Date Submitted: 02/22/19 9:12 am

Viewing: **UNCS393 : Capstone Certificate in Power Conversion and Control**

Last approved: 10/26/18 12:10 pm

Last edit: 02/26/19 11:36 am

Changes proposed by: skhagen

Catalog Pages Using this Program

*Power Conversion and Control, Capstone Certificate*

Name of the school or college academic planner who you consulted with on this proposal.

In Workflow

1. ENGINEERG Dept. Approver
2. EGR College Admin Reviewer
3. EGR College Approver
4. APIR Admin
5. GFEC Approver
6. UAPC Approver
7. APIR Admin
8. Registrar

Approval Path

1. 02/14/19 9:37 am
   Michelle Young (meyoung): Rollback to Initiator
2. 02/26/19 11:21 am
   James P Blanchard (jpblanch): Approved for ENGINEERG Dept. Approver
3. 02/26/19 11:29 am
   Sara K Hagen (skhagen): Approved for EGR College Admin Reviewer
4. 02/26/19 11:36 am
   Sara K Hagen (skhagen): Approved for EGR College Approver
5. 03/18/19 1:59 pm
   Nicole Wiessinger
Proposal Abstract/Summary:

Tighten up admission requirements by
1) Removing text stating that exceptions to admission requirements are considered on an individual basis.
2) Adding prerequisite topics.
Change academic home of certificate to College of Engineering (dept).

If approved, what term should the proposed change be effective?

Fall 2019 (1202)

Select yes if this proposal is only to add, remove, or rearrange curricular requirements, and will change less than 50% of the curriculum.

No

Basic Information

Program State: Active
Type of Program: Capstone Certificate (Special only)
Who is the audience? Special
Home Department: College of Engineering (ENGINEERG) EGR-P-D
School/College: College of Engineering
The program will be governed by the home department/academic unit as specified. Will an additional coordinating or oversight committee be established for the program?

No

Is this in the Graduate School? Yes

SIS Code: UNCS393

SIS Description: Power Conversion & Control CAP

Transcript Title: Capstone Certificate in Power Conversion and Control

Roles by Responsibility: List one person for each role in the drop down list. Use the green + to create additional boxes.

<table>
<thead>
<tr>
<th>Role Type</th>
<th>Name (Last, First)</th>
<th>Email</th>
<th>Phone</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Director</td>
<td>Tinjum, James M</td>
<td><a href="mailto:jmtinjum@wisc.edu">jmtinjum@wisc.edu</a></td>
<td>608/262-0785</td>
<td></td>
</tr>
</tbody>
</table>

List the departments that have a vested interest in this proposal.

<table>
<thead>
<tr>
<th>Departments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical and Computer Engr (ELEC C EGR)</td>
</tr>
</tbody>
</table>

Are all program reviews in the home academic unit up to date? Yes

Are all assessment plans in the home academic unit up to date? Yes

Are all assessment reports in the home academic unit up to date? Yes

Mode of Delivery:
Distance Education (100% online)

Provide information on how any lab courses required for the degree will be handled.

Will this program be part of a consortial or collaborative arrangement with another college or university? No

Will instruction take place at a location geographically separate from UW-Madison? No

Will this program have outside accreditation? No

Will graduates of this program seek licensure or certification after graduation? No
Year of three year check-in to GFEC (3 years after first student enrollment):

Year of first program review (5 years after first student enrollment):

If this proposal is approved, describe the implementation plan and timeline.

We will update the program’s admission website and communications with these changes as soon as approval is granted.

**Rationale and Justifications**

What is the rationale for this change?

The program has seen increased interest from applicants without an electrical engineering degree. The admissions committee wants to tighten up the admission requirements for applicants without EE backgrounds, in order to be very clear which topics applicants should have mastered before they apply.

The department Engineering Professional Development is becoming an office, so they can no longer be the home for certificates. **migration cleanup**

What evidence do you have that these changes will have the desired impact?

Students without solid EE backgrounds struggle with this highly technical and advanced EE curriculum.

The certificate needs an academic home.

**Faculty and Staff Resources**

Confirm that the program advisor(s) or coordinator(s) have been consulted and reviewed this proposal.  Yes

**Resources, Budget, and Finance**

Is this a revenue program?  Yes

What is the tuition structure for this program?

Online/Distance per-credit tuition

Select a tuition increment:
$1,600/credit

What is the rationale for selecting this tuition increment?

Will segregated fees be charged?
Yes

If segregated fees will not be charged, please explain.

Provide an overview of plans for funding the program including but not limited to program administration, instructional/curricular delivery, technology needs and program assessment.

Given considerations associated with the proposed change, describe the academic unit's fiscal capacity to support the instructional and curricular requirements, academic and career advising, student support services, technology needs, and relevant assessment of student learning and program review requirements. Is there sufficient capacity in the curricular and academic support services to meet the additional workload? For research graduate programs, include information on how the program will be administered and how student funding will be handled. For undergraduate programs, include information on academic advising, career advising, student support services.

Does the program or change require substantial new resources other than those just described? Describe the needs. Confirm that the dean is committed to providing the resources.

Will you be seeking federal financial aid eligibility for this Capstone program? Yes

Capstone program students are eligible for federal financial aid (usually loans) if the participate in Gainful Employment (GE) requirements, that is, the prepare students for employment in a recognized occupation. For information about gainful employment requirements see: https://studentaid.ed.gov/sa/about/data-center/school/ge

Identify the SOC codes most closely associated with the occupational preparation the Capstone provides.

What program-specific financial aid, if any, is available for this program?
What is the time period that this program is designed to be completed in by the typical student?

Gainful Employment requirements come with the need to track employment of graduates and provide additional reports – does the program have the capacity to complete these requirements?

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**Curriculum and Requirements**

If you are proposing a change to the curriculum, what percentage of the curriculum is changing?  
No change

Guide Admissions/How to Get In tab

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**Applicant requirements**

Exceptions to standard admission requirements are considered by the admissions committee on an individual basis. A B.S. degree from a program accredited by the Accreditation Board for Engineering and Technology (ABET) or the equivalent.* A B.S. in electrical engineering is recommended. Students who do not have a B.S.E.E. need to have completed fundamental coursework in electrical engineering including circuit theory, Fourier analysis, AC circuit analysis using complex impedances, transfer function analysis and evaluation including Bode plots, transformer equivalent circuits, piecewise continuous analysis of nonlinear circuits, and magnetic theory. A minimum undergraduate grade-point average (GPA) of 3.00 on the equivalent of the last 60 semester hours (approximately two years of work) or a master’s degree with a minimum cumulative GPA of 3.00. Applicants from an international institution must have a strong academic performance comparable to a 3.00 for an undergraduate or master’s degree. All GPAs are based on a 4.00 scale.

Applicants whose native language is not English must provide scores from the Test of English as a Foreign Language (TOEFL). The minimum acceptable score on the TOEFL is 580 on the written version, 243 on the computer version, or 92 on the Internet version.

*Equivalency to an ABET-accredited program: Applicants who do not have bachelor’s degree from an ABET accredited program may also qualify for admission to the program. Such applicants must have a B.S. in science, technology, or a related field with sufficient coursework and professional experience to demonstrate proficiency in engineering practice.

Registration as a professional engineer by examination, if achieved, should be documented to support your application. 

Applications are accepted for admission for all three terms (fall, spring, and summer), but admission deadlines must be met. The admissions process has been designed to conduct a holistic review of likely success in the program. Decisions are based on academic and professional background. See the program's website for current information.

https://next-guide.wisc.edu/programadmin/
dates and information regarding selection of students.

Note: Adult Career and Special Student Services (ACSSS) is the admitting office for all University Special students. However, the department offering the Capstone Certificate program makes the final admission decision upon review of all applicant materials.

Application steps

1. Email the chair of the admissions committee stating your intent to apply to the Power Conversion and Control capstone certificate program. Indicate if you intend to apply to a degree program upon successful completion of the capstone certificate. Attach a current resume or CV to the Intent to Apply email. Current chair: daryl.harrison@wisc.edu

   Your resume/CV should include at least:
   Educational history (including GPA, awards and honors received).
   Professional work experience (including specific details on your engineering experience, technical training, and responsibilities).
   Listing of professional association memberships, advanced training (such as a PE license) and other noteworthy, engineering-related details.

2. Submit an online application for admission as a University Special student, selecting UNCS Capstone Certificate and the program: Power Conversion and Control. This application is received and processed by ACSSS with final decision held for approval from the specific capstone certificate coordinator.

3. Following steps outlined by the program, request transcripts of all previous college work and two letters of recommendations are sent to the department as follows:

   Engineering Professional Development
   Attention: Daryl Harrison
   432 North Lake Street, Room 701
   Madison, WI 53706
   For pdf’s, use the following email address: daryl.harrison@wisc.edu
   For the two (2) letters of recommendation, use the Download Recommendation Form. The recommenders should send the statement directly to the admissions committee chair. At least one letter should be from your current or previous direct supervisor. Academic references are acceptable for applicants who have been out of school less than five years.

4. Complete a phone interview.
   The admissions committee chair will schedule a phone interview with candidates after all application materials are received. Once completed, the application will be presented to the Admissions Committee for evaluation at the next scheduled meeting.

5. Notification of admissions decision.
   The committee will make one of the following decisions:
   Recommend admission.
   Request additional information before evaluating further.
   Decline further consideration of your application.

ENROLLMENT
https://next-guide.wisc.edu/programadmin/
After a decision has been made, the admissions committee chair contacts applicants by email to inform of the decision.

Admitted students receive a formal letter of admission to UW–Madison from Adult Career and Special Student Services along with general enrollment information. Additional detail is provided on the ACSSS enrollment page.

Are international students permitted to enroll in this program?  
Yes  No

Those who are not familiar with using the html editor fields may upload a document with information about the curriculum for use by those who will format and edit the content that will appear in the Guide.

Guide Requirements tab

The curriculum is 9 credits (see course list below). Students must complete all courses with a minimum GPA of 2.00 in each class in order to continue to the next class. Students without prior coursework in energy conversion will be required to take E C E 355 Electromechanical Energy Conversion. The Admissions Committee will make this decision for each admitted student at the time of admission.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>E C E 355</td>
<td>Electromechanical Energy Conversion</td>
<td>3</td>
</tr>
</tbody>
</table>

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<tr>
<th>Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>E C E 411</td>
<td>Introduction to Electric Drive Systems</td>
<td>3</td>
</tr>
<tr>
<td>E C E 412</td>
<td>Power Electronic Circuits</td>
<td>3</td>
</tr>
<tr>
<td>M E 446</td>
<td>Automatic Controls</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9

Total credits required:

Semesters to completion:

Guide Graduate Policies tab
Describe part-time format (<8 credits fall and spring semesters < 4 credits summer term) here.

Describe full-time, time-compressed, intensive format here.

Describe other format here.

**Program Learning Outcomes and Assessment**

List the program learning outcomes.

<table>
<thead>
<tr>
<th>Outcomes – enter one learning outcome per box. Use the green + to create additional boxes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

Summarize the assessment plan.

Approved Assessment Plan:

**Commitments**

All required courses are approved through the school/college level.

**Yes**

Courses are offered on a regular basis to allow timely completion.

**Yes**

Courses have enrollment capacity.
Yes

Courses in the curriculum are numbered 300 or higher.

Yes

Courses in which a student elects the pass/fail option will not count toward completion of requirements.

Yes

Special topics courses are only used if all topics count for the certificate.

Yes

All requirements must be met; exceptions that amount to waiving requirements are not permitted.

Yes

Course substitutions to the curriculum should be kept to a minimum; if substitutions are being made on a regular basis, the curriculum should be re-examined. When course substitutions are made, the substituted course should be formally added to the curriculum through governance for inclusion in the curriculum the following academic year.

Yes

Substitutions are not permitted for any course unless the substitution would be provided for every student with the same substitution request.

Yes

All of the Capstone certificate credits must be earned “in residence” (which includes on campus and distance-delivered courses) at UW-Madison while enrolled in the Capstone certificate program. Because a Capstone certificate is comprised of just a few courses, it is not appropriate for students who already have completed the same or similar coursework at UW-Madison or another institution.

Yes

Students must earn a minimum grade of C on all attempted Capstone certificate coursework.

Yes

The program faculty/staff will ensure the program is encoded into DARS and will work with the Registrar’s Office DARS liaison to keep approved revisions to the curriculum current.

Yes
All students will be declared into the appropriate plan code in SIS via either an admission process or e-declaration. If the student does not have the plan code on their student record in SIS the student is not considered to be in the program.

Yes

The program faculty/staff will ensure the program website, Advance Your Career materials if applicable, and other presentations are consistent with the Guide information for this program.

Yes

Degree-seeking students may not be concurrently enrolled in a Capstone certificate program.

Yes

Students enrolled in Capstone certificate programs are NOT eligible for teaching assistant (TA), research assistant (RA), project assistant (PA) nor graduate fellowship support. Programs must disclose this program policy to Capstone certificate students in the recommendation of admission letter, program website, program handbook, and program orientation.

Yes

To be eligible for admission to a Capstone program, a student must hold an earned bachelor’s degree or equivalent credential from an accredited college or university.

Yes

**Supporting Information**

List name and department of those who are in support of this proposal.

If those supporting the proposal provided a letter or email of support upload here. A letter is NOT required. Upload any other explanatory information about support from other UW-Madison units.

Additional Information:

**Approvals**
Department Approval - This proposal has been approved by the faculty at the department/academic unit level. The program faculty confirm that the unit has the capacity and resources (financial, physical, instructional, and administrative) to meet the responsibilities associated with offering the program, including offering the necessary courses, advising students, maintaining accurate information about the program in the Guide and elsewhere, conducting student learning assessment and program review, and otherwise attend to all responsibilities related to offering this program.

Enter any notes about approval here:

**DEPD Faculty approved the transition of DEPD as an academic department on 12/20/2018.**

**College of Engineering Leadership Council approved on 1/23/2019.**

Entered by: Sara Hagen  
Date entered: 02/26/2019

School/College Approval - This proposal has been approved at the school/college level and it is submitted with the Dean’s support. The Dean and program faculty confirm that the unit has the capacity and resources (financial, physical, instructional, and administrative) to meet the responsibilities associated with offering the program, including offering the necessary courses, advising students, maintaining accurate information about the program in the Guide and elsewhere, conducting student learning assessment and program review, and otherwise attend to all responsibilities related to offering this program.

Enter any notes about approval here:

**APC approved the transition of DEPD to an office on 2/20/2019**

Entered by and date: Sara Hagen  
Date entered: 02/26/2019

GFEC Approval - This proposal has been approved by the Graduate Faculty Executive Committee and the Dean of the Graduate School.

Enter any notes about the approval here:

Entered by:  
Date entered:

UAPC Approval - This proposal has been approved by the University Academic Planning Council and the Provost.

Enter any notes about approval here:

Entered by:  
Date entered:
For Administrative Use

Admin Notes:

Guide URL: https://next-guide.wisc.edu/programadmin/

Effective date:

Career: Special Student

SIS Program Code: UNCS

SIS Short Description: Pwr Conv

Other plan codes associated with this program:

Degree: CRT

Field of Study: Physical Science

Program Length: 1

National Student Clearing House Classification:

Plan Group: 393

Award Category: Capstone

Enrollment Category: 800


UWSTEM: Yes

HEALTH:

Educational Innovation Program:

Distance Education Program:

Plan is
Non Traditional Program:

Special Plan Type: The entire plan is a Non-pooled plan

CDR certificate category: Postbaccalaureate certificate

Reviewer Comments

Michelle Young (meyoung) (02/14/19 9:37 am): Rollback: Additional edits are needed. Email sent to Sara Hagen.