# Courses in English

## Course Description

<table>
<thead>
<tr>
<th>Department</th>
<th>09 Engineering and Management</th>
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<tbody>
<tr>
<td>Course title</td>
<td>Aerodynamic Principles for Automotive Design</td>
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<tr>
<td>Hours per week (SWS)</td>
<td>3</td>
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<tr>
<td>Number of ECTS credits</td>
<td>4</td>
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### Course objective

Having successfully completed the module students are expected to be able to:

1. Calculate or simulate a laminar flow field for a simple shape (e.g. blunt body, cone, ball or block) at low speeds.
2. Describe and perform a simple experiment (designed by the students in teams), e.g. to be provided
3. Write about it!

### Prerequisites

Priority to exchange students that are enrolled at the department of Engineering and Management!

### Recommended reading

Core reading:
Katz, Joseph PhD  Race Car Aerodynamics: Designing for Speed (Engineering and Performance), Bentley Publishers 2006

Supplementary reading:

### Teaching methods

Lectures combined with practical exercises

### Assessment methods

The module is assessed by a presentation (including team project work) and an exam.

### Language of instruction

English

### Name of lecturer

Laura Randall

### Email

laura.randall@hm.edu

### Link


### Course content

Part 1 – Basics of low-speed fluid dynamics:

- Do some experiments
- Figure out what’s going on
- Describe what’s going on mathematically
- Describe what is happening verbally
- Present your experiment

Part 2 – Automotive Design:

- Be able to discuss the ins-and-outs of a two-stroke or a four-stroke internal combustion engine.
- Heating/cooling units
- Exterior Design with various shapes
- Tour of a Car Manufacturer with an engineer as the tour guide – (could be either BMW or Audi)

### Remarks