Smart Mobility Design

**Interdisciplinary design of a smart mobility concept for Eindhoven area**

<table>
<thead>
<tr>
<th>Name package:</th>
<th>Smart Mobility Design</th>
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</thead>
<tbody>
<tr>
<td>Offered by:</td>
<td>BE, IE&amp;IS</td>
</tr>
<tr>
<td>Language:</td>
<td>English</td>
</tr>
<tr>
<td>Interesting for:</td>
<td>all majors</td>
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<tr>
<td>Contact:</td>
<td>dr. Soora Rasouli</td>
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</tbody>
</table>

**Content and composition**

Sustainable mobility is one of the most challenging issues within society nowadays. The CO2 footprint, air pollution and the large number of vehicles on the roads are of great concern to everyone. Daily we encounter problems related to mobility. However, mobility also offers us opportunities of movement and prosperity.

Many technological solutions needed for breakthroughs are already available, but optimally applying them requires more than just using the individual tools. Smart Mobility Design requires fundamentally rethinking of mobility by taking a systems approach that integrates mobility demand, logistics and transportation supply while applying modern ICT solutions.

In this elective package you learn and apply interdisciplinary, system-oriented skills in order to solve one of society’s most intricate problems.

You start to apply this system thinking on a manageable scale:

**Design and analyze a smart mobility concept for EINDHOVEN region**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course Name</th>
<th>Level classification</th>
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</thead>
<tbody>
<tr>
<td>0SEUC0</td>
<td>Future of Mobility</td>
<td>1</td>
</tr>
<tr>
<td>7W3X0</td>
<td>Mobility and Logistics</td>
<td>2</td>
</tr>
<tr>
<td>7GC20</td>
<td>Smart Mobility Design Project</td>
<td>3</td>
</tr>
</tbody>
</table>

**Sequence within elective package**

Courses 1 (0SEUC0) and 2 (7W3X0) have to be followed before you can start Course 3 (7GC20).

You learn to design a practical and integral mobility solution for the university campus using the toolsets from three different angles:

1. future vehicle technology possibilities (e.g. new drivelines, autonomous driving)
2. the travelers (demands and preferences)
3. logistics (goods transportation using trucks and other transport modes)
Course Descriptions

Course 1: Future of Mobility
This course starts with a short explanation of the design project on smart mobility. In this course you learn about relevant topics concerning future mobility in relation to:

- engines and biofuels
- drivelines
- the digital car
- communication between cars and infrastructure
- building cities
- logistics and freight
- vehicle sharing

An assignment has to be made on a technology relevant future scenario for either the vehicle itself or its surroundings, with respect to mobility.

This course is also part of the USE learning line Future of Mobility.

Course 2: Mobility and logistics
In this course you:

- apply an activity-based model to predict activity patterns and travel flows
- analyze mobility concepts using the models
- gain insight in freight distribution
- learn about operational planning of freight transportation
- learn about decision criteria in logistics both in long haul transportation and city distribution

Course 3: Smart Mobility Design Project
This course starts with reporting the insights gained from the previous courses. The core of the course is to design and analyze a smart mobility concept for Eindhoven.

Examples of project proposals could be:

- Which smartphone-based APPs can save the mobility-related time for TUE students and employees?
- If autonomous vehicles come, do we still need parking garages in the city center of Eindhoven?

You work in teams on a project. You can either choose a project out of a predefined set of projects or you define your own project proposal, within the context of the assignment. Coordination with the USE learning line Future of Mobility project is also possible.