IDE Master Graduation Project

Project team, procedural checks and Personal Project Brief

In this document the agreements made between student and supervisory team about the student's IDE Master Graduation Project are set out. This document may also include involvement of an external client, however does not cover any legal matters student and client (might) agree upon. Next to that, this document facilitates the required procedural checks:

- Student defines the team, what the student is going to do/deliver and how that will come about
- Chair of the supervisory team signs, to formally approve the project's setup / Project brief
- SSC E&SA (Shared Service Centre, Education & Student Affairs) report on the student's registration and study progress
- IDE's Board of Examiners confirms the proposed supervisory team on their eligibility, and whether the student is allowed to start the Graduation Project

STUDENT DATA & MASTER PROGRAMME

Complete all fields and indicate which master(s) you are in

Family name		IDE master(s)	IPD ☐ DfI ☐ SPD ☐
Initials		2nd non-IDE master	
Given name		Individual programme *(date of approval)*	
Student number		Medisign	☐
		HPM	☐

SUPERVISORY TEAM

Fill in he required information of supervisory team members. If applicable, company mentor is added as 2nd mentor

Chair		dept./section	
mentor		dept./section	
2nd mentor			
client:			
city:		country:	
optional comments			

! Ensure a heterogeneous team. In case you wish to include team members from the same section, explain why.

! Chair should request the IDE Board of Examiners for approval when a non-IDE mentor is proposed. Include CV and motivation letter.

! 2nd mentor only applies when a client is involved.

APPROVAL OF CHAIR on PROJECT PROPOSAL / PROJECT BRIEF -> to be filled in **by the Chair** of the supervisory team

Sign for approval (Chair)

Name _____ Date _____ Signature _____

CHECK ON STUDY PROGRESS

To be filled in **by SSC E&SA** (Shared Service Centre, Education & Student Affairs), after approval of the project brief by the chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total _____ EC

Of which, taking conditional requirements into account, can be part of the exam programme _____ EC

☐	**YES**	all 1st year master courses passed
☐	**NO**	missing 1st year courses

Comments:

Sign for approval (SSC E&SA)

Name _____ Date _____ Signature _____

APPROVAL OF BOARD OF EXAMINERS IDE on SUPERVISORY TEAM -> to be checked and filled in by IDE's Board of Examiners

Does the composition of the Supervisory Team comply with regulations?

YES	☐	Supervisory Team approved
NO	☐	Supervisory Team not approved

Comments:

Based on study progress, students is …

☐	**ALLOWED** to start the graduation project
☐	**NOT** allowed to start the graduation project

Comments:

Sign for approval (BoEx)

Name _____ Date _____ Signature _____

Personal Project Brief – IDE Master Graduation Project

Name student Lili Sanders **Student number** 5,076,919

PROJECT TITLE, INTRODUCTION, PROBLEM DEFINITION and ASSIGNMENT

Complete all fields, keep information clear, specific and concise

Project title Implementing sustainable business model design for a hybrid water bus fleet

Please state the title of your graduation project (above). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

Introduction

Describe the context of your project here; What is the domain in which your project takes place? Who are the main stakeholders and what interests are at stake? Describe the opportunities (and limitations) in this domain to better serve the stakeholder interests. (max 250 words)

The project takes place in the scientific domain of sustainable business model design, the circular economy and innovation for hybrid and electric maritime transportation solutions. In The Netherlands, a hybrid (electric and fossil-fuel powered propulsion) water bus fleet under management of Damen Financial Services (DFS) in joint venture with Aqualiner and partly in production at Damen Workboats of the Dutch company Damen Shipyards is currently partly operational for public transportation routes between Rotterdam and the Drechtsteden. There are vessels in this fleet that are malfunctioning and docked at Damen Headquarters and when operational, operate under a loss-making business model. This forms a financial and reputational issue for DFS.

The main stakeholders are DFS, Damen Workboats, water bus users (including travelers, skippers, sailors and operational staff), the Province of Zuid-Holland, Aqualiner and public transportation providers. DFS needs a viable and sustainable use-case and business model design for their water bus fleet to put the vessels in service through a financial solution for end-customers. Damen is furthermore aiming to become the most sustainable maritime solution provider in the world.

The financial dependability of this project is both an opportunity and a limitation. Often circular economy innovations are not necessarily directly financially viable. However, when the solution is financially viable, its implementation is more likely (in the long-term and on a larger scale). Another potential limitation in this domain is the novelty of electric and hybrid vessels in the maritime public transportation sector, offering less proof of concept than the functionality of fully diesel-propulsion vessels

➔ *space available for images / figures on next page*

introduction (continued): space for images



image / figure 1

image / figure 2

Personal Project Brief – IDE Master Graduation Project

Problem Definition

What problem do you want to solve in the context described in the introduction, and within the available time frame of 100 working days? (= Master Graduation Project of 30 EC). What opportunities do you see to create added value for the described stakeholders? Substantiate your choice.
(max 200 words)

The problem is that Damen currently owns a water bus fleet that is only partly operational, without a viable sustainable business model. Furthermore, it could potentially be functioning as a ship-as-a-service to be more sustainable and financially viable, but currently, no strategy or use-case exists to realize that. I can contribute to the solution to this problem by studying maritime public transportation examples (abroad), analyzing the current situation at DFS, finding a use case for the Damen hybrid water bus fleet and designing a sustainable business model and implementation strategy. This might be best approached through design thinking, conducting interviews and case studies, basic engineering, market analysis, and strategic roadmapping. Furthermore, approaching this project through a business, people and technological lens will form groundwork for a systemic, structured and tangible overview of strengths, weaknesses, limitations and opportunities for DFS' business model innovation.

Assignment

This is the most important part of the project brief because it will give a clear direction of what you are heading for. Formulate an assignment to yourself regarding what you expect to deliver as result at the end of your project. (1 sentence) As you graduate as an industrial design engineer, your assignment will start with a verb (Design/Investigate/Validate/Create), and you may use the green text format:

Design a sustainable and profitable business model for the optimal deployment of a hybrid (electric and fossil-fuel powered propulsion) water bus fleet across diverse maritime regions.

Then explain your project approach to carrying out your graduation project and what research and design methods you plan to use to generate your design solution (max 150 words)

I see this project as a challenge and opportunity in a number of ways. I am my own project leader. This means that I will write my own schedule, optimally involve my personal stakeholders (company and supervisors), and create circumstances in which I can benefit the most from their knowledge. It also means that all aspects of the design process are completely individual: the fuzzy front-end, academic research (qualitative, when there is accessibility to a larger database at Damen, then also quantitative), and analysis, brainstorming sessions and concept design (Delft Design Guide), implementation strategies (Strategic Roadmapping), visual design and information representation, report writing, and presenting. I structured my project approach with a Gantt Chart, and for the design phase, I will most likely use the Double Diamond approach.

Project planning and key moments

*To make visible how you plan to spend your time, you must make a planning for the full project. You are advised to use a Gantt chart format to show the different phases of your project, deliverables you have in mind, meetings and in-between deadlines. Keep in mind that all activities should fit within the given run time of 100 working days. Your planning should include a **kick-off meeting**, **mid-term evaluation meeting**, **green light meeting** and **graduation ceremony**. Please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any (for instance because of holidays or parallel course activities).*

Make sure to attach the full plan to this project brief.
The four key moment dates must be filled in below

Kick off meeting	19 Feb 2025
Mid-term evaluation	11 Apr 2025
Green light meeting	6 Jun 2025
Graduation ceremony	4 Jul 2025

In exceptional cases (part of) the Graduation Project may need to be scheduled part-time. Indicate here if such applies to your project

Part of project scheduled part-time	
For how many project weeks	
Number of project days per week	

Comments:

Motivation and personal ambitions

Explain why you wish to start this project, what competencies you want to prove or develop (e.g. competencies acquired in your MSc programme, electives, extra-curricular activities or other).

Optionally, describe whether you have some personal learning ambitions which you explicitly want to address in this project, on top of the learning objectives of the Graduation Project itself. You might think of e.g. acquiring in depth knowledge on a specific subject, broadening your competencies or experimenting with a specific tool or methodology. Personal learning ambitions are limited to a maximum number of five.
(200 words max)

- I have done a research elective in which I did qualitative inductive research of a multiple case-study. I would like to learn to efficiently apply a research framework and approach the analysis deductively based on literature research and collected data. I will gather qualitative data and depending on the data availability at Damen I'll also gather quantitative data.
- I chose to do my graduation project at Damen Shipyards, because I want to acquire more industry knowledge before I graduate from IDE. There is room for sustainability improvement in the maritime sector, and I think a strategic design engineer should be able to form the connection between heavy industry and social and sustainable developments that are necessary to create long-term viable (both in terms of financial viability and preventative of resource depletion) solutions. I want to find out how I can apply my knowledge from both sides in this project.
- I have taken a data visualization course during the masters, which I found very useful to transfer acquired knowledge. I'm not naturally very graphically strong, but I think there is a lot of potential in this for this project. I imagine that the end-product of this project will be a highly complex business model design for a ship-as-a-service system, including a strategic roadmap for implementation. For myself to structure the information and to convey it to my stakeholders so that it can actually be used, requires improvements in my visualization skills.
- I want to learn more about sustainable business model design. How can a sustainable solution be structured in such a way that it is viable and profitable for the business that deploys it? I think to ensure implementation and applicability for various situations this is a hugely important factor and in my future career knowing the specifics and strategies for this will be very important.