PETROLEUM ENGINEERING TECHNOLOGY (PET)

PET 115. Petroleum Geology
Credits: 3
Prerequisite: GEOL 105.
Corequisite: PET 115L.
Typically Offered: SPRING
Students introduced to field of petroleum geology and its applications to the discovery and recovery of oil and natural gas. Theories of oil and natural gas generation and classification discussed. Interpretation and analysis of geophysical logs included. Geologic patterns, reservoir characterization and structures associated with hydrocarbon deposits described.

PET 115L. Petroleum Geology Lab
Credits: 1
Prerequisite: GEOL 105.
Corequisite: PET 115.
Typically Offered: SPRING
Students gain hands-on experience interpreting geologic maps and identifying rock types and hydrocarbon presence through drill cuttings, thin sections and core samples. Includes generation, analysis and interpretation of geophysical log information. Porosity, permeability and other basic rock properties explored; current industry software introduced.

PET 121. Petroleum Data Mgmt I
Credits: 3
Typically Offered: FALL
This course offers an overview and introduction to the common computer applications used by the petroleum industry, especially in the areas of exploration, discovery and development of major oil deposits. Students will manage and process petroleum specific datasets using Microsoft Excel, Access, and other appropriate software.

PET 131. Exploration & Production
Credits: 3
Prerequisite: PET 115.
Typically Offered: FALL
Students will be introduced to the systems used to discover and recover crude oil and natural gas. Various methods of crude oil and natural gas exploration and production will be discussed. Students will be exposed to the full petroleum supply chain, from wellhead to consumers.

PET 131L. Exploration & Production Lab
Credits: 1
Prerequisite: PET 115.
Corequisite: PET 131.
Typically Offered: FALL
Students will participate in hands on exercises to reinforce the concepts from lecture including the procedures involved in land and deep-water exploration, the development of hydrocarbon deposits, drilling wells, completing wells and development of production systems.

PET 221. Petroleum Data Management II
Credits: 3
Prerequisites: PET 121 and GIS 250.
Typically Offered: SPRING
Continuation of PET 121. Focus is on industry computer applications required for petroleum data management. Significant attention is paid to databases and database management. Students will work with PETRA software applications. Students will be introduced to decline curves and oil field economics.

PET 241. Principles of Reservoir Engineering
Credits: 3
Prerequisites: PET 131 and PET 251.
Typically Offered: SPRING
Students will develop the vocabulary for and study the engineering techniques and calculations used in the development, operation and management of hydrocarbon reservoirs. Students will be exposed to the techniques used to generate and interpret modern well logs. Students will have an understanding of laboratory and filed testing techniques used by the petroleum industry to analyze petroleum reservoirs. The course will also cover reservoir characterizations and current well stimulation techniques, including hydraulic fracturing.

PET 251. Well Completions
Credits: 3
Typically Offered: FALL
Students will explore well design and construction. Students will learn how to execute well completion plans and procedures. Topics include running and cementing casing, downhole completion tools and tubulars, perforating, hydraulic fracturing and wellhead equipment.

PET 280. Project Management in PET
Credits: 3
Typically Offered: SPRING
This course, taken in final semester of the PET program, introduces the student to project management as it pertains to the petroleum industry. Students will study the planning, scheduling, and controlling of the drilling of an oil well. The students will be introduced and study the following subjects: The triangle of project control consisting of the relationship of scope, duration and costs, and how they interact; how to read and understand Gantt charts; the stages of a project - initiation, planning, execution, control and completion; the roles of petroleum service and supply companies; petroleum company organization structures and job descriptions; project reporting methods; project economics.