Name of the course: Power system advanced modeling, simulation and scripting with Power Factory.

Teacher: Andrea Bonfiglio; e-mail: a.bonfiglio@unige.it

Duration of the course: 24 hours (8 lectures, 3 hours each in software laboratory)

Credits: 6

Language: English, if all students are Italian, upon request, the course shall be taught in Italian.

Aims of the course: The aim of the module is to teach advanced application of power system analysis using Power Factory Simulation software for dynamic modeling and transient analysis.

Module outline:

1. Basic recall of Power Factory environment for static modeling and power flow simulation.

2. RMS and EMT application of Power Factory.

3. Advanced RMS modeling for power system components:

    a. Traditional power plant models, prime mover, AVR, governor;

    b. Inverter Based Resources, Wind power generators, Energy storage systems;

    c. User defined control blocks;

    d. Composite model signal routing;

4. Extension to EMT simulations in Power Factory – hints;

5. Scripting in Power Factory and simulation automation with Phyton – Internal Scripting;

6. Data import and export for analysis and post processing;

Exam:

Development of a project assignment for power system analysis, results presentation and discussion.

Bibliography:

Power Factory Manual and technical references.