Petroleum geology

Objectives

New technologies are constantly being developed for the production of non-renewable raw materials to raise output capacity further. Geological engineers are called on in particular to **optimise petroleum exploration** at a time when the sharp rise in petroleum demand is driven by emerging economies such as China and India.

Who is the programme for?

The programme is for students who are interested in **exploration**, the **development of petroleum deposits** and the issue of **CO_2 capture and storage** with a particular interest in **sedimentology**, **structural geology** and **geomodelling**.

Career opportunities

>> Sectors

Oil industry and related activities and services, industrial and commercial public institutions, research (PhD).

>> Positions

Geological engineers involved in exploration work strive to identify and develop new deposits, such as deep offshore deposits. In extraction projects, they help to optimise production by furthering geological knowledge of bearings and developing reservoir models.

Content

The programme provides theoretical and practical training as well as field schools.

> Exploration and Production
> Characterisation of petroleum reservoirs and their overburden (petrophysical properties, fluid characterisation)
> Mass and energy transport in porous media (description and interpretation of water/petroleum gas two-phase flow in underground environments)
> Petroleum geophysics (offshore seismic acquisition techniques and 3D block processing steps, reservoir characterisation)
> Seismic interpretation (structural analysis and stratigraphy)
> Offshore (architecture and dynamics of deep-sea fans, risks, impact of industrial activity)
> Sedimentology of the coastal region (including a trip to the Somme Bay)
> Modelling of petroleum systems and reservoirs (static numerical modelling, stratigraphic modelling, analogue modelling, gravity tectonics and initiation to Petrel)
> Storage (CO_2 in depleted reservoirs, CH_4 in aquifers and salt caverns)
> Petroleum economy and energy issues
> Case studies (Athabasca oil sands, etc.)
> Guest conferences (EAGE Student Lecture Tour, company presentations, etc.)
> Land & Sea field school: acquisition, processing and interpretation of marine seismic data (Villefranche/Mer Oceanological Observatory: Géosciences Azur - Paris VI; aboard the Téthys II: INSU CNRS - CIRMED) and study of field analogues of identified sedimentary systems
> Collective or individual projects: resolution of problems in the student's area of specialization.

Six-month company placement

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