Program Change Request

New Program Proposal

Date Submitted: 01/29/20 4:58 pm

Viewing: Capstone Certificate in Engine Design

Last edit: 03/30/20 12:15 pm

Changes proposed by: strzlec

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

Name
Sara Hagen - EGR

Proposal Abstract/Summary:
We propose the creation of a Capstone Certificate program in Engine Design, which leverages existing courses in the Master of Engineering in Engine Systems (MEES) program. We anticipate that this capstone program would be for students who were not otherwise applying to the MEES program. The intention is that this capstone certificate would be stackable (able to be counted towards the MEES degree) for students who would like to continue on. The proposed certificate is intended to supplement the MEES program (which uses the first two ED classes as requirements and ED 3 as an elective) with additional students who are not interested in the full degree, but rather only study in a concentrated area. This program is intended to provide students with meaningful learning experiences and ultimately give them an advantage in pursuing advanced or professional degrees including the MEES program, as students can transfer up to 15 credits (so the full 9 credits from this certificate to count towards the MEES M.Eng degree.

Basic Information

Type of Program: Capstone Certificate (Special only)
Who is the audience? Special
Home Department: College of Engineering (ENGINEERG)
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:

SIS Description:

Transcript Title: Capstone Certificate in Engine Design

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

https://next-guide.wisc.edu/courseleaf/approve/?role=GRAD SCH Dept. Approver
List the departments that have a vested interest in this proposal.

<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>Stzelic, Andrea</td>
<td><a href="mailto:stzelic@wisc.edu">stzelic@wisc.edu</a></td>
<td></td>
<td>Program Director</td>
</tr>
<tr>
<td>Department Chair</td>
<td>Borbely, Edward G</td>
<td><a href="mailto:borbely@wisc.edu">borbely@wisc.edu</a></td>
<td>608/263-0982</td>
<td></td>
</tr>
<tr>
<td>Primary Contact</td>
<td>Stzelic, Andrea</td>
<td><a href="mailto:stzelic@wisc.edu">stzelic@wisc.edu</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary Dean's Office Contact</td>
<td>Hagen, Sara K</td>
<td><a href="mailto:skhagen@wisc.edu">skhagen@wisc.edu</a></td>
<td>608/263-8860</td>
<td></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 (>50% - 99%)

Provide information on how any lab courses required for the degree will be handled. There are no laboratory classes required.

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
First term of student enrollment: Fall 2020 (12/22)
When will the application for the first term of enrollment open? Spring 2020 (12/04)

Which terms will you allow new students to enroll? What are the application deadlines for each term selected?

<table>
<thead>
<tr>
<th>Start Term</th>
<th>Application Deadline MM/DD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>07/15</td>
</tr>
</tbody>
</table>

Year of three year check-in to GIEC (3 years after first student enrollment): 2024
Year of first program review (5 years after first student enrollment): 2026

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

The 3 courses of this certificate program are Engine Design 1, Engine Design 2 and Engine Design 3, which must be taken in order. The first two of the three courses in this certificate program are already being offered as part of the MEEIS program. The timing of the start of the certificate program is in coordination with the schedule of classes already being offered. The third class that is part of this program now exists in the catalog and will be first taught in Fall of 2021.

Rationale and Justifications
Why is the program being proposed? What is its purpose?
The Engine Design Certificate will be offered as part of a stackable Master's program, and as a stand-alone Certificate. It will provide a way to formally recognize a student's mastery of Engine Design. It is anticipated that MEES graduates, current MEES students, as well as working engineers who are interested in this specialty, but not the full MEES degree would be the audience for this program.

Do current students need or want the program? Provide evidence.
Yes, we have student survey comments that indicate current students would like additional courses in this area. We also have data from interviewing prospective students that suggests while they are not ready to undertake a Master's program, they would like a shorter, more focused option such as a certificate program.

What is the market, workforce, and industry need for this program? Provide evidence.
The automotive industry is still in need of qualified engineers for engine design.

What gap in the program array is it intended to fill?
The certificate program is intended to support students who would like additional training beyond their current BS, but do not want to commit to a Master's program.

Faculty and Staff Resources

List the core program faculty and staff with title and departmental affiliation(s) who are primarily involved and will participate in the delivery and oversight:

<table>
<thead>
<tr>
<th>Name (Last, First)</th>
<th>Department</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strzelec, Andrea</td>
<td>Engineering Professional Devlp [EGR P D]</td>
<td>Program Director</td>
</tr>
<tr>
<td>Hoag, Kevin</td>
<td>Engineering Professional Devlp [EGR P D]</td>
<td>Faculty Associate</td>
</tr>
<tr>
<td>Trujillo, Marco F</td>
<td>Mechanical Engineering [MECH EGR]</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Kolpohn, Sage L</td>
<td>Mechanical Engineering [MECH EGR]</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Ghandi, Jaal B</td>
<td>Mechanical Engineering [MECH EGR]</td>
<td>Professor</td>
</tr>
<tr>
<td>Scholze, Stephanie</td>
<td>Engineering Professional Devlp [EGR P D]</td>
<td>Director of EPD Student Engagement</td>
</tr>
</tbody>
</table>

What resources are available to support faculty, staff, labs, equipment, etc.?

Instructional Development Staff

Program advisor(s) with title and departmental affiliation(s):

<table>
<thead>
<tr>
<th>Name (Last, First)</th>
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<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strzelec, Andrea</td>
<td>Engineering Professional Devlp [EGR P D]</td>
<td>MEES Program Director</td>
</tr>
<tr>
<td>Scholze, Stephanie</td>
<td>Engineering Professional Devlp [EGR P D]</td>
<td>Director of EPD Student Engagement</td>
</tr>
<tr>
<td>Harrison, Daryl L</td>
<td>Engineering Professional Devlp [EGR P D]</td>
<td>Director of EPD Student Services</td>
</tr>
</tbody>
</table>

Describe how student services and advising will be supported.
Students will be advised in the courses and sequence necessary for the certificate.

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

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: $1,300/credit

What is the rationale for selecting this tuition increment?
This is the same price as courses in the M.Eng, in Engine Systems (MEES) program. Students wishing to continue for the master's degree will be able to transfer their credits without paying extra.

Provide a summary business plan.
See budget spreadsheet.

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

What is the marketing plan?
The certificate will be marketed with other Engineering programs through DCS.

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.
No, this certificate program will leverage current MEES courses.

Are new library resources needed to support this program?
No
Curriculum and Requirements

Guide Admissions/How to Get In tab

This certificate is geared toward those with an academic background in Mechanical Engineering. Applicants must possess a baccalaureate degree. Applications are accepted for Fall by July 15th and Spring by November 1st. Adult Career and Special Student Services (ACSSS) is the admitting office for all University Special students, including capstone certificate students. However, the department offering the capstone certificate program makes the final admission decision upon review of all applicant materials.

Admission requirements for the Capstone Certificate are:

Hold bachelor’s degree in Mechanical Engineering or equivalent credential from an accredited college or university.

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.

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.

Exceptions to standard admission requirements are considered by the admissions committee on an individual basis. Students may be admitted with deficiency, but will be expected to complete the necessary leveling courses.

Application steps:

1. Communicate Intent to Apply to the program. Send an email to EPD Student Services at studentservices@epd.wisc.edu, and state an intent to apply to the certificate. Attach an unofficial transcript that shows cumulative GPA and bachelor’s degree received.

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

3. Arrange to have transcripts of all previous educational institutions and a letter of recommendation sent directly to EPD Student Services. Attn: EPD Student Services, 432 North Lake Street, Room 701, Madison, WI 53706.

   Note: Transcripts should be sent directly by the educational institution to the program.

   The letter of recommendation should be from an employer or colleague. Use the Download Recommendation Form, which should be sent by email directly by your recommender to the admissions committee at studentservices@epd.wisc.edu.

4. After all of application materials have been received, the admissions committee chair contacts applicants for a phone interview. After the interview, the complete application will be presented to the Admissions Committee for evaluation.

Final admissions decision

Admission decisions are made in order completed applications are received. The committee will make one of the following decisions:

Recommend admission

Decline further consideration of your application.

After a decision is made, student services will contact applicants by email to inform them of the decision and to schedule a time to discuss the decision and any next steps. The ACSSS is notified of the final admission decision and completes the formal process for UW-Madison admissions.

Describe plans for recruiting students to this program.

Recruit along with the MEES program and other DCS and EPD online programs.

Projected Annual Enrollment:

<table>
<thead>
<tr>
<th>Year</th>
<th>Projected Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>2</td>
</tr>
<tr>
<td>Year 2</td>
<td>6</td>
</tr>
<tr>
<td>Year 3</td>
<td>12</td>
</tr>
<tr>
<td>Year 4</td>
<td>15</td>
</tr>
<tr>
<td>Year 5</td>
<td>15</td>
</tr>
</tbody>
</table>

Maximum enrollment that can be supported with existing instructional and student services resources:

20

Describe plans for supporting enrollments that are much higher or much lower than the anticipated enrollment.

If enrollments are higher than anticipated, the revenue will be reinvested in additional resources. If enrollments are lower, no changes will be necessary as these classes are part of the existing M.Eng program (MEES)

Are international students permitted to enroll in this program?

Yes

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 from the following courses, which must be taken in order.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPD 622</td>
<td>Engine Design I</td>
<td>2</td>
</tr>
<tr>
<td>LPD 623</td>
<td>Engine Design II</td>
<td>4</td>
</tr>
<tr>
<td>LPD 630</td>
<td>Engine Design III</td>
<td>3</td>
</tr>
</tbody>
</table>

Total credits required: 9

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4/8
Program Learning Outcomes and Assessment

List the program learning outcomes.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Learning Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identify engine development projects and their key design points, incorporating resource estimates and justification.</td>
</tr>
<tr>
<td>2</td>
<td>Use flexible towing approaches for machining major engine components, identifying the advantages and disadvantages and other key variables.</td>
</tr>
<tr>
<td>3</td>
<td>Select any component or sub-system within a particular engine and create and justify a design validation test sequence appropriate to the selection for that engine.</td>
</tr>
</tbody>
</table>

Summarize the assessment plan.
Examinations and course evaluations from the certificate courses will be used as direct and indirect evidence of the learning outcomes. Assessment information will be reviewed annually at the Fall program meeting and by the Industrial Advisory Board. A summary of assessment results and other program metrics will be prepared annually by the Program Director, and recommendations will be developed by the Program Director and submitted to the faculty for consideration and implementation as needed.

Approved Assessment Plan: Assessment Plan for Engine Design Capstone Certificate.docx

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 have already 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

Credential will not be awarded retroactively to students who completed all of the requirements before the credential was approved.

Yes

Degree-seeking students may not concurrently be 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) or 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.

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: 133 Program Model - MEES and Certified [1] Xuu Capstone in Engine Design Tuition Proposal.docx

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:

Entered by: Sara Hagen Date entered: 12/13/2019

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:

Entered by: Sara Hagen Date entered: 12/13/2019

GFC 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:

Effective date:

Came r:

SIS Program Code:

SIS Short Description:

Other plan codes associated with this program:

Degree:

Field of Study:

Program Length:

National Student Clearing House Classification:

Plan Group:

Award Category:

Enrollment Category:

CIP Code:
<table>
<thead>
<tr>
<th>Reviewer</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sam K Hagen (skhagen)</td>
<td>(11/16/19 1:11 am): Rollback for editing</td>
</tr>
<tr>
<td>Andra Strzelec (strzelec)</td>
<td>(12/11/19 8:17 pm): I see the Budget and Tuition doc, but not the curriculum or assessment plan. I emailed them (to Sara) as a backup</td>
</tr>
<tr>
<td>Regina Ann Lowery (lowery3)</td>
<td>(12/19/19 3:58 pm): Learning outcomes: format accepted.</td>
</tr>
<tr>
<td>Regina Ann Lowery (lowery3)</td>
<td>(12/19/19 3:59 pm): Assessment plan: Accepted.</td>
</tr>
<tr>
<td>Karen E Mittelstadt (mittlestadt)</td>
<td>(12/30/19 9:37 am): Rollback. I rolled back for the following issues/revisions: 1) include all four roles in Roles By Responsibility. 2) provide a summary of assessment plan in requested field, 3) list at least 2 faculty members in the Core Program. Faculty section, 4) in guide reqs, delete text re. course substitutions (subm may be made but should not be advertised)</td>
</tr>
<tr>
<td>Sam K Hagen (skhagen)</td>
<td>(01/13/20 9:27 am): All requested changes complete.</td>
</tr>
<tr>
<td>Karen E Mittelstadt (mittlestadt)</td>
<td>(01/22/20 8:21 am): Rollback. APIR rollback. Refer to email from Milner to Hagen/strzelec/krorbey for details on requested revisions, including Budget section, tuition proposals, Faculty and Staff Resources lists, and guide integration points. With revisions completed on 4/21/20, proposal will advance to February UAPC meeting.</td>
</tr>
<tr>
<td>Sam K Hagen (skhagen)</td>
<td>(01/22/20 1:00 am): Rollback. For editing</td>
</tr>
<tr>
<td>Andra Strzelec (strzelec)</td>
<td>(01/29/20 5:01 pm): In response to the 1/21 email from Provost Milner - I want to make a few points. Re: Faculty &amp; Staff. EPD hires our teaching faculty on a per semester basis. The SE faculty may not be currently active, but they have been teaching at UW for more than 10 years and will continue to teach for us, but only be active in the semesters in which they teach. This is why they remain on the resource list. Re: Online tuition proposal - it has been updated to reflect ONLY the capstone, but previously we were told that since the capstone is not self-contained (meaning that it makes use of classes already running as part of the MEES program) - the budgets for MEES and the capstones should be combined. Thank you for all of the help. Andrea.</td>
</tr>
<tr>
<td>Sam K Hagen (skhagen)</td>
<td>(01/30/20 1:15 pm): Edits complete as requested.</td>
</tr>
</tbody>
</table>