



# UNC CHARLOTTE

## Department of Engineering Technology & Construction Management PROPOSAL FOR GRADUATE CERTIFICATE

To: Dr. Ed Morse (Engineering Graduate Committee Chair)

From: Dr. Anthony L. Brizendine

Date: 11/19/13

Re: **Establishment of Graduate Certificate in Applied Energy**

The following documentation is provided for the proposal of a graduate certificate following the published procedure: <http://provost.uncc.edu/sites/provost.uncc.edu/files/media/Graduate-Certificate-Proposal-Procedures.pdf>

**Procedure for Certificate Program Approval:**

Approval by the appropriate college committees and deans and the Graduate Council are forwarded to the Dean of the Graduate School (DGS). The DGS, having determined that all appropriate consultations have been conducted and that the home college has approved the proposal in wording consistent with that approved by the Graduate Council, forwards the recommendation to the Provost.

DATE RECEIVED	DATE CONSIDERED	DATE FORWARDED	ACTION	SIGNATURES
				<u>DEPARTMENT CHAIR</u> Dr. Anthony L. Brizendine <i>A. Brizendine</i>
				<u>COLLEGE GRADUATE CURRICULUM COMMITTEE CHAIR</u> Dr. Ed Morse <i>E. Morse</i>
				<u>COLLEGE FACULTY CHAIR (if applicable)</u> Arindam Mukherjee <i>Arindam Mukherjee</i>
				<u>COLLEGE DEAN</u> Dr. Robert Johnson <i>R. Johnson</i>
				<u>GRADUATE COUNCIL</u>

# UNC CHARLOTTE

## Department of Engineering Technology & Construction Management

### PROPOSAL FOR GRADUATE CERTIFICATES

Proposal Format (No New Courses Required or Proposed)

#### I. TITLE: Graduate Certificate in Applied Energy

##### A. Summary/Catalog Copy

This Graduate Certificate provides graduate students and professionals with the opportunity to reach a demonstrated level of competence in applied energy. Each course in this certificate currently exists and is applicable toward either the MS Applied Energy & Electromechanical Systems (MSEEM) or Master of Science in Construction & Facilities Management (MSCFM) degree requirements. The graduate certificate may act as a standalone graduate option for post-baccalaureate students, or may be pursued concurrently with the MSEEM or MSCFM degree program at UNC Charlotte.

##### B. Program Requirements

The certificate will be awarded upon completion of four graduate level courses (12 credit hours) in the area of applied energy. The cumulative GPA must be at least 3.0 and at most one course with a grade of C may be allowed toward the certificate. Requests for other energy-related course substitutions may be approved at the discretion of the department graduate director.

##### Four courses (12 credits) from the following:

ENER 5275	Air Conditioning Systems	3 credit hours
ENER 6120	Energy Generation and Conversion	3 credit hours
ENER 6135	Energy Transmission and Distribution	3 credit hours
ENER 6150	System Dynamics	3 credit hours
ENER 6170	Applied Mechatronics	3 credit hours
ETGR 5272	Engineering Analysis IV	3 credit hours
CMET 6140	Building Energy Management	3 credit hours
CMET 6155	Facility Instrumentation and Controls	3 credit hours

##### C. Admission Requirements

In addition to the general requirements for admission to the Graduate School, the ETCM department seeks the following:

- Either a bachelor's degree in engineering, engineering technology, construction management or a closely related technical or scientific field.
- Undergraduate coursework of at least 3 semesters in engineering analysis or calculus
- An average GPA of 3.0 (out of 4.0)
- Applicants whose native language is not English, will need to satisfy the UNC Charlotte Graduate School's English proficiency requirements.
- Early-Entry Program - Undergraduate students with a GPA of 3.2 or above and with at least 75 semester hours completed toward a baccalaureate degree in Engineering or Engineering Technology at UNC Charlotte may be admitted as an early-entry student provided they meet all other requirements of admission except the earned bachelor's degree.

##### D. Justification

1. Need for program

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### Department of Engineering Technology & Construction Management

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William States Lee College of Engineering and UNC Charlotte have made significant investments in the area of energy by building the Energy Production and Infrastructure Center (EPIC). This graduate certificate is well aligned with the department, college and university strategy of making UNC Charlotte a leading institution in energy related research and education.

2. Impact Statement (To include how the program affects the department's graduate program, any interdisciplinary programs (if applicable), and the Charlotte region.

The proposed certificate program is expected to have positive impact on the overall graduate enrollment in the ETCM department. Since it is a relatively short and focused program (doable within a year in a part-time mode) it is expected to attract industry professionals, and provide them a means to get familiar with the ETCM, COE and UNC Charlotte as a whole. It is expected that some of the certificate graduates will eventually transition into the MSEEM or MSCFM program.

E. Letters of support and consultation.

Please see the Appendix for a letter of support from Dr. Johan Enslin (Director of EPIC).

F. UNC General Administration Inventory Information

- CIP code: 15.0503
- Program title and description: Graduate Certificate in Applied Energy
- Required credit hours: 12 credit hours
- Program type and level: Graduate Certificate
- Date of initiation: May 2014
- Mode of delivery: Face-to-face
- Site (indicate "Internet" if program is online): UNC Charlotte
- County (indicate "Statewide" if program is online): Mecklenburg
- Whether program is on-campus or distance education: On-campus

**UNC CHARLOTTE**  
**Department of Engineering Technology & Construction Management**  
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**Appendix: Support Letters and Consultations**

**From:** Lorden, Joan  
**Sent:** Thursday, October 03, 2013 11:13 AM  
**To:** Brizendine, Tony; Zenk, Leslie  
**Cc:** Robinson, Christine; Smelser, Ron; Watson, Johnna; Raja, Jayaraman; Johnson, Bob  
**Subject:** RE: Applied Energy -- SACS Prospectus Needed

Just a thought---You can offer the courses and could potentially organize the first 15 credits as a certificate, which might not be a bad idea in any case. But grad certificate students become eligible for financial aid.

=====  
**From:** Enslin, Johan  
**Sent:** Tuesday, November 19, 2013 10:23 AM  
**To:** Brizendine, Tony  
**Cc:** Guessford, Bev  
**Subject:** RE: Letter of support for Applied Energy Graduate Certificate in ETCM

Tony,

That should fine. Any specific changes?

Bev, please draft the letter for Tony.

Johan

**From:** Brizendine, Tony  
**Sent:** Tuesday, November 19, 2013 10:05 AM  
**To:** Enslin, Johan  
**Cc:** Guessford, Bev  
**Subject:** Letter of support for Applied Energy Graduate Certificate in ETCM

Johan,

Will you provide me with a similar letter for our proposed Applied Energy Certificate in ETCM, please?

Thanks,

Tony



UNC CHARLOTTE

*The WILLIAM STATES LEE COLLEGE of ENGINEERING*

Energy Production and Infrastructure Center (EPIC)

9201 University City Blvd, Charlotte, NC 28223-0001  
t/ 704.687.1669 f/ 704.687.1819 www.eplc.uncc.edu

November 20, 2013

Dr. Anthony Brizendine  
UNC Charlotte  
Engineering Technology & Construction Management  
9201 University City Blvd.  
Smith 274B  
Charlotte, NC 28223-0001

Dear Dr. Brizendine,

With this letter I would like to extend my full support for your proposal to establish an applied energy graduate certificate within the Department of Engineering Technology & Construction Management program. This graduate certificate program is well aligned with the energy research and education strategy of UNC Charlotte, the William States Lee College of Engineering and the Energy Production and Infrastructure Center – EPIC.

EPIC at UNC Charlotte was formed in response to the need from industry to supply highly trained engineers qualified to meet the demands of the energy industry – through traditional and continuing education, and provide sustainable support the Carolina energy industry by increasing capacity and support for applied research. EPIC is a highly collaborative industry/education partnership that produces a technical workforce, advancements in technology for the global energy industry while supporting the Carolinas' multi-state economic and energy security.

The proposed program will serve the Greater Charlotte Region which is a major energy hub in the Carolinas, hosting large utility and energy research companies. The need for systems engineers and engineering managers with skills geared towards the energy industry has been steadily increasing and your graduate certificate program is timely.

Sincerely,

Johan Enslin, Director  
Energy Production and Infrastructure Center (EPIC)

