

Organization

Lecturer	Martin Ruess , Prof. Dr.-Ing. habil.
Workload	180h lectures & project
Credits	6 ects
Prerequisite	MSc course FEM or equivalent background + programming skills
Examination	course attendance (>80%) + project homework
Language	English

Note: block-course, start in March, t.b.a

Grading aspects

- course commitment & collaboration
- homework and/or (small project)
- final presentation / documentation



Selection of potential topics

- Fundamentals of **non-linear solution procedures** in the framework of the Finite Element Method
- **Geometric non-linear** FEM (large displacements, stability)
- **Dynamic analysis** in the framework of the Finite Element Method
- **Physical non-linearity** (non-linear material properties e.g. hyperelasticity, plasticity)
- **Contact problems** (weak enforcement methods for contact conditions)
- Fundamentals of **Isogeometric Analysis** (B-spline/NURBS modeling & analysis)
- **High-Order Finite Element Analysis** (Legendre-based interpolation spaces, convergence properties, modeling aspects, ...)
- **Fictitious domain methods** - Finite Cell Method