Department	SciTec
Degree programme	LOT, SI
Module name	**Introduction to FEM**
Module number	**SciTec.2.172**
Study and Examination Regulations	ER-version 38 (of 21.03.2018), ER-version 39 (of 23.07.2019), ER-version 41 (of 16.07.2021)
Compulsory/ compulsory optional/ optional module	compulsory optional module
Module coordinator	Prof. Dr.-Ing. Frank Dienerowitz
Module content	▪ Introduction to FEM ▪ FEM procedure ▪ modelling structural mechanics problems ▪ overview on types of elements ▪ discretisation of the model (meshing) ▪ application of boundary conditions ▪ solving and post-processing
Learning objectives	The students: ▪ are able to categorise simple structural mechanical problems (statics) with regards to FE analysis. ▪ are able to implement the problems using computer based tool. ▪ are able to name and explain essential aspects of FE analysis (model simplification, stress concentration and singularities, mesh convergence, verification, limitations of FE analysis). ▪ are able to evaluate the results (deformation, stress, safety factor reaction forces).
Course type (lecture, seminar, exercises, practical course)	2 L – 0 S – 0 E – 1 P
Recommended literature	▪ Gebhardt, C., Praxisbuch FEM mit ANSYS Workbench: Einführung in die lineare und nichtlineare Mechanik, Carl Hanser Verlag, 2014 ▪ Lee, H.-H., Finite Element Simulations with ANSYS Workbench 14, SDC Publications, 2012 sowie aktuelle Fassung ▪ Mac Donald, B. J., Practical Stress Analysis with Finite Elements, GLASNEVIN Publishing, 2011
Learning materials	hand-outs supporting lecture and tutorial contents
Method(s) of instruction/ media being used	Lecture, practical course (tutorial)
Level/ category	Master (category: 2)
Which semester (winter/ summer term)	Winter term
Which semester during the programme	1
Requirements for attendance, necessary knowledge	statics, mechanics of materials
Assessment (written/ oral test, paper, etc.)	alternative examination course achievement: successful attendance of practical course
ECTS credits	3
Work load in:	90 h of total work load, therefrom ▪ 45 h of presence at university ▪ 45 h of self-study
Usability of this module	FEM and Simulation, Advanced 3D-Design
Frequency of offer	Every study year
Duration of module	1 semester
Place/ room	Ernst-Abbe-Hochschule Jena - University of Applied Sciences Jena
Time	According to schedule
Language(s)	German/ English