Hochschule München University of Applied Sciences

Courses in English
Course Description

Department	05 Technical Systems, Processes and Communication
Course title	**Python Programming for Scientists and Engineers**
Course number	
Hours per week (SWS)	4
Number of ECTS credits	5
Course objective	Get the first entrie in a programming language and get a solid knowledge of coding. Test the abilities on projects through application.
Prerequisites	none
Recommended reading	TBD
Teaching methods	seminars, projects, presentations, teams, digital media, jupyter notebook, demonstration
Assessment methods	application projects & exam
Language of instruction	English
Name of lecturer	Prof. Dr. Christine Maria Greif
Email	greif@hm.edu
Link	TBD
Course content	We will define the elements of a programming language. We use Python - the fastest growing programming language - as it is relatively easy to learn but powerful enough to fullfil the required task needed in science or engineering. We will get to know typical parts of algorighms such as declination, reading, writing, loops, logical comands, functions, modules and classes. We put a special focus on devoloping individual algorithms by your own in teams. We will discuss advantages and disadvantages of automization and the treatment of big data. · Code compilation · Jupyter notebook · Numbers, strings and lists · Booleans, tuples and dictionaries · Control flow · Functions · Reading and writing from/to files · Modules and variable scope · Introduction to NumPy · Introduction to Matplotlib · Files and paths · String formatting · Python variables · Fitting · Interpolation, integration, symbolic calculation · Python errors · Remote data · Object orientated programming · Solving differential equations · Pandas, scikit learn and beyond
Remarks	for admission, please contact me via the email above; if the course is full, possibly a second course is set up