

# 2012-2013 SHORT SIGNATURE SHEET




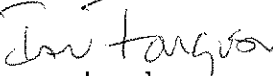
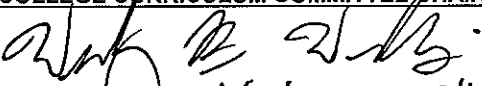
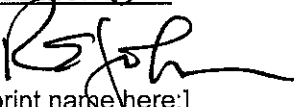
UNC CHARLOTTE

Date: 2/11/2013

Subject: Proposed Change to the "Bachelor of Science in Electrical Engineering with a Concentration in Power and Energy Systems"

Originating Department: ECE Department

TYPE OF PROPOSAL: UNDERGRADUATE X 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>  [print name here:] Robert Cox
		Approved	<u>DEPARTMENT CHAIR</u>  [print name here:] Jim Ferguson
		Approved	<u>COLLEGE CURRICULUM COMMITTEE CHAIR</u>  [print name here:] Wesley B. Williams
	5/21/13	Approved	<u>COLLEGE DEAN</u>  [print name here:] R. John
		Approved	<u>GENERAL EDUCATION</u> (if applicable; for General Education courses only)  [print name here:]
		Approved	<u>UNDERGRADUATE COURSE &amp; 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

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\*To: Chair of the Undergraduate Course and Curriculum  
Committee

From: Robert Cox, ECE

Date: February 11, 2013

Re: Proposed Change to the "Bachelor of Science in  
Electrical Engineering with a Concentration in  
Power and Energy Systems"

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The Short Form is used for minor curriculum changes. Minor changes may include:

- Changes to course numbering (note: must follow Course Numbering Policy)
- Editorial changes to current catalog copy
- Individual new courses (undergraduate only)
- Other small changes that have limited to no impact on other departments or units

Submission of this Short Form indicates review and assessment of the proposed curriculum changes at the department and collegiate level either separately or as part of ongoing assessment efforts.

\*Proposals for undergraduate courses should be sent to the Undergraduate Course and Curriculum Committee Chair. Proposals related to both undergraduate and graduate courses, (e.g., courses co-listed at both levels) must be sent to both the Undergraduate Course and Curriculum Committee and the Graduate Council.

**SUMMARY:** State clearly and concisely the proposed changes. Please give a brief statement as to why the change is being proposed.

The ECE Department proposes to change the “Bachelor of Science in Electrical Engineering with a Concentration in Power and Energy Systems.” The current concentration adopted by the ECE Department on 9/14/2012, is as follows:

## BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING WITH A CONCENTRATION **Power and Energy Systems**

Students pursuing the Bachelor of Science in Electrical Engineering degree may choose to add a concentration in Power and Energy Systems. The plan of study for the BSEE with a Concentration in Power and Energy Systems is similar to the BSEE plan of study with three primary exceptions:

- All BSEE students are required to complete Technical Elective courses, usually during the junior and senior year. Students pursuing the BSEE with a Concentration in Power and Energy Systems are required to enroll in approved Power and Energy Technical Electives only. **See Course List (below).**
- During the senior year, Power and Energy Systems Concentration students must complete an intensive, two-semester energy-related senior design project.

Furthermore, students in the Concentration are strongly encouraged to take the Fundamentals of Engineering exam prior to graduation.

### **How to Enroll in the Power and Energy Systems Concentration**

Students wishing to enroll in the Concentration in Power and Energy Systems must apply to enter the program after completing the second semester, sophomore year courses (i.e., ECGR 2112, MATH 2241, etc.). An **overall GPA of 3.0** is required for admission into the Concentration in Power and Energy Systems. In order to remain in the Concentration, students must maintain a minimum (overall and program) GPA of 3.0.

### **Course List**

Students must enroll in the following prerequisite courses:

- ECGR 3142: Electromagnetic Devices
- ECGR 3112: Systems Analysis II

Students must enroll in the following Power and Energy Technical Electives:

- ECGR 4141: Power Systems Analysis I
- ECGR 3134: Industrial Electronics
- ECGR 4143: Electrical Machinery

- MATH 2164: Linear Algebra
- ECGR 4142: Power Systems Analysis II
- ECGR 4111: Control Systems Theory I

This description should be replaced with the following:

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING WITH A CONCENTRATION  
**Power and Energy Systems**

Students pursuing the Bachelor of Science in Electrical Engineering degree may choose to add a concentration in Power and Energy Systems. The plan of study for the BSEE with a Concentration in Power and Energy Systems is similar to the BSEE plan of study with three primary exceptions:

- All BSEE students are required to complete Technical Elective courses, usually during the junior and senior year. Students pursuing the BSEE with a Concentration in Power and Energy Systems are required to enroll in approved Power and Energy Technical Electives only. **See Course List (below).**
- During the senior year, Power and Energy Systems Concentration students must complete an intensive, two-semester energy-related senior design project.

Furthermore, students in the Concentration are strongly encouraged to take the Fundamentals of Engineering exam prior to graduation.

**How to Enroll in the Power and Energy Systems Concentration**

Students wishing to enroll in the Concentration in Power and Energy Systems must apply to enter the program after completing the second semester, sophomore year courses (i.e., ECGR 2112, MATH 2241, etc.). An **overall GPA of 3.0** is required for admission into the Concentration in Power and Energy Systems. In order to remain in the Concentration, students must maintain a minimum (overall and program) GPA of 3.0.

**Course List**

Students must enroll in the following prerequisite courses:

- ECGR 3142: Electromagnetic Devices
- ECGR 3112: Systems Analysis II

Students must enroll in the following fundamental Power and Energy Technical Electives:

- ECGR 4141: Power Systems Analysis I
- ECGR 4144: Power Electronics I
- ECGR 4111: Control Systems Theory I

- MATH 2164: Linear Algebra (Any student graduating in Calendar Year 2013 and 2014 is exempted from this requirement if he or she satisfied the required Departmental Math and Science Technical elective with a different course prior to acceptance into the Power and Energy Systems Concentration).

Students must enroll in two additional three-credit Power and Energy Technical Electives at the 4000 level or higher. A Department-approved list of such courses will be posted prior to the opening of registration each semester.

Students who receive three credits for ECGR 3695 (Electrical Engineering Cooperative Education Seminar) may be exempted from one of the following Power and Energy Technical Elective requirements:

- ECGR 4144 OR one of the two additional 4000-level Power and Energy Technical Electives beyond ECGR 4111 and ECGR 4141

**JUSTIFICATION:** The ECE faculty approved the above changes to the “BSEE with a Concentration in Power and Energy Systems” in Spring 2013. Several points are to be noted:

- The faculty have maintained the spirit of the original concentration. The faculty have modified the concentration only slightly to reflect the following:
  - The renaming of “ECGR 3134” to “ECGR 4144”
  - The need to accommodate co-op students in the concentration
  - Grandfathering of current students into the program
  - The extraordinary growth of the ECE Department in the areas of Power and Energy Systems
- Additional flexibility for co-op students: Given that a primary motivating factor for the concentration is the development of a talented workforce for the power industry, it was recognized that such flexibility should be granted. Several qualified students have had difficulty meeting the requirements of the concentration as the result of their Co-Op assignments.
  - ECGR 4141 and ECGR 4111 are retained as requirements for these students because they are believed to be absolutely essential for a talented power engineer
- Grandfathering: As we grandfather students into the concentration, many have taken other courses that preclude their acceptance into the program. The primary issue has been with students that satisfied their Math and Science Technical Elective with a course other than MATH 2164. Flexibility has been granted only during an initial start-up period and only on this less essential elective.
- Growth: With many new faculty in the Power and Energy Systems area, new courses are being developed and offered almost every semester. The faculty have thus added additional flexibility to account for the development of new courses in this area.

**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      x   No

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

N/A

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

N/A

\_\_\_\_\_ Yes \_\_\_\_\_ No

Result(s) of Consultation(s) (please attach documentation):

N/A

For a new course or for major modification of an existing course, include Consultation on Library Holdings.

N/A

**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 and agreement with a North Carolina community college.

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

N/A

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

N/A

**CREDIT HOUR:** Review statement and check if applicable

- 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.

N/A

**PROPOSED CATALOG COPY:** For existing courses copy and paste the current catalog copy and use the Microsoft Word “track changes” feature (or use “~~strikethrough~~” formatting in red text for text to be deleted, and adding and highlighting any new text in blue font). For new courses, draft comprehensive catalog copy.

The current catalog description adopted by the faculty on 9/14/2012 is as follows:

Bachelor of Science in Electrical Engineering (BSEE) (Concentration in Power and Energy Systems)

Students pursuing the Bachelor of Science in Electrical Engineering degree may choose to add a concentration in Power and Energy Systems. Students completing the requirements described in this program will receive a special designation on their transcripts showing that they have completed the Power and Energy Systems concentration.

Students must apply for admission and may enter the program during their Sophomore or Junior years only. To be admitted to the program, students must have completed Physics II (PHYS 2102), Calculus I, II, and III (MATH 1241, 1242, and 2241), and Network Theory II (ECGR 2112). An **overall GPA of 3.0** is required for admission into the Concentration in Power and Energy Systems. In order to remain in the Concentration, students must maintain a minimum (overall and program) GPA of 3.0.

[This is followed by the suggested plan of study. The only changes are in the plan of study, which is attached with the appropriate edits highlighted with blue and red as requested].

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

***SEE ATTACHED PLAN OF STUDY.***

**STUDENT LEARNING OUTCOMES;** If applicable, please indicate what SLOs are supported by this course or whether this curricular change requires a change in SLOs or assessment for the degree program.

N/A

**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?

*N/A*

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