

2 training paths <

French training path Argiles  
International training path IMACS

## Job market :

- Analysis / research / development laboratories in the specialty, research and development adviser, project manager
- Material engineer
- Geologist, mining geologist, exploitation of mineral resources adviser (deposits, quarries)
- Geotechnical engineer
- Pedologist
- Environmental Adviser
- Researcher / lecturer
- Scientific journalism



# Master Argiles-IMACS

A Master dedicated to minerals and geomaterials

Mineral and energy resources - Pedology - Civil Engineering - Materials - Environment

Mineral and energy resources - Pedology - Civil Engineering - Materials (geomaterials, nanomaterials)

<http://sfa.univ-poitiers.fr/master-national-argiles/edito/>

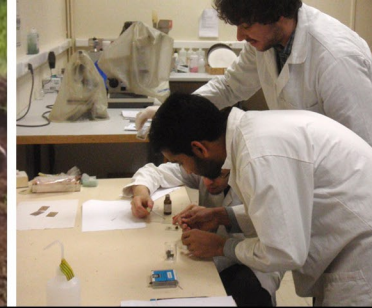
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## Our strengths :

- In connection with the industrial demand, associated with > 25 private and academic laboratories
- Expertise in mineral-geomaterial characterization : X-Ray Diffraction, Infrared Spectroscopy, Scanning and Transmission Electron Microscopy, Thermal Analyses, NMR, Tomography...
- A transdisciplinary approach... for a wide range of career opportunities
- Two periods of internships
- An international training course





# MASTER 1

## Characterization of minerals and geomaterials :

X-ray diffraction – Scanning electron microscopy and transmission – Infrared spectroscopy, NMR...- Thermal analysis – Tomography...

## Specialization : Environment, Soils and Ressources

Semester 1	September to January University of Poitiers (UP)	UP: Characterization of crystal structure using diffraction techniques (Part 1) - 3 ECTS UP: Characterization of crystal chemistry using spectroscopic techniques - 6 ECTS UP: Crystal growth, experiments and simulations - 6 ECTS UP: Microstructure and physical properties of hydrated clays - 6 ECTS UP: Interface between clay minerals and aqueous solutions: experiment and modeling - 3 ECTS UP: Molecular modeling - 3 ECTS UP: Language training: English - 3 ECTS
	January to March University of Poitiers (UP)	UP: Characterization of crystal structure using diffraction techniques (Part 2) - 3 ECTS UP: Clay minerals in geological systems, impact on the formation, exploration, and exploitation of mineral and energetic resources from sub-surface environments – Field trip – laboratory work - 6 ECTS UP: Identification and quantification of soil components: impact on the retention and transfer of nutrients and pollutants (industrial and agricultural) and on carbon storage in soils – Field trip – laboratory work - 6 ECTS UP: Methodologies of environmental remediation - 3 ECTS UP: Language training: English - 3 ECTS
Semester 2	April to July	UP: Language training: English - 3 ECTS UP-UA-TUC-UFRGS: First year master project - 9-12 ECTS This period can be performed in one of the institutions of the consortium or elsewhere (third academic or private laboratories)

UP : University of Poitiers

UA : University of Aveiro

TUC : Technical University of Crete

UFRGS : Federal University of Rio Grande do Sul

## Support for mobility :

- Erasmus mobility grant

- Scholarships from Poitou Charentes Regional Council

# MASTER 2

## Specializations : Geomaterials and Civil engineering - Nanomaterials - Minerals and Health - Soils and Environment

<p>TUC : Industrial clay deposits (3 ECTS ) UP : Geomaterials ( 3 ECTS) UP : Civil engineering, storage (3 ECTS) UP : Interface between clay minerals and aqueous solutions – part 2 (3 ECTS) UP : Design of advanced materials based on clays and LDH (6 ECTS ) UP : Cross-cutting tools: geochemical codes (3 ECTS) TUC : Geoarcheology (3 ECTS) TUC : Antimicrobial properties of clays (3 ECTS) UP : Language training in English (3 ECTS)</p>	September to January University of Poitiers (UP)	Semester 3 : 3 trianing paths
<p>TUC : Industrial clay deposits and processing routes TUC : Field trip TUC : Clays for geotechnical and civil engineering applications TUC : Geoarcheology TUC : Antimicrobial properties of clays UP : Structure and properties of clay suspensions UP : Design of advanced materials based on clays and LDH</p>	September to January Technical University of Crete (TUC)	
<p>UA : Applied geochemistry UA : Soils UA : Exploitation of mineral deposits UA : Healing minerals – Part 1 UA : Modeling of environmental systems</p>	September to January University of Aveiro (UA)	
<p>UP: Programming software - 3 ECTS UP: Scientific communication - 3 ECTS UP: Internship or laboratory training- 24 ECTS</p>	January to July University of Poitiers (UP)	
<p>TUC: Computer tools TUC: Scientific communication TUC: Internship or laboratory training</p>	January to July Technical University of Crete (TUC)	Semester 4 : 4 training paths
<p>UA: Healing minerals - Part 2 UA: Methodologies of environmental remediation - Part 2 UA: Internship or laboratory training</p>	January to July University of Aveiro (UA)	
<p>UFRGS: Hydrothermal alteration and metallogeny - 4 ECTS UFRGS: Sedimentary clays - 4 ECTS UFRGS: Tardi-magmatic and hydrothermal clay minerals - 4 ECTS UFRGS: Internship or laboratory training</p>	February to August Federal University of Rio Grande do Sul (UFRGS)	