

Petroleum Engineering Approved Technical Electives

2024-2026 Catalog

Petroleum Engineering: 12 hours of technical electives are required. To satisfy the technical elective requirements, at least two (2) courses from Section I must be taken, and up to four (4) courses from Section I may be taken. Up to two (2) courses from Section II may be taken, and only one (1) course from Section III may be taken (no courses are REQUIRED from Sections II or III).

SECTION I (at least 2 courses must be taken; up to 4 courses may be taken):

E S 369N	Sustainability Issues in Energy (F)
PGE 323M	Reservoir Engineering III: Numerical Simulation (F)
PGE 364	Natural Gas Engineering (F)
PGE 376	<i>Special Problems in Petroleum/Geosystems Engineering (F, S, SU)</i>
PGE 379	Advances in Unconventional Shale Gas Resources
PGE 379	Formation Evaluation of Unconventional Reservoirs
PGE 379	Subsurface Energy Storage (F)
PGE 379	Unconventional Resources Development (F, S)
PGE 379.3	Geothermal and Sustainable Energy Resources (S)
PGE 379.4	Carbon Capture and Storage (F)
PGE 379.5	Energy and the Environment (F)
PGE 379.9	Subsurface Machine Learning (F)
PGE 379.10	Artificial Lift (F)
PGE 379.11	Facilities Management
PGE 379.13	Fundamentals of Enhanced Oil Recovery Techniques (S)
PGE 379.14	High Performance Computational Engineering (S)
PGE 379.16	Hydraulic Fracture Design and Evaluation (F)
PGE 379.17	Applied Subsurface Geology (S)
PGE 379.19	Advanced Well Construction
PGE 379.22	Global Carbon Monitoring Systems (S)
PGE 679HA	<i>Undergraduate Honors Thesis, must be in honors program</i>
PGE 679HB	<i>Undergraduate Honors Thesis, must be in honors program</i>

Some PGE graduate courses may be taken as technical electives. Students are required to have approval to take a graduate course for undergraduate credit. The application is found at <https://students.engr.utexas.edu/policies-forms>, select: Undergraduates Taking Graduate Courses.

SECTION II (up to 2 courses may be taken):

Courses not on this list must be preapproved

(Courses in area 4 and 5 of the CSE Certificate Program are approved as are upper-division CS courses used in the Elements of Computing Certificate)

C E 370K	Environmental Sampling and Analysis (F, S)
C E 374K	Hydrology
COE 321K	Computational Methods for Structural Analysis (S)
C S 323E	Elements of Scientific Computing (F,S)
C S 367	Numerical Methods
GEO 330K	Energy Exploration (S)
GEO 346C	Introduction to Physical and Chemical Hydrology (F, S)
GEO 347D	Global Warming (S)
GEO 371T	Climate Systems Physics
GEO 371T	Fundamentals of Geothermal Energy Systems
GEO 371T	Intro to Machine Learning
GEO 371T	Climate Change Mitigation
GEO 371T	CO2 Injection and Storage in Geologic Formations
GEO 376L	Field Methods in Groundwater Hydrology (SU)
GEO 376S	Physical Hydrology (F)

SECTION II (continued):

GEO 377K	Applied Karst Hydrology (F)
GEO 420K	Introduction to Field and Stratigraphic Methods (S)
GEO 468K	Geophysics for Geological Sciences Majors (S)
GEO 476K	Groundwater Hydrology (F)
M 340L	Matrices and Matrix Calculations (F, S, SU)
M 341	Linear Algebra and Matrix Theory (F, S)
M 346	Applied Linear Algebra (F, S)
M 348	Scientific Computation in Numerical Analysis (F, S)
M 368K	Numerical Methods for Applications (S)
M 427L	Advanced Calculus for Applications II (F, S, SU)
NSC 325	Inventors Program: Energy (only when taught by PGE faculty member)
PGE 379.8	Oil, Gas and Mineral Law ¹ (S)
PGE 363	Petroleum Land Leasing Regulations & Practices ² (S)
PGE 371	Energy Finance ² (S)

SECTION III (only 1 course may be taken):**Courses not on this list must be preapproved**

CHE 359	Energy Technology and Policy (F, S)
FIN 320F	Foundations of Finance (F, S, SU)
I B 320F	Foundations of International Business (F, S, SU)
LEB 320F	Foundations of Business Law and Ethics (F, S, SU)
MAN 320F	Foundations of Management and Organizational Behavior (F, S, SU)
M E 363M	Energy Technology and Policy (S)

FOOTNOTES

¹ Only one "Oil and Gas Law" topic course may be counted toward degree requirements.

² Only one of PGE 363 or 371 may be counted toward degree requirements.

WHEN COURSES ARE OFFERED

Courses regularly taught in specific semesters are indicated with the following codes in parentheses:

F – Fall

S – Spring

SU – Summer

This is not an official degree audit. Please contact a Hildebrand Department of Petroleum and Geosystems Engineering academic advisor for advising.