**Project Proposal Information**

### 1 Introduction

The Professional Doctorate in Engineering (PDEng) degree program on Automotive Systems Design (ASD) provided by the Department of Mathematics and Computer Science of Eindhoven University of Technology in the context of the 4TU.School for Technological Design, Stan Ackermans Institute is a 2-year post-graduate (post-M.Sc.) education and training program with a strong emphasis on the efficient, effective design and development of technologies and applications for modern high-tech automotive systems. The program is executed in close cooperation with the Departments of Mechanical Engineering and Electrical Engineering.

As part of their education and training program, our trainees have to participate in an industrial design and development project for a period of 12 months (previously 10 months). Such a project is a fixed-date, fixed-price project. In order to support a high-quality design process and product, this brief memo defines a number of general rules and guidelines.

When you are interested in contracting an industrial design and development project to the ASD program, please read the information in this memo and refer to the corresponding Project Proposal Form.

### 2 Contact Information

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3 Proposal Requirements
For a project proposal to be considered it should fulfil the quality criteria of the ASD program:

- The project must be aligned with the focus of the program, i.e. the design and development of automotive systems or components;
- The project must be innovative and challenging, on the post-master level;
- The project must comprise a substantial part of the development lifecycle (e.g. requirements engineering, specification, architecting, design, implementation, and testing);
- The project has to be conducted by a team. This can either be a team of at least two trainees or a combination of a trainee with a company team;
- The company has to provide sufficient coaching for our trainee(s). As a rule of thumb, the company coach should be able and willing to spend at least 2 hours per week with the trainee(s);
- The company must be willing to contribute to funding this project accordingly for the period of twelve months; The costs are based on a public private collaboration and in accordance with university’s certified general management and accountancy principles. The costs include the participation of TU/e senior staff members as project supervisor providing basic project consultancy. For the 2019-2020 projects the costs amount to € 5800,- ex. VAT per month;
- When a company wants to have the project conducted outside The Netherlands, it must be willing to provide 50% of the expenses for the university supervisor to visit the actual project site two times;
- The project proposal has to be submitted in time. Proposals for the project period of October 27, 2019 – October 28, 2020 have to be submitted by August 16, 2019.

4 Project Allocation
The management team reviews the submitted project proposals with respect to the above criteria. If there are more suitable projects than trainees, the management team selects the project proposals according to the following priority rules:

1. Projects that are related to application areas that are considered as strategically important by the management team and that fit the multi-disciplinary background of ASD trainees.
2. Projects that continue or built on earlier successful projects and/or are linked to each other. In this way continuity is achieved with respect to the domains and projects the ASD program is involved in, to the project-specific knowledge of the university supervisor and to the relationship with (strategic) partners.
3. Projects that are initiated by trainees and research groups of the Departments of Mathematics and Computer Science, Mechanical Engineering and/or Electrical Engineering as part of the PDEng-PhD programs. For these projects the same criteria apply.

4.1 Next steps
a. The selected projects will then be offered to the trainees of the ASD program that will start their industrial design and development project on October 27, 2019. The companies whose projects have been selected may then be requested to present their project proposals in more detail to the group of trainees.

b. After the various presentations, the trainees of the ASD program will indicate their preferences.

c. Considering the various technical backgrounds that the group of ASD trainees have, the ASD management decides if there is a possibility for the trainees to choose/sign up for the preferred project.

d. ASD management matches the projects with the trainees according to the backgrounds and experiences of the trainees, wishes of the trainees, and wishes of the industrial partners.

e. Selection interviews at companies are organized by the ASD secretariat.

f. After the various selection interviews, the companies select the trainee(s) that appear(s) to be the most appropriate one(s) for the project at hand.
5 Project Roles and Responsibilities

5.1 Industrial Partner
During an industrial design and development project, the respective company is supposed to provide:

- A project manager to monitor and control the progress and quality of the design and development process and the resulting products. The project manager is also to provide regular feedback to the Program Manager of the Automotive Systems Design program on the status of the project and on the quality of the work of the respective trainee(s).
- A project mentor to provide sufficient domain knowledge and skills to support the trainee(s) during their final project. We expect a project mentor to be available for approximately 2 hours per week.
- The project manager and the project mentor participate in the various activities and meetings in accordance with the design and development process described in the project management document.
- The project manager and/or the project mentor have to participate in intermediate and final project evaluation and reflection meetings.
- The integration of the trainees in a project team, if relevant.
- The necessary facilities including an appropriate working environment with all necessary hardware, software, and literature.
- The project manager and/or the project mentor will be invited to address their trainee during the graduation ceremony.

5.2 Eindhoven University of Technology
During an industrial design and development project, the TU Eindhoven provides an academic supervisor who has the following responsibilities:

- Monitor and control the quality and progress of the project and the resulting products.
- Provide regular feedback to the Program Manager of the Automotive Systems Design program on the status of the project and on the quality of the work of the respective trainee(s).
- Support the trainees with (references to) relevant domain knowledge and relevant colleagues.
- Participate in the various project-related activities and meetings in accordance with the design and development process described in the project management document.
- Review the project report with respect to the technical and academic contents.
- Assess the results of the project as described below.
- Participate in the evaluation and reflection meetings.

5.3 ASD Trainees
During an industrial design and development project, trainees should exhibit a professional and goal directed attitude.

- They are expected to proactively employ project and risk management,
- They have to compose and maintain their Project Management Document including a risk management section,
- They have to initiate and manage the required progress meetings, project meetings, and review meetings.
- They have to regularly reflect upon the quality and the progress of their project and to modify the Project Management Document according to the deployed design and development process,
- They have to submit the documents that are necessary for the various project-related meetings in time, in order to allow their supervisors to read them carefully,
- They have to compose a project report conform to the rules of the university and/or the industrial partner,
- They have to arrange the various project-related presentations in time,
• They have to arrange that the texts for the diploma booklets are reviewed and approved by the respective project manager or the project mentor(s) and the academic supervisor. The approved versions should then be sent to the operational manager for a final review,
• They have to deliver a project report that was accepted by the project manager, the project mentors and the academic supervisor at least one week before the final presentation,

6 Assessment of project results
The results of the design and development project are to be assessed by the graduation committee, consisting of the academic and company supervisors, and at least 2 external members. The TU/e PDEng Examination Committee has to approve the composition of this graduation committee. A detailed evaluation procedure is available, but to sketch an idea, the following aspects should be taken into account.

• Product – Can the resulting product be considered to be of high quality? Is it well designed and documented? Is the functionality satisfactory and is the construction structured and convincing? Were risks properly analyzed, including realistic mitigation strategies?
• Process – Was the product developed according to a well-defined and managed process? Was the problem adequately analyzed and handled? Did the trainee show creativity in the solution approach? Was the trainee consistent and independent in the execution of the project? Has the trainee shown that he/she has sufficient communication and social skills?

7 Formal employment status
During an industrial design and development project, the trainee remains an employee of the Eindhoven University of Technology. During a final project the trainee can use 26 leave days, exclusive the national holidays as applied by the company. For the use of leave days he/she needs the permission of the company manager and/or supervisor, and the program director.

8 Additional Information
• Intellectual property
TU/e - ASD agrees to transfer all intellectual property rights to the industrial partners according to the mutual agreement that will be arranged between TU/e and the industrial partner.

• Academic Excellence
The ASD program is accredited by the CCTO (Certi ficatie Commissie voor Opleidingen tot Technologisch Ontwerper). The program quality is monitored by the Doctorate Board of Eindhoven University of Technology.

• Governance
The ASD program is part of the TU/e Graduate Program Automotive Systems. The Scientific Director is:

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