MASTER ENGINEERING SYSTEMS

MAJOR PROJECT

Finished all the theory? Including labs and minors? Now it is time for your Major Project. Apply the principles of the program to a real-life industrial setting. Use your technical aptitude. Prove your ability to manage a project. And show your skills in communicating, reporting and presenting.

Real-life problems:
All Major Projects are motivated by real-life problems. Full-time students can approach companies or research groups at HAN or at one of our many partner universities to find out if relevant options are available. The part-time student is strongly advised to carry out the Major Project in their own professional practice.

The company needs to be able to provide a proper assignment, working environment and support. A representative of your company verifies:

- whether the thesis results match the expectations of the company.
- whether the assessed aspects of the master's graduation project are relevant to the company.

This gives us valuable feedback on the professional requirements for the intended learning outcomes (see below).

The problem to be solved requires an understanding and active analysis of distinctive disciplines. The project will always include the step from a real-life problem to a more abstract representation of the problem. This restricted representation of the real world is then the basis for the problem analysis. How will you go about this? Using the tools and methods you have learned about in the modules.

The problem analysis then leads to a problem solution. Finally, conclusions are drawn about the extent to which the problem has been solved and the objectives fulfilled.

Learning outcomes:
During the Major Project you learn to:

1. Analyze and define problems
   - Critically analyze the engineering problem through active communication with the problem owner.
   - Based on this analysis, formulate a problem, identify feasible approaches to a solution, draw scientifically valid conclusions and make recommendations, which are then communicated to the problem owner.

2. Design
   - Systematically translate the engineering problem to a model at an abstract level (i.e. reducing it to its essentials in terms of model and problem requirements).
   - Validate results against the real-life situation and problem formulation.

3. Test
   - Systematically translate the engineering problem to a concrete level.
   - Validate results against the real-life situation and problem formulation.

4. Manage work processes
   - Place engineering activities within the perspective of engineering company processes, including quality control principles.
   - Incorporate the economic (cost) and societal (safety, sustainability) consequences into the design or development process.

5. Conduct research
   - Gain specialized scientific knowledge and skills in the field of engineering.

6. Communicate and collaborate
   - Work on a problem within a multidisciplinary context in an industrial environment.
   - Work on a problem in an international engineering context in an industrial environment.

7. Work on your professional development
   - Through self-reflection, improve your own professional performance.

Procedure:
The project requires you to prove your ability to manage a project. You will also need to demonstrate your skills in communicating, reporting and presenting.

The project is completed over a period of 5–7 months (full-time) or 10–14 months (part-time), with a study load of 840 hours in total. You will be supervised by a HAN supervisor, usually a lecturer or researcher and an industrial supervisor from the company.

You conclude the project by writing a thesis, which you present in an oral presentation and defence to a panel. On the panel will be your two supervisors and an independent (HAN) examiner.