Title of course: **Data processing of measurements**	***NEPTUN-code:*** RKXMF1ABNE	***Weekly classes:*** *lecture+workshop+lab work* 1+0+2	***Credit*****:** 3 ***Exam type.*** *:*tm
Course leader: González Mastrapa Henry, Dr.	***Position:*** college associate professor	***Required preliminary knowledge (with Neptun code):*** RKXMA2ABNE	

Curriculum:

If the environmental components (air, water, soil) are examined, than a big amount of measurement data will be collected. The data with a big quantity cannot be interpreted. It is necessary to evaluate our data. Our data should be processed to interpret them.
In simpler cases data processor programs are used, than e.g. Microsoft Excel.
The principle of data sorting will be presented.
We may need special statistical software packages, that we may establish contexts between our measured data with their help. We present the statistical basic principles (descriptor statistics, ANOVA etc.).
Several statistical software packages exist: eg. SPSS, SAS etc..
Origin software package will be presented which is one of the most important program of scientific data processing.
The freeware software R can be written our necessary procedures for analysis of our data statistically. We can compare our algorithms which can be manufactured by Matlab help with the programs written with statistical software packages.

Professional competencies:

Knowledge of general and specific mathematical, natural and social scientific principles, rules, relations, and procedures as required to pursue activities in the special field of environment protection.
In possession of state-of-the-art IT skills, being able to use professional databases and certain design, modelling, and simulation software depending on their specialty.
Knowledge of the learning, knowledge acquisition, and data collection methods of the special fields of environment protection, their ethical limitations and problem solving techniques.
Knowledge of the main methods to examine the quantity and quality features of environmental elements and systems, their typical measuring instruments and limitations thereof, as well as methods for the evaluation of data measured.
Able to reveal deficiencies in the technologies applied and process risks and to initiate mitigation measures after getting familiarized with the technology concerned.
Efforts to improve knowledge by on-going self-education and continuously update their knowledge of the world.
Constantly upgrading their knowledge of environment protection by attending organized professional development training courses.

Literature:

1. Matthias Kohl: Introduction to statistical data analysis with R, bookboon.com, 2015, ISBN: 978-87-403-1123-5, 1 edition. Pages : 228
2. Felix C. Veroya: Introduction to Statistical Process Control, A Problem Solving Process Approach, bookboon.com, 2014, ISBN: 978-87-403-0789-4, 1 edition, Pages: 72

Comment: