

NETWORK MECHANICAL STUDIES



RES02 ■ Tools/Methodology/Professions

DURATION

5 days

TARGET AUDIENCE

Ministries in charge of energy

Rural electrification agencies

National utilities

Engineering firms

Engineering school and training institutes

PREREQUISITES

Mastering GIS software

Mastering GISELEC© electrical studies

A FEW REFERENCES

CI-ENERGIES (Ivory Coast)

SBEE (Benin)

USED TOOLS

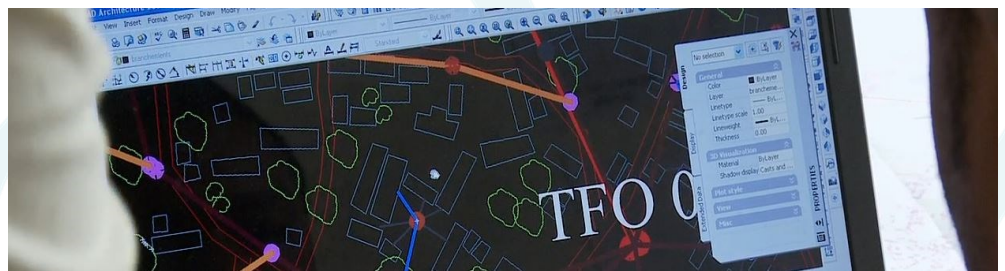
Manifold©, Giselec©

OBJECTIVES

In rural areas and, more broadly, regarding LV and MV distribution networks, few electrification projects include detailed and systematic sizing studies.

As a result, electricity distribution equipment is often improperly sized, which leads to excessive investments or sustainability issues.

This course, centred on mastering the GISELEC© software, targets the acquisition of skills necessary to the **mechanical optimization of MV and LV networks** in preliminary studies: pole sizing optimization, mechanical studies and pole heights, pole selection, result presentation, etc.



TRAINING PROGRAMME

1. Basic theoretical concepts for mechanical calculation

- ◆ Characterizing elements to be sized: columns, conductor configuration, conductors, ...
- ◆ The principle of mechanical calculation: applied mechanical force and material modelling, status change equation, calculation of deflection and clearance compliance, ...
- ◆ Standard and calculation assumptions (Application of NFC 11-201 standard)

2. Definition of networks to be sized

- ◆ Import and adaptation of network layout from electrical studies
- ◆ Configuration of the software

3. Pole placement and characterization

- ◆ Automatic positioning of columns according to principles (max angles, medium and max spans, MV block lengths, ...)
- ◆ Validation and maximisation of the proposed layout
- ◆ Final characterization of poles : positioning additional elements (IACM, MV/LV transformers, ...) et defining clearances

4. Mechanical calculations and pole sizing

- ◆ Calculation of forces in the various climate condition
- ◆ Calculation of pole heights
- ◆ Optimal pole selection

5. Presentation of mechanical study

- ◆ Detailed network maps
- ◆ Staking
- ◆ Detailed list of materials

6. To go further

- ◆ Handling real cases using GISELEC©

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