Modulbezeichnung	**Energy systems simulation**
ECTS-Punkte (Dauer)	10 (1 Semester)
Art	Pflichtfach
Studentische Arbeitsbelastung	120 h Kontaktzeit + 180 h Selbststudium
Voraussetzungen (laut BPO)	
Empf. Voraussetzungen	Mathematik 1 und Mathematik 2
Verwendbarkeit	BaSES
Prüfungsform und -dauer	Klausur 1,5h oder mündliche Prüfung, mündliche Präsentation und schriftliche Dokumentation
Lehr- und Lernmethoden	Vorlesung, Studentische Arbeit
Modulverantwortlicher	I. Herraez

Qualifikationsziele
The students understand the benefits and implicit limitations of modelling and simulation. They are familiar with the basic concepts behind a wide range of dynamic model types and they are aware of their respective advantages and disadvantages. The students know the most important scientific methods for model development and simulation. They are in a position to implement simple models in Matlab/Octave, run simulations with them as well as to critically analyse the results. They can produce graphical representations of numerical results and assess the uncertainty of the simulations.

Lehrinhalte
Concept of system, basics of system dynamics, types of models, modelling methods, fundamentals of programming, programming in Matlab/Octave, control statements, plotting graphs, numerical solving of mathematical models.

Literatur
Quarteroni, A.: Scientific computing with Matlab and Octave, Springer, 2010.

Lehrveranstaltungen

Dozent	**Titel der Lehrveranstaltung**	**SWS**
I. Herráez	Introduction to modelling and simulation	4
A. Pechmann	Simulation of energy systems	4