Photovoltaic APP

Component
École Nationale Supérieure d'Électrotechnique d'Électronique

In brief

- **Code ELP:** 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

Non-contractual information.
Last update on 29 October 2025

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.

Non-contractual information.
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