CEAS-P-19-07-ChP

NOT FOR USE FOR CURRICULAR COURSE CHANGES
REQUEST FOR PROGRAM IMPROVEMENTS

NOTE: Changes to programs may require course changes, which must be processed electronically. Any questions should be directed to Associate Provost David Reinhold at 7-4564 or david.reinhold@wmich.edu

DEPARTMENT: Chemical and Paper Engineering

COLLEGE: CEAS

PROPOSED EFFECTIVE FALL YEAR: 2020

PROPOSED IMPROVEMENTS: Academic Program Proposed Improvements

- New degree*
- New major*
- New curriculum*
- New concentration*
- New certificate*
- Admission requirements
- Graduation requirements
- Deletion*
- Revised major
- Change in Title
- Revised minor
- Transfer

** Other:

Title of degree, curriculum, major, minor, concentration, or certificate: Master of Science in Engineering (Chemical-Accelerated)

Chair, Department Curriculum Committee: [Signature]  Date 9/27/2019

CHECKLIST FOR DEPARTMENT CHAIRS/DIRECTORS

- For new programs and other changes that have resource implications, the dean has been consulted.
- When appropriate, letters of support from department faculty are attached.
- When appropriate, letters of support from other departments in the same college are attached.
- When appropriate, letters of support from other college deans, whose programs/courses may be affected by the change, are attached.
- The proposal has been reviewed by HIGE for possible implications for international student enrollment.
- The proposal is consistent with the departmental assessment plan, and identifies measurable learning outcomes for assessment.
- Detailed resource plan is attached where appropriate.
- All questions attached have been completed and supporting documents are attached.
- The proposal is written and complete as outlined in the Faculty Senate guidelines and the curriculum change guides.

Chair/Director: [Signature]  Date 9/30/2019

CHECKLIST FOR COLLEGE CURRICULUM COMMITTEE

- The academic quality of the proposal and the faculty involved has been reviewed.
- Detailed resource plan is attached where appropriate.
- Consistency between the proposal and the relevant catalog language has been confirmed.
- The proposal has been reviewed for effect on students transferring from Michigan community colleges. Detailed information on transfer articulation must be included with undergraduate proposals.
- Consistency between the proposal and the College and department assessment plans has been confirmed.
- Consistency between the proposal and the College and department strategic plans has been confirmed.
- All questions attached have been completed and supporting documents are attached.
- The proposal is written and complete as outlined in the Faculty Senate guidelines and the curriculum change guides.

Revised Sept. 2018. All previous forms are obsolete and should not be used.
CHECKLIST FOR COLLEGE DEANS

☐ For new programs and proposed program deletions, the provost has been consulted.

☐ For new programs, letter of support from University Libraries Dean indicating library resource requirements have been met.

☐ When appropriate, letters of support from other college faculty and/or chairs are attached.

☐ When appropriate, letters of support from other college deans, whose programs/courses may be affected by the change, are attached.

☐ The proposal has been reviewed for implications for accreditation, certification, or licensure.

☐ Detailed resource plan is attached where appropriate.

☐ All questions attached have been completed and supporting documents are attached.

☐ The proposal is written and complete as outlined in the Faculty Senate guidelines and the curriculum change guides.

Dean:

Date

FOR PROPOSALS REQUIRING REVIEW BY:
GSC/USC; EPGC, GRADUATE COLLEGE, and/or FACULTY SENATE EXECUTIVE BOARD

☐ Return to Dean

☐ Forward to:

Curriculum Manager:

Date:

☐ Approve ☐ Disapprove

*needs review by

Chair, GSC/USC:

Date

☐ Approve ☐ Disapprove

Chair, EPGC:

Date

☐ Approve ☐ Disapprove

Graduate College Dean:

Date:

☐ Approve ☐ Disapprove

Faculty Senate President:

Date

☐ Approve ☐ Disapprove

*needs review by

Provost:

Date

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1. Explain briefly and clearly the proposed improvement:
   Electives have been modified to reflect changes in course offerings. Language has been added to clarify the need for timely turning in AGDP forms to Registrar.

2. Rationale. Give your reason(s) for the proposed improvement.
   Course offerings have changed in recent years. The catalog elective example courses are being modified to reflect changes. Additional language has been added as several students have not turned in the form on time in the past.

3. Effect on other colleges, departments, or programs. If consultation with others is required, attach evidence of consultation and support. If objections have been raised, document the resolution. Demonstrate that the program you propose is not a duplication of an existing one.
   No change.

4. Effect on your department’s programs. Show how the proposed change fits with other departmental offerings.
   No change.

5. Alignment with college’s and department’s strategic plan, mission, and vision.
   No change.

6. Effects on enrolled students: Are program conflicts avoided? Will your proposal make it easier or harder for students to meet graduation requirements? Can students complete the program in a reasonable time? Show that you have considered scheduling needs and demands on students’ time.
   No change.

7. Student or external market demand. What is your anticipated student audience? What evidence of student or market demand or need exists? What is the estimated enrollment? What other factors make your proposal beneficial to students?
   No change.

8. Effects on resources. Explain how your proposal would affect department and University resources, including faculty, equipment, space, technology, and library holdings. If proposing a new program, include a letter and/or email of support from the university libraries affirming that the library resource issues have been reviewed. Tell how you will staff additions to the program. If more advising will be needed, how will you provide for it? What will be the initial one-time costs and the ongoing base-funding costs for the proposed program? (Attach additional pages, as necessary.)
   No change.

9. List the learning outcomes for the revised or proposed major, minor, or concentration. The department will use these outcomes for future assessments of the program.
   Not applicable.

10. Describe how this change is a response to assessment outcomes that are part of a department or college assessment plan or informal assessment activities.
    Not applicable.

11. (Undergraduate proposals only) Describe in detail how this change affects transfer articulation for Michigan community colleges. For new majors or minors, describe transfer guidelines to be developed with Michigan community colleges. For revisions to majors or minors, describe necessary revisions to Michigan community college guidelines. Department chairs should seek assistance from college advising directors or from the admissions office in completing this section.
    Not applicable.

12. Please offer both “Current Catalog Language” and “Proposed Catalog Language” if there is to be a change in the catalog description for a given program. For the “current” language, please copy and paste relevant language

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from the most current catalog and for the "proposed" language, please share the exact proposed new catalog language. As possible, bold or otherwise note the key changes in the new proposed catalog language.

See attached.
Master of Science in **Engineering (Chemical-Accelerated)**

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The Accelerated Master's Graduate Degree Program (AGDP) in Chemical Engineering allows undergraduate students to begin accumulating credits towards completion of a master's while still enrolled as undergraduates. Undergraduate students admitted to an AGDP, with senior standing, could take 5000- and 6000-level courses for graduate credit. Up to 12 hours of designated 5000- and/or 6000-level courses (but not less than 6 hours) could be used for both the bachelor's degree and for completing the master's degree within 24 months of completing their bachelor's degree in chemical engineering. These students may choose to pursue a Master of Science in Engineering (Chemical) degree under either the thesis option or the non-thesis option, which will allow them to complete an AGDP degree by completing combined graduate and undergraduate credit hours.

**Application and Academic Advising for the AGDP**

A prospective student who meets the eligibility requirements (see Admission Procedure) must set up a meeting with their undergraduate advisor and the chemical engineering graduate advisor to develop Plans of Work for the bachelor's and master's degree programs.

Before admission to an AGDP can be finalized, students must submit the standard application for admission to the Office of Admissions and Graduate Admissions including:

- an application
- application fee
- a copy of all transcripts
- a Plan of Graduate Work, signed by the prospective student, the undergraduate advisor and the chemical engineering graduate advisor

The Plan of Graduate Work for the master's degree must clearly indicate:

- the 5000- and/or 6000-level courses (a maximum of 12 graduate credit hours) that will be counted for both bachelor's and master's degrees,
- the graduation date for the master's degree that meets the time limit for the AGDP (i.e. obtaining a Master of Science in Engineering (Chemical) within 24 months of completing the bachelor's degree).

Any changes to the AGDP Plan of Graduate Work must be submitted in writing and approved by chemical engineering graduate advisor and graduate dean.

**Admission Procedure**

Admission to the AGDP is contingent on meeting the following eligibility requirements at the time of applying for the AGDP:

Students must have senior standing, a minimum cumulative undergraduate grade point average (GPA) of 3.25 (on a 4.00 scale) based on at least 45 earned hours, 15 of which shall be earned at
Western Michigan University in CHEG or PAPR courses, and additional criteria as determined by the
department.
The student must apply through the Office of Admissions and Graduate Admissions and must also
apply for admission to the graduate degree granting department. After admission into the AGDP, the
student’s record will indicate the AGDP status.
International undergraduate students at Western Michigan University must clarify their visa status
with the Office of International Student and Scholar Services before submitting an admission
application for AGDP.
Students intending to enroll in any AGDP must maintain a 3.00 GPA throughout their baccalaureate
degree, or their admission to the AGDP will be revoked.
Admission to the AGDP does not guarantee admission to the Graduate College. However, successful
completion of an undergraduate degree under AGDP will ensure admission to the Graduate College.

Academic Advising, Records, and Program Requirements
Students who wish to participate in the AGDP will follow Application and Academic Advising for the
AGDP, as discussed previously. The department will send the Plan of Graduate Work to the students
and the registrar that will state which graduate courses may be counted towards both degrees. A copy
will be placed with the student’s undergraduate records, and the change will be incorporated into the
student’s undergraduate and master’s program as outlined below. Graduate courses substituting for
required courses within the undergraduate degree are designated by the program as equivalent in
content but delivered with graduate level rigor. Current 5000-level courses (required or elective) in
the bachelor’s degree must be taken at the graduate level to be double counted. The courses for the
AGDP may be used to complete the undergraduate degree credit hour requirements.

Administration of the program includes the following:
Students with senior standing who have been accepted into the AGDP can take 6000-level courses for
graduate credit while undergraduates. This registration would be done by the Registrar’s Office, with
permission of the department and the student. This would occur the same way that students are
dually enrolled as undergraduates and graduate students under the current policy.
Students will pay undergraduate tuition for these 6000-level courses as long as they are
undergraduates. The 6000-level courses are included in the flat rate for tuition purposes.
Students are considered undergraduates for financial aid purposes until they receive the
baccalaureate degree.
The 6000-level courses, taken while the student is still an undergraduate, will appear on the student’s
graduate transcript. The grades earned in these courses will be reflected in the graduate GPA.
At the time the student completes his/her bachelor’s degree, the Registrar’s Office staff will manually
add the hours earned in the 6000-level courses to the student’s undergraduate transcript. The
undergraduate GPA will also be adjusted to include the grades earned in these courses.
The department will clearly identify for the Registrar’s Office on the original “Plan of Graduate Work”
which 5000- and/or 6000-level courses are available to be double counted. Individual students will
have specific courses identified to be double counted when they are admitted to the AGDP.
The 5000- and/or 6000-level courses which are double counted will be identified as such on the graduate transcript. The transcript key, which is on the back of the transcript paper, will explain the double counting. Both undergraduate and graduate transcripts will show that the student has complete an accelerated graduate degree program.

If a student completes his/her bachelor’s degree and then stops attending the AGDP, the graduate transcript will show the graduate courses completed.

It is expected that the baccalaureate degree will be earned and awarded within one calendar year after initial enrollment in the AGDP or as determined by the department.

In order to progress automatically into the graduate program, a student must achieve a grade of “B” or above in each of the graduate courses being counted for the undergraduate degree, as well as maintain a 3.00 GPA overall. Students who do not meet these criteria will have the earned grade applied to their undergraduate program only, and must reapply for admission to the graduate program. If the student is admitted to the graduate program, the department and graduate dean will determine if any credit from the bachelor’s degree will be carried forward for the graduate degree. Students who complete the undergraduate degree including a “B” or above in the specified graduate courses will be admitted as graduate students (with the relevant graduate credit) in the next semester or session after receiving the bachelor’s degree.

Students must complete the bachelor’s degree prior to entering the master’s program. Students in the AGDP cannot elect to by-pass the bachelor’s degree.

No more than 12 credit hours of graduate work may be counted toward the requirements of both degrees.

Students must complete the master’s degree within 24 months from the completion of the bachelor’s degree. If the master’s program is not completed within these time limits, none of the 5000- and/or 6000-level courses counted in the undergraduate program can be counted toward the master’s degree.

Continuing Eligibility

It is the responsibility of the student to recognize his/her eligibility status.

A student completing the bachelor’s degree requirements with and accumulated GPA of less than 3.00/4.00 is no longer eligible to count the 5000- and/or 6000-level credit hours specified (see Eligible Courses for the AGDP) toward the master’s degree and is automatically terminated from the AGDP.

A student who is ineligible to participate in (or withdraws from) the AGDP cannot count any of the courses specified (see Eligible Courses for the AGDP) for both bachelor’s and master’s degrees. These courses, however, may be counted toward the student’s bachelor’s degree upon the discretion of the undergraduate advisor.

A student who becomes ineligible to participate in the AGDP must be informed by the chemical engineering graduate advisor in writing of his/her ineligibility. A copy of this letter to the student must be sent to the Graduate College and the undergraduate advisor.

Withdrawal
A student may at any time withdraw from an approved AGDP by informing the department’s director of undergraduate programs and the chemical engineering graduate advisor in writing. A copy of this request to withdraw must be sent to the Graduate College for approval.

**Eligible Courses for the AGDP**

To select courses for the AGDP, students will work with their undergraduate advisor and the chemical engineering graduate advisor. Courses that are selected for the AGDP will be used to replace credit hours in an Emphasis Area of the bachelor’s degree program. Students will select only one Emphasis Area as part of the AGDP. It is the responsibility of the student to make sure they have completed all the needed prerequisites for the courses they wish to elect for use by the AGDP. Example eligible courses from which students will elect their maximum 12 credit hours (but not less than 6) for the AGDP are found below. Additional courses at the 5000- or 6000-level may be eligible, depending on their scheduled availability.

This list of courses is not an exhaustive list and 5000 and 6000 courses may also be taken and counted as part of the AGDP Program as approved by the departmental graduate committee.

In all cases, eligible students must work with their undergraduate advisor and the chemical engineering graduate advisor to complete a Plan of Graduate Work as discussed previously.

Please note that in order to ensure that courses count toward the AGDP Program that each student should be accepted to the AGDP Program meet individually with the chemical engineering graduate advisor, fill out the AGDP form and obtain appropriate signatures, and turn the form into the Registrar prior to registering for courses. Additionally, this form should be taken to the Registrar’s office in order to register for these courses. Failure to fill out this form in a timely manner as part of the AGDP prior to registering for courses may lead to these courses not counting as part of the AGDP.

### Chemical Engineering

- **CHEG 5100** - Medical and Biomolecular Engineering Concepts **Credits:** 3 hours
- **CHEG 5250** - Sustainable Earth Resources Engineering **Credits:** 3 hours
- **CHEG 5200** - Renewable Energy and Energy Storage **Credits:** 3 hours
- **CHEG 5950** - Topics in Chemical Engineering **Credits:** 1 to 3 hours
- **CHEG 6100** - Chemical Engineering Thermodynamics **Credits:** 3 hours
- **CHEG 6200** - Advanced Transport Processes **Credits:** 3 hours
- **CHEG 6300** - Chemical Reaction Engineering **Credits:** 3 hours
- **CHEG 6950** - Graduate Topics in Chemical Engineering **Credits:** 3 hours

### Mathematics Skill Development
AGDP students may select one of the following courses:

- CHEG 6000 - Chemical Engineering Mathematics Credits: 3 hours
- MATH 5740 - Advanced Differential Equations Credits: 3 hours
- ME 5600 - Engineering Analysis Credits: 3 hours
- ME 5610 - Finite Element Method Credits: 3 hours
- ME 5620 - Application of Numerical Methods in Engineering Credits: 3 hours

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