IDE Graduation Assignment (version 2017.09.21)
incl. the student's study progress (Appendix 3)

TUDelft — Delft University of Technology

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Start at IDE …2011.. (year)	Start at TU Delft …2011. (year)

Bachelor [1]	**Master** [1]	**Specialisation** [1]
☑ TUD Bachelor IO	☑ IPD	☐ Medisign
☐ TU/e or UT Bachelor IO	☐ DfI	
☐ TU Delft non-IO BSc	☐ SPD	**Annotation** [1]
☐ Other Dutch University Bachelor	☐ ………. = 2nd non-IDE master	☐ Techn. in Sustainable Design
	☐ Individual programme, date of approval [2] ……………………………	☐ Entrepreneurship
☐ HBO Bachelor		
☐ Foreign Bachelor	☐ Master Honours Programme	

Name Chair	………Elmer van Grondelle……………………

1. Check study progress	*To be completed by the Shared Service Centre O&S after approval of the assignment by the chair. The study progress will be checked for a 2nd time just before the green light meeting.*

Bachelor degree:	☐ Yes	☐ No	☐ N.A.

Missing 1st year Master courses	1. ……………………………. 2. ……………………………. 3. …………………………….	4. ……………………………… 5. ……………………………… 6. ………………………………

Master electives, no. of EC credits accumulated: ……………….

Name:	Date: ….. / ….. / 20…..	Signature:

2. Formal approval Graduation Assignment by the Board of Examiners	*To be completed by the Board of Examiners*

Approval of the content of the Grad. Assignment:	☐ Approved	☐ Not Approved
Procedural approval:	☐ Approved	☐ Not Approved

Comment	

Name:	Date: ….. / ….. / 20…..	Signature:

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[1] *Tick where appropriate.*
[2] *Date of approval of your individual programme by the Board of Examiners.*

IDE Graduation Assignment

GENERAL INFORMATION

Title Graduation Project [3]	A future vision based Volkswagen concept for 2030 leisure mobility		
Chair of Supervisory Team [4]	Elmer van Grondelle		
Department / Section	ID/DA		
Mentor of Supervisory Team [4]	Wouter Kets		
Department / Section	ID/DA		
Project commissioned by [5]	☐ Faculty	☑ Company	☐ Other, e.g. entrepreneurial
Project type [5]	☑ Design	☐ Research [6]	☐ Other, e.g. entrepreneurial
Company name, if applicable	Volkswagen AG		
City & Country	Wolfsburg, Germany		
Company Mentor	Alexei Altmann		
Start date	07-01-2019		
End date	06-07-2019		

CONTENT

Ascertain that the text of your Graduation Assignment clearly meets and reflects the general and specific requirements for your specific IDE master. [7]

Write your assignment in a neutral form.

Introduction

Give a sketch of the context of your assignment. Historical developments, if applicable relevant published scientific research results, new trends, status quo; materials, technologies, usage, etc.

- *In case of a faculty project: describe how your assignment reflects the research portfolio of the IDE Faculty [6].*
- *In case of a company project: provide company information.*
- *If other, e.g. entrepreneurial: describe the future enterprise and how your assignment will be of value to the enterprise.*

Include an illustration or visual which depicts the context of your assignment.

In case one or more extra parties are involved in your project, indicate which role they play.

The graduation project will be done at the Volkswagen Design Studio in Wolfsburg, Germany. Volkswagen is the biggest part of the Volkswagen Group, which is with over 620.000 employees the largest OEM in the World. The Group's core brand maintains facilities in 14 countries, where it produces vehicles for customers in more than 150 nations. In 2017, the Volkswagen brand produced 6.23 million vehicles. Headquarter of Volkswagen and the design studio is located in Wolfsburg, Germany. ("Volkswagen | Brands & Models of the Volkswagen Group", 2018)

The design studio is divided in the exterior, interior, interface, light and detail, and color and trim departments, together employing around 500 people. I will be part of 1 of the 4 exterior teams. The exterior department is divided in 4 design teams, each consisting of 10 designers. As the name already describes, the exterior design teams are responsible for the exterior design of the cars. Their job is to translate a design brief from the marketing department into a road ready concept, from the early sketches into 1:1 development with clay models. During this process, a designer is working with direct colleagues, clay modelers and engineers. The role of the graduate intern is the same. However, a graduate intern is free to do his or her own project. This comes with tasks like time and budget management.

The description of this role is fitting well to the profile of a TU Delft student. During the study, teamwork, management and communication is an important part of the projects. This is something different than the regular Volkswagen Interns, mostly coming from art schools. Also, the methodical approach and Business, Human and Technology focus is something new in the department.

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[3] *Keep the title compact and simple. Do not use abbreviations.*

[4] *Avoid team members from the same section. In case a non-IDE mentor is preferred over an IDE-mentor, the Chair should request so for approval by the Board of Examiners (including a motivation letter and c.v. of the proposed non-IDE mentor).*

[5] *Tick where appropriate. See the IDE Graduation Manual, paragraph 2.5. If necessary, explain at Introduction.*

[6] *See webpage http://www.io.tudelft.nl/en/research/*

[7] *For general master specific requirements, consult article 4 of the Master Teaching and Examination Regulations, and the IDE Graduation Manual, especially paragraph 2.4 and 3.1.4.*

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Problem definition

Indicate clearly, what should/could be improved compared to the present situation. When executing a research project: indicate the knowledge gap. What opportunities exist, what contradicting demands should be addressed, etc.

The world population is growing and becoming more focused on the urban areas (Kollodge, 2014). If our cities are getting increasingly plugged into the network, then so are we. This illustrates how connected cities can veer from their original purpose into entirely new territories, which is not always one their inhabitants will feel entirely comfortable about. (Wakefield, 2017) As the urban landscape is changing, so is the way we move around. Technological developments are changing the automotive industry radically in the nearby future; Automation of vehicles is emerging and the electrification of drivetrains is increasing. (Kuhnert, Stürmer & Koster, 2018) There is no question that in the rapidly developed urban areas, automated mobility will be the standard, however there are more scenario's that form the shifting mobility demand. (Knupfer, Pokotilo & Woetzel, 2018) Humanity is having a desire to keep its freedom (Vinten, 2017) and this becomes more restricted in the regulated urban systems. Volkswagen is interested in a mobility scenario were the freedom is provided by leisure experiences as a counter movement of the standardized autonomous mobility.

Assignment

Briefly and to the point, describe what you are going to design, create or generate to solve (part of) the problem.
In case of a Specialisation and/or Annotation, address specifically how this is/these are included in the assignment.

The project will be based on a research towards the future context of leisure experiences and Volkswagen's brand values. This research will be translated in a mobility vision for the defined domain. This vision will be used to design a matching mobility concept that facilitates qualitative user experiences and satisfies the desire for freedom. The concept will be communicated in a 1:4 scale model.

Approach

What will be the approach to deal with the complexity of the assignment? What has to be done to meet the challenges? Indicate the main <u>methodologies</u> to be used. Indicate the same <u>project phases</u> as you distinguish in your planning. If one or more extra parties are involved in your project, indicate which role they play.
In case of a Specialisation and/or Annotation, address specifically how this is/these are dealt with.

I envision the project to have 5 phases: Analysis, Context creation, Ideation, Concept development, Embodiment.

Analysis: A thorough analysis of the current mobility ecosystem, Volkswagen's brand identity and brand image, followed by research towards future trends and development, in order to form an academic and reliable base for the next phase. The conclusions of this phase will be used throughout the complete project.

Context creation: Following the analysis phase by using the researches to create an envisioned scenario for the chosen domain. This phase will be supported by use of the ViP process (Hekkert & Dijk, 2011).

Ideation: The previous phases end with a clearly described mission statement and foundational vision to start the ideation. In the ideation phase, ideas to complete the mission statement will be thought through and translated into features of the concept. Also, the brand analyses will be used to guide the design towards a fitting strategic concept. The ideation will be a creative process. However, the concept will be designed inside-out, starting with the package (technical layout), interior and exterior.

Concept development: After the ideation, converging the design directions will start the concept development phase. When the direction is clearly stated, the design will be developed in terms of proportions, design theme, surfaces, details and color and trim. In this phase, the previous phases will be used to guide the design. The results of the brand analysis and future context will shape the concept.

Embodiment: This last phase will start at the design freeze. The concept will need refinement in 3D and solutions for prototyping have to be designed. After that, the prototyping process will begin, ending with the 1:4 scale model (required and financed by Volkswagen). Lastly, communication (visual explanation of the concept) and presentation is another important part of this phase.

Graduation Project results
1. Describe the expected results or outcome of your Graduation Project. For instance, a product, a product-service combination, a strategy illustrated through product or product-service combination ideas.
2. Indicate the expected scientific and/or societal and/or commercial significance of the outcome of your project.
3. In case of a Specialisation and/or Annotation, address specifically the relevant results to be expected.

1. The outcome of the project will be an exterior design of a future mobility concept. This means that the project is product focused.
2. Graduate interns are free to execute their own project. These projects do not have direct commercial significance but are used as inspiration for the employed designers.

Deliverables
List the extra graduation deliverables, if any (apart from the mandatory deliverables being the thesis report, annexes if any, the poster and the representative pictures). For instance, a working prototype or a paper.

During my previous internship in the Automotive industry, I discovered that communication is very important. The first task as a designer is to communicate your ideas in a visual way. Therefore, the additional (required by Volkswagen) deliverable is a 1:4 prototype. This prototype is detailed and well finished, with focus on the styling of the concept. As these prototypes are required in the industry and the quality standard is very high, this will take 6 weeks of the project duration.

Relation and relevance to the domain of Industrial Design Engineering, the chosen master direction and the IDE pillars
Explain the relation of your project with the domain of Industrial Design Engineering and your master direction IPD, DfI or SPD.
1. Relation of you project to the master IPD, DfI or SPD
Furthermore describe the interface of your project with each of the IDE pillars:
2. Business
3. Human Interaction
4. Technology

People in Transit is one the faculty's three strategic research fields. Automobility, which has a long standing at IDE, is an important domain therein. Considering the vast changes that both the automotive industry and the car are facing, IDE students are more and more recognized by OEMs as valuable in this transition because of our holistic approach of (auto) mobility. My master, IPD, is about designing the product itself. During the master, several courses let the student develop the complete design process (from concept to embodiment). This assignment covers very well this process, starting with a direction, developing a concept and embodying this concept with a high quality model.

Furthermore, the three IDE pillars are well reflected in the project. **Business** is crucial when designing a concept for Volkswagen, **Human Interaction** will distinguish the concept from other concepts and **Technology** is the base of innovation in the automotive industry. Combining these pillars together can lead to an academic process and well-supported concept.

Planning

Present your planning in a Gantt Chart, which can easily be made in Excel, see example underneath. Make sure a print in black and white is still readable. Mention the main phases of the project as described at Approach + number of weeks. Indicate only main activities, milestones, meetings. Take notice: 33 EC = 22 full-time weeks! Indicate periods of part-time graduation project activity and/or periods of not spending time on your graduation project, if any, for instance because of holidays [8].

	Month	Jan					Feb				Mar				Apr				May				Jun				Jul	
	Calendar weeks	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Pre fase Organisational		�																											
Analysis Concept brief			▢	▢																									
Context creation Vision				▢	▢	▢																							
Ideation Ideation choices							▢	▢	▢																				
Concept development 3 Concepts										▢	▢	▢	▢	▢															
Embodiment Prototype															▢	▢	▢	▢	▢	▢	▢	▢	▢	▢	▢				
Meetings Kick off			■																										
Midterm														■															
Green light																		■										
Final presentation																												■
Deadlines Vision design freeze						■																							
Concept choice								■																					
3D development															■														
Prototype finished																								■				
Presentation @ VW																										■		
Presentation @ TU																												■
Report																											■	

Brief explanatory remarks on the planning, if any.

The different phases of the project are overlapping in order to make it possible to iterate. Furthermore, the regular meetings are not included in this planning but, in good contact with both mentor and chair, I will organise feedback moments every two weeks.

Further comments and information

In case your Assignment needs further comments, please add any information you think is relevant.

As a final comment I would like to take the opportunity to explain my choice of team. As a chair I would like to work with Elmer van Grondelle and as a mentor Wouter Kets. Both of them are part of ID. However, I believe that in this assignment it will benefit the project and the relationship with VW. The automotive industry is a highly specialized industry. I think it is fair to say that no other IDE staff members have as much experience in this field as Elmer van Grondelle and Wouter Kets. Wouter worked until recently for big OEM's and knows how the industry works, how to manage a good project and how to bring the actual design to the next level. Elmer is more focused on the educational, strategic and visionary aspects of such a graduation project. Although they have the same background, both mentor and chair approach and support the project in completely different way. Concluding, it would be a missed opportunity for my project, the TU and myself if could not make use of these two specialists.

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[8] *Only by approval of the Board of Examiners, a not yet passed course may be combined with the Graduation Project. In such case, show the approval to your Chair and indicate the period of not spending time on your Graduation Project for this reason.*

APPROVAL BY CHAIR

Date of approval	
Signature of Chair	

References

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