Department	SciTec
Degree programme	SI
Module name	**Advanced 3D-Design**
Module number	**SciTec.2.201**
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. Ronny Gerbach
Module content	▪ Repetition of basics of mechanical design and presentation of advanced and extended approaches for 3d design and modelling ▪ Design and construction of complex of precision instruments as well as optical and opto-mechanical systems ▪ Investigation of additional aspects in the product design (e.g. manufacturing and cost specific design, quality management during product design)
Learning objectives	With completion of the module, the students are able to name important relations during design and construction of precision and opto-mechanical systems and to explain their need for the product development. In addition, the students can design and model components and assemblies by means of 3D-CAD systems and can generate technical drawings and bill of materials.
Course type (lecture, seminar, exercises, practical course)	2 L – 0 S – 0 E – 2 P
Recommended literature	▪ Pahl et. al.: Engineering Design, Springer Verlag 2007 ▪ Boothroyd et. al.: Product Design for Manufacture and Assembly, CRC Press, 2010 ▪ Pahl et. al.: Konstruktionslehre, Springer Verlag, 2007 ▪ Krause: Gerätekonstruktion in Feinwerktechnik und Elektronik, Fachbuchverlag Leipzig, 2000
Learning materials	Lecture notes, exercises, literature recommendations
Method(s) of instruction/ media being used	Lecture, practical course with computer
Level/ category	Master (category: 2)
Which semester (winter/ summer term)	summer term
Which semester during the programme	2
Requirements for attendance, necessary knowledge	Technical mechanics and dynamics, basic principle of mechanical design an design engineering, knowledge of machine elements for mechanical and/or precision engineering
Assessment (written/ oral test, paper, etc.)	alternative examination course achievement: successful attendance of practical course
ECTS credits	6
Work load in:	180 h of total work load, therefrom ▪ 60 h of presence at university ▪ 120 h of self-study
Usability of this module	modules regarding system engineering
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)	English