“Basic Car” Module 1.1

PHASE 1

Study points to be earned:

- Industrial Design - 1.5 pts
- Mechanical engineering – Fitting work - 1.5 pts
- Electrical engineering – Fitting work - 1.5 pts
- Mechatronics - 1.5 pts
- Mechanical engineering - 1.5 pts

Total points to be earned in the “Basic Car” module: 7.5 pts

Cohort 2010-2011 Engineering Programme 4 94421

Introduction to this module

You will work on a basic module for the first eight weeks of this programme.
This module will familiarise you with the various programmes in the cluster.
If you are still not sure which programme suits you best, you will therefore have eight weeks to take a look at what interests you.

The intention is that you will take on this project enthusiastically. The project is the basis for all of the programmes and is therefore part of the course schedule.
Once you have completed this project, you will have already earned the first 7.5 study points in your programme!

Description of the project

In the project you will “make a model car” in small groups (maximum of 3 people).
Each part of the car will be made or installed in the relevant programme.
The electric motor is installed in the Electronics Department, while the rest of the propulsion system is fitted in Mechatronics.

Your level of effort and motivation are included in the evaluation.

The training supervisors will only sign off on the evaluation form if they are satisfied with the work done and with your effort.

This means that you need five signatures for your project. The instructors listed below will supervise you on this project and will therefore also give you the points and signature required on the evaluation list:

- Industrial Design	:	Mr Kist
- Mechanical Engineering	:	Mr Stomps
- Mechanical Engineering – Fitting Work	:	Mr Van Dieren
- Electrical Engineering – Fitting Work	:	Mr De Ruiter
- Mechatronics	:	Mr Van der Kolk

The idea is that the car will be complete after the first eight weeks of the course. The car can then be presented during the first introduction evening for your parents at our school.

The assignment

What are the **minimum** requirements for the car?

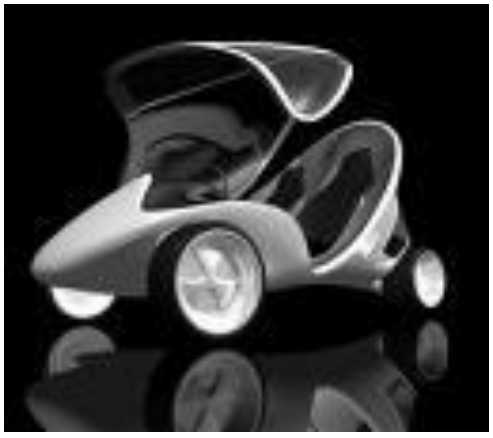
	Mechatronics	Fitting work	Mechanical engineering	Electrical engineering	Industrial design
Electrical battery-powered propulsion	**X**			**X**	**x**
Base plate			**X**		**x**
Lighting				**X**	**x**
Propulsion system	**X**		**X**		**x**
Bodywork			**X**		**X**
Bumpers and roll cage		**X**			**x**
Design					**X**

These are the minimum requirements which the car must satisfy. The intention is that your project group will make a car that is as good-looking and functional as possible.

The result will be included in the final evaluation of your project.

We have attached a competitive element to this activity, because there are four prizes to be won:

- Award for the best design
- Award for the most technically advanced car
- Award for the fastest car
- Award for the best team cooperation

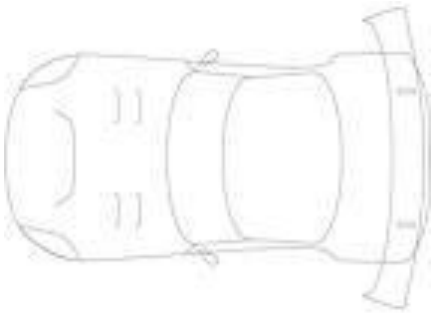


“Basic Car” structure

Before you start building, you should have a good idea of what the “Basic Car” has to look like. We must therefore make agreements and stick to them.

We will enter these “variables” in a “configurator”, which should provide the necessary reference basis for designing and building your “Basic Car”.
This configurator is an Excel file which your project group has to fill in!

Ontwerp aspecten bij de "Basic Car" CONFIGURATOR			
			Opmerking invullen bij eige
Design	aantal wielen	4	
	vormgeving	klassiek	
	materiaal carrosserie	kunsstof	
Werktuigbouw	materiaal bodemplaat	staal	
	ophanging carrosserie	bout en moer verbinding	
		bout en moer verbinding	
		schroef	
		klik	
		anders nl	
Mechatronica	aantal motoren	1	
	aandrijving	achteras	
	Type aandrijving	rechtstreeks	



Naturally, you will be supervised during this part of the programme.
The intention is that you and your project group will put together your car with the Design Instructor.

The result is a “Basic Car” according to your group’s own specifications.

Corresponding modules

The project consists of a number of support modules which all relate to the Basic Car. Each module is designed in such a way that it gives you an idea of the subject matter in the technical area covered by the module!

1. Introduction to Mechatronics
2. Introduction to Fitting Work
3. Introduction to Electrical Fitting Work
4. Introduction to Mechanical Engineering
5. Introduction to Design

The order of the modules does not matter because they run simultaneously! The guideline for the duration of the project is eight weeks. All parts must be completed within those eight weeks.

After the guidelines for the Basic Car have been established for each project group, work can begin.

The evaluation

	Beoordelingslijst : Basic car		
		max.	sp
Onderdeel :	**Mechatronica**	**20**	**1,5**
1 **(5p)**	vakspecifieke onderdelen basic car		
2 **(5p)**	uitvoering volgens configurator		
3 **(5p)**	onderdelen module vakrichting		
4 **(5p)**	Inzet en motivatie		
Handtekening docent mechatronica			
Onderdeel :	**Installatietechniek**	**20**	**1,5**
1 **(5p)**	vakspecifieke onderdelen basic car		
2 **(5p)**	uitvoering volgens configurator		
3 **(5p)**	onderdelen module vakrichting		
4 **(5p)**	Inzet en motivatie		
Handtekening docent installatietechniek			
Onderdeel :	**Elektrische-installatietechniek**	**20**	**1,5**
1 **(5p)**	vakspecifieke onderdelen basic car		
2 **(5p)**	uitvoering volgens configurator		
3 **(5p)**	onderdelen module vakrichting		
4 **(5p)**	Inzet en motivatie		
Handtekening docent elektrische-installatietechniek			
Onderdeel :	**Design**	**20**	**1,5**
1 **(5p)**	vakspecifieke onderdelen basic car		
2 **(5p)**	uitvoering volgens configurator		
3 **(5p)**	onderdelen module vakrichting		
4 **(5p)**	Inzet en motivatie		
Handtekening docent design			
Onderdeel :	**Werktuigbouw**	**20**	**1,5**
1 **(5p)**	vakspecifieke onderdelen basic car		
2 **(5p)**	uitvoering volgens configurator		
3 **(5p)**	onderdelen module vakrichting		
4 **(5p)**	Inzet en motivatie		
Handtekening docent design			
	Naam leerling:		

Work processes and competencies related to the project

Core task / Work process – Engineering

Core task 1: Designing products or systems
1.1 Collecting and processing design data
1.2 Producing designs
1.3 Choosing materials and parts

Core task 2: Preparing production work
2.2 Making a drawing or drawing package
2.3 Organising people and resources

Core task 3: Supervising production work
3.4 Delivering work

Relevant Competencies

Deciding and initiating activities
Giving instructions
Cooperating and discussing
Formulating and reporting
Applying expertise
Using materials and resources
Analysing
Planning and organising
Delivering quality
Following instructions and procedures