Hanze University of Applied Sciences Groningen

Course: Project Semester 5 credits: 8

Course code	ELVH17APRS5
Name	Project Semester 5
Study year	2022-2023
ECTS credits	8
Language	English
Coordinator	F.J. Guzman Munoz
Modes of delivery	Project-based learning Supervision
Assessments	Project Semester 5 - Assignment

Learning outcomes

- Student formulates a clear research question based on an analysis of the needs of an external customer.
- Student analyses existing technology and does systematic research to choose proper sensors related to the research question.
- Student designs a proof of concept to solve the problem based on requirements and taking into account the design's feasibility and testability.
- Student implements the design and assembles the components into an integral product, service or process.
- Student monitors the activities of the project regarding budget, time, quality and organisation.
- Student communicates with other students and with the client in a professional manner adapting to new situations.
- Student evaluates the performance of the product against quality standards and against client's specifications.
- Student validates the sensor output using appropriate statistical test.
- Student presents the results to the academic community in the form of a scientific manuscript and a scientific poster

Content

R&D stands for Research and Development; sometimes Development is exchanged with Design.

The project applies research and based on development, consolidates the research towards a proof of concept. While design implies a concept, development is more closely related to research itself.

Using a V-model, all steps are relevant for a complete R&D project:

- Situation analysis
- Technical analysis
- Concept and design
- Build and implement
- Testing and verification
- Validation
- Sell and Use

A steep learning curve is to be expected during verification of the designed solution. Enough time should be allocated for the iterative loop between design, implementing and testing. The validation focuses on the proof of concept or on the lack of feasibility for the developed solution. In case of the latter, if time permits, also this loop can be iterative.

The goal is a scientific publication and for the developed proof of concept a (mini) symposium is organized for the official presentation of the results to the involved companies.

Every group is assigned a different project, while all the projects follow the same steps trough R&D, the variety of topics helps broaden the knowledge.

The various steps throughout the R&D project are divided into 4 sub tasks:

Task 1: Write a project plan
Task 2: Research Definition: Analyze existing technology, gather data and select the proper sensors.
Task 3: Final Research Report:
Task 4: Present the results in a scientific way by writing a scientific paper and a poster

Included in programme(s)

Electrical Engineering Major Sensor Technology

School(s)

Institute of Engineering