

**Minutes of the University Curriculum Committee**  
**June 9, 2006**  
**217 Koldus**

Members present: Robert Knight (Chair), College of Agriculture and Life Sciences; Tim Scott (Vice-Chair), College of Science; Les Feigenbaum, College of Architecture; Jim Kracht, College of Education and Human Development; Cynthia LaJimodiere, College of Engineering; Vatche Tchakerian, College of Geosciences; Claude Gibson, College of Liberal Arts; George Fowler, Mays Business School; Norma Funkhouser, Medical Sciences Library; Jim McCloy, Texas A&M University and Galveston; Kristin Harper (for Mark Weichold), Undergraduate Programs and Academic Services; Laurie Jaeger, College of Veterinary Medicine and Biomedical Sciences.

Guests: Tom Strganac, Aerospace Engineering; Jacqueline Hodge, College of Engineering; Marty Loudder and Kris Morley, Mays Business School; Cathy Sperry, Mechanical Engineering.

The University Curriculum Committee recommends approval of the following:

1. Minutes of April 13, 2006.

2. New Courses

**FRSC 102. Introduction to Spatial Science. (1-0). Credit 1.** Provides students with an understanding of the spatial sciences, how they are applied for problem solving in a wide variety of fields, and what opportunities are available to professionals in the spatial sciences.

**MATH 469. Introduction to Mathematical Biology. (3-0). Credit 3.** Introduction to mathematical modeling techniques in the biological sciences; continuous versus discrete models; deterministic versus stochastic models; includes population dynamics and ecology, spread of infectious diseases, population genetics and evolution, spatial pattern formation. Prerequisites: MATH 304, 308 or equivalent.

3. Changes in Courses

**OCNG 205. Introduction to Ocean Studies.**

Course title

From: Introduction to Ocean Studies.

To: Topics in Oceanography.

**OCNG 401. Introduction to Oceanography.**

Course title

From: Introduction to Oceanography.

To: Interdisciplinary Oceanography.

**OCNG 430. Introduction to Geological Oceanography.**

Prerequisite

From: Junior or senior classification.

To: OCNG 251 or 401 or GEOL 101 or 104 or GEOG 203; junior or senior classification.

4. Special Consideration

Dwight Look College of Engineering  
Certificate in Polymer Specialty

New Courses

**AERO 406. Polymer Nanocomposites and their Applications. (3-0). Credit 3.** Recent advances and methodologies in processing and characterization of nanostructured polymers and nanocomposites, as well as their commercial applications; investigate polymers filled with nanometer-size inclusions, including nanoparticles, nanotubes, nanofibers, and nanoclays; macroscale, microscale and nanoscale characterizations investigated in relation to properties of interest. Prerequisites: Senior classification or approval of the instructor; junior or senior classification.

**BMEN 482. Polymeric Biomaterials. (3-0). Credit 3.** Preparation, properties, and biomedical applications of polymers including: polymerization; structure-property relationships; molecular weight and measurement; morphology; thermal transitions; network formation; mechanical behavior; polymetric surface modification; polymer biocompatibility and bioadhesion; polymers in medicine, dentistry, and surgery; polymers for drug delivery; polymeric hydrogels; and biodegradable polymers. Prerequisite: BMEN 342 or approval of instructor; junior or senior classification.

**MEEN 451. Viscoelastic Materials. (3-0). Credit 3.** Mechanical and mathematical basis for modeling linear viscoelastic materials which focus on polymeric solid materials; characterization of viscoelastic material properties from experimental tests; applications of stress and deformation relationships for viscoelastic structural members subjected to axial, torsional, and bending loads. Prerequisites: CVEN 305; junior or senior classification.

5. Texas A&M University at Galveston

New Courses

**MASE 212. Engineering Science in Thermodynamics. (2-3). Credit 3.** Theory and application of thermodynamics as an engineering science; applications of the laws of thermodynamics and energy equations to heat transfer and flow. Prerequisites: ENGR 221 and MATH 251 or concurrent enrollment.

**MASE 344. Reinforced Concrete Structures. (2-3). Credit 3.** Analysis and design of reinforced concrete beams, columns, slabs, and footings using ultimate strength methods. Prerequisite: CVEN 345.

Changes in Courses

**CVEN 346. Structural Steel Design.**

Course number

From: CVEN 346.  
To: CVEN 446.

Course description

From: Materials, types of members and typical arrangements. Design of tension members, compression members, beams, and beam columns. Design of bolted connections and welded connections. Theory and practice as indicated in typical current specifications.

To: Design of structural steel elements found in bridges and building structures, including plate girders, other built-up members, composite beams and slender columns; frame stability, tubular members and connections.

Credit hours

From: (2-3). Credit 3.  
To: (3-0). Credit 3.

**MASE 301. Dynamics of Waves and Structures.**

Course title

From: Dynamics of Waves and Structures.  
To: Hydrodynamics of Offshore Structures.

Course description

From: Prediction of loads due to wind, current, and waves; introduction to concepts of linear structural dynamics and to the design of ocean structures; mooring and towing analysis; fluid-structure interactions; vibration of submerged structures.

To: Introduction to offshore structures, wave force formulations; wave forces on small structures, floating structure dynamics, modeling dynamics systems of rigid body motion, structure response statistics.

Prerequisite

From: CVEN 345; OCEN 300 or current enrollment.  
To: CVEN 345; MASE 310; OCEN 300 or current enrollment.

6. Texas A&M University at Galveston

Change in Curriculum

Department of Marine Science  
BS in Marine Science

New Courses

**MARE 242. Manufacturing Methods I. (0-3). Credit 1.** Introduction to manufacturing methods used in marine industries emphasizing fabrication techniques including oxy-acetylene cutting and welding, brazing, arc welding, pipe welding, and sheet metal fabrication; knowledge and skills needed to perform fabrication operations, routine maintenance and emergency repairs of marine engineering structures and systems.

**MARE 243. Manufacturing Methods II. (1-3). Credit 2.** Continuation of manufacturing methods used in marine industries including: machine, foundry and forge work, and other manufacturing technologies; machine shop practices including: safety, use and care of machine and hand tools, measuring instruments, layout, gauging, cutting speeds and feeds, drilling, tapping, threading, turning and milling. Prerequisite: MARE 242

**MARE 261. Engineering Analysis. (3-0). Credit 3.** Review of mathematical concepts previously studied, such as complex quantities, vectors and calculus, combined with the study of advanced concepts, such as differential equations, Laplace Transforms, statistics and numerical methods with a view to emphasize applications in nuclear engineering, electrical engineering, thermodynamics, heat transfer and turbine theory. Prerequisites: MATH 152 or 161.

**MARE 313. Heat Transfer. (2-3). Credit 3.** Introduction to heat transfer; basic heat transfer modes and different solution techniques; introduction to 1-D and 2-D heat conduction in transient and steady state conditions; fundamentals of convection heat transfer under different flow conditions; forced convection in internal and external flows; analysis and selection of heat exchangers; introduction to thermal radiation heat transfer. Prerequisites: MARE 261 and MARE 305 or concurrent enrollment.

**MARE 441. Engineering Economics and Project Management. (3-0). Credit 3.** Analysis of engineering economics and management, using costs and benefits of various engineering options; includes time value of money, cash flows, analysis techniques, interest rates, inflation, depreciation, optimization, statistics, network analysis and critical path programming. Prerequisites: Junior or senior classification, or advisor approval.

**MARE 451. Senior Design Project I. (1-3). Credit 2.** Introduction to design, modeling, testing and validation processes; design of equipment, components or systems for marine and related power generation applications; complete design process including definition of the problem, research for existing designs and related technologies, conceptualization and evaluation of alternatives, development of preliminary design, refining and generation of final design and documents. Prerequisites: Senior classification and approval of instructor.

**MARE 452. Senior Design Project II. (1-3). Credit 2.** Continuation of MARE 451; development of theoretical, computational or experimental models using the design developed in MARE 451; formulation, construction and/or fabrication work; refining, experimenting and testing of models considering alternatives; analyze results and prepare and submit design documents including a project report. Prerequisite: MARE 451.

Changes in Courses

**MARE 207. Electrical Power I.**

Credit hours

From: (3-3). Credit 4.

To: (2-3). Credit 3.

Course description

From: Application of electromagnetic principles to AC and DC circuits including: batteries, DC motors and generators, AC motors and generators, balanced three-phase systems, transformers, and electrical instruments.

To: Application of circuit analysis principles to DC and AC circuits having sources and passive inductors, resistors and capacitors; electrical instrumentation; power and voltage/current phase relationships in AC circuits; balanced three-phase AC power circuits; cable sizing.

Prerequisite

From: PHYS 208.

To: PHYS 208 and MATH 151.

**MARE 306. Electrical Power II.**

Credit hours

From: (2-2). Credit 3.

To: (2-3). Credit 3.

Course description

From: Shipboard electric power generation and distribution; switchboard instrumentation, controls and safety devices; motor controllers and safety devices; operation, maintenance and repair procedures and practices. AC and DC electric ship propulsion systems.

To: Electric power generation and distribution; AC and DC rotating machinery; transformers; controllers and safety devices; operation, maintenance and repair procedures and practices; static converters AC/DC and DC/AC that are used in modern electric propulsion systems.

Prerequisite

From: MARE 207. Junior or senior classification.

To: MARE 207.

**MARE 307. Marine Electronics.**

Credit hours

From: (3-0). Credit 3.  
To: (2-3). Credit 3.

Course description

From: Introduction to the theory of electronic circuits. Fundamentals and basic concepts of semiconductors; solid-state components; power supplies; amplifiers; inverters; rectifiers; oscillators; digital and linear integrated circuits. Applications in automation, motor controllers, battery-charging systems, communications, and propulsion plant performance monitoring systems.

To: Introduction to the theory of electronic circuits. Fundamentals and basic concepts of semiconductors; solid-state components; power supplies; amplifiers; inverters; rectifiers; oscillators; digital and analog integrated circuits; applications in automation, motor controllers, battery-charging systems, communications, and propulsion plant monitoring systems.

Prerequisite

From: MARE 207. Junior or senior classification.  
To: MARE 207.

**MARE 309. Marine Construction Materials.**

Credit hours

From: (3-3). Credit 4.  
To: (2-3). Credit 3.

Course description

From: Introduction to materials science; study of the properties of materials as related to marine engineering design and applications. Laboratory includes experimental testing of material properties and heat treatment techniques.

To: Introduction to materials science and engineering, structural, property relationships, advanced manufacturing techniques from the point of view of marine applications such as subsea pipelines, ship hulls, etc., corrosion and biofouling; includes experimental testing of materials properties, materials synthesis and heat treatment techniques.

Prerequisite

From: MASE 209. Junior or senior classification or approval of instructor.  
To: MARE 209.

7. The following items were tabled.

- GEOG 420 – clarify prerequisites.
- OCNG 427 – clarify prerequisites; correct 16 week reference; revise syllabus; overlap with WFSC?
- B.B.A. in Business Honors – UCC requested there be further discussion with Dr. Ed Funkhouser, Executive Director of University Honors Program.