

Manual for the Final Bachelor Assignment for Advanced Technology Students

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In the third year of the programme, Advanced Technology students collect information on the various research groups at the UT, in preparation for their Bachelor Assignment. The students then select the two to three research groups they are most interested in and start exploratory conversations with the groups. On the basis of these talks, the student selects a research group they want to do an assignment for. Advanced Technology students do their Bachelor Assignment in the third or fourth quarter. This depends on the requirements of their future master's programme; some students need to use the fourth quarter to acquire more prescience.

Since AT students are doing an assignment for the Civil Engineering programme, they must meet the requirements for the final bachelor assignment of the AT programme as well as the requirements of the Civil Engineering programme. Below, the key requirements are listed for each programme.

Requirements of the Civil Engineering Programme:

- If, after the exploratory talks, the student chooses an assignment with one of the Civil Engineering departments, the student must officially enrol for the final bachelor assignment by sending an e-mail to bachelor-eindopdracht-CiT@utwente.nl. The student will receive a confirmation with a preparatory assignment and registration form. After submitting both documents, the student makes an appointment for an intake interview with the department of their choice: Water Management, Traffic or Building/Infrastructure.
- Depending on their personal study planning, the student participates in one of the three following preparatory units of study for the final bachelor assignment:
 1. The subject "Preparation Bachelor Assignment" of the Advanced Technology programme;
 2. (Parts of) module 11 of the Civil Engineering programme. This module is offered in the first and in the third quarter. It focuses on writing a bachelor thesis proposal and working on a bachelor thesis evaluation assignment. AT students can enrol for module 11 via Osiris, which means that they are automatically enrolled for the Blackboard site of this module;
 3. If the student is unable to participate in the unit "BSc thesis proposal and evaluation" of CE module 11 and/or if the student has already attended the AT subject "Preparation Bachelor Assignment", writing a **bachelor thesis proposal** is the first part of the final bachelor assignment for Civil Engineering. In the first weeks of the assignment period (and possibly in the time prior to this period) the student draws up a proposal that requires the approval of the Civil Engineering lecturer who will be supervising the final bachelor assignment for the Civil Engineering department.

See the next section on the bachelor thesis proposal for information on the content and the assessment of the proposal.

- Students who did not do the bachelor thesis evaluation assignment in module 11 must submit an evaluation assignment (see below for the criteria for this evaluation assignment)
- A PDF version of the final report must be submitted via e-mail address bachelor-eindopdracht-cit@utwente.nl after completion of the assignment

Requirements of the Advanced Technology Programme:

- The examination board of the AT programme must approve the final bachelor assignment and the subject combination. The form "Request Approval Bachelor Assignment" that is used for this purpose can be found on the AT website. After approval, the student receives an official letter that also contains the composition of the examination committee for the final bachelor assignment. A Civil Engineering professor will act as president of the examination committee. At the end of the assignment, the students must defend their thesis before this committee in a public session (20 - 30 minutes).
- In consultation, the student establishes a date for the examination, reserves a room for the examination (possibly via the reception desk of the Horst building), and invites the examination board. The form for this purpose can be found on the AT website.
- The examination board will award a grade for the final bachelor assignment.

Note: Always refer to the most up to date information regarding the execution of the final bachelor assignment, on the website of the Advanced Technology programme -> <https://www.utwente.nl/at/onderwijs/The%20bachelor%20assignment/>

Bachelor Thesis Proposal

The bachelor thesis proposal must at least contain the following components (taken from student manual module 11 Preparation BSc thesis CE):

- Formulation of problem context
- Formulation of research aim and question(s)
- Formulation of terminology used, limits and boundaries
- Summary of state-of-the-art knowledge concerning the problem based on literature review
- Role of model(s) within the research project
- Description of choice of research techniques incl. methods for data gathering/production
- Planning incl. contingency
- First version table of content final report

The Bachelor thesis proposal will be assessed using the following criteria:

- General structure, language and formatting
 - Structuring
 - Writing
 - Referencing
- Project definition
 - Problem context
 - Research aim and question(s)
 - Terminology, limits and boundaries
 - Use of literature
- Methods and models
 - Choice of research techniques
 - Data
 - Role of models
- Planning
 - Research planning
 - Table of contents BSc thesis report

Final Report

The report must at least contain the following components:

A title page with the title of the report, the name of the author, the name of the company, the assignment period and the names of the supervisors.

A preface, in which you explain the reasons for writing the report. This is also where you can thank some of the people that have been important to you during the realization of the assignment.

A table of contents, which gives the reader a clear picture of the structure of the report.

A summary, which briefly outlines the objective, the research question, the results and the main conclusions of your research (1 or 2 pages).

An introduction, in which you mention the client that commissioned the assignment, the background, the cause and the objective of your research, the research questions you intend to address and the way the research was conducted (approach/methodology). This is also where you explain the structure of your report and the content of each chapter.

The body of the report, in which you expand on the assignment.

A discussion, in which you critically evaluate the results of your research, indicate any limitations or remarkable results and link these to the results of your research.

The conclusion, which presents the results of the research and provides answers to the research questions.

Recommendations, which could consist of concrete advice for the client or provide suggestions for further research.

Annexes, which contain additional information for the report, for example extensive calculations or theories. The results are used in the report, with a reference to the annex for further information. The main body of the report must be a consistent and understandable text.

See -> <https://www.utwente.nl/at/onderwijs/The%20bachelor%20assignment/Assessment-Form-Bachelor-Assignment-AT.pdf> for the assessment criteria for the final bachelor assignment of the Advanced Technology programme.

Evaluation Assignment

If the student did not attend the subject "BSc thesis evaluation" of module 11, the evaluation assignment must be handed in via bachelor-eindopdracht-cit@utwente.nl. If the student did attend this part of module 11 of the CE programme, an evaluation assignment was part of that module, and the following is not applicable.

The objective of the evaluation is a self-assessment by the student of his/her own performance during the execution of the assignment. The focus is on "self-reflection": how did you perform in a particular environment, what were your expectations with respect to the organization, the assignment, your own performance, and what was the reality like? Did the theories you learned during your education turn out to be true, or not? What was different from what you had expected? When writing this report, it is important to take a detached view of your own performance, your expectations and the actual situation. The evaluation assignment should at least contain the following components:

- Reasoned evaluation of expectations versus reality with respect to the following aspects:
 - Organization
 - Supervision
 - The nature of the activities
 - Working in a planned and structured manner
 - Communication skills and social skills
 - Knowledge
 - Independence
 - Personal objectives from the bachelor thesis proposal
- Answer to the following questions:
 - How well do you think you fulfilled the objectives of the final bachelor assignment?
 - What are the things you want/need to improve?

The evaluation assignment is 2 to 5 pages. The report is assessed by the mobility coordinator of Civil Engineering. The lecturer who supervised the assignment receives a copy of the evaluation assignment.