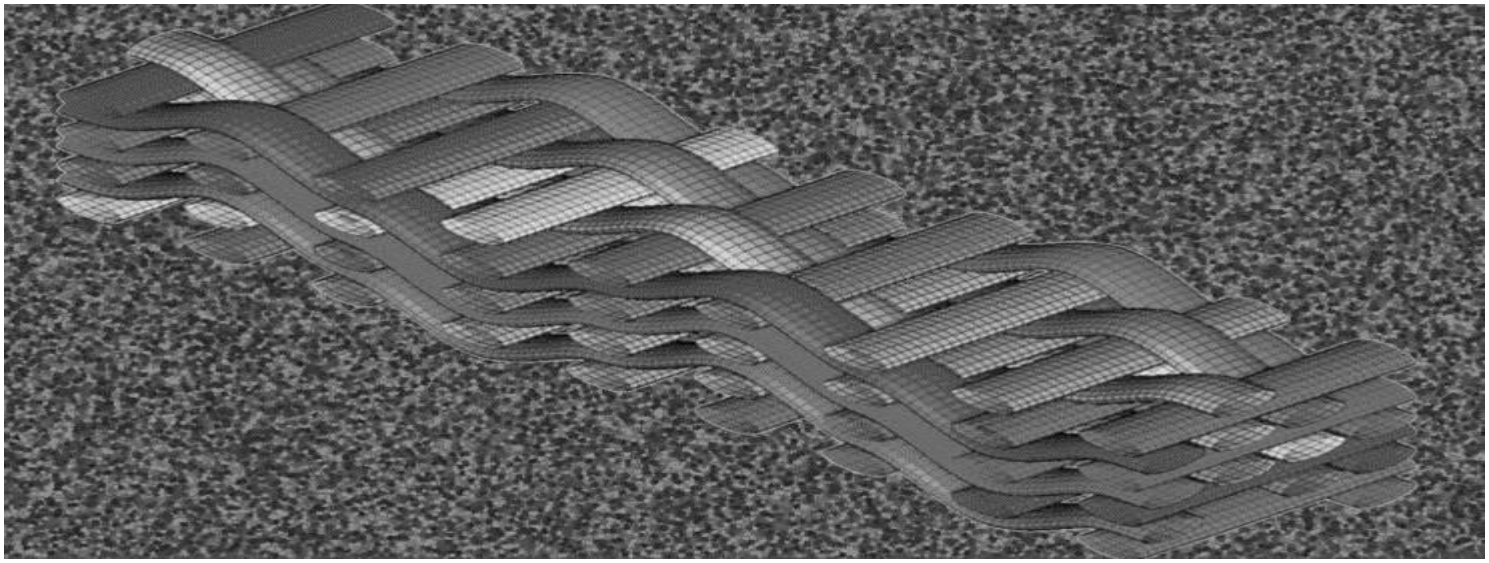
Branch:Mechanical Engineering



Code: NUMMEC
Option: Numerical mechanics
Level: Master
Prerequisites:
Opportunities:
As a COME MSc graduate, you can work in many different fields, as you have acquired extensive knowledge in mechanics, programming, modelling and simulation. You can start a career, for example, as a software engineer or as a design, calculation or simulation engineer, respectively.

Description:
The Master in Computational Mechanics combines mechanics with computer science, software development and complementary mathematics to find new solutions for the numerical simulation of mechanical problems in engineering sciences. The target language is English. What is going on in this study?
Computational mechanics is an ever-growing field that impacts both science and industry in all areas of engineering. It involves solving mechanical problems on the basis of numerical approximation methods, involving discretisation of the underlying equations in space and time. Nowadays, related skills are indispensable in civil and mechanical engineering, for the design of automobiles and spacecraft, for developments in biomechanics and micro-electromechanical

systems. Virtually all technical disciplines are benefiting from the rapid advances in this field.

Computational mechanics brings together highly sophisticated methods of theoretical, applied and structural mechanics, as well as computer science, software engineering and applied mathematics. The course curriculum includes, among others, the following areas continuum mechanics, structural mechanics and stability theory structural and fluid dynamics Applied mathematics and functional analysis

Computer science, programming and software engineering

Linear and non-linear finite element methods

Structural and multidisciplinary optimization

Modelling and simulation

Networking, distributed and parallel computing.

Quality and competences:

As a graduate of the MSc Computational Mechanics program, you have developed a portfolio of skills and competences in the field of numerical simulation, modelling of engineering problems for consistent numerical simulation and a deep understanding of mechanical problems. You are able to analyze engineering problems and transfer them into appropriate numerical models. In this process you are able to assess the assumptions of the respective models and their limitations, the artefacts that can be created during the modelling and evaluation process as well as possible model expansions. You develop and derive new ideas in the course of your work to optimize engineering processes and are able to evaluate a range of software tools.

In addition, your skills enable you to classify different types of modelling and artefacts in simulations. You are also able to apply and evaluate different programming principles, the underlying partial differential equations for various problems and assumptions for material descriptions and low and high frequency analyses.