

# NATURAL GAS ENGINEERING (NGEN)

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**NGEN 3322** Funds of Reservoir Engg **3 SCH (2-3)**

Physical properties of petroleum reservoir rocks, lithology, porosity, fluid saturations, permeability and capillary characteristics as they relate to the production of oil and gas. Properties of hydrocarbon systems. Material balance methods. Flow of fluids in porous media. Prerequisites: Credit or registration in CHEN/NGEN 3392, GEOL 1303/1103 and CHEM 3323. Corequisite: CHEM 3123.

Fee: \$5.00

**NGEN 3392** Fluid Transport Phenomena **3 SCH (3)**

Fundamentals of momentum transport including fluid statics, flow of compressible and incompressible fluids, pumps, turbines, and compressors, with computer applications. Prerequisite: MATH 3320; credit or registration in MEEN 2355 or MEEN 2302. (Credit may not be obtained in both NGEN 3392 and CHEN 3392.)

**NGEN 3393** Natural Gas Drilling Engg **3 SCH (2-3)**

Introduction to drilling equipment and methods, drilling fluids, casing and cementing of wells. Application of computers to the drilling of wells. Contemporary methods of well completion. Prerequisites: NGEN 3322 and CHEN 3392 or NGEN 3392.

**NGEN 4279** Unit Operations Laboratory **2 SCH (6)**

Selected laboratory experiments in heat and mass transfer. Prerequisite: CHEN 4389. (Credit may not be obtained in both NGEN 4279 and CHEN 4279.)

Fee: \$5.00

**NGEN 4335** Special Problems **1-3 SCH (1-3)**

Individual solution of selected problems in natural gas engineering conducted under direct supervision of a faculty member. May be repeated for up to 6 semester hours. Prerequisite: senior standing.

**NGEN 4375** Natural Gas Distribution **3 SCH (3)**

Pipeline and compressor station design. Pipeline integrity and environmental issues associated with pipeline placement and design. Prerequisite: CHEN 3392 or NGEN 3392.

**NGEN 4383** Natural Gas Processes **3 SCH (3)**

The design, operation and economics of systems for the utilization of hydrocarbon gases and liquids, the concentration of their components by absorption and fractionation procedures. Use of computer aided design and economic evaluation of facility designs. Prerequisite: CHEN 4389. (Credit may not be obtained in both NGEN 4383 and CHEN 4383.)

**NGEN 4387** Seismic Interp & Well-Logging **3 SCH (3)**

Theory and methods of modern seismic and well log interpretation. Prerequisite: NGEN 3493 or GEOL 3431.

**NGEN 4396** Natural Gas Production **3 SCH (3)**

Theory, design and methods of gas well testing and production forecasting. Estimating the value of gas and oil properties. Environmental issues and professional responsibility. Prerequisites: NGEN 3322 and NGEN/CHEN 3392.

**NGEN 4398** Capstone Design Project (WI) **3 SCH (2-3)**

In teams, students complete significant design projects that include two or more aspects of natural gas engineering. Prerequisite: Student has 6 or fewer credit hours of NGEN courses to complete in subsequent terms.

**NGEN 4478** Hydrocarbon Measurement **4 SCH (3-3)**

Theory and practice of measurement of hydrocarbon gas and liquid properties and flow. Prerequisites: NGEN/CHEN 3392 and NGEN 4375.