ELEC0447
Analysis of Electric Power and Energy Systems

Programming tools

Based on the slides of Thibaut Théate, Antoine Dubois and
Adrien Bolland for ELEC0018-1 – Energy Markets

Assignment – Programming tools suggested

- **Anaconda** (or simply conda) for managing your Python environments.
- **Python 3.7** (please avoid Python 2.7).
- **Numpy**
- **Pandapower**
- Choose a **text editor** or an **IDE**:
  - Spyder (IDE installed with Anaconda).
  - Visual Studio Code (Text editor).
  - PyCharm (IDE).

Programming tools – Anaconda

Installation of Anaconda:

- Windows: https://docs.anaconda.com/anaconda/install/windows
- MacOS: https://docs.anaconda.com/anaconda/install/mac-os
- Linux: https://docs.anaconda.com/anaconda/install/linux

Verification of the installation: https://docs.anaconda.com/anaconda/install/verify-install

Official Anaconda user guide: https://docs.anaconda.com/anaconda/user-guide

Useful cheat sheets:

- https://docs.anaconda.com/anaconda/user-guide/cheatsheet
- https://docs.conda.io/projects/conda/en/4.6.0/user-guide/cheatsheet.html

Programming tools – Conda environment

Creation of a new environment named *PESanalysis* for the assignment:

1. Open a new terminal (Anaconda Prompt for Windows).
2. Run the following command: **conda create --name PESanalysis python=3.7**
3. Verify the information printed and press “y” to confirm.
4. Run the following command: **conda env list**
5. Check that your new environment named *PESanalysis* is present in the list.
6. To activate this environment, run the following command:
    - Windows: **activate PESanalysis**
    - MacOS or Linux: **source activate PESanalysis**

Do not forget to activate the *PESanalysis* environment before working on the assignment!

Programming tools – numpy & pandapower

Installation of numpy and pandapower (into the *PESanalysis* environment):

1. Open a new terminal (Anaconda Prompt for Windows).
2. Activate the *PESanalysis* environment:
    - Windows: **activate PESanalysis**
    - MacOS or Linux: **source activate PESanalysis**
3. Run the following command to install numpy: **conda install -c anaconda numpy**
4. Run the following command to install pandapower: **conda install -c invenia pandapower**

Programming tools – Tutorials

- Python:
  - The official Python tutorial: https://docs.python.org/3.7/tutorial
  - The tutorial from W3School: https://www.w3schools.com/python
  - The tutorial from learnpython.org: https://www.learnpython.org
  - The tutorial from Programiz: https://www.programiz.com/python-programming/tutorial
- Numpy:
  - A tutorial from Stanford: https://cs231n.github.io/python-numpy-tutorial/
- Pandapower:
  - The official pandapower documentation: https://pandapower.readthedocs.io/en/v2.4.0/

Any questions?