MSC IN CIVIL AND ARCHITECTURAL ENGINEERING*
COMBINING DEEP KNOWLEDGE WITH PRACTICE

The MSc programme in Civil and Architectural Engineering provides you with insight into advanced theoretical and practical aspects of topics in civil and architectural engineering, as well as the opportunity to specialise in a related field.

The programme is taught by faculty members who are active researchers, so students benefit from a research-intensive environment. You will have the chance to work with researchers and complete a project in collaboration with a private company.

SPECIALISE AS YOU CHOOSE
Year one of the MSc consists of one compulsory study package and two specialised study packages. All students take the compulsory study package, but you can choose your own two specialised study packages from the options listed on the next page. Year two consists of an elective programme and a Master’s thesis, the topic of which is decided upon consultation with professors.

Your elective programme is chosen by you. You may choose from a number of specialised courses within civil and architectural engineering, including international construction law, CFD in architectural engineering, random vibrations or timber structures. As part of the elective programme, you may also choose to do a research project or study abroad for a semester.

The MSc programme offers specialised study packages in the following fields: structural mechanics and steel design, structural dynamics, concrete structures and geotechnics, optimization of construction systems, IT in construction, tectonic design, Indoor environmental engineering.

STUDENT LIFE
At Aarhus University you will be part of an extensive engineering environment with more than 3,000 engineering students. So you will have ample opportunity to get involved in both academic and social student associations with your fellow students.

CAREERS
The varied forms of teaching, group collaboration, and close scientific dialogue with researchers, as well as the department’s strong relationship with the industrial sector, give our graduates competencies that are in great demand on the global job market, including abstract, critical and independent thinking, analytical skills, and strategic planning. You can use these skills in many contexts – even in jobs you didn’t know you were qualified for.

Previous graduates of the MSc in Civil and Architectural Engineering have found jobs with consulting engineering firms, contractors, property developers, architecture firms, or in the building component industry. Graduates typically work in roles that involve developing and designing advanced building constructions, advanced energy technology solutions and industrialised building components – frequently in interdisciplinary collaboration with architects and designers.

LASSE RAHBEK
PhD student, Civil and Architectural Engineering programme

Computing power is now so strong that it can design building constructions with such a degree of perfection that architects and engineers almost have to give up. In my Master’s thesis I got the idea of developing an algorithm for advanced grid-scale constructions. This makes it possible to improve design quality while simultaneously significantly reducing materials consumption.

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# MSC in Civil and Architectural Engineering*

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30 ECTS 30 ECTS 30 ECTS 30 ECTS

### Elective Courses
Choose courses from the specialised study packages or other courses at the Department of Engineering and the broader Faculty of Science, subject to approval by the Head of Degree Programme.

AU Course Catalogue: [kursuskatalog.au.dk/en/](https://kursuskatalog.au.dk/en/)

*Compulsory courses may differ depending on the chosen specialisation. Find out more at: [masters.au.dk/civil-and-architectural-engineering](https://masters.au.dk/civil-and-architectural-engineering)*

### Compulsory Courses

#### Autumn
- **Numerical Analysis in Civil Engineering** 5 ECTS
- **Risk and Reliability in Engineering** 5 ECTS
- **Experimental Mechanics* or Integrated Energy Design** 5 ECTS

#### Spring
- **Applied Innovation in Engineering** 5 ECTS
- **Research Methods in Civil and Architectural Engineering** 5 ECTS
- **Structural Concepts* or Heat Transfer and Mass Transport** 5 ECTS

### Specialised Study Packages

#### Autumn
- **Optimization of construction systems**
  - Lean Construction 5 ECTS
  - Clients, Users and Innovation 5 ECTS
  - Advanced Planning and Scheduling of Projects 5 ECTS

- **Indoor Environmental Engineering**
  - Energy-efficient Building Envelope Design 5 ECTS
  - Natural Ventilation 5 ECTS
  - Daylighting 5 ECTS

- **Concrete structures and Geotechnics**
  - Limit Analysis of Concrete Structures 5 ECTS
  - Advanced Soil Mechanics 10 ECTS

- **Structural Dynamics**
  - Bridge Design 5 ECTS
  - Applied structural dynamics 5 ECTS
  - Dynamics of offshore wind turbines 5 ECTS

- **Tectonic Design**
  - Computational Design 5 ECTS
  - Form-finding in Building Design 5 ECTS
  - Tectonics in Engineering and Architectural design 5 ECTS

#### Spring
- **Indoor Environmental Engineering**
  - Simulation of Building Energy Systems 5 ECTS
  - Air Physics and Building Ventilation 5 ECTS
  - Electric Lighting 5 ECTS

- **IT in Construction**
  - Integrated Engineering Project 5 ECTS
  - Digital Construction 5 ECTS
  - Advanced Construction Technologies 5 ECTS

- **Structural Mechanics and Steel Design**
  - Design and Analysis of Steel Structures 5 ECTS
  - Finite Element Analysis of Structures 10 ECTS