

# Annex 6 to the Addendum for Double Master's Degrees between Chalmers tekniska högskola and Universität Stuttgart

## Double Master's Degree Scheme

The attached MACROPLAN depicts the 2-year MSc double degree structure in **Systems, Control and Mechatronics at Chalmers** and in **Technische Kybernetik at U Stuttgart**. It shows the compulsory and elective courses in each semester as well as the prerequisites for students wishing to spend their 2<sup>nd</sup> year at the partner institution.

Semester 1		Semester 2		Semester 3		Semester 4	
Chalmers students at Chalmers	Stuttgart students in Stuttgart	Chalmers students at Chalmers	Stuttgart students in Stuttgart	Chalmers students in Stuttgart	Stuttgart students at Chalmers	Chalmers students in Stuttgart	Stuttgart students at Chalmers
<p><b>Quarter 1</b></p> <p>Modelling and Simulation (C) (7,5 ECTS) --- Logic, Learning and Decision (C) (7,5 ECTS)</p> <p>-----</p> <p><b>Quarter 2</b></p> <p>Linear Control System Design (C) (7,5 ECTS) --- Applied Signal Processing (SC) (7,5 ECTS)</p>	<p>Concepts of Systems and Control Theory (C) (6,0 ECTS) --- Project in the Field of Engineering Cybernetics (C) (1,5 Credits) --- Course from group "Area of Specialisation 1 OR 2" (SC) (6,0 Credits) --- Course from group "Area of Specialisation 1 OR 2" (SC) (6,0 Credits) --- Course from group "Area of Specialisation 1 OR 2" (SC) (6,0 Credits) --- Elective in Engineering Cybernetics (SC) (6,0 ECTS)</p>	<p><b>Quarter 3</b></p> <p>Model Predictive Control (SC) (7,5 ECTS) --- Elective course 1 from course packages (7,5 ECTS) (list)</p> <p>-----</p> <p><b>Quarter 4</b></p> <p>Model-based Development of Cyber-Physical Systems (C) (7,5 ECTS) --- Sensor Fusion and Nonlinear Filtering (SC) (7,5 ECTS) OR Learning Dynamical Systems using System Identification (SC) (7,5 ECTS)</p>	<p>Advanced Control 1 (Nonlinear Control) (SC) (6,0 ECTS) --- Project in Engineering Cybernetics (C) (1,5 ECTS) --- Dynamics of Distributed Parameter Systems (C) (6,0 ECTS) --- Systems Analysis (DES) (6,0 Credits) OR Course from group "Area of Specialisation 1 OR 2" (SC) (6,0 Credits)</p> <p>---</p> <p>Internship (15 ECTS)</p>	<p>Course from group "Advanced Control" (6,0 ECTS) --- Module 2 from Area of Specialisation (SC) (6,0 ECTS) --- Module 3 from Area of Specialisation (SC) (6,0 ECTS) --- Internship (15 ECTS) (preferably completed from June to October in Sweden or Germany)</p>	<p><b>Quarter 5</b></p> <p>Deep machine learning (C) (7,5 ECTS) --- Logic, Learning and Decision (7,5 ECTS) OR Course from group "Area of Specialisation 1 OR 2" (SC) (7,5 Credits) --- Design Project in Systems, Control and Mechatronics (C) (1,5 ECTS)</p> <p>-----</p> <p><b>Quarter 6</b></p> <p>Design Project in Systems, Control and Mechatronics (C) (6,0 ECTS) --- Course from group "Area of Specialisation 1 OR 2" (7,5 ECTS) (list)</p>	<p>Master Thesis (30 ECTS)</p>	<p>Master Thesis (30 ECTS)</p>
<b>Σ ECTS = 30</b>	<b>Σ ECTS = 31.5</b>	<b>Σ ECTS = 30</b>	<b>Σ ECTS = 34.5</b>	<b>Σ ECTS = 33</b>	<b>Σ ECTS = 30</b>	<b>Σ ECTS = 30</b>	<b>Σ ECTS = 30</b>

Elective Course or Spezialisierungsfach has to be chosen so that "Model-based Development of Cyber-Physical Systems" is accounted for by Chalmers unless EZDV had been taken previously in the Bachelor's Programme at US

**US students** must choose during Semester 1 to Semester 3 **one** course from "Systems Analysis and Modelling", three courses from the "Area of Specialisation 1", and two from the "Area of Specialisation 2" and Nonlinear Control in "Advanced Control".

**US students** must choose either "Autonome Systeme und Regelungstechnik", "Systemdynamik" or "Mathematische Methoden der Kybernetik" as one of their "Area of Specialisation".

**Chalmers students** must choose one "Elective course" from course packages, all three semi-compulsory courses that have to be taken are already covered by courses marked with (SC).

Course code: C = compulsory; E = elective; SC = semi compulsory

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