

Program	59EC – Communications Electronic Engineering B. Eng. 59SC – Telecommunications Systems Engineering B. Eng. 59SO – Sound and Image Engineering B.Eng. 59TL – Telematics Engineering B. Eng.
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Course code and name	
Code	595040060
Name	Renewable Energy
Semester	S7 [(September-January)]

Credits and contact hours	
ECTS Credits	3
Contact hours	30

Coordinator's name	Jiménez Martínez, Francisco Javier [franciscojavier.jimenez@upm.es]
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Specific course information	
Tuition language	Spanish
Description of course content	
It is an introductory course which sets out the problems of the current energy system and how renewable energies can facilitate the solution. The most common renewable energy systems are also introduced. The format of the course is two weekly hours of teaching (online through the Moodle e-learning platform or Teams, or on-site).	
List of topics to be covered	
1. Energy and Power 1.1. Kinetic and potential energy. 1.2. Heating energy. 1.3. Electric energy. 2. Actual Energetic System 2.1. History of energy consumption. 2.2. History of energy sources. 2.3. Problems of the current energy system. 3. Renewable Energies. 4. Hydraulic, Aeolic and Sea Energy. 5. Thermal Solar Energy. 6. Photovoltaic Solar Energy.	
Prerequisites or co-requisites	
– None	

Course category in the program	
☐ R (required)	☒ E (elective) <i>(elective courses may not be offered every year)</i>

Specific goals for the course

Specific outcomes of instruction
• RA1057 - Know the different elements of a solar photovoltaic system. • RA369 - Understand the global energy problem from social, environmental and sustainability point of view. • RA719 - Know and sizing solar photovoltaic systems. • RA717 - Conocer y dimensionar instalaciones solares térmicas • RA710 - Learn about different renewable energy technologies that generate electricity from kinetic energy: wind, hydraulic, tidal or wave. • RA370 - Understand the different ways of generating renewable energy: thermal energy, kinetic energy, potential energy, photovoltaic solar energy... • RA368 - Understand the concepts of energy and work. • RA373 - Know the different elements of a solar heating system. • RA371 - Learn about the regulations related to the different renewable energies.

Further reading and supplementary materials

– Energías renovables y eficiencia Energética: https://www.cienciacanaria.es/files/Libro-de-energias-renovables-y-eficienciaenergetica.pdf – Energías Renovables. Jaime GonzálezVelasco. Ed. Reverté. – Radiación solar y dispositivos fotovoltaicos. Eduardo Lorenzo. Ed. Progenza. – Estadística de generación energías renovables IDEA: http://informeestadistico.idae.es/ – Informe E.R en sector electrico de REE: https://www.ree.es/sites/default/files/11_PUBLICACIONES/Documentos/Renovables-2018.pdf – Moodle.
