

Rubrics MSc Aerospace Engineering, TU Delft		Name:	Studynumber:		Graduation Date:		
		≤5 (fail)	6 (sufficient)	7 (satisfactory)	8 (good)	9 (very good)	10 (excellent)
		Date Start Thesis:					
1. Content & scientific + engineering approach	Theoretical knowledge	Does not understand and can not reproduce directly relevant theory at the level of MSc textbooks.	Understands and can, only with help, reproduce relevant theory at the level of MSc textbooks.	Understands and can independently reproduce directly relevant theory at the level of MSc textbooks.	Understands and can independently reproduce directly relevant theory at the level of MSc textbooks and scientific literature.	Has independently collected, processed and integrated theory from different fields or sources.	Has independently developed a new piece of theory or a new (design) method.
	Application of theory	Is not able to relate theory to the performed research/design when asked to make such a link, even after having been shown how to do so.	Has difficulties applying theory to the performed research/design when asked to make a link between them, even after having been shown how to do so.	Can apply theory to the performed research/design, after having been shown how to do so.	Has independently applied theory to the performed research/design.	Has independently and very skillfully applied theory to the performed research/design.	Has independently integrated existing theory from different fields or sources into a new and original theoretical description or a new and original design.
	Interpretation of the results	No interpretation of the results has been made. No verification has been carried out.	Findings are treated as straightforward and unproblematic. Minimal verification has been carried out.	Findings are treated as straightforward and unproblematic. Verification has been carried out.	Uses techniques for interpretation and verification in a mechanical way.	Very good interpretation and verification.	Excellent interpretation and verification.
CHOOSE: DESIGN OR SCIENTIFIC SIGNIFICANCE	Design Significance	Work is not reliable and should be redone before the design can be communicated to the outside world or used by others.	Work should be checked and possibly (partially) redone before results can be communicated to the outside world or used by others.	Work has to be checked before it can be included in external reports or publications or used by others.	The design can be communicated without hesitation to the outside world. Work has the potential to contribute to a paper, or to be developed into a next design phase / prototype or a new experimental technique not previously available in the group.	We are proud to communicate the design to the outside world. The work may directly lead to a patent, a publication, a next design phase, or a prototype (in case enough resources are available), or another type of valorisation.	Work allows for immediate initiation of a next design phase, a patent or a prototype development (in case enough resources are available), or another type of valorisation.
	Scientific significance	Work is not reliable and should be redone before results can be communicated to the outside world or used by others.	Work should be checked and possibly (partially) redone before results can be communicated to the outside world or used by others.	Work has to be checked before it can be included in external reports or publications or used by others.	Results can be communicated without hesitation to the outside world. Work has the potential to contribute to a conference paper, a journal publication, a patent or a new computational or experimental technique not previously available in the group.	We are proud to communicate the results to the outside world. The work may directly lead to a peer-reviewed publication.	Work has the same quality in content and discussion as a peer-reviewed journal publication. (Note: the format of a thesis can be different from a journal publication and will contain extra parts.)
	Critical attitude / judgement	Has no critical attitude towards own results or design. Conclusions are unconnected to the results.	Has limited critical attitude towards own results or design. Conclusions have tenuous link with results.	Has satisfactory critical attitude towards own results or design, limited critical attitude towards literature and specialists. Conclusions have some connection with the results.	Has good critical attitude towards own results or design, literature and specialists. Conclusions are based on the results but are not expanded to a higher level.	Has well-balanced critical attitude towards own results or design, good critical attitude towards literature and specialists. The conclusions are based on the results and are expanded to a generic level.	Has well-balanced critical attitude towards own results or design, literature and specialists. The conclusions are based on the results and are expanded to a high generic level.
2. Literature study & research proposal	Literature study	The literature overview presented does not at all cover the relevant parts of the research field. The literature presented is outdated for most aspects. The relevance and quality of the literature researched is questionable (mainly websites and hardly any refereed literature, text books or technical reports or irrelevant ones). The candidate fails to assess the literature presented.	The literature overview presented barely covers the relevant parts of the research field. The literature presented is partially outdated. The relevance and quality of the literature researched is marginal (i.e. many websites and some technical reports or standards text books but hardly any relevant refereed papers and journals). The candidate makes a limited assessment of the literature presented.	The literature overview presented covers the relevant parts of the research field. The literature presented is mostly up to date. The relevance and quality of the literature researched is acceptable (still shows many websites and only a limited amount of relevant refereed papers and journals). The candidate makes an acceptable assessment of the literature presented.	The literature overview presented covers the relevant parts of the research field. The literature presented is up to date. The relevance and quality of the literature researched is good: a mix of relevant websites, technical reports, text books and refereed papers and journals that is representative for the field of research. The candidate makes a good assessment of the literature presented.	The literature overview presented covers the relevant parts of the research field very well. The literature presented is up to date. The relevance and quality of the literature researched is very good: a good mix of relevant and up to date text books, refereed conference papers and journal articles. The candidate makes a very good assessment of the literature presented.	The literature overview presented covers the relevant parts of the research field very well. The relevance and quality of the literature researched is excellent. Both the historical perspective as well as the most recent developments have been covered with refereed literature (text books, conference papers and journal articles). The candidate makes an excellent assessment of the literature presented.
	Research proposal	The candidate does not present relevant research question(s) and thesis research plan, or the question(s) and plan presented have no direct connection with the literature review presented. The question(s) and/or plan required many iterations.	The candidate presents a weak research question(s) and thesis research plan with limited connection to the literature presented. The question(s) and/or plan required more than 2 iterations.	The research question(s) and/or thesis research plan as based on the literature review is considered acceptable. The question(s) and/or plan required more than 1 iteration.	Good research question(s) and/or thesis research plan is presented. There is a good connection with the literature review. The question(s) and/or plan required one iteration, but with significant input from the supervisor(s).	Very good research question(s) and/or thesis research plan is presented. There is a very good connection with the literature review. The question(s) and/or plan required only one iteration with limited (textual) input from the supervisor(s).	Excellent research question(s) and/or thesis research plan is presented. There is an excellent connection with the literature review. The question and/or plan required no iterations and (almost) no input from the supervisor(s).
3. Report	Reporting clarity, style and effectiveness	The report is poorly written and does not fulfill basic requirements in terms of structure, grammar, lay-out, completeness and clarity. Poor document, illogical structure. It provides no or non-relevant arguments, and might contain large scientific errors. Grammar and spelling are so poor that they make parts of the document unreadable.	The report fulfills basic requirements in terms of structure, grammar, lay-out, completeness and clarity. Poorly expressed, includes a large number of spelling and grammar errors, and argumentation is often replaced by assumption or assertion. Structure and transitions need considerable improvement.	The report fulfills all basic requirements in terms of structure, grammar, lay-out, completeness and clarity. Reasonably expressed, but still including quite a number of spelling and grammar errors. Argumentation is sometimes replaced by assumption or assertion. Structure and transitions need improvement.	The report fulfills all requirements in terms of structure, grammar, lay-out, completeness and clarity. Expressed well, with a clear structure and only some spelling and grammar errors. The document has a reasonable flow, only a few transitions are not very effective. However, some arguments could be improved.	Very good report in terms of structure, grammar, lay-out, completeness and clarity. Clear and persuasive arguments. Well-structured document, with a smooth flow, effective transitions, and only minor spelling and grammar errors.	Outstanding report in terms of structure, content, grammar, lay-out, completeness and clarity. Professionally written, with a smooth flow, effective transitions, strong arguments and a distinctive style. The report is free of spelling and grammar errors.
	Independence and feedback addressing	The report required many iterations and continuous input from the supervisor(s). Student has not made an effort to understand or address the feedback received from the supervisor(s).	The report required more than 2 iterations and continuous input on parts of the thesis from the supervisor(s). Feedback received from the supervisor(s) was only partially understood, and limited effort was put by the student into addressing the feedback.	The report required more than one iteration, due to the significant input given by the supervisor(s). The feedback received from the supervisor(s) was mostly understood by the student and the most important feedback points were addressed.	The report required one iteration, but with significant input from the supervisor(s), in quantity and/or quality. The student showed good understanding of the feedback received from the supervisor(s) and implemented it well.	The report required only one iteration with limited (textual) input from the supervisor(s). All feedback points were perfectly understood by the student, and addressed in a very good way in the final version of the report.	The report required no iterations and (almost) no input from the supervisor(s).
4. Presentation & defence	Presentation	Presentation is unstructured and chaotic and totally unsuited for the target audience as set by the supervisor(s). Presentation lacks detail and does not support conclusions. Most of the presented information is irrelevant.	Logical structure of presentation is only minimally present, most of its parts are not suited for the target audience as set by the supervisor(s). Major improvements to the structure should be made. Presentation lacks detail, the presented information is just enough to support conclusions.	Logical structure of presentation is reasonable but needs improvement, several parts are not suited for the target audience as set by the supervisor(s). Improvements to the structure should be made. Presentation has sufficient detail to support conclusions.	Presentation has good logical structure, the main points are separated from the side-steps, only some minor parts are not suited for the target audience as set by the supervisor(s). Minor improvements to the structure could be made. Presentation has sufficient detail to support conclusions.	Presentation has very good logical structure, the main points are clearly separated from the side-steps, is suited for the target audience as set by the supervisor(s). Presentation has the right level of detail to support the conclusions and to understand the recommendations.	Presentation has excellent logical structure, the main points are very well separated from the side-steps, is well suited for the target audience as set by the supervisor(s). Presentation has the right level of detail to support the conclusions and to understand the recommendations.
	Defence	During the defence students gives ambiguous answers and shows clear lack of systematic, abstract thinking. The student does not master the content of the thesis.	During the defence student occasionally shows effort in giving precise answers but often wanders into feeble excuses, showing lack of abstract argumentation. Has difficulty explaining the subject matter of the thesis, and placing the thesis into context.	During the defence the student makes an effort in answering questions but is not always confident and well-prepared, sometimes loses focus and has a tendency to enter into irrelevant issues.	During the defence the student answers questions accurately and is well-prepared. The student is able to place the thesis into context.	During the defence the student manages to defend or justify choices, methods and conclusions made under scrutiny, while showing proficiency in transparent communication.	During the defence the student shows superior mastery and power in defending the research in its set up, methodology and execution. The student can be considered as the main expert on the presented topic (even more expert than the committee members).
5. Creativity & initiative	Creativity/initiative	Student shows no initiative to make an original contribution to the project, or all suggestions had to be discarded	Student has attempted to make contributions, some of which led to improvements.	Student takes initiative, together with the supervisor, to extend or modify the research/design plan or to suggest an alternative approach. One of the original contributions (e.g. a test or visualisation method) can be identified in the report or design.	Student takes initiative at multiple occasions to give his/her own input for the research/design plan or the followed approach. The final report or design contains some of the original contributions (e.g. experiment, visualisation).	Major parts of the research/design plan, followed approach were essentially initiated, selected and defined by the student. The final report or design contains an important original contribution (e.g. new method, new algorithm, new design).	Problem formulation, research/design plan, followed approach were essentially all initiated, selected and defined by the student. The final report or design contains a brilliant new contribution from the student.
6. Project management**	Planning/control	Showed no responsibility for the proper progress and completion of the project. Is not able to make a planning. Wastes the available resources (time / equipment / money).	Showed little responsibility for the proper progress and completion of the project. Planning should be improved to be at a professional level. Wastes parts of the available resources (time / equipment / money).	Did take and show responsibility for the proper progress and completion of the project. Is able to create and update the planning, but still wastes some of the available resources (time / equipment / money).	Was "project manager" of the research/design project. Created and updated the planning. Does not waste the available resources (time / equipment / money).	Was "project manager" of the research/design project. Created and updated short-term and long-term planning. Makes effective use of the available resources (time / equipment / money).	Was "project manager" of the research/design project. Developed excellent planning, both short-term and long-term. Makes very effective use of the available resources (time / equipment / money).
* The committee is free to choose the grade for each criterion anywhere within the range of grades given for the respective sub-criteria.							
** Planning should be aimed at finishing the thesis in the nominal time unless there is an exception.							