Operational research:
Theory and Applications to Networking

Assignment for ICT4SS people, only:

Green Networking problem

1) Consider the problem of the design of a energy efficient networks. Formulate the problem in the case in which the power dissipated by devices depends on the load. More precisely, the power dissipated by every device is the sum of two terms, a load independent term and a termi, which is lineraly dependent on the device load.

2) Discuss the meaning of all the variables and parameters introduced in the two formulations.

3) Solve the formulation, under different choices for the physical network, the traffic matrix and the cost parameters.

- suggestion: you can generate the physical topology at random. Choose the number of node in the range [12-20]. Traffic matrix can be randomly generated as well.

4) [optional] Propose, implement and test a greedy heuristic algorithm for the green networking problem.