

HAROLD VANCE DEPARTMENT OF
PETROLEUM ENGINEERING

ADMINISTRATIVE POLICIES
FOR
UNDERGRADUATE STUDENTS

SIXTEENTH EDITION

CATALOG 132 (200931)

TEXAS A&M UNIVERSITY
COLLEGE STATION, TX 77843-3116

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OBJECTIVE

The objective of this handbook is to make available to students and faculty a concise reference for departmental policies related to the Undergraduate Petroleum Engineering curriculum at Texas A&M University.

DEPARTMENT POLICY ON ACADEMIC ADVISING

Members of the faculty and staff designated by the Department Head, will be responsible for general academic advising of undergraduate students. Dr. Bryan Maggard and Dr. Larry Piper are the current Academic Advisors. General advising will include development of a comprehensive degree plan and planning of the next semester's courses prior to registration. Students will be encouraged to enroll in 15 credit hours per semester, in accordance with University policy.

Dr. Piper will advise PETL (lower-level) students on degree plan, Q-drops, and first year grade exclusion. Dr. Piper will advise all PETL/PETE students on scholarships.

Dr. Maggard will advise PETE (upper-level) students on degree plan, and Q-drops. Dr. Maggard will advise all PETL/PETE students on issues of course substitutions, probation, suspension, and readmission.

REGISTRATION BLOCKS

Undergraduate students who are on scholastic probation or who have not been admitted to Junior level petroleum engineering courses will be blocked from registration pending consultation with their academic advisor. The purpose of this policy is to assist students in developing a degree plan that satisfies all graduation requirements, including satisfying prerequisites course sequences.

COURSES COMPRISING THE MAJOR FIELD

For Catalog 129 and subsequent catalogs, the courses comprising the major field are defined by the Petroleum Engineering Department as follows:

- All non-elective PETE and GEOL courses included in the Curriculum in Petroleum Engineering

COURSES TAKEN S/U

No courses leading to a baccalaureate degree in petroleum engineering may be taken on a pass/fail (S/U) basis, except Kinesiology courses (KINE 198 and 199). All other courses must be taken for a letter grade (A, B, C, D, F). Note that the University Core Curriculum requires one KINE 199 to be taken S/U.

CURRENT ADDRESS

To avoid missing important information from the Petroleum Engineering Department, it is the responsibility of each student to inform the department of current local and permanent addresses, telephone numbers and both departmental (@pe.tamu.edu) and university e-mail accounts (@tam.u.edu). Communications mailed to either address of record will be deemed to be adequate notice. To make changes, **see website: howdy.tamu.edu, or call Mrs. Gail Krueger at 845-6955.**

Curriculum in
Petroleum Engineering
TAMU Catalog 132 (200931, 2009-2010)

Petroleum Engineering is primarily concerned with the economic extraction of oil, gas, and other natural resources from the earth. Producing oil and gas is accomplished through the design, drilling and operation of wells and well systems, and the integrated management of the underground reservoirs in which the resources are found.

The petroleum engineering program has three educational objectives:

- graduates will be competitive in the petroleum engineering job market, or in continuing their education;
- graduates will be skilled practitioners of petroleum engineering as employees; and
- the program will be regarded as excellent.

In essence, the goal of the petroleum engineering curriculum is to provide a modern engineering education with proper balance between fundamentals and practice, and to graduate engineers prepared for life-long learning, but capable of being productive contributors immediately. The curriculum includes study of:

- design and analysis of well systems and procedures for drilling and completing wells;
- characterization and evaluation of subsurface geological formations and their resources;
- design and analysis of systems for producing, injecting, and handling fluids;
- application of reservoir engineering principles and practices for optimizing resource development and management; and
- use of project economics and resource valuation methods for design and decision making under conditions of risk and uncertainty.

There is a heavy emphasis on mathematics, computer applications, communication skills, and interdisciplinary problem solving. As a result, Aggie petroleum engineers are in high demand in the industry, and their starting salaries are consistently among the top in the University and the nation.

The department is well-known for its curriculum, facilities and faculty, and its undergraduate program was recognized as the best in the nation by *US News and World Report* in 2003. The faculty comprises more than 29 professors and lecturers, many of them widely known and globally involved in the petroleum industry. Four of the faculty are members of the prestigious National Academy of Engineering, and 14 are Distinguished Members of the Society of Petroleum Engineers.

The department encourages its students to work as interns during the summer months. A minimum of six weeks of approved experience is required for graduation. The department also participates in the Cooperative Education Program.

In addition to the Bachelor of Science degree in Petroleum Engineering, the department also offers both masters and doctoral degrees, including the Master of Science and Master of Engineering, and the Doctor of Philosophy and Doctor of Engineering (see the *Texas A&M University Graduate Catalog*).

**Petroleum Engineering Curriculum
TAMU Catalog 132 (200931, 2009-2010)**

FRESHMAN YEAR ¹

First Semester	(Th-Pr) Cr	Second Semester	(Th-Pr) Cr
ENGL 104 Composition and Rhetoric	(3-0) 3	CHEM 107 Gen. Chem. for Engr. Stud.	(3-0) 3
ENGR 111 Foundations in Engineering I	(1-3) 2	CHEM 117 Gen. Chem. for Engr. Stud. Lab.	(0-3) 1
MATH 151 Engineering Mathematics I	(3-2) 4	ENGR 112 Foundations in Engineering II	(1-3) 2
PHYS 218 Mechanics	(3-3) 4	MATH 152 Engineering Mathematics II	(3-2) 4
University Core Curriculum elective ²	3	PHYS 208 Electricity and Optics	(3-3) 4
KINE 198 Health and Fitness Activity	(0-2) <u>1</u>	University Core Curriculum elective ²	3
	17	KINE 199 Required Phys. Activity (S/U)	(0-2) <u>1</u>
			18

SOPHOMORE YEAR

COMM 205 Comm. for Tech. Professionals	(3-0) 3	CVEN 305 Mechanics of Materials	(3-0) 3
GEOL 104 Physical Geology	(3-2) 4	MATH 308 Differential Equations	(3-0) 3
MATH 251 Engineering Mathematics III	(3-0) 3	MEEN 315 Principles of Thermodynamics	(2-2) 3
MEEN 221 Statics and Particle Dynamics	(2-2) 3	PETE 311 Reservoir Petrophysics	(3-3) 4
PETE 225 Petroleum Drilling Systems	(1-3) 2	University Core Curriculum elective ²	<u>3</u>
University Core Curriculum elective ²	<u>3</u>		16
	18		

JUNIOR YEAR

GEOL 404 Geology of Petroleum	(2-3) 3	PETE 321 Formation Evaluation	(3-3) 4
PETE 301 Petr. Engr. Numerical Methods	(2-3) 3	PETE 323 Reservoir Models	(3-0) 3
PETE 310 Reservoir Fluids	(3-3) 4	PETE 324 Well Performance	(3-0) 3
PETE 314 Transport Proc. in Petr. Prod.	(3-0) 3	PETE 325 Petroleum Production Systems	(1-3) 2
PETE 335 Technical Presentations I ³	(1-0) <u>1</u>	PETE 403 Petroleum Project Evaluation	(3-0) <u>3</u>
	14		15

SUMMER

PETE 300 Summer Practice

SENIOR YEAR

ECEN 215 Principles of Electrical Eng.	(2-2) 3	ENGR 482 Ethics and Engineering	(3-0) 3
PETE 401 Reservoir Development	(2-3) 3	PETE 322 Geostatistics	(3-0) 3
PETE 405 Drilling Engineering	(3-0) 3	PETE 400 Reservoir Description	(2-3) 3
PETE 410 Production Engineering	(3-0) 3	Technical elective ⁴	3
PETE 435 Technical Presentations II ³	(1-0) 1	University Core Curriculum elective ²	<u>3</u>
University Core Curriculum elective ²	<u>3</u>		15
	16		

NOTES:

1. PETE 201 is also required during the first semester of the freshman year.
2. To be selected from the University Core Curriculum. Of the 18 hours shown as University Core Curriculum electives, 3 must be from visual and performing arts, 3 from social and behavioral sciences, 6 from U. S. history, and 6 from POLS 206 and 207. The required 6 hours from international and cultural diversity may be met by courses satisfying the visual and performing arts, social and behavioral sciences, and/or U. S. history requirements, if they are on the approved list of international and cultural diversity courses (see Catalog 132, page 20). ENGR 482/PHIL 482 must be taken.
3. Independent study of a petroleum engineering problem, the solution of which will be documented by a technical paper and an oral presentation at the departmental student paper contest held during the same academic year.
4. Select from GEOL 312, GEOP 421, PETE 406 or 416; or other as approved by the department head.

The following certificates from the Dwight Look College of Engineering are available for students pursuing this degree: Engineering Scholars Program Honors Certificate, Energy Engineering Certificate, Engineering Project Management Certificate, International Engineering Certificate, and Safety Engineering Certificate. See Catalog 132, page 363 for detailed information.

Petroleum Engineering Curriculum - Catalog 132 (200931, 2009-2010)

3-Hour Courses Satisfying International and Cultural Diversity Requirements (ICD),
and also meeting other University Core Curriculum Requirements (USH, VPA, or SBS)

The following is a compilation of approved international and cultural diversity courses that also meet visual and performing arts (VPA), social and behavioral sciences (SBS), and U. S. history (USH) requirements, along with any prerequisites and cross-listed courses.

AGEC 452	SBS	AGEC 105, or any ECON (3 hours); and U3 class.	POLS 322	SBS	POLS 206 or appr. of Head
AGEC 453	SBS	AGEC 105, or any ECON (3 hours); and U3 class.	POLS 323	SBS	POLS 206 or appr. of Head
ANTH 210	SBS		POLS 324	SBS	U3 or U4 classif
ANTH 300	SBS		POLS 326	SBS	POLS 206 & 207; U3 & U4 classif.
ANTH 314	SBS		POLS 328	SBS	U3 or U4 classif
ANTH 324	VPA	MUSC 102, or inst. approval	POLS 329	SBS	POLS 206 or appr. of Head
ANTH 403	SBS	Cross listed with RELS 403	POLS 331	SBS	POLS 206 or appr. of Head
ANTH 404	SBS	Cross listed with WMST 404	POLS 338	SBS	POLS 206 or appr. of Head
ARCH 250	VPA		POLS 365	SBS	POLS 206 or appr. of Head
ARTS 150	VPA		POLS 367	SBS	POLS 206; U3 or U4 classif. or appr of Head Cross listed as WMST 367
ARTS 350	VPA		POLS 424	SBS	POLS 322 & 323; POLS 326 or 365 U3 or U4 classif
CARC 335	VPA	U3 or U4 Classif or with appr. of instr.	POLS 432	SBS	POLS 206 & 207; U3 or U4 classif.
COMM 335	SBS	Any COMM course, or U3 course, or appr. of instr.	POLS 462	SBS	POLS 206 or appr of Head Cross listed as WMST 462
ECON 312	SBS	ECON 232 or co-enrollment	PSYC 300	SBS	PSYC 107 Cross listed with WMST 300
ECON 319	SBS	ECON 202 & ECON 203	RELS 403	SBS	Cross listed as ANTH 403
ECON 320	SBS	ECON 202 & ECON 203	RUSS 447	VPA	U3 or U4 classif. or appr of instr. Cross listed with EURO 447
ECON 324	SBS	ECON 202 & ECON 203	SOCI 207	SBS	Cross listed as WMST 207
ECON 330	SBS	ECON 202 & ECON 203	SOCI 316	SBS	Cross listed as WMST 316
ENDS 101	VPA		SOCI 317	SBS	
ENGL 251	VPA	ENGL 104	SOCI 321	SBS	
ENGL 340	VPA	3 hours of 200- level literature course	SOCI 323	SBS	SOCI 205
ENGL 403		U3 or U4 classif. Cross listed with LING 403 & WMST 403	SOCI 324	SBS	
EURO 447	VPA	U3 or U4 classif. Or appr. of instr. Cross listed with RUSS 447	SOCI 325	SBS	
FREN 425	VPA	FREN 202 or appr of instr. Cross listed with EURO 425 & FILM 425	SOCI 329	SBS	Cross listed as ASIA 329
GEOG 306	SBS		SOCI 330	SBS	
GEOG 311	SBS		SOCI 340	SBS	U3 or U4 classif. or appr of instr.
HIST 258	USH		SOCI 350	SBS	
HIST 301	USH		SOCI 403	SBS	
HIST 305	USH		SOCI 419	SBS	SOCI 205
HIST 307	USH		SOCI 423	SBS	U3 or U4 classif. or appr of instr.
HIST 319	USH		SOCI 424	SBS	Cross listed as WMST 424
HIST 343	USH	U3 or U4 classif. or appr. of instr.	SPAN 410	VPA	SPAN 311 or 312; SPAN 303 or appr of instr.
HIST 451	USH		SPMT 336	SBS	U3 or U4 classif.
HIST 455	USH		SPMT 337	SBS	U3 or U4 classif. or appr of instr.
HIST 460	USH		THAR 201	VPA	
HIST 461	USH	Cross listed as WMST 461	THAR 281	VPA	non THAR major or minor
HIST 473	USH	Cross listed as WMST 473	VTPB 221	SBS	U1 or U2 classif.
HLTH 236	SBS		WMST 207	SBS	Cross listed as SOCI 207
HORT 335	SBS	U3 classification	WMST 300	SBS	PSYC 107 Cross listed as PSYC 300
INST 310	SBS	U2 or above classif.	WMST 310	SBS	U3 or U4 classif. or appr. of instr. Cross listed as SOCI 310
INST 322	SBS	U3 or above classif.	WMST 316	SBS	Cross listed as SOCI 316
LAND 240	SBS	U2 or above classif.	WMST 317	SBS	POLS 206 Cross listed as POLS 317
LING 402	VPA	LING 209	WMST 367	SBS	POLS 206; U3 or U4 classif. or appr of Head Cross listed as POLS 367
MODL 352	SBS		WMST 404	SBS	Cross listed as ANTH 404
MUSC 312	VPA	MUSC 205 or appr of instr.	WMST 424	SBS	Cross listed as SOCI 424
MUSC 315	VPA	MUSC 206 or appr of instr.	WMST 461	SBS	Cross listed as HIST 461
MUSC 319	VPA	Appr of instr.	WMST 462	SBS	POLS 206 or appr of Head Cross listed as POLS 462
MUSC 324	VPA	MUSC 102 or appr of instr. Cross listed as ANTH 324	WMST 463	SBS	U3 or U4 classif. or appr of instr. Cross listed as ASIA 463 and SOCI 463
POLS 317	SBS	POLS 206 Cross listed as WMST 317	WMST 473	SBS	Cross listed as HIST 473

TEXAS A&M UNIVERSITY
Harold Vance Department of Petroleum Engineering

TAMU Catalog 132 (200931, 2009-2010)
Course Descriptions – Petroleum Engineering

- PETE 201. Introduction to Petroleum Engineering. (1-0). Credit 1. I** Overview of petroleum industry and petroleum engineering including nature of oil and gas reservoirs, petroleum exploration and drilling, formation evaluation, completion and production, surface facilities, reservoir mechanics, and improved oil recovery. Prerequisites: approval of department head.
- PETE 211. Petroleum Engineering Systems. (1-0). Credit 1. I** Introduction to petroleum engineering reservoir, drilling, formation evaluation, and production systems, including fundamental petroleum engineering concepts, quantities and unit systems. Prerequisites: ENGR 112; MATH 152; PHYS 218.
- PETE 225. Petroleum Drilling Systems. (1-3). Credit 2. I, II** Introduction to Petroleum Drilling Systems, including fundamental petroleum engineering concepts, quantities and unit systems, drilling rig components, drilling fluids, pressure loss calculations, casing, well cementing, and directional drilling. Prerequisites: ENGR 112; MATH 152; PHYS 218.
- PETE 285. Directed Studies. Credit 1 to 4.** Special problems in various phases of petroleum engineering assigned to individual students or to groups. Prerequisites: Completion of engineering common body of knowledge courses; approval of department head.
- PETE 289. Special Topics in.... Credit 1 to 4.** Selected topics in an identified area of petroleum engineering. May be repeated for credit. Prerequisite: approval of instructor.
- PETE 300. Summer Practice. Required. No Credit.** Industry practice to familiarize the petroleum engineering student with practices and equipment of the petroleum industry. Approval of advisor required.
- PETE 301. Petroleum Engineering Numerical Methods. (2-3). Credit 3. I** Use of numerical methods in a variety of petroleum engineering problems; numerical differentiation and integration; root finding; numerical solution of differential equations; curve fitting and interpolation; computer applications; introduction to the principles of numerical simulation methods. Prerequisites: PETE 311; CVEN 305; MEEN 315; MATH 308.
- PETE 310. Reservoir Fluids. (3-3). Credit 4. I** Thermodynamic behavior of naturally occurring hydrocarbon mixtures; evaluation and correlation of physical properties of petroleum reservoir fluids, including laboratory and empirical methods. Prerequisites: PETE 311; CHEM 107; CVEN 305; MEEN 315; MATH 308.
- PETE 311. Reservoir Petrophysics. (3-3). Credit 4. I, II** Systematic theoretical and laboratory study of physical properties of petroleum reservoir rocks; lithology, porosity, relative and effective permeability; fluid saturations, capillary characteristics, compressibility, rock stress; and fluid-rock interaction. Prerequisites: PETE 225; MEEN 221; GEOL 104; MATH 308 or registration therein.
- PETE 314. Transport Processes in Petroleum Production. (3-0). Credit 3. I** Fluid Mechanics: fluid statics; mass, energy, momentum balances; friction losses, turbulent flow, Reynolds Number (Moody diagram); Newtonian/Non-Newtonian fluids; flow in porous media (Darcy's law and Non-Darcy flow). heat transfer: heat conduction (steady-state/transient flow: flux components, slabs/cylinders, thermal conductivity, analogs, applications); heat convection (heat transfer/pressure drop, heat exchangers, applications). Prerequisites: PETE 311; CVEN 305; MEEN 315; MATH 308.
- PETE 320. Drilling and Production Systems. (2-3). Credit 3. II** Introduction to drilling systems: components, drilling fluids, pressure loss calculations, well cementing, and directional drilling; theoretical and laboratory prediction of flowrates and pressure drops through conventional petroleum production networks; calculation of static and flowing bottomhole pressures in oil and gas wells; well deliverability via inflow (IPR)/outflow (VLP) methods; gas lift; pump lift; gas compression. Prerequisites: PETE 301 and 310; GEOL 404.
- PETE 321. Formation Evaluation. (3-3). Credit 4. II** Introduction to modern well logging methods, engineering, and core-log integration. Prerequisites: PETE 301 and 310; GEOL 404; or approval of instructor.
- PETE 322. Geostatistics. (3-0). Credit 3. II** Introduction to geostatistics; basic statistics concepts; univariate distributions and estimators; measures of heterogeneity; hypothesis testing, correlation, and regression; analysis of spatial relationships, modeling geological media, and use of statistics in reservoir modeling. Prerequisites: PETE 401; GEOL 404; or approval of instructor.
- PETE 323. Reservoir Models. (3-0). Credit 3. II** Determination of reserves; material balance methods; aquifer models; fractional flow and frontal advance; displacement, pattern, and vertical sweep efficiencies in waterfloods; enhanced oil recovery processes; design of optimal recovery processes. Prerequisites: PETE 301 and 310; GEOL 404.

PETE 324. Well Performance. (3-0). Credit 3. II Steady-state, pseudosteady-state, and transient well testing methods to determine well and reservoir parameters used in formation evaluation; applications to wells that produce gas and liquid petroleum; rate forecasting; deliverability testing. Prerequisites: PETE 301 and 310; GEOL 404.

PETE 325. Petroleum Production Systems. (1-3). Credit 2. II Introduction to production operations and oil field equipment: multiphase flow in pipes, bottomhole pressure prediction, inflow/outflow performance, production systems and backpressure analysis, hydraulic fracturing fluids and equipment; downhole and artificial lift equipment, tubulars, workover/completion nomenclature and procedures; produced fluids, fluid separation and metering, safety systems, pressure boosting and monitoring. Prerequisites: PETE 301, 310 and 314; GEOL 404.

PETE 335. Technical Presentations I. (1-0). Credit 1. I Preparation of a written technical paper on a subject related to petroleum technology and an oral presentation of the paper in a formal technical conference format; oral presentations judged by petroleum industry professionals. Prerequisites: COMM 205; junior classification in petroleum engineering.

PETE 400. Reservoir Description. (2-3). Credit 3. II An integrated reservoir description experience for senior students in petroleum engineering, geology and geophysics; includes using geophysical, geological, petrophysical, and engineering data; emphasis on reservoir description (reservoir and well data analysis and interpretation), reservoir modeling (simulation), reservoir management (production optimization), and economic analysis (property evaluation). Prerequisite: approval of instructor. Cross-listed with GEOL 400.

PETE 401. Reservoir Development (2-3). Credit 3. I An integrated reservoir development experience for senior students in petroleum engineering; emphasis on reservoir description (reservoir and well evaluation), reservoir modeling (simulation), production optimization (nodal analysis, stimulation, artificial lift, facilities), reservoir management (surveillance and reservoir optimization), and economic analysis (property evaluation and risk analysis). Prerequisite: PETE 321, 323, 324, 325, 403.

PETE 403. Petroleum Project Evaluation. (3-0). Credit 3. II Analysis of investments in petroleum and mineral extraction industries. Depletion, petroleum taxation regulations, and projects of the type found in the industry. Mineral project evaluation case studies. Prerequisites: PETE 301, 310, 314.

PETE 405. Drilling Engineering. (3-0). Credit 3. I The design and evaluation of well drilling systems; identification and solution of drilling problems; wellbore hydraulics; well control; casing design; well cementing; wellbore surveying. Prerequisites: PETE 321, 323, 324, 325, 403.

PETE 406. Advanced Drilling Engineering. (3-0). Credit 3. II Cementing, offshore and arctic drilling, fishing procedures and blowout prevention and control. Prerequisite: PETE 405.

PETE 410. Production Engineering. (3-0). Credit 3. I Fundamental production engineering design, evaluation and optimization for oil and gas wells, including well deliverability, formation damage and skin analysis, completion performance, and technologies that improve oil and gas well performance (artificial lift and well stimulation). Prerequisites: PETE 321, 323, 324, 325, 403.

PETE 411. Well Drilling. (3-0). Credit 3. I The design and evaluation of well drilling systems; identification and solution of drilling problems; wellbore hydraulics; casing design; well cementing; drilling of directional and horizontal wells; wellbore surveying methods; pore and fracture pressures; well control. Prerequisites: PETE 320, 321, 322, 323, 324.

PETE 416. Production Enhancement. (3-0). Credit 3. II Design, problem diagnosis and solving, and performance optimization of the technologies that increase oil and gas well production. Methods include artificial lift, acid stimulation and hydraulic fracturing. Prerequisite: PETE 410.

PETE 435. Technical Presentations II. (1-0). Credit 1. I Preparation of a written technical paper on a subject related to petroleum technology and an oral presentation of the paper in a formal technical conference format; oral presentations are judged by petroleum industry professionals. Prerequisites: PETE 335; senior classification in petroleum engineering.

PETE 485. Directed Studies. Credit 1 to 5. Special problems in various phases of petroleum engineering assigned to individual students or to groups. Prerequisites: junior or senior classification and approval of department head.

PETE 489. Special Topics in.... Credit 1 to 4. Selected topics in an identified area of petroleum engineering. May be repeated for credit. Prerequisite: approval of instructor.

SUMMER EMPLOYMENT — PETE 300

One of the unique features of the Curriculum in Petroleum Engineering at Texas A&M University is a requirement that students have summer practical experience - at least six weeks fulltime employment in exploration and production with an oil and gas company or oilfield services company. This requirement permits our students to see how subjects they have studied are applied in industry, become familiar with practices and equipment of the petroleum producing industry, and gain valuable job experience. While only one summer work experience is required, multiple summer work experiences are suggested and encouraged.

Completion of the requirement must be documented by the student before registration in senior level courses. The documentation consists of a Student Intern Report, prepared by the student, and a Summer Internship Evaluation, prepared by the student intern's supervisor. Both documents are prepared at the end of an internship following completion of the Junior Year petroleum engineering courses and submitted to the Undergraduate Curriculum Committee for use in program evaluation. See the departmental website for more information (www.pe.tamu.edu)

It is the general policy of the Petroleum Engineering Department to assist students in completing this requirement. In unusual circumstances, a letter from the student's employer stating the time period employed and the nature of the work experience may be used in judging satisfactory completion of the degree requirement.

SCHOLASTIC PERFORMANCE REQUIREMENTS FOR PETROLEUM ENGINEERING UNDERGRADUATES

Admission to the petroleum engineering major degree sequence of courses will be carried out in two stages. Admission to upper division (PETE) from the lower division (PETL) will be subject to resources available to the department. Admission to any upper level petroleum engineering courses will be subject to completion of most of the basic engineering courses.

All students, whether currently enrolled or seeking to transfer, who wish to pursue an academic program leading to a baccalaureate degree in petroleum engineering at Texas A&M University must satisfy each of the following requirements.

I. Admission to Upper Division and Sophomore Engineering Courses

For admission to upper division in the Petroleum Engineering major (PETE) and sophomore engineering courses from the lower division Petroleum Engineering major (PETL).

1. The student must have a grade of "C" or better for each Common Body Knowledge (CBK) course. These courses are MATH 151 and 152, CHEM 107, PHYS 218, PHYS 208, ENGL 104, ENGR 111 and 112 or approved course equivalents. Any CBK course must be repeated for which a student receives a "D" or "F" as final grade.
2. Automatic admission to upper division status (PETE) will be granted to students who meet minimum requirements of 2.50 TAMU Resident GPR, and 2.75 CBK GPR (CBK using the best effort in each course). Additional admissions to upper division may be made for students who do not meet these requirements, based on available space. Students who are on scholastic probation will not be admitted to upper division.

II. Admission to Junior Petroleum Engineering Courses

In addition to the above requirements for upper division, to be admitted to the junior petroleum engineering courses (the last two years of study), the student must have:

1. Completed the following basic courses: GEOL 104, MEEN 221 and 315, CVEN 305, MATH

- 251 and 308, PETE 225 and 311, and COMM 205, or approved course equivalents.
2. A grade of "C" or better in GEOL 104 and in the first PETE course beyond PETE 201 (either PETE 225 or PETE 311).
 3. Cumulative TAMU Resident GPR of 2.0 or higher and PETE major GPR of 2.0 or higher.
 - a. Note that the PETE major courses are comprised of all non-elective PETE and GEOL courses included in the Curriculum in Petroleum Engineering

III. Admission to Senior Petroleum Engineering Courses

In addition to the above requirements for upper division and junior petroleum engineering courses, to be admitted to the senior petroleum engineering courses (the final year of study), the student must have:

1. Completed the following courses: GEOL 404; and PETE 301, 310, 314, 335, 321, 323, 324, 325, and 403.
2. Cumulative TAMU Resident GPR of 2.0 or higher and PETE major GPR of 2.0 or higher.
 - a. Note that the PETE major courses are comprised of all non-elective PETE and GEOL courses included in the Curriculum in Petroleum Engineering
3. Completed the summer practice requirement (PETE 300)

MINOR FIELD OF STUDY

An upper division petroleum engineering student may seek one minor, consisting of prescribed courses that focus on a single content area or an interdisciplinary and/or comparative perspective on more than one area. The minor comprises 15 to 19 hours with a minimum of 6 in residence at the 300-400 level. Intent to pursue a minor must be made and the approval process completed before the student begins the Senior Year Petroleum Engineering courses. The minor will be recognized on the transcript after graduation, but not on the diploma.

Students wishing to pursue a minor may obtain an approval form from Mrs. Gail Krueger. This form is to be used to request approval from a minor-granting department to enroll in a minor. The form must be signed by the minor-granting department and returned to the petroleum engineering department, where the minor program will be added to the student's degree requirements. The student, minor-granting department, and petroleum engineering department retain a copy of the signed approval form. The petroleum engineering department retains responsibility for advising the student after he/she obtains approval from a minor-granting department. Note that departmental policy may place additional restrictions beyond those of the minor granting department on courses used to satisfy minor requirements.

A decision to pursue a minor should not be made lightly. Failure to complete requirements for the minor may delay graduation.

GPR AND SCHOLASTIC PROBATION

The grade point ratio is computed by dividing the total number of grade points earned by the total number of hours attempted at TAMU. A 2.000 GPR equals a "C" average. Except for transfer admission purposes, hours and grade points obtained at other colleges and universities are not considered in determining the grade point ratio at TAMU. An unsatisfactory grade in an S/U course is computed as an "F". Grades of "I," "Q," "X," and "WP" are not included in GPR computation.

I. Scholastic Deficiency

An undergraduate student is academically deficient when:

- 1) his or her semester grade point ratio is less than 2.00 (see Student Rules, 12.1.1); or
- 2) his or her cumulative grade point ratio is less than 2.00 (see Student Rules, 12.1.2); or
- 3) the cumulative grade point ratio in his or her major field of study is below 2.00 (see Student Rules, 12.1.3); or
- 4) he or she is not meeting college and/or major course of study grade point requirements (see Student Rules, 12.1.4, and the section on Scholastic Performance Requirements for Petroleum Engineering Undergraduates, earlier in this document).

In the event that an undergraduate student becomes scholastically deficient, he or she may, after review, be:

- 1) suspended from the university – for deficient scholarship (see Student Rules 12.2.1); or
- 2) permitted to continue in school on scholastic probation (see Student Rules 12.2.2); or
- 3) warned of scholastic deficiency (see Student Rules 12.2.3); or
- 4) blocked from continued enrollment in his or her college or major (see Student Rules 12.2.4).

II. Scholastic Probation

Scholastic probation is a conditional permission for a student to continue at the university after he/she has become scholastically deficient (see Student Rules 12.6.1). Permission to continue at the university will be granted when continuation appears to be in the best interests of the student and university (see Student Rules 12.6.2). To aid in this decision, the undergraduate advisor may wish to have a conference with the student. The record made by a student while on probation determines whether he/she shall be cleared to register as a regular student, allowed to continue on probation, or be blocked from further registration (see Student Rules 12.6.2).

The undergraduate student shall be informed of the terms of his or her probation, and may be required to register for a prescribed schedule of courses (see Student Rules 12.6.3). Semester credit hour and grade point requirements shall be made consistent with the student's progress toward graduation (see Student Rules 12.6.3). The specified semester credit hour and grade points are considered to be a minimum only (see Student Rules 12.6.3). An undergraduate student will remain on probation until the close of the semester for which the probation is assigned (see Student Rules 12.6.4). An undergraduate student blocked or suspended for deficient scholarship may request a hearing by the University Academic Appeals Panel (see Student Rules 12.6.5).

III. Scholastic Performance

University regulations require a minimum grade point ratio (GPR) of 2.000 for all courses taken at Texas A&M and of 2.000 for major courses to graduate. The Department of Petroleum Engineering has the same policy. To encourage students to reach the highest level of academic achievement in petroleum engineering, the Department has adopted the following scale for letter grades:

Letter Grade	Value	Performance Standard
A	4.000	Excellent
B	3.000	Good
C	2.000	Satisfactory
D	1.000	Passing
F	0.000	Failing

Except under extenuating circumstances, enrollment in sophomore, and upper level PETE courses will be restricted to only those students who have been admitted to upper division and upper level,

respectively.

All students should follow the degree plan in the catalog under which they were admitted to the Department of Petroleum Engineering. Students are expected to consult with their academic advisor for answers to specific questions or for help in planning their academic programs.

Any exceptions to the required courses stipulated in the curriculum must be petitioned for approval. Petitions must be approved by the departmental undergraduate advisor and the dean of engineering.

Departmental standards for acceptable academic performance will be based on total grade points for overall performance and grade points in the PETE and minor field courses, if applicable. Grade points are calculated on the basis of total credit hours of courses taken at Texas A&M and the minimum acceptable standard of C being 2.000 grade points per credit hour. For example, a student who has taken 86 credit hours of courses which include 13 credit hours of PETE major courses. The minimum grade points for good standing in the department is 172 ($2.000 \times 86 = 172$) and 26 grade points in the major courses. If this student has more than 172 overall grade points and at least 26 grade points in the major, the student is in good standing. If the overall number of grade points are less than 172 or the grade points in the major are less than 26, then the student is subject to probation or subject to being permanently blocked from registration.

IV. Probation Guidelines

A petroleum engineering student who does not satisfy departmental standards will either be placed on scholastic probation or will be permanently blocked from further registration.

1. Cumulative Grade Point Deficiency

Total grade points less than departmental standards by 1 through 9 grade points for cumulative TAMU Resident courses, or 1 through 4 grade points in PETE major courses: student will be placed on scholastic probation and allowed to continue studies in petroleum engineering under probationary conditions.

Total grade points less than departmental standards by 10 through 18 grade points for cumulative TAMU Resident courses or 5 through 9 grade points in PETE major courses: student will be blocked from registration and performance will be reviewed by an academic advisor.

If during any semester or during any summer term, the total grade points earned by a petroleum engineering student are less than departmental standards by more than 18 grade points (TAMU Resident courses), the student will be permanently blocked from further registration by the College of Engineering. If during any semester or during any summer term the total grade points earned by a petroleum engineering student are less than departmental standards by more than 9 grade points in the PETE major courses, the student will be permanently blocked from further registration by the Harold Vance Department of Petroleum Engineering.

No student on scholastic probation will be permitted to pre-register until final grades are posted and satisfactory progress has been demonstrated. Satisfactory progress is defined as reducing grade point deficiencies over two consecutive academic terms; over a spring semester and one summer term, one summer term and the next fall semester or spring and fall semesters if not enrolled in any summer term.

2. Lower Division Petroleum Engineering Grade Point Deficiencies

A lower division petroleum Engineering student (PETL major) will be reviewed after grades are posted at the end of each semester, and without consideration to the university first year grade exclusion (FYGE) policy. Any student who is “scholastically deficient” (see subsection 1 above), which includes any student with a semester GPR below 2.000, or with a cumulative GPR below 2.000, or with a cumulative GPR in the PETE major courses below 2.000, or one who is not meeting petroleum engineering grade point requirements will be placed on scholastic probation (see Student Rules, 12.1.4, and the section on Scholastic Performance Requirements for Petroleum Engineering Undergraduates, earlier in this document). This includes any PETL student who is not on track to gain admission to upper division in a timely manner. Note that this determination is made before FYGE is considered, and any subsequent FYGE approval will not alter the probation status. Each of these PETL students will be sent a letter stating the scholastic deficiency as discussed earlier, and the terms of scholastic probation (see section II above).

STUDENT'S RIGHTS: Students placed on scholastic probation or permanent registration block may appeal the decision in accordance with established procedures in the Texas A&M University Student Rules (see Student Rules 12.6.5).

Probationary Conditions for Scholastically Deficient Students

Semester or summer probationary terms:

- I. Overall grade points (TAMU Resident courses) below departmental grade point standards for students enrolled in 12 credit hours or more:

For deficiency less than 4 grade points, the deficiency must be removed and no unexcused absences from class. For deficiency greater than or equal to 4 but less than 9 grade points, for the next semester or summer term of enrollment, the terms of C+4 with no unexcused absences from classes and extended probation for the next term of enrollment with C+4.

- II. Overall grade points (TAMU Resident courses) below department grade point standards for students enrolled in fewer than 12 credit hours:

The terms are C+ smaller of 1/2 enrolled credit hours (to nearest whole credit hour) or the grade point deficiency; with no unexcused absences from classes.

- III. Probationary terms for grade point deficiencies in the petroleum engineering major courses:

For deficiency of 1 to 4 grade points, the deficiency must be removed during next term of enrollment and no unexcused absences from classes. For deficiency greater than 4 but less than 9 grade points, for the next semester or summer term of enrollment, the terms are C+4 with no unexcused absences from classes and extended probation for the next following semester or summer term.

SUSPENSION

The Petroleum Engineering Department will suspend (block from further registration) a student when total grade points or grade points in major field courses shows deficiency (less than departmental standard) without improvement for two consecutive semesters or if during any semester or during any summer term, the grade point deficiency in PETE major courses is more than 9.

STUDENT'S RIGHTS: Students placed on permanent registration block (suspension) may appeal the decision in accordance with established procedures in the Texas A&M University Student Rules(see Student Rules 12.6.5).

RE-ADMISSION

Students requesting re-admission to Petroleum Engineering, subsequent to suspension for scholastic deficiencies, must satisfy the requirements below:

- I. The student must show evidence of suitable academic performance at another institution of higher education or must show other evidence of being adequately prepared to re-enter academic life at Texas A&M. Suitable academic performance may include at least one semester of basic sciences, engineering sciences, mathematics, earth sciences or other courses pre-approved by a PETE academic advisor. Other evidence may include military service (honorably discharged), or responsible work experience.
- II. During the first semester after re-admission, the student will be placed on scholastic probation and must enroll in a minimum of 12 credit hours of courses which apply to the PETE degree and must meet other terms of probation as specified by the department. The student must repeat all courses in which he/she has received the grade of D or F at Texas A&M which apply to the PETE degree requirements.

HAROLD VANCE DEPARTMENT OF PETROLEUM ENGINEERING SCHOLARSHIP REQUIREMENTS

Scholarship amounts are based on availability of funds and are paid in equal installments. The minimum is \$500 per semester. The first installment will be paid at the beginning of the fall semester and the second at the beginning of the spring semester. The student must continue to meet departmental scholarship requirements to receive the second installment of the scholarship.

Scholarships for entering freshmen are based on SAT and/or ACT scores and high school rank. The higher of the SAT and/or ACT test scores will be used. The student must major in petroleum engineering at Texas A&M University. Except as noted below, he or she must enroll in a minimum of 14 semester credit hours that count toward a degree in petroleum engineering, which must include PETE 201 the first semester, and may include military science courses. Students enrolling in MATH 150 must enroll in a minimum of 13 semester credit hours, including ENGL 104 if applicable.

Scholarships for current PETE students are based on GPR of 3.0 minimum cumulative and a 3.0 minimum in the previous semester. Except for entering freshmen who enroll in MATH 150 and graduating seniors as noted below, the student must have completed 14 credit hours in the previous semester and be enrolled in 14 credit hours during the current semester of the scholarship. The student must be enrolled in a PETE class by the third semester of enrollment to continue eligibility for a scholarship. Seniors graduating in December or May must be enrolled in a minimum of 12 credit hours during the semester of the scholarship. All credit hours must count toward an approved degree plan in petroleum engineering.

Scholarships for transfer students from other departments within Texas A&M University will be awarded on a similar basis as currently enrolled PETE students.

Scholarships for transfer students from junior colleges and other universities will be evaluated on a case-by-case basis. Transfer students must be enrolled in a PETE class by the second semester of enrollment to continue eligibility for a scholarship.

Generally, the student will be given a semester to improve substandard performance. If during a semester:

- The student's semester GPR falls below 3.0 but remains above 2.5 while the cumulative GPR remains above 3.0, the student will have one semester of probation with the scholarship intact to regain the 3.0 semester GPR level. If the student fails to regain the 3.0 semester GPR level, the scholarship will be canceled.
- The student's semester GPR falls below 2.5, the scholarship will be canceled.
- The student's cumulative GPR falls below 3.0 but remains above 2.8, the student will have one semester of probation with the scholarship intact to regain the 3.0 GPR level. If the student fails to regain the 3.0 GPR level, the scholarship will be canceled.
- The student's cumulative GPR falls below 2.8, the scholarship will be canceled.
- The student does not complete the required number of credit hours, the scholarship will be canceled.
- The student transfers out of the department, the scholarship will be canceled and the amount of the scholarship may be added to his/her fee statement.

The student must write a thank you letter to the donor and provide a signed copy to the department in order to retain any scholarship he/she has been awarded. If the student does not write the thank you letter, he/she may be ineligible for a scholarship the following semester.

All scholarship distributions are contingent upon availability of funds.

Q-DROPS

Students may drop courses without record according to university and college of engineering policies.

Unless otherwise restricted, a student may drop a course without penalty through the 50th class day of a fall or spring semester, the 15th class day of summer term or the 35th class day of a 10-week summer semester. The symbol Q shall be given to indicate a drop without penalty. Undergraduate students will normally be permitted three Q-drops during their undergraduate studies. Additional Q-drops will be allowed only in unusual circumstances as determined by a student's departmental academic advisor and dean.

A student may not drop a co-requisite course unless the other courses are also dropped. For example, MATH 151 is a co-requisite for ENGR 111 and PHYS 218. A student may not drop MATH 151 and remain in ENGR 111 and PHYS 218.

A student who drops a course after Q-drop period has elapsed will receive a grade of F unless unusual circumstances exist as determined by the student's dean. The term "no grade" may be recorded by the dean of the student's college if it is determined such circumstances do exist.

FIRST YEAR GRADE EXCLUSION

Students who are fully admitted, and currently enrolled as Texas A&M undergraduate student and defined by the Texas Higher Education Coordinating Board as "first time in college" may elect to exclude from his/her undergraduate degree and cumulative GPR calculation grades of D, F, or U. This exclusion shall be permitted for up to a maximum of three courses taken for credit at Texas A&M University during the twelve consecutive calendar month period beginning with the student's initial enrollment at Texas A&M.

Note the following:

- The complete TAMU Official Policy, FAQ, and Request Form are available at: <http://admissions.tamu.edu/Registrar/Current/GradeExPolicy.aspx>
- Excerpted from the policy web page, "Courses excluded under this policy are NOT excluded when determining whether a student is meeting satisfactory academic progress requirements (hours completed) for federal and state financial aid programs."
- An "Exclusion Calculator" is available on howdy.tamu.edu on the myrecord tab.
- Excluded grades cannot be used to meet **any** degree requirements. The course must be taken again.
- Excluded grades **remain** on the transcript (marked with the symbol D# or F# depending on the grade earned)
- Excluded grades are not considered in determining a PETE student's GPR with regard to eligibility for departmental scholarships, however excluding grades may cause a student to drop below minimum semester credit hour completion requirements for scholarship eligibility, similar to the effect of Q-dropping below semester credit hour completion requirements.
- Courses excluded under this policy are NOT excluded when evaluating a student's scholastic performance, scholastic deficiency, terms of scholastic probation, or departmental suspension.
- In general, PETE students **should not** file a request before the end of the "First Year". This is because many students who file before the end of the first year might have been better off to have waited. Exceptions to this policy may be requested through a student's academic advisor for reasons such as scholarships, financial aid, Corps of Cadets, Fishcamp Counselor, etc.

CO-ENROLLMENT

The Petroleum Engineering Department discourages co-enrollment (concurrent) at Texas A&M and any other institution. However, there may be extenuating circumstances in which the department may allow co-enrollment.

Students wishing to enroll in classes at another institution concurrently with enrollment at Texas A&M must receive prior written approval of the Department Head and the Academic Dean. The Department Head's approval is required prior to requesting Academic Dean's approval. International students must also obtain approval of the International Student Services office.

STUDENT PAPER CONTEST

The Petroleum Engineering Department requires, as a condition for graduation, that its students prepare two written technical papers and present them in public forums. The mechanism for accomplishing this requirement is through the courses PETE 335 and PETE 435, which must be taken during the Fall semester of the Junior and Senior years, respectively; **and** participation in the departmental student paper contests held during the same academic years in which PETE 335 and PETE 435 are taken, typically held on a Saturday, early in the Spring semester.

TAMU Student Chapter of the SOCIETY OF PETROLEUM ENGINEERS (SPE)

It is the general policy of the Petroleum Engineering Department to encourage all undergraduate students (PETL and PETE) to actively participate in the formal programs and the social activities sponsored by the Student Chapter of SPE.

The major benefit to students is the enhancement of their educational experiences at A&M through formal and informal association with professionals who are actively working in the petroleum exploration and production industry.

ENGINEERING SCHOLARS PROGRAM

The Petroleum Engineering Department encourages all qualified students (Honors Program eligible) to participate in the Engineering Scholars Program. Requirements are listed at the Engineering Student Services and Academic Programs website of the College of Engineering (<http://essap.tamu.edu/esp.htm>).