Photovoltaic APP

Component
École Nationale Supérieure d'Électrotechnique d'Électronique

In brief

- **Ametys Code:** N9EE36D
- **Open to exchange students:** Yes

Presentation

Description

I Solar energy: background and general information

II Photovoltaic conversion :

Radiation in space, on Earth, atmospheric mass

Physical principles, PN junction cell, characteristics, influence of irradiance and T

Photovoltaic cell materials and technologies

III From cell to photovoltaic generator, modularity

Cell associations, series and parallel connection, imbalances and protection

Modeling, simulation, MPPT control

IV Photovoltaic systems

Issues, architectures, energy management (connected, isolated, storage, etc.)

Energy production, solar deposits, characterization, sizing, LCA

Grid-connected systems

Stand-alone systems

V Economic calculations: discount rate, inflation, IRR, LCOE, etc.

Support mechanisms: feed-in tariffs, additional remuneration.