1. Introduction

This POA is made for the course EE4. This document is due to Friday of week 1. The goal of the POA is to make clear what all the goals are that have to be achieved to the end of the project. This way the structure of the entire project becomes clear.

1.1 Motive

As part of EE4 this POA is due to Friday of week 1. The goal of EE4 is to create a small solar vehicle. Projects like this are done to give the engineer the possibility to test their skills in real life. To realize a real thing.

1.2 Approval and correction

In week 1 we will give this POA to our EE4-coach. He will look in to it and will point out te mistakes that we made. We can correct these mistakes if asked by the coach. We will try to follow this POA as much as possible. But there could be some derailing from the original plan.

1.3 Commentary to the structure of the plan.

The following points will contain the part about the project itself and the goals we are willing to achieve. It will also contain some problems that might occur, or why we have an imperfection in the project.

2. Project description

We will build a small solar vehicle. The solar panel and electromotor will be given to us by the coach. Then Team Phoenix will try to build the solar car. It should be able to drive for a couple of meters before climbing uphill for a distance. Next we have to make a Sankey diagram, this will present what happens with the energy that is produced by the solar panel: loss in heat, rotation of motor,…

2.1 Principal

The Principal for this project is Groep T, more specific for the course of EE4. The coach that is assigned to us will be our guide in this project.

2.2 Contractors

The contractors consist of a group of 8 people which are from different origins. The team name will be "Phoenix". We decided to work with 2 leaders, this will be Wante Michiel and Wei Wei Xu.

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2.3 Motive

EE4 is an obligated course of BAC 2. All of the contractors are interested in electro-mechanics which made this choice rather evident.

2.4 Goals

Engineering:

For this project we have to make 3 cases. These cases are: SSV case 1. This case handles the design building and optimalisation of the small solar vehicle. Case 2 is the Simulink case. Here we optimize our SSV by looking at simulation software. The use of this software will be teaches in the seminars. Case 3 is the SSV case 2. Here we measure distance x. we also do a critical analysis of the stresses in the driven shaft. We have to make a Sankey Diagram of the Umicar and we have to draw a technical drawing of the frame.

Enterprising:

Market research
Business plan (4P)
Create a website to promote the SSV
Engrave logo in the frame. This can be done at the fab-lab
Control the budget so we don't exceed the limit of 200 euro

Education:

Create a Wiki page.
Plan of approach, Work Breakdown Structure, Gantt Chart.

Keep a blog up to date.
Write a design report and a process report

2.5 Problems

Problems will occur during this project. We have to look after all the deadlines so we don't miss any of them. When a problem occurs there will be an appropriate solution.

- A team member complains about the subtask that is assigned to him
  - We have to look at the bigger picture. Can someone else do his task and transfer his task to the first member.
  - When the project already reaches a faze where there can't be a transfer in tasks then we will help the team member so his task becomes less heavy.
- What if the files get lost on the leader his computer.
  - We will have an online database so the only way files get lost is when the server crashes. And still then we have our own backups.
- A team member gets ill.
  - His tasks will be divided among the remaining team members until he gets better.
- A team member gets aggravated by another team member.
  - We will all sit together and talk this over so we can continue with an good atmosphere.
- We can't decide between two solutions.
  - We will cast a vote and the solution that gets the highest vote wins.

2.6 Expected results

Engineering:

3 cases:

- Case SVV part 1: design a SVV and build it. Calculate a transmission so there is a sufficient transfer of energy to the wheels. This transfer of energy will be put in a Sankey diagram. This diagram will show what happens with the energy received from the solar panel.
  Then we will race our SSV against other EM teams.
- Case Simulink: simulate what will happen when our SSV rolls freely down a ramp. And then calculate what the distance x will be.
- Case SSV part 2: we will measure the real x of our SSV. We will make a sankey diagram of the umicar. We will analyse the critical stressen in the drive shaft of the SSV. And we will make a drawing of the frame

Enterprising:

What will be the market position of a miniature model of the Umicar

We will do a market research about the need of a solar vehicle.
Business plan based on the four P's
Create a website to promote the SSV
Engrave logo in the frame. This can be done at the fab-lab
Control the budget so we don't exceed the limit of 200 euro

Education:

Create a Wiki page.
Plan of approach, Work Breakdown Structure, Gantt Chart.
We will have to keep a blog up to date.
We will write a design and process report about our SSV

3. Management aspects

3.1 Timing

The team leaders will keep an eye on the deadline to make sure that we don't miss any. The team has made an agreement to join together frequently and have meetings to divide tasks. With frequently we mean surely weekly during the ee4 hours in our schedule and also another time to divide new tasks or bring together different parts if possible due to very different and full class schedules.

3.2 Quality control

During this assignment every team member has to keep an eye on the standards of his or her assigned task. These standards are listed on Toledo or in the assignment given to us by the teachers.

3.3 Management of information

When the different team members finish their tasks, the file is send to everyone to check and if necessary corrected. To avoid a situation where everyone thought another team member had checked it the team leaders have the final say and always do a last check.

3.4 Organizational management

The organization of our team is mainly a task of the team leaders. But we are a team of motivated persons so when the tasks are divided there are always volunteers. One of those motivations are two peer assessments. This is a chance for other team members to reward their good working colleagues and give discredits to colleagues who don't pull their weight

3.5 Money

The team has decided that all costs are paid in advance by one team member. This way all costs and also all checks are kept together. At the end of the project we can easily check the amount of money spend in total.