

2012-2013 SHORT SIGNATURE SHEET



UNC CHARLOTTE

Proposal Number: ET 9-20-13

Proposal Title: Minor Changes to Four-Year Mechanical Engineering Technology Undergraduate Curriculum
 Originating Department: Engineering Technology

TYPE OF PROPOSAL: UNDERGRADUATE GRADUATE _____ UNDERGRADUATE & GRADUATE _____
 (Separate proposals sent to UCCC and Grad. Council)

DATE RECEIVED	DATE FORWARDED	COMMENTS: APPROVED, APPROVED WITH REVISIONS, ETC.	SIGNATURES
			<u>PERSON ORIGINATING PROPOSAL</u> Nan Byars
12/4/13	12/4/13	Approved	<u>DEPARTMENT CHAIR</u> Anthony Brizendine
4-Dec-2013	4-Dec-2013	Approved	<u>COLLEGE CURRICULUM COMMITTEE CHAIR</u> Wes Williams
	12/12/13	Approved	<u>COLLEGE DEAN</u> Robert Johnson
		Approved	<u>GENERAL EDUCATION</u> (if applicable; for General Education courses only)
		Approved	<u>UNDERGRADUATE COURSE & CURRICULUM COMMITTEE CHAIR</u> (for undergraduate courses only)
		Approved	<u>GRADUATE COUNCIL CHAIR</u> (for graduate courses only)
			<u>FACULTY GOVERNANCE ASSISTANT</u> (received and processed in Academic Affairs)



UNC CHARLOTTE

SHORT FORM COURSE AND CURRICULUM PROPOSAL

To: Wes Williams

From: Nan Byars

Date: December 2, 2013

Re: Minor Changes to Four-Year Mechanical Engineering Technology Undergraduate Curriculum

SUMMARY: The proposed changes include:

ETME 1112 should have a prerequisite of ETME 1111, not ETGR 1111.

ETME 2102 should have a prerequisite of ETME 1111, not ETGR 1111.

ETME 3113 should have prerequisites of ETGR 2102 and ETME 2102 and a co-requisite of ETGR 2272.

ETME 3123 should have a prerequisite of ETGR 2102 and a co-requisite of ETGR 2272.

ETME 3133 should have a prerequisite of ETGR 2102 and a co-requisite of ETGR 2171.

ETME 3133 is removed as a prerequisite for ETME 3100.

ETME 3150 has ETME 3123 as a pre or co-requisite.

ETME 4163 is removed as a pre or co-requisite for ETGR 4100.

In the junior year, ETME 3150 (3) is moved from fall to spring and an LBST course (3) is moved from spring to fall.

In the senior year, ETME 4163 (3) is moved from fall to spring and a major elective (3) is moved from spring to fall.

FOR CONSULTATION WITH OTHER DEPARTMENTS:

1. Does the proposed change affect other departments (including additions and/or changes to degree requirements or prerequisites offered in other departments)?

_____ Yes No

2. If Yes, please list the other departments affected by the proposed change:

3. Have you consulted with each department listed in item 2 regarding the proposed change?

N/A

RESOURCES:

No new resources are required for these minor changes.

CREDIT HOUR (Mandatory if new and/or revised course in proposal):

A review is not necessary, since the changes are minor and do not include a new or revised course or any change in credit hours.

PROPOSED CATALOG COPY: For existing courses copy and paste the current catalog copy and use the Microsoft Word "track changes" feature (or use red text with "~~strikethrough~~" formatting for text to be deleted, and adding blue text with "underline" formatting for text to be added). For new courses, draft comprehensive catalog copy.

ETME 1112. CAD Modeling II. (3) Prerequisite: ETMEGR 1111 with a grade of C or above. A continuation of ETMEGR 1111. Introduces the student to advanced modeling techniques employed in Computer-Aided-Drawing (CAD). Topics include: the use of linked features in drawings, traditional and geometric tolerancing, custom templates, assemblies, and basic animation.

ETME 2102. Mechanisms. (3) Prerequisites: ~~ETME~~ETGR 1111, ETGR 2171, and PHYS 1101 with grades of C or above. Plane motion and devices used to generate plane motion. Topics include: analysis of displacement, velocity, acceleration, gears, cams, and other mechanical systems. (*Spring*)

ETME 3100. Junior Design Practicum. (2) Prerequisites: ENGL 1102 and; ETME 2100, ~~and ETME 3133~~ with grades of C or above. Pre- or corequisite: ETME 3143. Corequisite: ETME 3100L. A Junior-level design studio focused on a more complex, but still completely defined, thermo-fluids and energy system based design challenge. Projects are completed in teams (2-3) and introduce students to group project dynamics, advanced machine shop techniques, data acquisition and analysis. Also reinforces topics learned in previous courses such as the design process, project management, formal report style writing, math modeling (Excel, MATLAB, MathCad and EES), documentation generation (Drawings + Procedure), final project demonstrations, and analytical modeling.

ETME 3113. Dynamics. (3) Prerequisites: ETGR 2101 and PHYS 1101 with grades of C or above; ~~ETGR 2272~~; and ETME 2102; Co-requisite: ETGR 2272. The dynamic behavior of particles; translation, rotation and plane motion of a rigid body, the principles of conservation of energy and momentum.

ETME 3123. Strength of Materials. (3) Prerequisites: ETGR 2101 with a grade of C or above; ~~and ETGR 2272~~; Co-requisite: ETGR 2272. Stress-strain relationships resulting from direct loads, torsional loads and bending loads, and the results obtained from applying more than one of these loads simultaneously. Beam deflection and column loading.

ETME 3133. Fluid Mechanics. (3) Prerequisites: ~~ETGR 1100L, ETGR 2101, and ETGR 2272~~ with grades a grade of C or above; Co-requisite: ETGR 2171. Fundamental principles of fluid mechanics. Topics include: manometry, buoyancy, forces on submerged bodies, boundary layers, flow over surfaces, Bernoulli's equation with applications, orifices, pipe losses, and an introduction to hydrodynamics.

ETME 3150. Applied CAD Modeling and Simulation. (3) Prerequisite: ETME 1112 with a grade of C or above; and ETME 2102. Pre or coCorequisites: ETME 3123 ~~and ETME 3143~~. A continuation of ETME 1112. Introduces the use of some of the tools available for the analysis of parametrically-constructed CAD models. Topics include: the finite element method, finite element analysis (FEA), the use of FEA for stress analysis, thermal analysis, and motion studies, and the important distinctions between FEA results, theoretical results, and experimental results.

ETGR 4100. Capstone Design Project I. (2) (O, W) Prerequisites: All Freshman-, Sophomore-, and Junior-level technical courses. Pre- or co-requisite: ~~ETME 4163 and ETME 4244~~. First of a two-semester course sequence in which student teams implement a Senior-level design project which demonstrates abilities as developed by the coursework taken thus far. Project planning techniques are utilized to make substantial progress toward implementation of a design solution. One class hour and three lab hours per week.

**Suggested Curriculum:
Mechanical Engineering Technology Program**

First Year

Fall Semester

Course	Credits
ENGL 1101 English Composition	3
MATH 1103 Precalculus Math for Science & Engineering *	3
PHYS 1101 Introductory Physics I	3
PHYS 1101L Introductory Physics I Lab	1
ETGR 1100L Engineering Technology Computer Application Lab	1
ETGR 1201 Introduction to Engineering Technology	2
ETME 1111 CAD Modeling I	3

Spring Semester

Course	Credits
ENGL 1102 Writing in the Academic Community	3
MATH 1121 Calculus for Engineering Technology* OR ETGR 2171 Engineering Analysis I*	3
PHYS 1102 Introductory Physics II	3
PHYS 1102L Introductory Physics II Lab	1
ETME 1112 CAD Modeling II	3
Social Science Elective**	3

Second Year

Fall Semester

Course	Credits
CHEM 1251 Principles of Chemistry	3
STAT 1220 Elements of Statistics I	3
ETGR 2101 Applied Mechanics I	3
ETME 2100 Sophomore Design Practicum	2
ETME 2100L Sophomore Design Practicum Lab	1
ETME 2130 Applied Materials & Manufacturing I	3

Spring Semester

Course	Credits
ETME 2131 Applied Materials & Manufacturing II	2
ETGR 2106 Electronic Circuits & Devices	3
ETME 2102 Mechanisms	3
ETGR 2122 Technical Programming	3
ETGR 2272 Engineering Analysis II	3
LBST 2101 Western Culture & History**	3

Third Year

Fall Semester

Course	Credits
ETGR 3071 ET Professional Seminar	1
ETGR 3171 Engineering Analysis III or ETGR 4272 Engineering Analysis IV	3
ETME 3113 Dynamics	3
ETME 3123 Strength of Materials	3
ETME 3123L Stress Analysis Lab	1
ETME 3133 Fluid Mechanics	3
ETME 3150 Modeling & Simulation LBST 110X Arts & Society**	3

Spring Semester

Course	Credits
ETGR 3222 Engineering Economics	3
ETME 3100 Junior Design Practicum	2
ETME 3100L Junior Design Practicum Lab	1
ETME 3133L Fluid Mechanics Lab	1
ETME 3143 Thermodynamics	3
ETME 3213 Machine Design I	3
LBST 110X Arts & Society** ETME 3150 Modeling & Simulation	3

Fourth Year

Fall Semester	
Course	Credits
ETGR 4100 Capstone Design Project I (O, W)	2
ETME 4143L Thermodynamics & Heat Lab	1
ETME 4163 Instrumentation & Controls Major Elective***	3
ETME 4244 Applied Heat Transfer	3
LBST 2102 Global & Intercultural Connections**	3
Major Elective***	3
Spring Semester	
Course	Credits
ETME 4200 Capstone Design Project II (O, W)	2
ETME 4163L Instrumentation Lab	1
ETGR 3295 Multidisciplinary Professional Development	1
LBST 221X Ethical Issues & Cultural Critique	3
Major Elective*** ETME 4163 Instrumentation & Controls	3
Major Elective***	3
Major Elective***	3

Total Credit Hours = 128

*Course selected based on Math Placement-Test.

**General education courses are chosen jointly by student and advisor to ensure that all graduation requirements are met. Non-AAS degreed students must satisfy University and Department General Education requirements. AAS degreed students must satisfy Department General Education requirements.

***Major elective courses are approved by the Department as major electives for the respective program. A list is maintained in and published by the Department.

ACADEMIC PLAN OF STUDY (UNDERGRADUATE ONLY): If the proposed change will impact an existing Academic Plan of Study, provide updated Academic Plan of Study in template format.

STUDENT LEARNING OUTCOMES: No Student Learning Outcomes will be affected by the proposed changes.

TEXTBOOK COSTS: It is the policy of the Board of Governors to reduce textbook costs for students whenever possible. Have electronic textbooks, textbook rentals, or the buyback program been considered and adopted?

IMPORTANT NOTE: A Microsoft Word version of the final course and curriculum proposal should be sent to facultygovernance@uncc.edu upon approval by the Undergraduate Course and Curriculum Committee and/or Graduate Council chair.