

Faculty	Ingegneria
Bachelor	Mechanical Engineering (La Spezia)
Year/Semester	2/ II

Course Title	Fluid Machinery
ID Course Code	66163
Course Credits (CFU)	6
Scientific-Disciplinary Sector	ING-IND/08
Course Type	mono-disciplinary course
Lecturer-in-charge	BOSIO Alessandro

Learning Outcomes:

The course aims to furnish the student with the mechanical basis to collaborate at a basic qualitative level in the planning and testing of a plant or plant components destined to create or consume significant quantities of energy. After a main thermodynamic review to discuss of hydraulic, steam and gas plants, combined cycles, geothermal, solar, wind energy and environmental aspects of power generation.

Course Organisation Details

Energetic requirements, resources and consumption. Thermodynamic requirements, fuels and combustion, heat transfer. Hydraulics plants. Steam and gas plants. Combined cycles. Geothermal, solar and wind plants. Environmental aspects.

Assessment	hours
Lectures	50.0
Practice	10.0
Laboratory	0.0
Integrative activities	0.0

References

ACTON O., CAPUTO C. - (1) Introduzione allo studio delle macchine; (2) Impianti motori; (3) Compressori ed espansori volumetrici; (4) Turbomacchine - UTET
BENSON S. - The Thermodynamics and Gas Dynamics of ICE - Clarendon Press
CLUP A. - Principles of energy conversion - McGraw-Hill
COEN – Macchine idrauliche – Signorelli
DELLA VOLPE R. - Principi di macchine a fluido - Liguori
DIXON S.L. - Thermodynamics of Turbomachinery - Pergamon
LOZZA – Turbine a gas e cicli combinati – Progetto Leonardo
MORAN, SHAPIRO - Fundamentals of Thermodynamics - J.Wiley
SANDROLINI S, NALDI G. - Macchine - Pitagora
STECCO S. - Impianti di conversione energetica - Ed. Pitagora
VAN WYLEN, SONNTAG - Fundamentals of Thermodynamics - Wiley
VARDY A. - Fluid Principles - McGraw-Hill

Organization and examinations

The examination will be an oral exam.

Pre-requisites

Fundamentals of Engineering Thermodynamics