

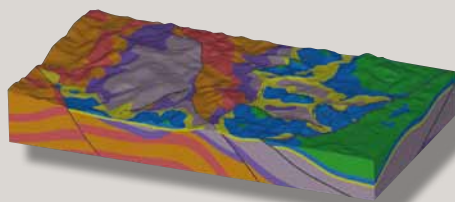
# enag - BRGM school

Training programme:  
“Sustainable Management  
of Mineral Resources”

# BRGM school

## › TRAINING PROGRAMME: “SUSTAINABLE MANAGEMENT OF MINERAL RESOURCES”

ENAG, a graduate school of applied sciences, aims to provide highly-qualified students with training that meets the needs of industry and society in the field of sustainable development of mineral resources. Within a context of ever-increasing tension concerning both the supply of mineral resources and awareness of environmental, societal and ethical issues, the school offers excellent training and access to the world of industry.



*From the field to the 3D model:  
the Alès coal basin.*

The «Sustainable Development of Mineral Resources» training programme aims to train adaptable and responsible specialists who will meet the new needs of governments, national geological surveys and the sector's industries. ENAG prepares students for

project management, in multicultural teams, by a mastery of current R&D concepts and a knowledge of how economic structures function. Graduates will therefore have a trio of skills: in geology, economics and management.

Training is aimed at those holding a degree in engineering, a Master (or Master-level diploma, i.e. 5 years of higher education) and French or foreign managers. The program, having a professional focus, entails 16 months of full-time study or 22 months within the framework of a cooperative-education contract. It leads to a French Diplôme Universitaire (DU) delivered jointly by ENAG and the OSUC of the University of Orléans.

The instructors come from French and foreign organizations, companies or universities and thus provide ENAG and its students with access not only to the professional and academic worlds, but also to experts from beyond our borders.



# Educational objectives and courses

## TU\*: FIELD TRAINING

### OBJECTIVES:

- › Develop field observation and interpretation skills
- › Review of geological concepts using a geodynamic approach combining field practice with numerical modeling tools and advanced mapping
- › Learn the principles of exploration project management

*Geology and digital mapping: from the field to the 3D model / Geodynamics and mineral resources / Exploration and mining: from geology to geotechnologies / Basement and basin heavy- and high-tech mineral resources / Clean mining and remediation*

DURATION: 2 MONTHS

## GOVERNANCE

### OBJECTIVES:

- › Learn the fundamentals of international mining and legislation
- › Develop skills for implementing a mining policy
- › Promote a development of mineral resources more respectful of the countries concerned
- › Introduction to financial and legal analyses

### TU: BUSINESS SCIENCES

*Macro and micro-economy / Business economy and finance / Introduction to business law / Relations and communication*

### TU: MINERAL RESOURCE MANAGEMENT

*International mining legislation / Economy and geopolitics of mineral raw materials / Mining governance and CSR / Life cycles of mineral resources / International project management*

DURATION: 2.5 MONTHS

## GEOTECHNOLOGIES

### OBJECTIVES:

- › Learn mineral-processing techniques
- › Manage risks associated with mining, transformation and use of primary and secondary mineral resources
- › Understand post-mining issues

### TU: MINERAL RESOURCE DEVELOPMENT

*Mineral processing and advanced geotechnologies / Mine operation techniques, tools and constraints*

### TU: MINES AND SUSTAINABLE DEVELOPMENT

*Contaminant hydrogeology / Mines and sustainable development / Environmental impact and clean mining / Post-mining*

DURATION: 2.5 MONTHS

## MINING GEOLOGY: FROM EXPLORATION TO OPERATION

### OBJECTIVES:

- › Explore new raw mineral resources taking into account the principles of sustainable development
- › Identify mineral resources and reserves and comply with international standards codifying exploration information declarations
- › Master computer tools for 3D geological modeling and mining operation planning
- › Reinforce the knowledge of ore-forming processes in various geological environments (including sub-marine)
- › Understand the specific geological and geopolitical features of mineral raw materials and notably strategic minerals (e.g. Si, Rare Earth Elements, Nb, Ta, Li, ...)

### TU: EXPLORATION TECHNIQUES AND TOOLS

*Exploration strategies / Remote sensing, geophysics, geochemistry and borehole measurements / Mining project feasibility and international standards / Marine mineral resources*

### TU: SUPPORT SKILLS

*GIS, Multiple-criteria analysis and predictability / Geological modeling and resource estimation*

### TU: FRONTIERS OF KNOWLEDGE

*Mineral resources of basements, orogens and sedimentary basins / Supergene mineral resources / High-tech minerals and industrial rocks and minerals*

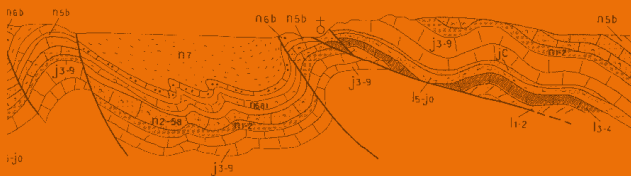
DURATION: 3 MONTHS

## COOPERATIVE EDUCATION (WORK-STUDY) OR INTERNSHIP

### OBJECTIVES:

- › Practicing skills acquired in real situations
- › Practicing and improvement of leadership and project management skills
- › Adaptation to international, multicultural contexts

DURATION: APPROXIMATELY 6 MONTHS AS INITIAL TRAINING. UP TO 14 MONTHS UNDER WORK-STUDY CONTRACT



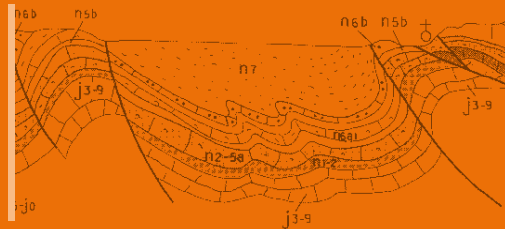
\*TU: Teaching Unit





ENAG Field training. Mineral exploration project management.  
Student on a reconnaissance mission in the south of Morocco (Jbel Saghro). © BRGM

Courses begin on September 10<sup>th</sup> 2012.  
Apply between November 30<sup>th</sup>, 2011 and March 31<sup>st</sup> 2012.  
Applications and additional information available  
on the ENAG website: [www.enag-brgm.fr](http://www.enag-brgm.fr)  
Contact: [enag@brgm.fr](mailto:enag@brgm.fr) – Tel. (+33) (0)2 38 64 47 90



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