

2014-2015 SHORT SIGNATURE SHEET



UNC CHARLOTTE

Date: Nov 10, 2015

Subject: Catalog Updates for ENER Courses

Originating Department: ETCM

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

DATE RECEIVED	DATE FORWARDED	COMMENTS: APPROVED, APPROVED WITH REVISIONS, ETC.	SIGNATURES
			PERSON ORIGINATING PROPOSAL Barry G. Sherlock [print name here:]
12/14/15	12/14/15	Approved	DEPARTMENT CHAIR [print name here:] Anthony L. Brizendine
1/15/16	1/15/16	Approved	COLLEGE CURRICULUM COMMITTEE CHAIR [print name here:] TAO HONG
1/18/16	1/18/16	Approved	COLLEGE DEAN [print name here:]
		Approved	GENERAL EDUCATION (if applicable; for General Education courses only) [print name here:]
		Approved	HONORS COLLEGE (if applicable; for Honors courses & programs) [print name here:]
		Approved	UNDERGRADUATE COURSE & CURRICULUM COMMITTEE CHAIR (for undergraduate courses only)
		Approved	GRADUATE COUNCIL CHAIR (for graduate courses only)
			FACULTY GOVERNANCE ASSISTANT (received and processed in Academic Affairs)



UNC CHARLOTTE

SHORT FORM COURSE AND CURRICULUM PROPOSAL

*To: Graduate Course and Curriculum Chair

From: Barry Sherlock

Date: November 10, 2015

Re: Catalog Updates for ENER Courses

SUMMARY:

State clearly and concisely the proposed changes.

The Department of Engineering Technology and Construction Management proposes:

1. Removing "Prerequisite: ETGR 3171" from catalog description for ENER 6120 Energy Generation and Conversion.
2. Removing "Prerequisite: ETGR 3171" from catalog description for ENER 6135 Energy Transmission and Distribution.
3. Changing "Pre or corequisite: ETGR 5272" to "Prerequisite: ETGR 3171 or equivalent" in catalog description for ENER 6150 System Dynamics.
4. Changing "ENER 6150" to "ETGR 3171 or equivalent" in catalog description for ENER 6170 Applied Mechatronics.
5. Removing "Prerequisite: ETGR 3171" from catalog description for ENER 6220 High Voltage Technology.
6. Removing "Prerequisite: ENER 6135" from catalog description for ENER 6235 Advanced Transmission.
7. Change the title of ENER 6235 from "Advanced Transmission" to "Modern Electric Power Grids".

Please give a brief statement as to why the change is being proposed.

The changes are proposed as a result of a review of prerequisite requirements by ENER faculty. The change of title for ENER 6235 is to avoid the appearance of this course as being a follow-on course to ENER 6135.

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:
Not Applicable
3. Have you consulted with each department listed in item 2 regarding the proposed change?
 Yes No Not applicable

Result(s) of Consultation(s) (please attach documentation):
Not applicable.

4. For a new course or for major modification of an existing course, include Consultation on Library Holdings.
5. For proposals involving Honors courses or programs, include written consultation with the Honors Council.
Not applicable

RESOURCES:

1. For a new course or revisions to an existing course, check all the statements that apply:
 This course will be cross listed with another course.
 There are prerequisites for this course.
 There are co-requisites for this course.
 This course is repeatable for credit.
 This course will affect the number of credits hours for its program.
 This proposal results in the deletion of an existing course(s) from the degree program and/or catalog.
 This proposal will alter an agreement with a North Carolina community college.

For all items checked above, applicable statements and content must be reflected in the proposed catalog copy.

2. Indicate the additional resources required, if any, to implement and maintain the proposed change.

None.

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

Review statement and check box once completed.

- X The appropriate faculty committee has reviewed the course outline/syllabus and has determined that the assignments are sufficient to meet the University definition of a credit hour.

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.

ENER 6120. Energy Generation and Conversion. (3) Prerequisite: ETGR 3174. Overview of energy use. Fossil fuel resources and energy conversion. Solar energy principles, solar collector, photovoltaic cells and applications. Wind energy and wind turbines. Nuclear energy principles, nuclear reactors and power generation. Geothermal and Hydraulic energy conversion. Hydrogen energy, storage, and transportation. Overview of fuel cell, fuel cell types, and application.

ENER 6135. Energy Transmission and Distribution. (3) Prerequisite: ETGR 3174. Power transmission and distribution network architectures. Transmission line models, parameters, and equivalent circuits. Symmetrical components. Power flow studies. Symmetrical and unsymmetrical faults. Transient operation and power system protection. Power system stability. Distribution optimization.

ENER 6150. System Dynamics. (3) Pre-or-corequisite: ETGR 5272 Prerequisite: ETGR3171 or equivalent. Energy-based modeling of dynamic mechanical, electrical, thermal, and fluid systems to formulate linear state equations, including system stability, time domain response, and frequency domain techniques.

ENER 6170. Applied Mechatronics. (3) Prerequisite: ENER 6150 ETGR3171 or equivalent. Analog electronic design for purposes of controlling electromechanical systems, including electromechanical sensors and actuators, analog electronic design of filters, state-space and classical controllers, and transistor-based servo amplifiers and high voltage amplifiers. Significant laboratory component with design and fabrication of circuits to control electromechanical systems. Implementation of digital controllers.

ENER 6220. High Voltage Technology. (3) Prerequisite: ETGR 3174. Covers concepts of high voltage generation, measurements, protection and safety. Study of high electric fields theory, breakdown mechanisms in gases, liquids, and solid dielectrics. The high voltage insulation, including insulation coordination, is also discussed. Instruction on high voltage applications and safety.

ENER 6235. ~~Advanced Transmission~~ Modern Electric Power Grids. (3) Prerequisite: ENER 6135. Instruction on network steady-state analysis; faults; protection systems; switching equipment; voltage and power static control; surge voltages and protection, transient operation and stability, "smart grid" enabling technologies.

STUDENT LEARNING OUTCOMES (UNDERGRADUATE & GRADUATE): Does this course or curricular change require a change in SLOs or assessment for the degree program?

Yes. If yes, please provide updated SLOs in template format.
 No.

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?

Yes. Briefly explain below.

No. Briefly explain below.

Electronic textbooks, textbook rentals, or the buyback program are incorporated as determined by the course instructor.

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.