

# 2012-2013 SHORT SIGNATURE SHEET



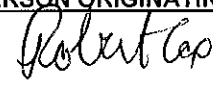
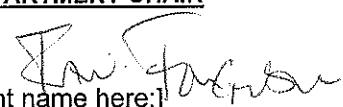
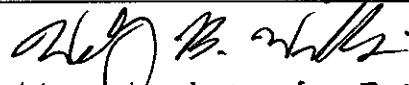
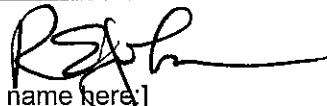
UNC CHARLOTTE

Date: 2/11/2013

Subject: Proposed Change to "ECGR 3134: Industrial Electronics"

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:] Eric Jackson
		Approved	<u>COLLEGE CURRICULUM COMMITTEE CHAIR</u>  [print name here:] Wesley B. Williams
	5/21/13	Approved	<u>COLLEGE DEAN</u>  [print name here:]
		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 "ECGR 3134: Industrial  
Electronics"

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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.

Currently, the catalog description for ECGR 3134 (Industrial Electronics) reads as follows:

**ECGR 3134. Industrial Electronics. (3)** Prerequisite: ECGR 3131 with a grade of C or better. High power solid state circuits. Topics include choppers, phase controlled rectifiers, triggering devices, inverters and dual converters, limiting and regulating circuits.

This proposal changes the catalog description to the following:

**ECGR 4144. Power Electronics I. (3)** Prerequisite: ECGR 3131 with a grade of C or better. High power solid state circuits. Topics include power transfer, DC/DC converters, DC/AC inverters, AC/DC rectifiers, gate-drive circuits for linear and switching amplifiers, pulse-width modulators, power semiconductors, control and converter modeling, renewable energy system integration.

The changes, *including justifications*, are detailed below:

- Change *ECGR 3134* to *ECGR 4144*:
  - This is an elective course, and students do not have room in their academic schedules to take elective courses until their senior year. I have taught 7 offerings of this course and only had about 3 juniors.
  - The material in this course is more consistent with that taken at the senior level in other courses. The FAIT team has added additional rigor, particularly with respect to control and converter modeling, concepts that are senior/graduate-level in nature.
  - Furthermore, a search of peer institutions found that similar courses are typically at the 4000-level.
- Change the title from *Industrial Electronics* to *Power Electronics*: Use of the term “Industrial Electronics” is outdated. A search of peer institutions shows that this course is typically called “Power Electronics” or some variant.
- Change the course description from:

*High power solid state circuits. Topics include choppers, phase controlled rectifiers, triggering devices, inverters and dual converters, limiting and regulating circuits.*

To:

*High power solid state circuits. Topics include power transfer, DC/DC converters, DC/AC inverters, AC/DC rectifiers, gate-drive circuits for linear and switching amplifiers, pulse-width modulators, power semiconductors, control and converter modeling, renewable energy system integration.*

This change is primarily editorial and it is more descriptive. It also reflects the fact that the course has been updated to be a more rigorous senior-level course.

**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:

  X   This course will be cross listed with another course.

  X   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.

- THIS COURSE IS CROSS-LISTED WITH ECGR 5144: POWER ELECTRONICS I. A LONG FORM FOR THIS COURSE HAS BEEN SUBMITTED AND REFLECTS THE CROSS LISTING WITH ECGR 4144.
- THE APPROPRIATE PRE-REQUISITE (ECGR 3131) IS LISTED IN THE DESCRIPTION.

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.

~~**ECGR 3134. Industrial Electronics. (3) Prerequisite: ECGR 3131 with a grade of C or better.**~~ High power solid state circuits. Topics include choppers, phase controlled rectifiers, triggering devices, inverters and dual converters, limiting and regulating circuits.

**ECGR 4144. Power Electronics I. (3) Prerequisite: ECGR 3131 with a grade of C or better.** High power solid state circuits. Topics include power transfer, DC/DC converters, DC/AC inverters, AC/DC rectifiers, gate-drive circuits for linear and switching amplifiers, pulse-width modulators, power semiconductors, control and converter modeling, renewable energy system integration.

**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.

N/A

**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.