



UPM International Summer School

Clean Energy

Renewables at the heart of the energy transition



ETSIT, 15, 16 & 19 July 2019

Director: Prof. Carlos del Cañizo

Energy production from fossil fuels is the main contributor to the emission of greenhouse gases. Therefore, the shift to clean technologies is urgent in order to limit climate change. Renewable energy sources (solar, wind, biomass,...) will be the core of our energy system, and a number of technological challenges should be addressed to ease the transition.

Students: Bachelor

Pre-requisites: Interest in the topic

ECTS: 1 (10 class hours)



Image from World Meteorological Organization



Image from Instituto de Energía Solar UPM



UPM International Summer School

Clean Energy

Renewables at the heart of the energy transition

Syllabus

MODULE 1: I. Environmental impact of energy systems

Climate change, pollution and the need of clean technologies

II. Renewable technologies for energy provision

From conventional energy sources to renewables, status of development and challenges

MODULE 2: I. Photovoltaic solar energy (PV)

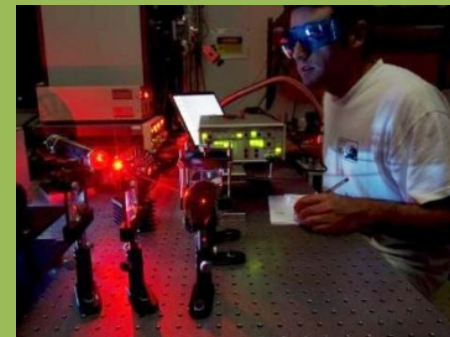
Operation principles, components, applications, economics

II. Guided tour of the Solar Energy Institute

Laboratories for manufacturing and characterization of PV devices, and for research on PV systems

MODULE 3: Manufacturing of PV cells and modules

Dr. Eduardo Forniés, Aurinka PV



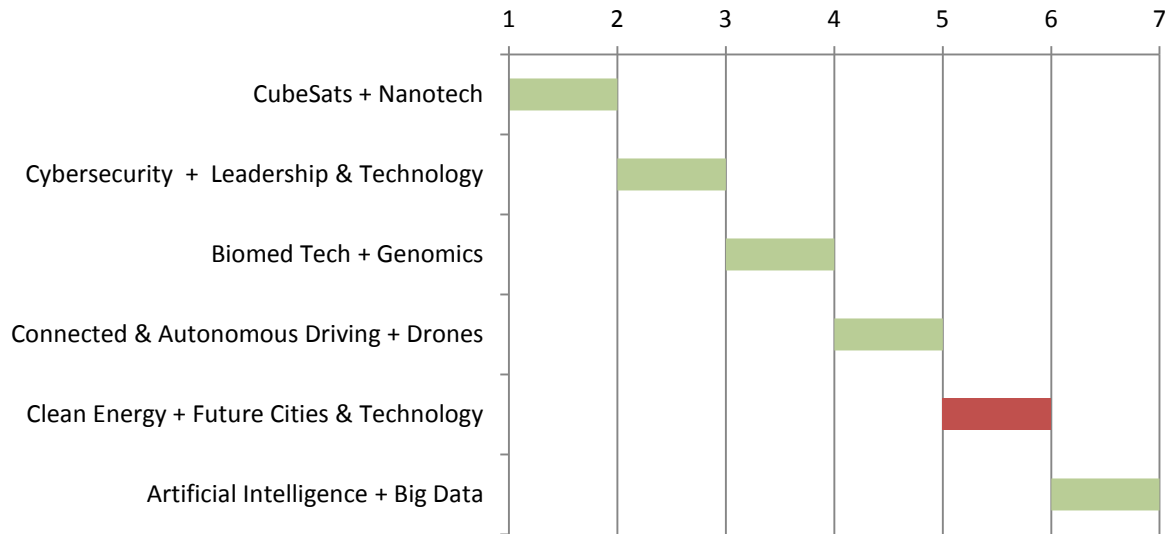


UPM International Summer School

Clean Energy

Renewables at the heart of the energy transition

Schedule



Week	Monday	Tuesday	Wednesday	Thursday	Friday
5	Lecture I Lecture II	Lecture Visit			Industry Talk



UPM International Summer School

Clean Energy

Renewables at the heart of the energy transition



Carlos del Cañizo is full professor at the UPM, specializing in photovoltaics since 1994. He is Director of the Solar Energy Institute, an R&D center belonging to the UPM founded in 1979. He has lengthy experience in solar cell fabrication and characterisation, and also works on the topic of silicon ultrapurification for photovoltaic applications

Eduardo Forniés received a PhD in Physics from the Universidad de Alcalá. He has worked for several photovoltaic companies and is currently technology manager at Aurinka PV, a company with more than 25 years of experience in cells and modules manufacturing, as well as in solar plant installation and maintenance

