Université Grenoble Alpes

UFR PhITEM (physique, ingénierie, terre, environnement, mécanique)

Master in Mechanics

Environmental fluid mechanics (EFM)

Presentation

The Environmental fluid mechanics program is structured as follows :

- A foundation program (over 1st + 2nd years) of 51 ECTS - including 2 x 3 ECTS in a modern language
- Specific modules (39 ECTS)
- A 5-month internship (30 ECTS) in a research laboratory

The program is open to international students. All teaching is in English.

Objectives

The main aim of this program is to train managers with solid scientific and technical skills in environmental fluid mechanics (lakes, rivers, ocean, atmosphere etc) from theoretical, numerical and experimental perspectives.

For more information : http://master-efm.legi.grenoble-inp.fr

Registration and scholarships

- **For the first year :** holders of a general scientific degree with a specialisation in mechanics, or equivalent diploma
- **For the second year :** students who have completed the first year of a compatible programme or one of equivalent level

For candidates whose country of residence is not included in the "Studies in France" portal (PEF) scheme, the calendar for the eCandidat application campaigns is available here

Public continuing education : You are in charge of continuing education :

- if you resume your studies after 2 years of interruption of studies
- or if you followed a formation under the regime formation continues one of the 2 preceding years
- or if you are an employee, job seeker, self-employed

If you do not have the diploma required to integrate the training, you can undertake a validation of personal and professional achievements (VAPP)

Would you like to apply and register ? Be aware that the procedure differs depending on the diploma, the degree obtained, or the place of residence for foreign students. Let us guide you simply by following this link

Practicals informations :

> **School :** UFR PhITEM (physique, ingénierie, terre, environnement, mécanique)
> **Duration :** 2 years
> **Course type :** Initial and Continuing Education
> **Location(s) :** Grenoble - University campus

UFR PhITEM
(physique, ingénierie, terre, environnement, mécanique)

> **Contacts :**

Programme director

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Programme administration

Registrar's Office for the Master in Mechanics
phitem.master.mecanique@univ-grenoble-alpes.fr

Application
phitem.candidature.etudiant@univ-grenoble-alpes.fr

Program

Master in Applied mechanics 1st year

Semester 7

UE Solid mechanics	3 ECTS	24,5h
UE Fluid mechanics	3 ECTS	24h
UE Research project 1	6 ECTS	30h
UE Experimental techniques and methods 1	3 ECTS	24h
UE Numerical methods in solid and fluid mechanics 1	3 ECTS	24h
UE Image and signal processing	3 ECTS	24h
1 option (s) to choose from 2		
UE English	3 ECTS	
UE French as a foreign language	3 ECTS	
2 option (s) to choose from 10		
UE Physics of granular media	3 ECTS	20h
UE Multiphysical couplings (THCM)	3 ECTS	20h
UE Convection in industrial and geophysical flows	3 ECTS	26h
UE Instabilities and turbulence	3 ECTS	28h
UE Wave in fluids	3 ECTS	24h
UE Introduction of geophysical fluids dynamics	3 ECTS	30h
UE Mechanics of material	3 ECTS	20h
UE Reinforced concrete	3 ECTS	20h
UE Basic geomechanics	3 ECTS	20h
UE Environmental flows	3 ECTS	30h

Semester 8

UE Research project 2	12 ECTS	60h
UE Experimental techniques and methods 2	3 ECTS	24h
UE Numerical methods in solid and fluid mechanics 2	3 ECTS	24h
1 option (s) to choose from 2		
UE English	3 ECTS	
UE French as a foreign language	3 ECTS	
3 option (s) to choose from 10		
UE Basic geomechanics	3 ECTS	20h
UE Mechanics of material	3 ECTS	20h
UE Reinforced concrete	3 ECTS	20h
UE Physics of granular media	3 ECTS	20h
UE Multiphysical couplings (THCM)	3 ECTS	20h
UE Instabilities and turbulence	3 ECTS	48h
UE Wave in fluids	3 ECTS	48h
UE Environmental flows	3 ECTS	57h
UE Introduction of geophysical fluids dynamics	3 ECTS	60h
UE Convection in industrial and geophysical flows	3 ECTS	52h

Master 2nd year

Semester 9

UE Turbulence, diffusion and transport	6 ECTS	42h
1 option (s) to choose from 3		
UE English	3 ECTS	30h

UE Transversal teaching of choice	3 ECTS	
UE French as a foreign language	3 ECTS	

5 option (s) to choose from 13

UE Signal and information processing in fluid mechanics	3 ECTS	24h
UE Atmospheric boundary layer : from fundamentals to air quality 1	3 ECTS	24h
UE Atmospheric boundary layer : from fundamentals to air quality 2	3 ECTS	24h
UE Numerical modeling workshop	6 ECTS	8h
UE Buoyency driven flows and mixing	3 ECTS	24h
UE Exchanges across air-water interface	3 ECTS	24h
UE Renewable marine energy	3 ECTS	26h
UE Ocean dynamics	3 ECTS	24h
UE Wave dynamics	3 ECTS	24h
UE Sediment transport	3 ECTS	24h
UE Flow measurement science and technology	3 ECTS	28h
UE Data assimilation	3 ECTS	24h
UE in another program or specialisation		

Semester 10

UE 5-month Internship	30 ECTS	