Marine, wind and hydraulic energy

ECTS credits
4 credits

In brief

Course langage: French

Presentation

Learning objectives

Identify, understand and master the issues and criteria for sizing and optimizing technologies and devices involving marine, wind and hydraulic energy.

Description of the programme

In general, the course is divided into three parts: ocean energy (waves, tidal turbines...), hydraulic energy/hydroelectricity, and wind turbines. For each of these three parts, the sessions combine lectures
For each of these three parts, the sessions combine lectures (which establish the theoretical framework and the physical laws underlying the operation of the various devices) and exercises/tutorials (which allow the design and dimensioning of installations). Among the concepts to be considered, specific criteria related to the coupling between mechanical devices and electrical devices are to be taken into account in the sizing. Also, the range of power targeted or required (which can range from a few Watts to several Giga Watts) impacts the choice of the optimal technology.

Generic central skills and knowledge targeted in the discipline

C1: Central engineers create value through scientific and technical innovation.
C2: Central engineers master the complexity of the systems and problems they encounter.
C3: Central engineers manage programs.
C4: Central campus engineers manage in an ethical and responsible manner.

How knowledge is tested

Supervised homework.

Bibliography

Les petites centrales hydroélectriques : Conception et calcul, par D. Le Gouriérès, publié par les Éditions du Moulin Cadiou en 2009. Disponible au centre de documentation de l'école

Teaching team

– Fabien Anselmet
– Michel Benoit
– Mohamed Boussak

Total des heures		**50h**
CM	Master class	50h

Useful info

Name responsible for EU

Lead Instructor
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