

Dispatchable Renewable Energy Technologies

Dispatchable generation refers to sources of electricity that can be programmed on demand at the request of power grid operators, according to market needs. Dispatchable generators may adjust their power output according to an order. Main types of renewable energy that are dispatchable without separate energy storage are hydroelectric, biomass, geothermal and ocean thermal energy conversion.

Period:	Period 1
Course coordinator:	Prof. David Sanchez - University of Seville - email: ds.us@es
Lecturer:	To be decided
Educational management portal:	moodle.unitus.it
Objectives:	Provide the students with the principles of design and operation of dispatchable renewable energy technologies for power generation: hydroelectric, concentrated solar power, geothermal, waste heat recovery
Programme:	<ul style="list-style-type: none"> ● Fundamentals of hydraulic turbines ● Design of hydroelectric power stations ● Fundamentals of Concentrated Solar Power ● Design of CSP plants: linear collectors, central receiver ● Fundamentals of geothermal and waste heat recovery systems ● Fundamentals of Organic Rankine Systems and application to CSP, WHR and geothermal energy sources
Pre-requisites:	<p>i) Fundamentals of Thermodynamics, in particular energy conversion systems for power generation.</p> <p>ii) Fundamentals of fluid dynamics (turbomachinery would be useful, though not mandatory).</p>
Study material:	<ul style="list-style-type: none"> ● Lecture slides; ● Reading material; ● Virtual reality material ● Additional literature handed out during the course / made available via Blackboard/Moodle