Topics within Dynamics & Control

DYNAMICS
• Modelling and analysis of mechanical systems
• Vibro-acoustics
• Engineering design

&

• Mechatronics
• Robotics
• Vehicle dynamics & control
• Hybrid and networked dynamics & control

CONTROL
• (Non-linear) control of mechanical systems
• Manufacturing networks
Dynamics & Control – this is us!

D&C chair

Henk Nijmeijer

Nathan van de Wouw
Sasha Pogromsky
Hans Zwart

Alessandro Saccon
Erjen Lefeber

nonlinear control

Vibrations & Acoustics

Ines Lopez
Igo Besselink
Peter Zegelaar

Ivo Adan

vehicle dynamics and control

structural analysis

Rob Fey

Nick Rosielle

Marceel Heertjes
Hamed Sadeghian

engineering design

supporting staff

Geertje Janssen-Dols
Peter Hamels
Erwin Meinders

mechatronics

manufacturing networks

about 50 MSc students/year, 25-30 PhDs, 3 PostDocs
Mentors

Mechanical Engineering
• Prof. dr. Henk Nijmeijer, Secretariaat.DC@tue.nl
• Prof. dr. ir. Ines Lopez Arteaga, Secretariaat.DC@tue.nl
• Prof. dr. ir. Nathan v.d. Wouw, Secretariaat.DC@tue.nl
• Dr. ir. Igo Besselink, I.J.M.Besselink@tue.nl
• Dr. ir. Erjen Lefeber, A.A.J.Lefeber@tue.nl
• Dr. Sasha Pogromsky, a.pogromski@tue.nl
• Dr. Alessandro Saccon, A.Saccon@tue.nl

Manufacturing Systems Engineering
• Prof. dr. ir. Ivo Adan, i.adan@tue.nl
• Prof. dr. Henk Nijmeijer, Secretariaat.DC@tue.nl
• Dr. ir. Erjen Lefeber, A.A.J.Lefeber@tue.nl
• Dr. Sasha Pogromsky, a.pogromski@tue.nl
Master within Dynamics & Control

- Regular (once per quarter) consultation about progress on individual MSc program with mentor

- Choose a mentor during Q1-Q2 (Q3-Q4 if you start in Q3)

- Course list approval in Q4 (if you start in Q3, then Q2 of the next academic year)

- Internship (15 EC), preferably abroad. Assessment based on input from external supervisor, report and presentation. Usually mentor is the examiner.

- Graduation project (45 EC):
  - Guidance by daily supervisor and (once a month) consultation with graduation professor (Nijmeijer, v.d. Wouw, Lopez Arteaga)
  - Internal or external: Coupled to exciting research within the group and/or within a company
## Courses

<table>
<thead>
<tr>
<th>Core</th>
<th>20 EC</th>
<th>Choose 4 out of 11 offered core courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialization</td>
<td>20 EC</td>
<td>Choose 20 EC from the list of specialization courses</td>
</tr>
<tr>
<td>Individual program</td>
<td>15 EC</td>
<td>Free choice of all master's courses at TU/e</td>
</tr>
<tr>
<td>Professional skills</td>
<td>5 EC</td>
<td>Two mandatory courses</td>
</tr>
<tr>
<td>Trainee-/Internship</td>
<td>15 EC</td>
<td></td>
</tr>
<tr>
<td>Graduation project</td>
<td>45 EC</td>
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</tbody>
</table>

### Answer on the question about Specialization courses:
- We recommend you choose all specialization courses from the Dynamics & Control list
- You may choose a specialization course from another section if it contributes to building a coherent course list with a clear profile.
Master courses Dynamics & Control

- 4DM00 Structural Dynamics & Vibro-acoustics, Q1
- 4AT00 Vehicle Dynamics, Q1
- 4SC060 Homologation Dynamics of Mechanical Systems, Q1
- 4DM10 Multibody & Non-linear Dynamics (Core), Q2
- 4DM30 Non-linear control, Q3
- 4SC050 Performance of Nonlinear Control Systems, (2.5) Q4
- 4DM50 Dynamics and control of cooperation, (2.5) Q4
- 4DM40 Modelling & control of manufacturing systems, Q4
- 4DM60 Control of distributed parameter systems, (2.5) Q4
- 4AT050 Vehicle control, (2.5) Q4
- 4CM50 Applications of Design Principles (Core), Q4

https://assets.studiegids.tue.nl/fileadmin/content/Faculteit_WTB/Graduate_School/Masteropleidingen/Mechanical_Engineering/Formulieren/Core_and_Specialization_courses_MW_2019-2020.pdf
https://assets.studiegids.tue.nl/fileadmin/content/Faculteit_WTB/Graduate_School/Masteropleidingen/Mechanical_Engineering/Formulieren/Recommended_courses_individual_space_MW_2019-2020%20.pdf
Master courses Dynamics & Control

More or less compulsory
- 4DM10 Multibody & Non-linear Dynamics (Core), Q2
- 4CM00 Control Engineering, Q1&Q3

Recommended
- 4AT00 Vehicle Dynamics, Q1
- 4DM00 Structural Dynamics & Vibro-acoustics, Q1
- 4DM30 Non-linear control, Q3
- 4DM20 Engineering optimization, Q3

Possible lines
- **Line 1**: 4AT00 Vehicle Dynamics/ 4CM00 Control Engineering, 4DM10 Multibody&Non-linear, 4DM30 Non-linear control, 4SC050 Performance/4DM50 Cooperation/4AT050 Vehicle Control

- **Line 2**: 4DM00 Struct.&Vibro., 4DM10 Multibody&Non-linear,4CM00 Control Engineering/ 4DM10 Engineering Optimization, 4CM50 Applications of Design Principles

- **Line 3 (MSE)**: 4CM00 Control Engineering, 4DM10 Multibody&Non-linear, 4DM30 Non-linear control, 4DM40 Modelling & control of manufacturing systems
Scientific integrity

https://www.tue.nl/en/university/about-the-university/integrity/scientific-integrity/