooperating	Excellent	Good	Sufficient	Insufficient
PROFESSIONAL IDENTITY & VISION	**Professional Identity (PI)**	Excellent	Good	Sufficient	Insufficient
	Vision	Excellent	Good	Sufficient	Insufficient
COMPETENCE DEVELOPMENT	**Integration of Expertise Areas** *In the Competence Profile of the student*	Excellent	Good	Sufficient	Insufficient

Click here to go back to the Index ↑

DFPM210 PREPARATION FMP (FE) ■ DSPM210 PREPARATION FMP (SC)

BASED ON FMP PROPOSAL, PLANNING, AND PRESENTATION/ORAL EXAM

Criteria	Topic	Standards	
FMP PROPOSAL	Is this topic suitable for an fmp at id? I.e. does it match with the department's mission and the program's intended learning outcomes?	Yes	No
	Is the student a suitable candidate to conduct this project? Does it connect to their professional identity and vision, and are there sufficient opportunities for competence development (both to develop expertise and to address potential weaknesses to achieve the end-terms).	Yes	No
	Is the proposed project feasible? Is the proposed project feasible within one* or two** semester(s) (based on experience, planning and outcomes first iteration(s).	Yes	No
	Can the student communicate it clearly and consistently in wording and in writing?	Yes	No

* In case the student chooses to do a separate project during the M21 semester and starts with the topic of the FMP in the M22 semester.
** In case the student chooses to start with the topic of the FMP during the M21 semester and continues in the M22 semester with the same topic.

ASSESSMENT RUBRICS

FMP PROPOSAL

D*M200 FMP PROPOSAL

BASED ON FMP PROPOSAL, PLANNING, AND PRESENTATION/ORAL EXAM

Criteria	Standards	
IS THIS TOPIC SUITABLE FOR AN FMP AT ID? I.E. DOES IT MATCH WITH THE DEPARTMENT'S MISSION AND THE PROGRAM'S INTENDED LEARNING OUTCOMES?	Yes	No
IS THE STUDENT A SUITABLE CANDIDATE TO CONDUCT THIS PROJECT? DOES IT CONNECT TO THEIR PROFESSIONAL IDENTITY AND VISION, AND ARE THERE SUFFICIENT OPPORTUNITIES FOR COMPETENCE DEVELOPMENT (BOTH TO DEVELOP EXPERTISE AND TO ADDRESS POTENTIAL WEAKNESSES TO ACHIEVE THE END-TERMS).	Yes	No
IS THE PROPOSED PROJECT FEASIBLE? IS THE PROPOSED PROJECT FEASIBLE WITHIN ONE* OR TWO** SEMESTER(S) (BASED ON EXPERIENCE, PLANNING AND OUTCOMES FIRST ITERATION(S).	Yes	No
CAN THE STUDENT COMMUNICATE IT CLEARLY AND CONSISTENTLY IN WORDING AND IN WRITING?	Yes	No

* In case the student chooses to do a separate project during the M21 semester and starts with the FMP (30 ECTS) in the M22 semester.

** In case the student chooses to start with the FMP (30 + 15 ECTS) during the M21 semester and continues in the M22 semester with the same project.

ASSESSMENT RUBRICS

M21 OPTION (applicable to students who started between Sept 2018 and Sept 2021)

PROJECT D*M215 PROJECT AT DEPARTMENT OF INDUSTRIAL DESIGN ■ DPM215 PROJECT AT COMPANY IN THE NETHERLANDS ■ DPM410 PROJECT AT COMPANY ABROAD ■ DPM420 PROJECT AT UNIVERSITY/RESEARCH INSTITUTE ABROAD

BASED ON PROJECT WORK, PRESENTATION ON DEMO DAY, (INTERIM) REPORT ON ACTIVITIES, REFLECTION, AND PRESENTATION/ORAL EXAM

Criteria	Topic	Standards			
OVERALL COMPETENCE OF DESIGNING	**Integration of Expertise Areas** *Project*	Excellent	Good	Sufficient	Insufficient
	Design and Research Processes	Excellent	Good	Sufficient	Insufficient
	Demonstrator	Excellent	Good	Sufficient	Insufficient
SCIENTIFIC & PROFESSIONAL SKILLS	**Presenting**	Excellent	Good	Sufficient	Insufficient
	Reporting and Dealing with Scientific Information	Excellent	Good	Sufficient	Insufficient
	Organizing and Planning	Excellent	Good	Sufficient	Insufficient
	Reflecting	Excellent	Good	Sufficient	Insufficient
	Cooperating	Excellent	Good	Sufficient	Insufficient
PROFESSIONAL IDENTITY & VISION	**Professional Identity (PI)**	Excellent	Good	Sufficient	Insufficient
	Vision	Excellent	Good	Sufficient	Insufficient
COMPETENCE DEVELOPMENT	**Integration of Expertise Areas** *In the Competence Profile of the student*	Excellent	Good	Sufficient	Insufficient

Note: Given the diversity in options there is no one-size-fits all rubric. The assessment of M21 is based on the development towards the Final Master Project. Examiners should score the rubrics in relation to the end terms of the master program, which can be used as a reference to check if the student is on track in their development during the M21 semester.
Written feedback can be provided to support the student in their (further) development.

ASSESSMENT RUBRICS

FINAL MASTER PROJECT

BASED ON PROJECT WORK, PRESENTATION ON DEMO DAY, DESIGN RESEARCH REPORT, PORTFOLIO, AND PRESENTATION/ORAL EXAM

		Excellent	Good	Sufficient	Insufficient
OVERALL COMPETENCE OF DESIGNING	**Integration of Expertise Areas** *Project*	Convincingly demonstrates how knowledge and skills from all expertise areas were considered in the designed system and convincingly explains how all expertise areas are considered in the designed system. Demonstrates advanced level of integration of all areas. Connects integration of expertise areas to professional identity and vision.	Convincingly demonstrates how knowledge and skills from all expertise areas were considered in the designed system and convincingly explains how all expertise areas are considered in the designed system. Demonstrates advanced level of integration of three or four areas. Connects integration of expertise areas to professional identity and vision.	Convincingly demonstrates how knowledge and skills from all expertise areas were considered in the designed system and convincingly explains how all expertise areas are considered in the designed system. Demonstrates advanced level of integration of at least two expertise areas.	The student does not demonstrate how knowledge and skills from all expertise areas were considered in the designed system and/or does not explain how all expertise areas are considered in the designed system.
	Design & Research Processes	Individually manages the design process for a complex real-life challenge, individually chooses the appropriate methods and tools to conduct design research activities. All elements of the design (research) methodology are appropriately and critically developed.	Manages the design process for a real-life challenge but needs guidance to choose the appropriate methods and tools to conduct design research activities. Critical elements of the methodology or theoretical framework are appropriately developed and understood.	Manages the design process for a real-life challenge but needs guidance to choose the appropriate methods and tools to conduct design research activities. Is aware of underlying knowledge and the methodology is recognizable.	Needs guidance to manage the design process for a real-life challenge and the student does not choose the appropriate methods and tools when conducting design (research) activities. Approach demonstrates a misunderstanding of the methodology or theoretical framework.
	Demonstrator	There is appreciation from external experts for at least one of three aspects: • Well-engineered; • Fully experiential; • or With high communication potential (museum-quality).	• Well-engineered; • Fully experiential; • or With high communication potential (museum-quality).	Develops a robust prototype that features (part of) an intelligent system; and/or provides a clear experience (of a service) for the considered stakeholders.	Does not develop a robust prototype that features (part of) an intelligent system; and/or does not provide a clear experience (of a service) for the considered stakeholders.

Examination Moment: The topics, criteria for each topic and the level descriptions for each criterion are fixed.

		Excellent	Good	Sufficient	Insufficient
SCIENTIFIC & PROFESSIONAL SKILLS	**Presenting**	At least two of the areas: • Attractive and enjoying: impressive presentation that can get commitment from stakeholders or audience; • Can direct attention and interest of audience; or • Personal and innovative presentation style.	At least one of the areas: • Attractive and enjoying: impressive presentation that can get commitment from stakeholders or audience; • Can direct attention and interest of audience; or • Personal and innovative presentation style.	Tells a convincing story targeted at a professional audience and directs structure and content of the presentation.	Does not tell a convincing story targeted at a professional audience and/ or direct structure and content of the presentation.
	Reporting and Dealing with Scientific Information	Independently draws a clear and professional picture of the design (research) challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly. There is external evidence (investor support, company feedback or reviewer comments) for at least one of the three aspects: • The financial viability of a business plan; • The product being taken further by a company; • The ability to publish the design research results.	Independently draws a clear and professional picture of the design (research) challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly. The coach and examiner could argue for: • The financial viability of a business plan; • The product being taken further by a company; • The ability to publish the design research results.	Independently draws a clear and professional picture of the design (research) challenge. Provides a clear description of different perspectives and potential approaches. Arguments choices that have been made. Uses references to external sources correctly.	The student does not draw a clear and professional picture of the design challenge; and/or provides an unclear description of different perspectives and potential approaches; does not argument choices that have been made or provides illogical or inadequate arguments. Uses references to external sources incorrectly.

		Excellent	Good	Sufficient	Insufficient
	Organizing and planning	Manages the process of making, performing and redirecting the planning, organizing work and undertaking action if needed. Critically challenges experts with substantiated arguments.	Manages the process of making, performing and redirecting the planning, organizing work and undertaking action if needed.	Individually makes, performs and redirects their planning, organizes their work and undertakes action if needed.	Needs guidance to make, perform and redirect their planning, organize their work and undertake action if needed.
	Reflecting	Individually and continuously organizes future learning (as described in the student's PDP) and consistently relates their choices of learning activities and work activities to the student's professional identity and vision. Demonstrates a clear and realistic career plan.	Individually and continuously organizes future learning (as described in the student's PDP) and consistently relates their choices of learning activities and work activities to the student's professional identity and vision.	Individually organizes future learning (as described in the student's PDP) and consistently relates their choices of learning activities and work activities to the student's professional identity and vision.	Needs guidance to organize future learning (as described in the student's PDP) and consistently relate their choices of learning activities and work activities to their professional identity and vision.
	Cooperating	Constructive atmosphere in the collaboration. The student is able to demonstrate and convincingly explain the value of the collaboration with the client(s)/third parties and manages the interests and expectations of them in the deliverables and process.	Constructive atmosphere in the collaboration. The student is able to demonstrate the value of the collaboration with the client(s)/third parties and manages the interests and expectations of them in the deliverables and process.	Constructive atmosphere in the collaboration. The student is able to apply the knowledge and skills of the client(s)/third parties and manages the interests and expectations of them in the process.	There is no constructive atmosphere in the collaboration with client and/or third parties (e.g. experts, stakeholders). The student is not able to apply the knowledge and skills of the client/third parties in the deliverables and process. The student is not able to manage the interests and expectations of the client(s)/third parties.

Examination Moment: The topics, criteria for each topic and the level descriptions for each criterion are fixed.

		Excellent	Good	Sufficient	Insufficient
PROFESSIONAL IDENTITY & VISION	**Professional Identity (PI)**	Understands its importance and uses their PI to steer their work and career. Continuously develops their PI. Defines who the student is as a designer. Knows their strengths and weaknesses. Describes how the student's beliefs, norms and values influence the student's design activities. Connects their PI to their vision and to personal development and project goals. Has a corresponding visual language. Demonstrates a clear career path that fits the student's PI and is able to explain it clearly. Has created a market position that fits the student's PI. There is a clear match between the student's PI, vision and the market.	Understands its importance and uses their PI to steer their work and career. Continuously develops the student's their PI. Defines who the student is as a designer. Knows their strengths and weaknesses. Describes how the student's beliefs, norms and values influence the student's design activities. Connects their PI to their vision and to personal development and project goals. Has a corresponding visual language. Demonstrates a clear career path that fits the student's PI and is able to explain it clearly.	Understands its importance and uses their PI to steer their work and career. Continuously develops the student's their PI. Defines who the student is as a designer. Knows their strengths and weaknesses. Describes how the student's beliefs, norms and values influence the student's design activities. Connects their PI to their vision and to personal development and project goals. Has a corresponding visual language.	There is too little evidence that the student understands its importance and uses their PI to steer their work and career. Furthermore, there is no evidence that the student continuously develops their PI. The student does not define who they are as a designer and/or does not demonstrate knowledge of their strengths and weaknesses and/or does not describes how their beliefs, norms and values influence their design activities. The link between the student's PI, the student's vision, the student's personal development, and project goals are lacking or unclear and illogical and/or has no corresponding visual language.
	Vision	Formulates a clear, specific and personal vision. The vision is consistently communicated through attitude, work and other forms of communication.	Explains how their vision can be brought to reality and which points of action can be made to do so, explains how the actualization of their vision could have an impact on a societal level and/or could generate new knowledge. There are clear and regular connections between their vision and design activities.	Elaborates on their vision, by being critical on existing visions, trends in design and supports their vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes.	Is unable or needs guidance to elaborate on their vision by being critical on existing visions and trends in design. Does not supports their vision by bringing arguments, which are reflected in history and in societal contexts, combined with personal experiences and believes.

Examination Moment: The topics, criteria for each topic and the level descriptions for each criterion are fixed.

		Excellent	Good	Sufficient	Insufficient
COMPETENCE DEVELOPMENT	**Integration of Expertise Areas** *In the Competence Profile of the student*	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/extracurricular activities or showcase and demonstrates awareness of the academic state of the art in at least four areas	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/extracurricular activities or showcase and demonstrates awareness of the academic state-of-the-art in at least three areas.	Can describe the expertise areas separately, is aware of connections between the expertise areas, is able to explain the connections either in reflection on project/courses/extracurricular activities or showcase and demonstrates awareness of the academic state-of-the-art in at least two areas.	There is too little evidence that the student can describe the expertise areas separately, and/or is not aware of connections between the expertise areas, and/or is unable to explain the connections either in reflection on project/courses/extracurricular activities or showcase and does not demonstrates in-depth knowledge in at least two areas.

EXPERTISE AREA RUBRICS

BACHELOR YEAR 1

		Excellent	Good	Sufficient	Insufficient
BUSINESS & ENTREPENEURSHIP	**Creating propositions integrating design skills, user insights and technology**	Can describe surprising/creative value propositions based using existing processes, methods or tools.	Can describe evident value propositions based using existing processes, methods or tools.	Can describe value propositions based on existing knowledge.	Cannot describe the customer or market value of the design (concept).
	Conducting market analysis and identify competition	Proposes a coherent market/competitor analysis for the design (concepts) based through personal investigation while using existing processes, methods or tools.	Develops a market/competitor benchmark for the design (concepts) by using existing processes, methods or tools.	Proposes a market/competitor benchmark for the design (concepts) based on existing knowledge.	Is unaware of related systems, products or services or of possible competition.
	Entrepreneurial attitude (opportunity spotting)	*[as defined under good]* + pursues opportunities beyond readily available resources.	Creative, ingenuous, pro-active and motivated to develop something new, useful, and better than what currently exists.	Reserved, sees (valid) problems and only limited opportunities, is reluctant to take action.	Naïve, does neither see problems nor opportunities. If action is taken it lacks foundation/motivation.

		Excellent	Good	Sufficient	Insufficient
CREATIVITY & AESTHETICS	**Using techniques and methodology (idea generation, creativity techniques and use of 1st, 2nd, and 3rd person perspective)**	*[as defined under good]* + expresses doubts and actively seeks for better understanding.	Describes and uses creativity techniques. Made considerate use of different creativity techniques. Has systematically generated, selected and/or refined ideas.	Describes and uses creativity techniques and has systematically wrestled with generating, selecting and/or refining ideas.	Does not use, describe or provides limited description of creativity techniques. Took one idea and went with it or has plenty of ideas but goes nowhere.
	Expressing quality in form, interaction, etc. (trusting the senses, critical attitude towards aesthetics)	*[as defined under good]* + a certain sparkle (ex. integrated feel, believable solution, thorough conceptual narrative).	*[as defined under sufficient]* + there is not more than one disappointing feature.	There is at least one aspect that is impressive (e.g. quality of finish, sheer size, quality of sound, quality of touch).	There are too many disappointing features and no impressive features (e.g. quality of finish, sheer size, quality of sound, quality of touch).
	Positioning or benchmarking in an academic or historical perspective and using them as sources of inspiration	*[as defined under good]* + stranger and strong story of inspiration.	Clear benchmark some historical perspective clear story of inspiration.	Some benchmarking and historical perspective.	No benchmarking.
	Approaching the creative process (active decision-taking, reflecting in/on action, balancing intuition and knowledge driven and design narrative)	Balanced and thorough (rationale convincing), good non-linear (iterative) process, multiple threads, agency.	Balanced (rationale convincing) good non-linear (iterative) process, multiple threads.	Some intuition, some based on sourced but not completely balanced (rationale presented). Linear, deeper process (multiple threads).	Random, no rationale, a linear, shallow process.

		Excellent	Good	Sufficient	Insufficient
MATH, DATA & COMPUTING	**Using mathematics and computing theory in design applications**	Flawlessly and inspirationally applies more than one tool and theory in design applications	Applies more than one tool and theory in design applications	Applies at least one tool and theory in design applications	Is unable to or does not act as defined under sufficient.
	Using computer science as a means to create software	Is able to create and document software to a level where it can be understood by others, under guidance.	Is able to create robust software, documentation requires knowledge transfer.	Is able to create software which works with minor flaws, documentation is incomplete.	Software has major flaws, no documentation.
	Using computer science as a means to handle data	Is able to generate datasets (acquisition, analytics and representation) that can be used within their own project.	Understands, uses and translates existing/generated datasets (acquisition, analytics or representation).	Understands existing/generated datasets (acquisition, analytics or representation) in their own project.	Is unable to deal with data, despite it being generated or available.
	Attitude	Can create code/data also in context demonstrating a basic understanding of underlying principles.	Can modify existing code/data also in other contexts demonstrating a basic understanding of underlying principles.	Can use existing code/data also in other contexts demonstrating a basic understanding of underlying principles.	"Cutting and Pasting" without any underlying understanding of principles involved.

		Excellent	Good	Sufficient	Insufficient
TECHNOLOGY & REALIZATION	**Communicating scientifically with other engineering disciplines understanding and using specifications and datasheets, documentation of hard- and software, awareness of data science and AI**	Provides correct diagrams and uses units and dimensions.	Mostly correct notations, mostly correct diagrams.	Informal explanations, sketchy diagrams.	No scientific notations, no diagrams.
	Designing, exploring, visualizing, creating and demonstrating interactive systems through prototypes using sensors, actuators and computing theory.	Prototype with sensor(s), actuator(s) or connectivity, meaningful and working demo.	Prototype including at least one sensor, working demo.	Simple prototype, some technology, something works.	No prototypes, nothing works.
	Analysing the technical and economic feasibility and making informed judgments using the appropriate tools	Serious calculations, cost-estimates, meaningful deployment of calculus.	Correct calculations of cost or performance.	Informal analysis only.	No analysis.
	Processing information conscientiously	Attention to detail, orderly construction, no loose wires, structured programs.	Attention to detail.	Awareness of details.	Sloppy, messy, no documentation.

		Excellent	Good	Sufficient	Insufficient
USER & SOCIETY	**Approaching design from a user-centred perspective, using methodological collection and analysis of (quantitative and qualitative) data for the purpose of collecting user insights, trends and design evaluation/validation, able to change perspectives**	*[as defined under good]* + The argumentation is to the point.	Applies prescribed methods to a well-defined problem, provides a coherent description of the process, demonstrates insight by explaining the 'why' and understands limitations of the method.	Applies prescribed methods to a well-defined problem based on group efforts and is able to provide examples of how methods are applied.	Does not apply prescribed methods or is unable to describe how the method was applied.
	Having theoretical knowledge about user experience and interaction design (perceptual, cognitive, emotional and social as well as developmental aspects); context, culture and trends	*[as defined under good]* + The argumentation is to the point.	Applies prescribed theory/theoretical principles in a creative manner to well-defined problem. Provides a coherent description of the process, demonstrates insight by explaining the 'why' and knows limitations of the method.	Applies prescribed theory/theoretical principles with little creativity to well-defined problem based on group efforts and is able to provide examples of how the principles are applied.	Does not apply prescribed theory/theoretical principles or is unable to describe how the method was applied.
	Approaching design from a social-cultural context; having hands-on experience with and theoretical knowledge of areas related to societal and economic paradigms, social design, ethics and values	Seriously reflects on the ethical, social and cultural impact using substantiated arguments (e.g. addressing relevant literature).	Connects the ethical perspective and describes the social/cultural impact of design.	Awareness of the social-cultural context of the design.	Cannot describe the social-cultural context in which the design is envisioned.
	Being empathic, sensitive, respectful, ethical, understanding, curious	Coach does not need to direct the attention to the user and the socio-cultural context. Group takes initiative and proposes a method.	Understands the importance of attention for the user in the design process however the coach still needs to direct attention to the user and the socio-cultural context.	Is aware of the importance of attention for the user in the design process, direct attention to the user but coach actually needs to direct attention to the user and the socio-cultural context.	Does not use the advice of the coach and does not demonstrate awareness of the importance of attention for the user and the socio-cultural context in the design process.

BACHELOR YEAR 1

		Excellent	Good	Sufficient	Insufficient
DESIGN & RESEARCH PROCESSES	**Addressing a societal context for design or design research**	Successfully addresses a simple case (ill-defined challenge and difficult target group).	Successfully addresses a simple case (clearly defined challenge and difficult target group e.g. children in gym class or elderly in care home).	Successfully addresses a simple case (clearly defined challenge and accessible target group e.g. students at TU/e).	Is unable to design for a simple case.
	Addressing design challenges	Managed the design process by proposing an appropriate design approach based on an understanding of different design methodologies and takes design decisions based on awareness of systematic inquiry.	Has adjusted the suggested design process and can clearly motivate the decisions. These are supported with insights derived from (an attempt to) systematic inquiry.	Has conducted a pre-defined design process and is able to describe the process steps on a higher level of abstraction, e.g. by referring to the activities in the Reflective Transformative Design Process.	Is unable to follow a pre-defined design process and cannot identify the process steps.
	Gathering information continuously and framing the work in objective and subjective knowledge, existing designs and research, and perspectives	Critically selects different sources to support claims in the design process.	Uses scientific sources to support claims and decisions in the design process.	Uses web-based sources to support claims and decisions in the design process.	Does not use sources to support claims and decisions in the design process.
	Executing design process or research methodology (synthesis, analysis and validation	Follows a recognizable methodology.	Is aware of different methodologies and attempts to use them in the design process.	Follows the methodologies as proposed in the project.	Is unable to execute a pre-defined methodology.

Click here to go back to the Index ↑

		Excellent	Good	Sufficient	Insufficient
	Analysing and synthesizing	Chooses appropriate methods and tools for analysis/synthesis. Explicitly organizes/creates evidence.	Is aware of different methods and tools for analysis/synthesis and attempts to use them in the design process. Evidence is explicit.	Uses the offered methods and tools for analysis/synthesis in the design process. Most claims are supported by (some) evidence. Evidence is implicit.	Claims are not supported by evidence.
	Defining conclusions and claiming value	States surprising and relevant value claims from the design process/conclusions from the inquiry findings.	States appropriate value claims from the design process/conclusions from the inquiry findings.	States considered value claims from the design process/conclusions from the inquiry findings.	Is unable to define a conclusion or claim value.
	Using a demonstrator/prototype	*[as defined under good]* + prototypes were well-designed for their purpose.	Has validated the assumption using a demonstrator/prototype.	Has made a demonstrator/prototype to validate an assumption.	Does not have a demo/prototype or does not understand the relevance of a demo/prototype.
VISION	**Envisioning/transforming**	Has a vision and this is actively used in design activity.	Has a vision that is related to design activity.	Has a vision but this is not used as an instrument for design.	No awareness

EXPERTISE AREA RUBRICS

BACHELOR YEAR 3

		Excellent	Good	Sufficient	Insufficient
BUSINESS & ENTREPRENEURSHIP	**Creating propositions integrating design skills, user insights and technology**	Based on personal vision and professional identity, can individually create propositions that integrate design skills, user insights and technology. Executes a value creation process with multiple stakeholders that may have conflicting interests.	Can individually create a value proposition and execute a value creation process with a single stakeholder using the appropriate processes, methods and tools under guidance.	Can create a value proposition and execute a value creation process with a single stakeholder using the appropriate processes, methods and tools under guidance.	Is unable to describe their design as a proposition to users.
	Conducting market analysis and identify competition	Selects different methods and tools when conducting market analysis, identifying competitive advantages etc. to support design decision based on group efforts.	Describes and considers different methods and tools when conducting market analysis, identifying competitive advantages etc. to support design decisions based on group efforts.	Can describe methods and tools learned to conduct market analysis, to identify competitor advantages etc. to support design decisions.	Is unaware of market and competition in the design process.
	Identifying and handling risks as inherent part of the design process	Able to identify and handle risks pro-actively.	Able to handle risks during the process.	Can handle risks when identified by others.	Things go wrong unexpectedly; the process is out-of-control. Things "just happen".
	Entrepreneurial attitude	*[as defined under sufficient]* + inspires external stakeholders.	*[as defined under sufficient]* + takes external stakeholders along in process.	Creative, ingenuous, pro-active and motivated to develop something new, useful, and better than what currently exists. Pursues opportunities beyond readily available resources.	Reserved, sees problems and only limited opportunities, is reluctant to take action

		Excellent	Good	Sufficient	Insufficient
CREATIVITY & AESTHETICS	**Using techniques and methodology (idea generation, creativity techniques and use of 1st, 2nd, and 3rd person perspective)**	*[as defined under good]* + shows a fluency in adapting techniques, tools and methods to specific needs.	Individually chooses and uses multiple appropriate creativity techniques, tools and methods when generating, selecting and refining ideas.	Chooses and uses the appropriate creativity techniques, tools and methods when generating, selecting and refining ideas.	Does not describe/provides limited/description of creativity techniques. No use and/or inadequate use of creativity techniques. Demonstrates the tendencies take one idea and go with it or has plenty of Ideas but goes nowhere.
	Expressing quality in form, interaction, etc. (trusting the senses, critical attitude towards aesthetics)	Integrated feel, outstanding overall quality.	*[as defined under sufficient]* + outstanding aspects.	Integrated feel only, minor disappointing aspects.	No integrated feel and/or major flaws.
	Positioning or benchmarking in an academic or historical perspective and using them as sources of inspiration	*[as defined under good]* + thorough academic benchmark.	Thorough benchmark, positioning in historical perspective and simple academic benchmark.	Performs a benchmark (this is present market), demonstrates awareness of historical perspective and does academic benchmarking.	Is unable to or does not act as defined under sufficient.
	Approaching the creative process (active decision-taking, reflecting in/on action, balancing intuition and knowledge driven and design narrative)	*[as defined under good]* + thorough and agency.	*[as defined under sufficient]* + individual expression is clearly visible.	Balance between intuition and knowledge-driven. Narrative for exploration is present. Both a deep and broad exploration (horizontal and vertical) and iterations (non-linear).	Just intuitive or just informed decisions, no narrative, mechanical approach.

		Excellent	Good	Sufficient	Insufficient
MATH, DATA & COMPUTING	**Using mathematics and computing theory in design applications**	Flawlessly and inspirationally applies more than one tool and theory in design applications.	Applies more than one tool and theory in design applications.	Applies at least one tool and theory in design applications.	Does not use mathematics and computing theory in design applications.
	Using statistical theory in the design process.	Individually manages and leads the process of choosing the appropriate methods and tools when conducting a statistical analysis to support design decisions for simplified cases. Is able to generate datasets to a level where they can be used by others/successors.	Individually chooses the appropriate methods and tools when conducting a statistical method to support design decisions for simplified cases. Is able to generate datasets to a level where they can be understood by others.	Is able to generate datasets (acquisition, analytics and representation) that can be used within their own project.	Principles of data acquisition, analytics and representation are not understood to a level where they can be used within their own project.
	Computing skills	Is able to create and document software to a level where it can be used by others/successors.	Is able to create and document software to a level where it can be understood by others.	Is, under guidance, able to create and document software to a level where it can be understood by others.	Cannot communicate the structure of the software realized.
	Attitude	Considers software as a language to communicate their ideas.	Can use code/data also in context as a means to communicate underlying principles.	Can use code/data to document underlying principles.	"Cutting and Pasting" without any underlying understanding of principles involved.

		Excellent	Good	Sufficient	Insufficient
TECHNOLOGY & REALIZATION	**Software, Electrical and Mechanical Engineering**	Makes relevant calculations, provides correct diagrams uses units and dimensions; uses data sheets and demo states.	Makes relevant calculations, provides correct diagrams uses units and dimensions.	Provides correct diagrams and uses units and dimensions.	Informal explanations only, sketchy diagrams only.
	Realization of prototype	Impressive demo. Mechanically robust prototype with multiple sensors/ actuators or complex sensors/ actuators, adaptivity or learning or connectivity. Calculated mechanical construction and clearly considered and specified material.	Meaningful and working demo. Prototype with sensor(s), actuator(s) or connectivity. Motivated material choice and calculated mechanical construction.	Meaningful and working demo. Prototype with sensor(s), actuator(s) or connectivity. Careful software, electrical and mechanical construction and materialization.	Naive and/ or unreliable prototype.
	Feasibility of design	Serious calculations or simulations of complex, adaptive or intelligent aspects and mechanics or material costs. Performance algorithms. Calculated energy consumption.	Specifications supported by calculations or simulations of complex, adaptive or intelligent aspects or mechanics or material costs.	Serious specifications including calculations, cost-estimates and performance. Awareness of energy consumption.	No calculations and/ or informal analysis only.
	Processing information conscientiously	*[s defined under good]* + clear documentation and aware of imperfections in prototype.	*[as defined under sufficient]* + some documentation, some imperfections in the prototype (software, wiring, construction, material).	Attention to detail, structured software, careful wiring and construction, clear consideration of material.	Sloppy, messy, no documentation, nothing works.

		Excellent	Good	Sufficient	Insufficient
USER & SOCIETY	**Approaching design from a user-centred perspective, using methodological collection and analysis of (quantitative and qualitative) data for the purpose of collecting user insights, trends and design evaluation/validation, able to change perspectives**	*[as defined under good]* + for ill-defined problems or challenges.	*[as defined under sufficient]* + is able to analyse the problem or challenge, chooses and applies appropriate methods to problem that fit their purpose and/or combines existing methods for user-research.	Makes an adequate choice and/or applies methods correctly even for a well-defined problem or challenges and/or provides a coherent description of the process, demonstrates insight by explaining the 'why' and/or understands limitations of the method. The argumentation is to the point.	Is unable to or does not act as defined under sufficient.
	Having theoretical knowledge about user experience and interaction design (perceptual, cognitive, emotional and social as well as developmental aspects); context, culture and trends	*[as defined under good]* + for ill-defined problems or challenges.	*[as defined under sufficient]* + is able to analyse the problem or challenge, chooses and applies theoretical principles to problem that fit their purpose and/or combines existing methods for user-research.	Chooses and applies theoretical principles to well-defined problems or challenges and/or provides a coherent description of the process, demonstrates insight by explaining the 'why' and understands limitations of the method. The argumentation is to the point.	Is unable to or does not act as defined under sufficient.
	Being empathic, sensitive, respectful, ethical, understanding, curious	*[as defined under good]* + for ill-defined problems or challenges.	Takes initiative to direct attention to the user in their socio-cultural context and aims at creating value/meaningful designs.	Shows due respect for the user. Controlled application of guidelines.	Is unable to or does not act as defined under sufficient.
	Approaching design from a social-cultural context; having hands-on experience with and theoretical knowledge of areas related to societal and economic paradigms, social design, ethics and values	*[as defined under sufficient]* + correctly applies theoretical principles regarding societal and economic paradigms, social design, ethics and values in the design process.	*[as defined under sufficient]* + awareness of theoretical principles regarding societal and economic paradigms, social design, ethics and values in the design process.	Seriously reflects on the ethical, social and cultural impact using substantiated arguments (e.g. addressing relevant literature).	Does not connect the ethical perspective or describes the social/cultural impact of design.

BACHELOR YEAR 3

		Excellent	Good	Sufficient	Insufficient
DESIGN & RESEARCH PROCESSES	**Addressing a societal context for design or design research**	Successfully addresses a medium complex case (in a well-defined challenge but open societal context).	Successfully addresses a simplified case (ill-defined challenge and non-obvious target group).	Successfully addresses a simple case (ill-defined challenge and well-defined target group).	Is unable to or does not act as defined under sufficient.
	Addressing design and research challenges	Individually manages and leads the process identifying a creative, focused, and manageable topic that addresses potentially significant yet previously less explored aspects of design research.	Individually identifies a focused and manageable topic that appropriately addresses relevant aspects of the topic.	Needs guidance to identify a manageable/ doable topic for simplified cases. However, the topic is still too narrowly focused and leaves out relevant aspects of the topic.	Is unable to or does not act as defined under sufficient.
	Gathering information continuously and framing the work in objective and subjective knowledge, existing designs and research, and perspectives	Synthesizes in depth information from relevant sources to critically frame the design research/ approach for medium complex cases from various angles and perspectives.	Individually presents in depth information from relevant sources to frame the design research/ approach simplified cases from various angles and perspectives.	Needs guidance to present information from relevant sources that frames the design research/ approach for simplified cases, however from limited angles and perspectives.	Presents little to no information, or from irrelevant sources to properly frame the design research/ approach for simplified cases.

Click here to go back to the Index ↑

		Excellent	Good	Sufficient	Insufficient
	Executing design process or research methodology (synthesis, analysis and validation	Individually manages and leads the process choosing the appropriate methods and tools when conducting activities to support decisions. All elements of the design process/ research methodology are skill-fully and critically developed.	Individually chooses the appropriate methods and tools when conducting activities to support decisions. Critical elements of the design process/ research methodology are appropriately developed however more subtle elements are ignored or unaccounted for.	Needs guidance to choose the appropriate methods and tools when conducting activities to support decisions. The methodology is recognizable. Critical elements are missing, incorrectly developed or unfocused.	Is unable to or does not act as defined under sufficient.
	Analysing and synthesizing	Individually manages and leads the process of choosing the appropriate methods and tools for analysis/ synthesis of medium complex cases. Organizes and synthesizes evidence to reveal insightful patterns, differences, or similarities related to focus.	Individually chooses the appropriate methods and tools for analysis/ synthesis of simplified cases. Organizes/ creates evidence to reveal important patterns, differences, or similarities related to focus.	Needs guidance to choose the appropriate methods and tools for analysis/ synthesis of simplified cases. Organizes/ creates evidence but the organization/ creation is not effective in revealing important patterns, differences or similarities.	Is unable to or does not act as defined under sufficient. Lists/ creates evidence but it is not organized and/ or is unrelated to focus.
	Defining conclusions and claiming value	Individually manages and leads the process to stating value claims from the design process/ conclusions. States a claim/ conclusion that is a logical extrapolation from the design process/ inquiry findings.	Individually states a value claim from the design process/ conclusion focused solely on the inquiry findings. The value claim/ conclusion arises specifically from and responds specifically to the design process/inquiry findings.	Needs guidance to state a general value claim from the design process/ conclusion from the inquiry findings that, because it is so general, also applies beyond the scope of the inquiry findings.	States an ambiguous, illogical or unsupportable value claim from the design process/ conclusion from inquiry findings.

		Excellent	Good	Sufficient	Insufficient
	Using a demonstrator and/or research prototypes	The demo/research prototype(s) was/ were especially crafted for their specific purpose and roles in the acquisition of knowledge/ creation of value. The prototype(s) also made a strong contribution in itself.	The demo/research prototypes were especially crafted for their specific purpose and roles in the acquisition of knowledge/creation of value.	The demo/research prototype(s) played a significant role in the acquisition of knowledge/ creation of value.	The demo/research prototype(s) is (are) poorly designed and/ or played a trivial role for the acquisition of knowledge/ creation of value.
	Having the appropriate attitude for design (research)	Showing a consistent attitude in doing, showing and arguing that is specific for the methodology.	There are signs of an interest and attitude that is specific for the methodology.	There are signs of interest in general design research, but the attitude is not specific for the methodology.	There is no sign of a research interest, nor an expressed interest in design.
	Understanding which perspective to choose depending on the phase and type of project	Individually chooses appropriate approach throughout the design process and can motivate the decisions.	Knows which approach to employ based on the moment in the design process.	Needs guidance to choose the appropriate approach in the design process	Is unable to or does not act as defined under sufficient.
VISION	**Envisioning/transforming**	*[as defined under good]* + individual agency and related to societal and academic sources.	*[as defined under sufficient]* + transformation is a reality in text and action.	Vision is instrument for design. Design is seen as a transformational process and responsibility is seen.	Has a vision but has only taken effort to use in design. Lip-service to design as transformational power.

EXPERTISE AREA RUBRICS

MASTER YEAR 2

		Excellent	Good	Sufficient	Insufficient
BUSINESS & ENTREPRENEURSHIP	**Creating propositions integrating design skills, user insights and technology and describing and designing their financial models.**	Creates value propositions while managing, leading and articulating a group's vision. Proposes financial models with multiple stakeholders that may have conflicting interests.	Adapts tools and methods to fit the complexity of a case, based on personal vision and professional identity. Proposes financial models for the different stakeholders.	Creates value propositions based on thorough organization and stakeholder analysis using existing tools and methods. Describes and designs financial models for the value proposition.	Has no methodological approach to create value propositions or proposition is missing and/or is unable to describe the financial model of the value proposition.
	Conducting market analysis and identify competition	Develops tools and methods to fit the complexity of a case, based on personal vision and professional identity.	Adapts tools and methods to fit the complexity of a case, based on personal vision and professional identity.	Conducts market analysis and identifies competition using existing methods and tools.	Does not conduct market analysis and/or identifies competition using methods and tools.
	Identifying and handling risks as inherent part of the process	Maps risks and proposes alternative solutions with diverse risk levels.	Maps possible risks and proposes alternative approaches.	Identifies and handles risks proactively	Has no overview of potential risks and/or is unable to deal with risks.
	Entrepreneurial attitude	*[as defined under good]* + manages and leads the design process.	*[as defined under sufficient]* + can easily improvise while creating opportunities.	Inspiring and enthusiastic. Able to persist and operate despite clearly defined goals and to explore, define, and react to emerging customer's needs.	No creativity, ingenuity, pro-activeness towards creating opportunities.

		Excellent	Good	Sufficient	Insufficient
CREATIVITY & AESTHETICS	**Using techniques and methodology (idea generation, creativity techniques and use of 1st, 2nd, and 3rd person perspective)**	*[as defined under good]* + shows agency in appropriately 're-mixing' the existing techniques to fit specific needs.	*[as defined under sufficient]* + agency in choosing.	Has a repertoire of techniques and chooses them appropriately.	Uses only a limited amount of techniques and/or mechanical imperfection in application.
	Expressing quality in form, interaction, etc. (trusting the senses, critical attitude towards aesthetics)	*[as defined under good]* + individual handwriting in form and interaction, shows agency in delivering excellent quality.	*[as defined under sufficient]* + excellent quality of deliverables (e.g., excellent finish, magnificent details, stunning graphics).	Prototype, design and/or other deliverables have an integrated feel, overall good quality (e.g., good finish, convincing details, decent graphics etc.). Student is able to differentiate between design and prototype.	Prototype and/or design has a non-integrated feel, many disappointing features. Student has a mechanical attitude.
	Academic positioning of design work in terms of historical perspective and related work, as well as bringing forward those exemplars and theories that ground or inspires design work.	*[as defined under good]* + individual agency related to societal and academic sources.	*[as defined under sufficient]* + transformational power of design is acknowledged and incorporated in text and action.	Use of vision as an instrument for design. Design is seen as a transformational process and responsibility (for guiding societal transformation).	Has a vision but did not apply it in the design. Provides lip-service to the transformational power of design.
	Approaching the creative process (active decision-taking, reflecting in/on action, balancing intuition and knowledge driven and design narrative)	*[as defined under good]* + individual approach. Agency over process.	*[as defined under sufficient]* + very thorough exploration.	Non-linear approach, iterations are informed by insight. Strong narrative and appropriate prototyping decisions.	Linear approach, unrelated iterative moves steered by process problems rather than design challenge.

		Excellent	Good	Sufficient	Insufficient
MATH, DATA & COMPUTING	**Using tools and mathematics theory (calculus, geometry, matrix algebra, signal processing) in design applications**	Can flawlessly and inspirationally apply more than one tool and theory of different mathematics.	Can apply more than one tool and theory of different mathematics.	Can apply at least one tool and theory of mathematics in design applications.	Is unable to or does not act as defined under sufficient.
	Using data theory (T-test, ANOVA and data-mining and processing) and tools (e.g. SPSS, Excel, R visualization tools) in design applications	Individually manages and leads the process of choosing the appropriate methods and tools when conducting a statistical method to support design decisions for simplified cases.	Individually chooses the appropriate methods and tools when conducting a statistical method to support design decisions for simplified cases.	Needs guidance to choose the appropriate methods and tools when conducting a statistical analysis to support design decisions for simplified cases.	Is unable to or does not act as defined under sufficient.
	Using tools (e.g. code generators, data filters) and computing theory (e.g. data structures, algorithms, object-orientated design, FSMs Petri Nets, learning, optimization, pattern recognition etc., multi-agent simulations) in design applications	Can flawlessly and inspirationally apply more than one tool and computing theory.	Can apply more than one tool and theory.	Can use of the basics of computational modelling (data-structures and algorithms) in design applications.	Is unable to or does not act as defined under sufficient.
	Attitude	Understands the aesthetics of algorithms and applies this in their designs.	*[as defined under sufficient]* + and external parties can flawlessly use it for further development	Considers software as a language to communicate their ideas.	Software works but an external party cannot understand the principles and structure of the algorithms applied

		Excellent	Good	Sufficient	Insufficient
TECHNOLOGY & REALIZATION	**Software, Electrical and Mechanical Engineering**	*[as defined under good]* + uses datasheets, understanding of complex systems and cross-disciplinary cooperation.	Relevant calculations, correct diagrams or drawings, correct units and dimensions, awareness of complex sensors and/or actuators. Understanding of PCB design.	Makes relevant calculations, provides correct diagrams uses units and dimensions; uses datasheets and demo states.	Informal explanation, sketchy diagrams only.
	Realization of prototype	*[as defined under good]* + new technology, real innovation as evident from an invitation to show the prototype as is at a key exhibition.	*[as defined under sufficient]* + reliable (can be deployed in the field for a longitudinal study). Impressive demo.	Robust prototype with multiple sensors/ actuators or complex sensors/ actuators, adaptivity or learning or connectivity. Calculated software/ electrical/ mechanical construction and clearly considered and specified material.	Simple technology only (e.g. sensor = switch) no adaptivity. Mechanically failing prototype.
	Feasibility of design	*[as defined under good]* + non-trivial calculations and/or use of sophisticated tools. Smart energy consumption.	Correct calculations or simulations of complex or adaptive or intelligent aspects and mechanics or material costs. Clearly considered energy efficiency.	Serious calculations or simulations of complex, adaptive or intelligent aspects and mechanics or material costs.	Analysis of non-complex, non-adaptive, non-intelligent aspects.
	Processing information conscientiously	*[as defined under good]* + thorough, reproducible and thoughtful integration of software (clearly annotated), electronics (clear diagrams and neatly-wired/soldered), mechanics (technical drawings/documented and durable) and material (considered and responsible).	Comprehensive and extended documentation with clear overview of relevant references and appendices. Attention to detail in prototype.	Clear documentation and aware of imperfections in prototype.	Sloppy, messy, no documentation, nothing works.

		Excellent	Good	Sufficient	Insufficient
USER & SOCIETY	**Approaching design from a user-centred perspective, using methodological collection and analysis of (quantitative and qualitative) data for the purpose of collecting user insights, trends and design evaluation/ validation, able to change perspectives**	*[as defined under good]* + creates new methods. Needs no supervision or support. Others come to them for advice.	*[as defined under sufficient]* + is able to analyse an ill-defined problem or challenge, chooses and tunes methods that fit their purpose.	Analyses a problem or challenge; chooses and applies methods that fit their purpose and/or combines existing methods for user-research and evaluation/validation. Provides a coherent description of the process, demonstrates insight by explaining the 'why', understands limitations of the method, the argumentation is to the point.	Is unable to or does not act as defined under sufficient.
	Having theoretical knowledge about user experience and interaction design (perceptual, cognitive, emotional and social as well as developmental aspects); context, culture and trends	*[as defined under good]* + generates new theoretical knowledge, as evident from e.g. contributions to conferences or journals.	*[as defined under sufficient]* + is able to define and structure a problem or challenge independently, even if it is ill-defined.	Defines the problem or challenge, chooses and applies theoretical principles that fit their purpose.	Is unable to or does not act as defined under sufficient.
	Being empathic, sensitive, respectful, ethical, understanding, curious	*[as defined under good]* + user is an integrated part of the design process and is given due respect.	*[as defined under sufficient]* + proposes a methodological approach.	Takes initiative to direct attention to the user in their socio-cultural context and aims at creating value/meaningful designs.	Is unable to or does not act as defined under sufficient.
	Approaching design from a social-cultural context; having hands-on experience with and theoretical knowledge of areas related to societal and economic paradigms, social design, ethics and values	*[as defined under good]* + generates new theoretical insights, as evident from e.g. designs, reports, exhibitions, contributions to conferences or journals	*[as defined under sufficient]* + is aware of and can apply one or more of the appropriate theories/frameworks during the design process.	Awareness of the social-cultural context of the design and applies at least one theoretical principle regarding societal and economic paradigms, social design, ethics and values in the design process.	No awareness of theoretical principles regarding societal and economic paradigms, social design, ethics and values in the design process.

MASTER YEAR 2

		Excellent	Good	Sufficient	Insufficient
DESIGN & RESEARCH PROCESSES	**Addressing a societal context for design or design research**	Successfully addresses a highly complex case (ill-defined challenge in an open societal context).	Successfully addresses a complex case (ill-defined challenge in a well-defined societal context).	Successfully addresses a medium complex case (ill-defined challenge in a delimited societal context).	Is unable to or does not act as defined under sufficient.
	Addressing design and research challenges	*[as defined under good]* + previously not explored aspects of design research that sparks the interest of the community.	Individually manages and leads the process identifying a creative, focused, and manageable topic that addresses potentially significant yet previously less explored aspects of design research.	Individually identifies a focused and manageable topic that appropriately addresses relevant aspects of case.	Is unable to or does not act as defined under sufficient.
	Gathering information continuously and framing the work in objective and subjective knowledge, existing designs and research, and perspectives	Is able to describe the introduction as described under [good] at an academic level, i.e. ready for publication.	Synthesizes in depth information from relevant sources to critically frame the design (research) approach from various angles and perspectives.	Presents in depth information from relevant sources to frame the design (research) approach from various angles and perspectives.	Is unable to or does not act as defined under sufficient.
	Executing design process or research methodology (synthesis, analysis and validation)	Is able to describe the method as described under [good] at an academic level, i.e. ready for publication.	All elements of the design process or research methodology are skill-fully and critically developed.	Critical elements of the design process or research methodology are appropriately developed. However, more subtle elements are ignored or unaccounted for.	Is unable to or does not act as defined under sufficient.

Click here to go back to the Index ↑

		Excellent	Good	Sufficient	Insufficient
	Analysing and synthesizing	Is able to describe the results as described under [good] at an academic level, i.e. ready for publication.	Organizes and synthesizes evidence to reveal insightful patterns, differences, or similarities related to focus.	Organizes and creates evidence to reveal important patterns, differences, or similarities related to focus.	Is unable to or does not act as defined under sufficient.
	Defining conclusions and claiming value	States a value claim or conclusion that is a surprising extrapolation from the design process or inquiry findings.	States a value claim or conclusion that is a logical extrapolation from the design process or inquiry findings.	States a value claim or conclusion that arises specifically from, and responds specifically to the design process or inquiry findings.	Is unable to or does not act as defined under sufficient.
	Using a demonstrator and/or research prototypes	*[as defined under good]* + according to external experts/reviewers.	*[as defined under sufficient]* + the prototype(s) make a strong contribution in itself.	The demo or research prototypes were especially crafted for their specific purpose and roles in the acquisition of knowledge or the creation of value.	The demo or research prototypes were not especially crafted for their specific purpose and roles in the acquisition of knowledge or creation of value.
	Having the appropriate attitude for design (research)	Showing a consistent self-directed attitude in doing, showing and arguing that is specific for the methodology.	Showing a consistent attitude in doing, showing and arguing that is specific for the methodology.	There are signs of an interest and attitude that is specific for the methodology.	There are no signs of an interest and attitude that is specific for the methodology.
	Understanding which approach (creative, engineering, user-centred, analytic) to choose depending on the phase and type of project	Naturally shifts between approaches and addresses all expertise perspectives in the design process, convincingly motivates all decisions.	Individually chooses appropriate approach throughout the design process and can motivate the decisions.	Knows which approach to employ based on the moment in the design process.	Is unable to or does not act as defined under sufficient.
VISION	**Envisioning/transforming**	*[as defined under good]* + individual agency related to societal and academic sources.	*[as defined under sufficient]* + transformation is a reality in text and action.	Use of vision as an instrument for design. Design is seen as a transformational process and responsibility (for guiding societal transformation).	Has a vision but has not taken the effort to use it in their designs. Provides lip-service to the transformational power of design.