

IDENTIFICATION

Course code : E3BE5PR6
ECTS : 1.5

DURATION

Lectures : 4
Tutorial classes : 16
Labs : 8
Total : 28

Project :
Personnal work :

ASSESSMENT

2 continuous assessment grades and 2 lab grades

TEACHING MATERIALS

Course booklets (lectures, tutorials, and labs), lab benches (IV analyzer)

LANGUAGE

English

CONTACT

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UE : UE5.4-PROEN

COURSE : Photovoltaics 1 : Technology and Sizing

SCOPE OF THE COURSE

OBJECTIVES

Students master the technical and environmental aspects related to a photovoltaic (PV) solar system used for electricity production resale. They are able to size the components of a simple PV system.

COMPETENCE AND SKILLS

Size a solar conversion system by selecting the technology suited to the customer's needs
Analyze the technical documentation of a solar project and write a technical report

PROGRAM

The solar energy market in the world and in Réunion Island Legislative framework, current and historical status Fundamentals on : - solar resource - PV modules - inverters - sizing of PV systems Site visit Sizing of grid-connected PV systems (resale and self-consumption) Energy yield calculation Return on investment calculation Safety aspects Sizing for off-grid systems Pumping with solar power Building integration

BIBLIOGRAPHY

Fédération de recherche du photovoltaïque, Le solaire photovoltaïque en France : réalité, potentiel et défis, <https://solairepv.fr> McEvoy, A., Markvart, T., and Luis, C. (2012). Practical Handbook of Photovoltaics. Elsevier. <https://doi.org/10.1016/C200-05723-X> NREL (1995). Photovoltaic Fundamentals. <https://www.nrel.gov/docs/leg>

REQUIREMENTS

Heat transfer
Electricity
Solar resource