## Module title

**Introduction to Control Theory**

### Abbreviation

10-M=ARTH-102-m01

## Module coordinator

Dean of Studies Mathematik (Mathematics)

## Module offered by

Institute of Mathematics

## ECTS

10

## Method of grading

Numerical grade

## Only after succ. compl. of module(s)

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## Duration

1 semester

## Module level

Graduate

## Other prerequisites

Registration for the exercise must be made via SB@home at the beginning of the course or as announced by the lecturer in accordance with the specified registration deadlines. Certain prerequisites must be met to qualify for admission to assessment (e.g., successful completion of a certain percentage of exercises). The lecturer will inform students about the respective details at the beginning of the course. Registration for the exercise will be considered a declaration of will to seek admission to assessment. If students have obtained the qualification for admission to assessment over the course of the semester, the lecturer will put their registration for assessment into effect. Students who meet all prerequisites will be admitted to assessment in the current or in the subsequent semester. For assessment at a later date, students will have to obtain the qualification for admission to assessment anew.

## Contents

Introduction to mathematical systems theory: stability, controllability and observability, state feedback and stability, basics in optimal control.

## Intended learning outcomes

The student is acquainted with the fundamental notions and methods of control theory. He/She is able to establish a connection between these results and broader theories, and learns about the interactions of geometry and other fields of mathematics.

## Courses

**V + Ü** (no information on SWS (weekly contact hours) and course language available)

## Method of assessment

**written examination** (approx. 90 to 120 minutes); if announced by the lecturer, the written examination can be replaced by an oral examination of one candidate each (approx. 20 minutes) or an oral examination in groups (groups of 2, approx. 30 minutes)

Assessment offered: Assessment offered in the semester in which the course is offered and in the subsequent semester, course offered on demand or every four semesters.

Language of assessment: German or English

## Allocation of places

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## Additional information

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## Referred to in LPO I

(examination regulations for teaching-degree programmes)

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## Module appears in

- Bachelor’ degree (1 major) Aerospace Computer Science (2009)
- Bachelor’ degree (1 major) Aerospace Computer Science (2011)
- Master’s degree (1 major) Mathematics (2012)
- Master’s degree (1 major) Mathematics (2010)
| Master's degree (1 major) Economathematics (2011) |
| Master's degree (1 major) Mathematical Physics (2012) |
| Master's degree (1 major) Computational Mathematics (2012) |