



HÖGSKOLAN I GÄVLE

Programming and Scripting for GIS 5 cr

Programmering och skript i GIS 5 hp

Set by Faculty of Engineering and Sustainable Development

Version

Set at	Valid from
8/22/16	HT2017

Level	G2F
Education level	First cycle
Course identifier	DVG510
Credits	5 cr
Main field of study	Geospatial Information Science, Geomatics, Computer Science
Subject group	Computer Technology
Disciplinary domain	Natural sciences 50.0 % Technology 50.0 %

Learning outcomes After completion of the course the student shall be able to

1. design and implement solutions in Python (and ModelBuilder) to automate geoprocessing tasks
2. demonstrate an understanding of programming concepts, methods, and approaches such as debugging, error checking, and documentation
3. demonstrate an awareness of advanced concepts such as external libraries
4. integrate content, examples, and concepts from external resources such as esri.com and stackoverflow.com.

Course content

- The need for GIS automation: ModelBuilder, Introducing Python using the Python window in ArcGIS.
- Python Fundamentals: Python syntax, working with variables.
- GIS data access and manipulation with Python: data storage and retrieval, accessing data fields, retrieving and updating records using an attribute query, working with rasters.
- Practical Python for the GIS analyst: functions and moduls, reading and parsing text using the Python csv module, writing geometries, running any tool in the box, working with map documents, limitations of Python scripting with ArcGIS

Teaching	Lectures, practicals, and supervision		
Prerequisites	A first-cycle qualification comprising at least 180 credits in relevant subject of the Master's programme in Geospatial information science, or a corresponding qualification from abroad.		
Examination	Assignments and project		
Grade	A, B, C, D, E, Fx, F		
Other regulations	Degree criteria for final grade will be given by examiner or course responsible latest at the beginning of the course.		
Sustainable environment	It is possible to include content with sustainable development in this course in the future..		
Module			
	0010	Assignments (Laboratory Work)	2.5 cr Grade: UG
	0020	Project	2.5 cr Grade: AF