

Syllabus

Course description

Course title	Energy dispatching
Course code	45525
Scientific sector	Electrical Systems
Degree	Master Energy Engineering
Semester	2 st
Year	2 st
Academic year	2020/2021
Credits	6
Modular	

Total lecturing hours	60
Total lab hours	0
Total exercise hours	0
Attendance	Reccomended
Prerequisites	Students attending this course should have already passed the exam of Physics II, Electrotechnics and Electrical Systems Engineering
Course page	https://www.unibz.it/en/faculties/sciencetechnology/master-energy-engineering/course-offering/?academicYear=2018

Specific educational objectives	<p>The course will cover the following topics:</p> <ol style="list-style-type: none"> 1. Energy situation 2. Electrical circuit representation of transmission networks 3. Sinusoidal transmission lines 4. Management of networks and interconnection 5. Voltage control 6. Frequency control 7. Stability of the network 8. Overvoltage of internal origin and protection networks 9. Power quality 10. Free market energy
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Module 1	
Lecturer	Maurizio Fauri
Scientific sector of the lecturer	Energy Electrical Systems
Teaching language	Italian
Office hours	On appointment
Teaching assistant (if any)	
Office hours	
List of topics covered	The course and develops mainly the subjects of the operation and regulation of the national grid high voltage. After outlining the international framework of regulatory

	<p>boards (CEN, CENELEC, ETSI, IEC, UCTE, etc ...), it introduces the equations of three-phase lines with the propagation constant and the characteristic impedance. It will explain then technological innovation on electric transmission and distribution, as well as the control system in real time.</p> <p>It will be explained the mechanisms to control voltage and frequency according to the request of reactive and active power.</p> <p>It will also expose the criteria for the protection of the transmission lines and moreover the problem of power quality and the characteristics of the free market.</p>
Teaching format	Frontal lectures.
Learning outcomes	<p>At the end of the course, students should be able to:</p> <ol style="list-style-type: none"> 1. design a MV and HV electrical AC power lines; 2. manage an electrical transmission network; 3. control the frequency and voltage; 4. know the high voltage line protection systems; 5. operate on the energy market.
Assessment	Oral examination
Assessment language	Italian
Evaluation criteria and criteria for awarding marks	Students will be evaluated on the basis of their preparation about course lessons
Required readings	Power Point presentations will be available in the course reserve collection database of the Faculty.
Supplementary readings	<ul style="list-style-type: none"> • M. Fauri, F. Gnesotto, G. Marchesi, A. Maschio, Lezioni di Elettrotecnica (vol. 2 Applicazioni Elettriche), Esculapio Editore, Bologna, 2002 • L. Fellin, R. Benato, Impianti elettrici, Utet Scienze Tecniche • A. Paolucci, Trasmissione dell'energia elettrica, Padova F. M. Gatta, Impianti elettrici, Esculapio Editore, Bologna, 2018 <p>Additional material will be provided by the Professor.</p>