Dr. Ray M. Bowen  
President  
Texas A&M University  

Dear President Bowen:

At its regular meeting held November 10, 1997 the Faculty Senate approved the following curriculum matters and recommends them for your approval.

**New Graduate Courses:** ACCT 646, BANA 631, BANA 633, BANA 635, BANA 640, GEOG 616, GEOP 613, IBUS 635, IBUS 646, IBUS 665, IBUS 667, MANA 604, MANA 621, MANA 622, MANA 623, MEEN 676, MGMT 665, MGMT 667, MSCI 610, SPED 618, and SPED 622.

**Graduate Course Changes:** BUSH 665, MATH 657, MATH 658, and MATH 667.

**New Undergraduate Courses:** ACCT 314, ACCT 320, ACCT 321, ANTH 424, ARCH 452, BANA 314, BIOL 484, BIOL 491, ENTC 381, GEOG 434, GEOL 400, GEOL 401, NVSC 102, PETE 201, PETE 320, PETE 321, PETE 322, PETE 323, PETE 324, PETE 400, PETE 401, PETE 410, and PETE 411.

**Undergraduate Course Withdrawals:** ARCH 332.

**Undergraduate Course Changes:** ANSC 242, ANTH 316, ARCH 331, ARCH 333, ARCH 334, ARCH 431, ARCH 463, ENDS 211, GEOG 355, MEEN 473, MKTG 344, MKTG 401, MKTG 442, MKTG 445, NVSC 401, PETE 206, PETE 310, and POSC 429.

I enclose for your information a copy of the materials sent to Senators on the above items.

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TEXAS A&M UNIVERSITY
Thank you for considering these items. Please inform me of your action on these recommendations.

Sincerely,

Wayne E. Wylie
Speaker, 1997-98

Enclosures
pc: Dr. Ronald G. Douglas, Executive Vice President & Provost
    Dr. Dan H. Robertson, Chair, Graduate Council
    Dr. R. Bruce Simpson, Chair, Curriculum Committee
    Ms. Linda F. Lacey, Director of Academic Support Services

APPROVED

[Signature]

DATE

11/19/97
REPORT OF THE GRADUATE COUNCIL MEETING  
OCTOBER 9, 1997

The Graduate Council recommends approval of the following:

1. **New Courses**

**ACCT 646. International Accounting. (3-0). Credit 3.** Introduction and examination of accounting issues unique to multinational enterprises and international business activity. Prerequisites: ACCT 328 and FINC 341. Cross-listed with IBUS 646.

**BANA 631. Advanced Management Issues of Systems Analysis and Design. (3-0). Credit 3.** Concepts of planning, developing, managing and implementing very large software projects; management philosophy, including: understanding software development and implementation process with or without reusability; controlling the process by measuring multiple aspects of this process. Prerequisite: BANA 628 or equivalent, or approval of instructor.

**BANA 633. Advanced Software Development Environments. (3-0). Credit 3.** Design and development of business information systems in a modern software development environment; integration of database, systems analysis and design, programming and project management concepts; project-orientation with heavy emphasis on teamwork and individual initiative. Prerequisites: BANA 628 or equivalent, or approval of instructor.

**BANA 635. Global Information Systems. (3-0). Credit 3.** Impact and the central role of Information Systems (IS) on globalization of business; issues of deployment of information systems and technology in international commerce, global IS environmental variables such as technology, legal, political, economic, social and cultural. Prerequisite: BANA 634 or equivalent, or approval of instructor. Cross-listed with IBUS 635.

**BANA 640. Electronic Commerce. (3-0). Credit 3.** Survey of concepts of electronic commerce including technical, organizational, societal and legal issues; relevance to modern business enterprises. Prerequisite: BANA 634 or equivalent, or approval of instructor.

**GEOG 616. Urban Geography. (3-0). Credit 3.** Spatial patterns and processes of urban systems; growth and sprawl; environmental impacts; residential choice models; political fragmentation; economic development; power and privilege; place-based identity. Prerequisite: GEOG 306 or equivalent.

**GEOP 613. Near-Surface Applied Geophysics. (3-0). Credit 3.** Examination of surface and borehole geophysical methods that provide insight into geological processes operating within the near-surface; hydrogeophysical properties of soils and weakly consolidated sediments; application of geophysics to environmental site characterization, remediation monitoring and detection of buried objects and contaminant spills. Prerequisite: Graduate classification.
IBUS 635. Global Information Systems. (3-0). Credit 3. Impact and the central role of Information Systems (IS) on globalization of business; issues of deployment of information systems and technology in international commerce, global IS environmental variables such as technology, legal, political, economic, social and cultural. Prerequisite: BANA 634 or equivalent, or approval of instructor. Cross-listed with BANA 635.

IBUS 646. International Accounting. (3-0). Credit 3. Introduction and examination of accounting issues unique to multinational enterprises and international business activity. Prerequisites: ACCT 328 and FINC 341. Cross-listed with ACCT 646.

IBUS 665. Regional Integration in the Americas. (3-0). Credit 3. Examination of theory and application of regional economic, political and social integration; North American integration from the perspective of NAFTA members; role of multinational enterprises; topics pertaining to the negotiation, impact and extension of the NAFTA. Prerequisites: Graduate classification and approval of M.P.S.A. Director. Cross-listed with MGMT 665 and BUSH 665.

IBUS 667. Multinational Enterprises. (3-0). Credit 3. Graduate seminar in international business; multinational enterprises (MNEs) are studied from various perspectives including economics, management, entry and expansion strategies, contractual agreements, transfer pricing, impacts on home and host countries, MNE-state relations, regional integration, public policies towards MNEs. Prerequisite: Graduate classification. Cross-listed with MGMT 667.

MANA 604. Human Embryology. (1-0). Credit 1. Basic embryology; clinically oriented; includes human gametogenesis; fertilization; normal and abnormal development of the organs and systems of the body; the causes of congenital anomalies. Prerequisite: Approval of instructor.

MANA 621. Teaching Gross Anatomy. (3-8). Credit 2. Provides teaching and supervisory experience for graduate students; instructs students in teaching and supervising medical students in Gross Anatomy (MANA 901); student(s) observe in the laboratory and present at least one lecture. Prerequisites: Completion of MANA 901 with a grade of “B” or better and approval of course coordinator.

MANA 622. Teaching Microanatomy. (2-4). Credit 1. Provides teaching and supervisory experience for graduate students; instructs students in teaching and supervising medical students in Microanatomy (MANA 911); student(s) observe in the laboratory and present at least one lecture. Prerequisites: Completion of MANA 911 with a grade of “B” or better and approval of course coordinator.
MANA 623. Teaching in Medical Neuroscience. (5-3). Credit 2. Assist in the teaching of Medical Neuroscience (MANA 922), to include lecture(s), laboratories and examination setup and proctoring. Prerequisite: MANA 922.

MEEN 676. Aerosol Mechanics. (3-0). Credit 3. Provides the basis for understanding and modeling aerosol behavior; mechanical, fluid dynamical, electrical, optical and molecular effects are considered; applications include sprays and atomization, aerosol collection, aerosol sampling and visibility. Prerequisite: Graduate classification in engineering or approval of instructor.

MGMT 665. Regional Integration in the Americas. (3-0). Credit 3. Examination of theory and application of regional economic, political and social integration; North American integration from the perspective of NAFTA members; role of multinational enterprises; topics pertaining to the negotiation, impact and extension of the NAFTA. Prerequisites: Graduate classification and approval of M.P.S.A. Director. Cross-listed with IBUS 665 and BUSH 665.

MGMT 667. Multinational Enterprises. (3-0). Credit 3. Graduate seminar in international business; multinational enterprises (MNEs) are studied from various perspectives including economics, management, entry and expansion strategies, contractual agreements, transfer pricing, impacts on home and host countries, MNE-state relations, regional integration, public policies towards MNEs. Prerequisite: Graduate classification. Cross-listed with IBUS 667.

MSCI 610. Pathogenesis of Human Disease. (3-0). Credit 3. Molecular mechanisms of human disease processes; the main goal of the course is to provide students with an understanding of basic disease processes such as cardiovascular disease, cancer, inflammatory disease, AIDS, tuberculosis, diabetes, Alzheimer's disease and spinal cord injury.

SPED 618. Applied Behavior Management in the Classroom. (3-0). Credit 3. Effective management of challenging behavior problems in the classroom using proactive classroom strategies, effective instruction and planned behavior interventions; discussion and application of methods for observing, assessing and analyzing challenging behaviors; includes a 20-hour field-based practicum. Prerequisite: Graduate classification.

SPED 622. Community-Based Integrated Services. (3-1). Credit 3. Special Education is presented as a component of a community-based integrated delivery system to address the educational needs of disabled and at-risk students; course activities include participation in a collaborative R&D activity with schools and/or health and human service agencies engaged in integrated service projects.
2. Changes in Courses

BUSH 665. Regional Integration in the Americas.

Cross-listing
from: None.
to: IBUS 665 and MGMT 665.

MATH 657. Spline Approximation I.

Course title
from: Spline Approximation I.
to: Spline Analysis and Applications.

Course description
from: Review of fundamental concepts of approximation, polynomials and other tools; basic univariate spline theory including bases, computational algorithms and approximation power; applications to interpolation, discrete approximation and data fitting.
to: Review of fundamental concepts of approximation, polynomials and other tools; basic univariate spline theory including bases, computational algorithms and approximation power; Bezier curves; applications to interpolation, discrete approximation, data fitting; computer-aided geometric design (CAGD), nonlinear rational B-splines (NURBS).

Course prerequisite
from: MATH 304 and 417 or equivalents.
to: MATH 304 or equivalent.

MATH 658. Spline Approximation II.

Course title
from: Spline Approximation II.
to: Applied Harmonic Analysis.
Course description
from: Tensor-product methods using polynomials and B-splines; computation and application of tensor methods to interpolation and approximation; triangle-based methods; dimension problems, local bases and approximation power; application to scattered data fitting, computer-aided design and finite element analysis.
to: Fourier series and Fourier Transform; discrete (fast) Fourier transform; discrete cosine transform; local cosine transform; Radon transform; filters; harmonic analysis on the sphere; radial, periodic, and spherical basis functions; applications.

Course prerequisite
from: MATH 657.
to: MATH 304, 308 or equivalent.

MATH 667. Approximation Theory.

Course title
from: Approximation Theory.
to: Foundations and Methods of Approximation.

Course description
from: Existence, uniqueness and characterization of best approximations; polynomial and rational approximants; inequalities; order of approximation; interpolation, algorithms; n-widths; saturation theorems; approximation in Hankel norm.
to: Existence, uniqueness and characterization of best approximations; polynomial and rational approximants; Bernstein polynomials; Bernstein and Markov inequalities; ridge functions; approximation from shift-invariant subspaces; orthogonal polynomials; neural networks, radial basis functions, scattered-data surface fitting; subdivision analysis.
The University Curriculum Committee recommends approval of the following:

1. **New Courses**

   **ACCT 314. Programming of Business Systems. (3-0). Credit 3.** Introduction to the programming of computerized business systems using contemporary software and practices; focus on development of computer-based solutions to common business problems. Prerequisites: Admission to Professional Program in Accounting (PPA) and BANA 207 or approval of instructor. Cross-listed with BANA 314.

   **ACCT 320. Accounting Communications. (3-0). Credit 3.** Development of oral and written communication skills prerequisite to successful careers in public and corporate accounting. Prerequisite: Admission to PPA Program.

   **ACCT 321. Professional Development Seminar. (2-0). Credit 2.** Exposure to professional issues of professional accounting practice using a workshop format. Prerequisite: Admission to PPA Program.

   **ANTH 424. Evolution, Behavior and Culture. (3-0). Credit 3.** Evolutionary biology of human behavior and culture, including sex and reproduction, altruism and cooperation, coevolution of genes and culture, and the relevance of evolutionary biology for understanding human social problems. Previous course work in anthropology, evolution, ecology or ethnology recommended.

   **ARCH 452. Alternative Careers in Architecture. (3-0). Credit 3.** Study of the careers of individuals who have utilized their architectural education in non-traditional ways, such as: politics, journalism, real estate, etc.; involves interviews with select representative individuals. Prerequisite: Senior classification.

   **BANA 314. Programming of Business Systems. (3-0). Credit 3.** Introduction to the programming of computerized business systems using contemporary software and practices; focus on development of computer-based solutions to common business problems. Prerequisites: Admission to Professional Program in Accounting (PPA) and BANA 207 or approval of instructor. Cross-listed with ACCT 314.

   **BIOL 484. Internship. Credit 1 to 4.** Directed internship in a private firm or public agency to provide research experience appropriate to the student's degree program and career objectives. May be taken two times. Prerequisite: Approval of internship agency and advising office.

   **BIOL 491. Research. Credit 1 to 4.** Active research of basic nature under the supervision of a Department of Biology faculty member. Must be taken on a satisfactory/unsatisfactory basis. May be taken two times. Prerequisite: Approval of departmental faculty member.
ENTC 381. Electronics Manufacturing. (3-0). Credit 3. The electronics manufacturing technologies and processes; surface-mount devices and technologies. Prerequisite: PHYS 208 or approval of instructor.

GEOG 434. Hydrology and Environment. (3-2). Credit 4. Examination of hydrologic processes in relation to climate, soils, vegetation, land use practices, and human impacts; natural scientific perspectives emphasized; field and laboratory included. Prerequisite: GEOG 203 or equivalent.

GEOL 400. Reservoir Description. (0-6). Credit 2. An integrated reservoir description experience for senior students in petroleum engineering, geology and geophysics; includes using geophysical, geological, petrophysical, and engineering data; 2-D and 3-D seismic data; geological studies; core and well log data; well and reservoir performance data; emphasis on data acquisition, data preparation, analysis, and interpretation. Prerequisite: Approval of instructor. Cross-listed with PETE 400.

GEOL 401. Reservoir Development. (0-6). Credit 2. An integrated reservoir development experience for senior students in petroleum engineering, geology and geophysics; emphasis on reservoir description (reservoir and well evaluation, stochastic and deterministic predictions of reservoir properties), reservoir management (surveillance and production optimization), reservoir modeling (simulation), and economic analysis (property evaluation, purchasing, and sales). Prerequisite: GEOL 400. Cross-listed with PETE 401.

NVSC 102. Leadership and Management I. (3-1). Credit 3. Principles of leadership and management and their application to the duties and responsibilities of a Junior Naval Officer; management theory, professional responsibility, and human resource system programs; skills in leadership, goal setting and communication developed through guided participation in case studies and situational problems. Prerequisite: NVSC 101 or approval of department head.

PETE 201. Introduction to Petroleum Engineering. (1-0). Credit 1. 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: ENGR 109, MATH 152 and PHYS 218.

PETE 320. Drilling and Production Systems. (2-3). Credit 3. 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: GEOL 404; PETE 310 and 311.
PETE 321. Formation Evaluation. (3-3). Credit 4. Introduction to modern well logging methods and subsurface mapping and engineering. Prerequisites: GEOL 404; PETE 310 and 311; or approval of instructor.

PETE 322. Geostatistics. (3-0). Credit 3. 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: GEOL 404; PETE 310 and 311; petroleum engineering, geology, or geophysics majors only.

PETE 323. Reservoir Models. (3-0). Credit 3. 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: GEOL 404; PETE 310 and 311.

PETE 324. Well Performance. (3-0). Credit 3. 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: GEOL 404; PETE 310 and 311.

PETE 400. Reservoir Description. (0-6). Credit 2. An integrated reservoir description experience for senior students in petroleum engineering, geology and geophysics; includes using geophysical, geological, petrophysical, and engineering data; 2-D and 3-D seismic data; geological studies; core and well log data; well and reservoir performance data; emphasis on data acquisition, data preparation, analysis, and interpretation. Prerequisite: Approval of instructor. Cross-listed with GEOL 400.

PETE 401. Reservoir Development. (0-6). Credit 2. An integrated reservoir development experience for senior students in petroleum engineering, geology and geophysics; emphasis on reservoir description (reservoir and well evaluation, stochastic and deterministic predictions of reservoir properties), reservoir management (surveillance and production optimization), reservoir modeling (simulation), and economic analysis (property evaluation, purchasing, and sales). Prerequisite: PETE 400. Cross-listed with GEOL 401.

PETE 410. Well Completion and Stimulation. (3-0). Credit 3. The design and evaluation of well completions, including: placement of casing, liners, and well tubing; perforating; gravel packing; sand control; acidizing fundamentals, design and evaluation of acidization treatments; hydraulic fracturing fluid loss, conceptual models, design and implementation evaluation; performance of horizontal wells; surface facilities. Prerequisites: PETE 320, 321, 322, 323 and 324.

PETE 411. Well Drilling. (3-0). Credit 3. 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. Prerequisites: PETE 320, 321, 322, 323 and 324.
2. Course to be Withdrawn

ARCH 332. Architectural Structures I.

3. Changes in Courses


Course title
from: Livestock and Meat Evaluation.
to: Growth and Development of Livestock.

Credit hours
from: (1-4). Credit 3.
to: (2-2). Credit 3.

Course description
from: Evaluation of slaughter livestock as related to growth and development, production efficiency, carcass merit; selection of breeding animals based on performance, production records and visual appraisal; specific reference to factors determining carcass value.

to: Evaluation of slaughter livestock as related to growth and development, production efficiency, carcass value; selection of breeding animals based on performance, production records, visual appraisal; principles of growth biology; biotechnological tools used to manage growth and development.

Prerequisites
from: None.
to: ANSC 107, 108.

ANTH 316. Nautical Archaeology.

Course number
from: ANTH 316.
to: ANTH 216.

ARCH 331. Architectural Structural Concepts I.

Course title
from: Architectural Structural Concepts I.
to: Architectural Structures I.
Credit hours
from:  (3-0). Credit 3.
to:    (3-2). Credit 4.

Course description
from:  Structural factors that influence the development of architectural
space and form; identification of various structural systems, their
inherent characteristics with regard to load transfer, materials and
application.
to:    Introduction to the physical principles that govern classical statistics
and strengths of materials through the design of timber and steel
components of architectural structures with computer applications.

ARCH 333. **Environmental Systems Concepts.**

Course title
from:  Environmental Systems Concepts.
to:    Environmental Systems I.

ARCH 334. **Environmental Systems I.**

Course title
from:  Environmental Systems I.
to:    Environmental Systems II.

ARCH 431. **Design of Structural Elements.**

Course title
from:  Design of Structural Elements.
to:    Architectural Structures II.

Prerequisite
from:  ARCH 332.
to:    ARCH 331.

ARCH 463. **Elements of Interior Architecture.**

Credit hours
from:  (2-4). Credit 3.
to:    (2-4). Credit 4.
ENDS 211. Design Media III.

Credit hours
from: (2-4). Credit 3.
to: (2-6). Credit 4.

GEOG 355. Concepts in Geographic Education.

Course description
from: Geographic concepts for the elementary, middle, and secondary school curricula; design and selection of resource materials.
to: Key concepts and generalizations of geography; learning theory applied to geography and environmental education; development of field and computer-based technical/intellectual skills required to teach geography; curriculum and instructional issues related to geography.

Prerequisites
from: GEOG 201 or 202 or 203.
to: GEOG 201 or 202; GEOG 203.


Course title
from: Energy Conversion Systems.
to: Powerplant Engineering.

Course description
from: Conversion of energy from a primary natural source directly into electrical energy. Basic thermodynamics principles of energy conversion applied to solar, thermoelectric, photovoltaic, thermionic, fuel cells and magnetohydrodynamic systems. Balanced treatment of a physical phenomenon and the analysis of devices using this phenomenon.
to: Application of engineering principles to the design and selection of equipment and systems for the conversion of fuel into electrical energy; alternate fuels and environmental effects considered.

MKTG 344. Physical Distribution Systems.

Course title
from: Physical Distribution Systems.
to: Marketing Channels Management.
Course description
from: Role of retailers, wholesalers and producers in the physical distribution functions performed in the marketing channel.
to: Role of retailers, wholesalers and producers in the management of the marketing channel.

MKTG 401. International Marketing.

Course title
from: International Marketing.
to: Global Marketing.

MKTG 442. Product Planning and Development.

Course title
from: Product Planning and Development.
to: Product Management.

MKTG 445. Marketing Research.

Course number
from: MKTG 445.
to: MKTG 323.

NVSC 401. Leadership and Management I.

Course number
from: NVSC 401.
to: NVSC 201.

Course title
from: Leadership and Management I.
to: Leadership and Management II.

Course description
from: Principles of leadership and management and their application to the duties and responsibilities of the Junior Naval Officer. Management theory, professional responsibility and Navy human resource management system programs. Skills in leadership, control, direction, planning, communication, counseling, material management and administration of division discipline are developed through guided participation in Navy based case studies, experiential exercises and situational problems.
Practical applications of leadership and management as an academic discipline; interpersonal behavior and performance evaluation; skills in leadership, control, direction, planning, communication, counseling, and discipline developed through guided participation in case studies and situational problems.

Prerequisite
from: Approval of department head.
to: NVSC 102 or approval of department head.

PETE 206. Reservoir Petrophysics.

Course number
from: PETE 206.
to: PETE 311.

Course description
from: Systematic theoretical and laboratory study of physical properties of petroleum reservoir rocks; lithology, porosity, relative and effective permeability, fluid saturations, capillary characteristics, fluid-rock physical chemistry and compressibility.
to: 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
from: MATH 152.
to: GEOL 104; ENGR 213, 214; ENGR 215 or registration therein; or approval of instructor.

PETE 310. Reservoir Fluids.

Prerequisites
from: CHEM 102, MEEN 329, PETE 206.
to: CHEM 107; ENGR 213, 214; ENGR 215 or registration therein.

POSC 429. Advanced Food Bacteriology.

Credit hours
from: (3-0). Credit 3.
to: (3-2). Credit 4.