SUMMER SCHOOL

PHOTOVOLTAIC FUNDAMENTALS

TwinPV - Summer school of PV performance

August 20-24, 2018

AIT Austrian Institute of Technology Giefinggasse 2, 1210 Vienna

PROGRAM

COURSE OBJECTIVES

Photovoltaics (PV) converts sunlight into electricity and play an increasingly important role in the quest for alternative to fossil fuels. One of the major advantages of PV compared to other renewable sources is their scalability, i.e. PV can be used to power anything ranging from small electronics (calculators, watches etc.), to single residences, to buildings and to entire cities.
The specific objectives of the course are to teach and provide knowledge in the following aspects:

- PV fundamentals including PV materials and technologies
- Technical characteristics of PV components and systems
- Performance of PV systems as part of the built environment
- Monitoring and data analysis of PV performance
- Characterization methods of PV modules
- PV power plants and operation

COURSE DESCRIPTION

Introductory graduate-level course on fundamentals of PV. The course will explore the entire scale of PV from cell and materials to modules and all the way to PV power plants.

Day 1
Content: PV Basic know-how
Fundamental concepts of PV
Sun and irradiance
PV materials and technologies
Power System and PV Inverter fundamentals
Day 2
Content: PV system and technologies
Environment
System components, Systems and functioning
Technologies in lab state
PV Lab visit + Roof top
Project work of students
Day 3
Content: Reliability
Optical characterization methods
PV power plants and operation
International standardization & Ageing
Study field trip
Day 4
Content: Performance
Monitoring and data analysis
Energy yield and performance
System integration
PV TF lab visit
Work shop: world café / Projekt work
Day 5
Content: System and advances concepts
PV and Storage at Prosumer Level
Smart Grids
Plenary Discussion: open floor
Project work of students / Presentation