

## The campus

The Technical University of Crete ([www.tuc.gr](http://www.tuc.gr)), a highly reputable Institution both on education and research, was established in 1977 in Chania, Crete, Greece and admitted its first students in October 1984. Today it comprises of 5 academic engineering schools.

The Campus is built in a panoramic location in Kounoupidiana, Akrotiri, 7 km northeast of the city of Chania, covering a total area of 290 hectares.



The mission of the Technical University of Crete is to develop modern engineering specialties, to place emphasis on research in fields of advanced technology as well as to establish close cooperation with the industry. 57 well-equipped laboratories, high technology infrastructure and 129 faculty staff members, most of them with international academic careers, testify to the high quality of the educational and research work conducted at the modern facilities of the campus.

## Deadlines

*Application deadlines are:*

- *May 31<sup>st</sup> 2020 for International non-EU applicants*
- *August 31<sup>st</sup> for EU applicants*

*Courses start on 30<sup>th</sup> of September 2020.*

*Admission process will be open on 01.02.2020.*

## Contact

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Program webpage:

<http://www.peteng-master.tuc.gr>

The MSc program operates  
under the aegis of



**HELLENIC  
PETROLEUM**



**TECHNICAL  
UNIVERSITY  
OF CRETE**

**School of Mineral  
Resources  
Engineering**



**Master of Science in  
Petroleum Engineering**

## Course description

The School of Mineral Resources Engineering of the Technical University of Crete, Greece, offers a Postgraduate Program in Petroleum Engineering since 2014. The Program leads to a Master's of Science (MSc) degree in Petroleum Engineering. It is aiming to provide a scientific background and applied knowledge in oil and natural gas exploration and production. The program's duration is 12 months, with course work on a full-time basis, accounting for a total of 50 ECTs. Upon successfully completion of their exams, the students undertake a thesis, corresponding to 10 ECTs.



## Students admission

The successful candidates should hold a University degree in Engineering or a Science discipline relevant to the program's subject. The maximum annual enrollment is 20 students.

Program language: The program lectures and course work are given in English and fluency in oral and written English is required.

Program fees: The fees of the program are 4,000€. Especially, the fees for students coming from Greece, Cyprus, Serbia, Bulgaria, Montenegro and North Macedonia are covered by scholarships, provided by "Hellenic Petroleum".

## Program content – 1st semester

**Petroleum Geology** (39 hours, 5 ECTs). Basic geology (earth structure, rocks, sedimentary basins, mapping). Sedimentology and depositional environment. Structural geology. Basin analysis. Play assessment.

**Petroleum Geochemistry** (39 hours, 5 ECTs). Hydrocarbons chemistry. Origin of oil and gas. Organic matter, carbon cycle. Generation of petroleum, source rocks, migration and reservoir geochemistry. Biomarkers. Chemical analysis. Petroleum and the environment.

**Data Analysis and Modeling in Petroleum Engineering** (39 hours, 5 ECTs). This course introduces the use of statistical tools for modeling field- and production-related data. Data mining, regression, classification, clustering and geostatistical methods are covered.

**Drilling Engineering** (39 hours, 5 ECTs). Design and construction of vertical, deviated and horizontal wells in both onshore and offshore explorations. Pore pressure estimation, drilling equipment and procedures, hydraulics, casing and cementing, well control.

**Reservoir Engineering** (39 hours, 5 ECTs). Introduction to reservoir engineering, fluid pressure regimes, phase behavior, reservoir fluid sampling, porous media, rock-fluid interactions, fluid flow in porous media, stabilized flow-transient flow-gas flow equations, well testing, well performance. Introduction to Well Test interpretation, type curve analysis, pressure derivative analysis.

## Program content – 2nd semester

**Production Engineering** (39 hours, 5 ECTs) covers basic and advanced completion methods, wellbore performance and nodal analysis, artificial and gas lift, design of the surface facilities.

**Geophysics** (39 hours, 5 ECTs). Seismic reflection method for oil exploration and exploitation. Seismic data acquisition techniques, field surveys. 2D, 3D, 4D, 3C surveys. Seismic data processing techniques. Wireline logging, logging while drilling.

**Reservoir Simulation** (39 hours, 5 ECTs). Introduction to reservoir simulation, types of reservoir simulation models, black oil models, compositional models, thermal models, reservoir simulation model set-up, gridding in reservoir simulation, block-to-block flow, wells in reservoir simulation, numerical methods in reservoir simulation, petrophysical input, pseudoization and upscaling, history matching, test cases.

**Special Topics in Petroleum Engineering** (39 hours, 5 ECTs), covers various advanced issues in petroleum engineering such as fluid properties modeling by means of EoS, the Buckley-Leverett waterflooding model, gas miscibility pressure determination and the material balance method

**Petroleum Economics and Law** (39 hours, 5 ECTs), deals with understanding the basic economic concepts involved in hydrocarbon exploration projects. The topics covered include project assessment, investments, risk analysis, and decision making.