

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/>

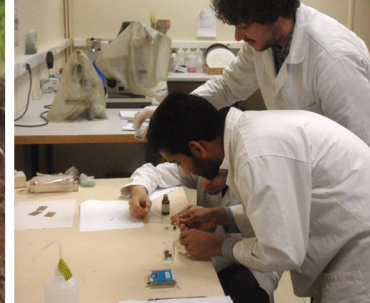
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Our strengths :

- 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
Semester 2	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 UA: Methodologies of environmental remediation (part 1) - 3 ECTS UP: Language training: English - 3 ECTS
	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 : Technological 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

TUC: Industrial clay deposits and processing routes - 6 ECTS UP: Geomaterial : geopolymers, ceramics, cements... - 3 ECTS UP: Civil engineering, storage - 3 ECTS UP: Structure and properties of clay suspensions - 3 ECTS UP: Design of advanced materials based on clays and LDH - 6 ECTS UA: Healing minerals (Part 1) - 3 ECTS UP-TUC: Geoarcheology - 3 ECTS UP: Language training: English - 3 ECTS	September to January University of Poitiers (UP)	Semester 3 : 3 training paths
TUC: Industrial clay deposits and processing routes TUC: Field trip TUC: Clays for Geotechnical and Civil Engineering Applications TUC: Geoarcheology UP: Structure and properties of clay suspensions UP: Design of advanced materials based on clays and LDH	September to January Technological University of Crete (TUC)	
UA: Applied geochemistry UA: Soils UA: Exploitation of minerals deposits UA: Healing minerals – Part 1 UA: Modeling of environmental systems	September to January University of Aveiro (UA)	
UP: Programming software - 3 ECTS UP: Scientific communication - 3 ECTS UP: Internship or laboratory training- 24 ECTS	January to July University of Poitiers (UP)	Semester 4 : 4 training paths
TUC: Computer tools TUC: Scientific communication TUC: Internship or laboratory training	January to July Technological University of Crete (TUC)	
UA: Healing minerals - Part 2 UA: Methodologies of environmental remediation - Part 2 UA: Internship or laboratory training	January to July University of Aveiro (UA)	
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	February to August Federal University of Rio Grande do Sul (UFRGS)	