# Cover Sheet: Request 13072

## Change Critical Tracking Criteria for Mechanical Engineering

### Info

<table>
<thead>
<tr>
<th>Process</th>
<th>Major Curriculum</th>
<th>Modify</th>
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<td>Status</td>
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<tr>
<td>Submitter</td>
<td>Bruce Carroll <a href="mailto:bfc@ufl.edu">bfc@ufl.edu</a></td>
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<td>Created</td>
<td>9/19/2018 8:28:19 AM</td>
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<td>3/13/2019 3:03:27 PM</td>
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<td>Description of request</td>
<td>Change critical tracking criteria for undergraduate mechanical engineering degree. Raise minimum critical tracking gpa from 2.5 to 2.8. Remove &quot;approved science elective&quot; and replace with &quot;EML2023 Computer Aided Graphics and Design&quot; as a critical tracking course.</td>
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### Actions

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<tr>
<th>Step</th>
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<th>User</th>
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<tr>
<td>Department</td>
<td>Approved</td>
<td>ENG - Mechanical and Aerospace Engineering</td>
<td>Bruce Carroll</td>
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<td>9/19/2018</td>
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<td>College</td>
<td>Approved</td>
<td>ENG - College of Engineering</td>
<td>Heidi Dublin</td>
<td>Approved by the HWCOE Curriculum Committee and Faculty Council</td>
<td>10/23/2018</td>
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<td>Associate Provost for Undergraduate Affairs</td>
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<td>PV - APUG Review</td>
<td>Casey Griffith</td>
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<td>1/22/2019</td>
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<td>Academic Assessment Committee</td>
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No document changes
Major|Modify_Curriculum for request 13072

Info

Request: Change Critical Tracking Criteria for Mechanical Engineering

Description of request: Change critical tracking criteria for undergraduate mechanical engineering degree. Raise minimum critical tracking gpa from 2.5 to 2.8. Remove "approved science elective" and replace with "EML2023 Computer Aided Graphics and Design" as a critical tracking course.

Submitter: Bruce Carroll bfc@ufl.edu
Created: 3/1/2019 4:01:56 PM
Form version: 5

Responses

Major Name Mechanical Engineering
Major Code ME
Degree Program Name Mechanical Engineering
Undergraduate Innovation Academy Program No
Effective Term Fall
Effective Year 2019

Current Curriculum for Major

Current Critical Tracking Requirements
A) Students must complete the following courses with a minimum grade of C within two attempts:
1. CHM2045 General Chemistry or CHM2095 Chemistry for Engineers 1
2. Approved Science Elective (AST3018, AST3019, BSC2010, CHM2046, CHM2096, or PHY3101)
3. MAC2311 Analytical Geometry and Calculus 1
4. MAC2312 Analytical Geometry and Calculus 2
5. MAC2313 Analytical Geometry and Calculus 3
6. MAP2302 Elementary Differential Equations
7. PHY2048 Physics with Calculus 1
8. PHY2049 Physics with Calculus 2

B) Students must maintain a minimum critical tracking GPA of 2.5 (based on best attempt in each tracking course)

Proposed Curriculum Changes

The proposed curriculum change includes two parts. First is to replace the critical tracking course “science elective” with the course “EML2023 Computer Aided Graphics and Design”. Second is to raise the minimum Critical Tracking GPA from 2.5 to 2.8.

A) Students must complete the following courses with a minimum grade of C within two attempts:
1. CHM2045 General Chemistry or CHM2095 Chemistry for Engineers 1
2. EML2023 Computer Aided Graphics and Design
3. MAC2311 Analytical Geometry and Calculus 1
4. MAC2312 Analytical Geometry and Calculus 2
5. MAC2313 Analytical Geometry and Calculus 3
6. MAP2302 Elementary Differential Equations
7. PHY2048 Physics with Calculus 1
8. PHY2049 Physics with Calculus 2

B) Students must maintain a minimum critical tracking GPA of 2.8 (based on best attempt in each tracking course)

Note that both the science elective and the course EML2023 are currently required in the curriculum. This proposal simply exchanges the two as critical tracking courses. Thus, no changes to the semester by semester recommended plan of study is required.

Pedagogical Rationale/Justification

Critical Tracking / Universal Tracking is an important academic monitoring and feedback mechanism that provides students with assessment of timely progress toward completion of degree requirements. Semester 1 and Semester 2 are particularly important for helping students evaluate the suitability of
their declared major. For the aerospace engineering and mechanical engineering BS degree programs, the semester 1 and semester 2 critical tracking courses are CHM2045 Chemistry 1, CHM2046 Chemistry 2 (or other approved science elective), MAC2311 Analytical Geometry and Calculus 1, MAC2312 Analytical Geometry and Calculus 2, and PHY2048 Physics with Calculus 1. The effectiveness of these courses as predictors of success in engineering is shown in Table 1 which provides the correlation between course grade and upper division engineering GPA. The course EGM3520 is also included in Table 1 for comparison to show the standardized correlation for an upper division engineering course within the major (correlation coefficient of 0.267 for both female and male students with high level of significance). Surprisingly, MAC2311 and PHY2048 do not display good statistical significance for either male or female students. CHM2045, CHM2046, and MAC2312 are acceptable predictors for male students, but are statistically significant predictors for female students. Thus, the program currently does not have a critical tracking course that serves as a good predictor of success within the major for both female and male students. Evaluation of alternative courses revealed that the semester 2 course EML2023 Computer Aided Graphics and Design is a good predictor of success within the major for both female and male students. Further analysis has shown that many students delay taking the CHM2046 or other science elective options since they are not required as a prerequisite for other courses in the curriculum. However, students do not delay taking EML2023 since it is a prerequisite for other required courses in the major. In summary, the course EML2023 Computer Aided Graphics and Design is an outstanding candidate as a critical tracking courses since it is a good predictor of success in the major for both male and female students and is typically taken during the second semester by the majority of first time in college students.

Table 1: Predictive Value of Term 1 and 2 Critical Tracking Courses for Success in Upper Division Mechanical And Aerospace Engineering Courses

<table>
<thead>
<tr>
<th>Course Term</th>
<th>Gender</th>
<th>Standardized Correlation Coefficient</th>
<th>Significance</th>
<th>Good Predictor</th>
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<tbody>
<tr>
<td>CHM2045 Chemistry 1</td>
<td>1 F</td>
<td>0.139</td>
<td>0.018 &gt; 0.05</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>0.071</td>
<td>0.006</td>
<td>Yes</td>
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<tr>
<td>MAC2311 Analytical Geometry &amp; Calculus 1</td>
<td>1 F</td>
<td>0.150</td>
<td>0.010 &gt; 0.05</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>0.022</td>
<td>0.392 &gt; 0.05</td>
<td>No</td>
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<tr>
<td>MAC2312 Analytical Geometry &amp; Calculus 2</td>
<td>2 F</td>
<td>0.149</td>
<td>0.012 &gt; 0.05</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>0.119</td>
<td>0.000</td>
<td>Yes</td>
</tr>
<tr>
<td>PHY2048 Physics 1 with Calculus</td>
<td>2 F</td>
<td>0.123</td>
<td>0.068 &gt; 0.05</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>0.047</td>
<td>0.091 &gt; 0.05</td>
<td>No</td>
</tr>
<tr>
<td>CHM2046 Chemistry 2 (Science Elective)</td>
<td>2 F</td>
<td>0.065</td>
<td>0.101 &gt;0.05</td>
<td>No</td>
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<td></td>
<td>M</td>
<td>0.064</td>
<td>0.001</td>
<td>Yes</td>
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<tr>
<td>EML2023 Computer Aided Graphics &amp; Design</td>
<td>2 F</td>
<td>0.193</td>
<td>0.000</td>
<td>Yes</td>
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<td>0.000</td>
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<td>EGM3520 Mechanics of Materials (Provided for comparison – Not a Critical Tracking Course)</td>
<td>5 F</td>
<td>0.267</td>
<td>0.000</td>
<td>Yes</td>
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<td></td>
<td>M</td>
<td>0.267</td>
<td>0.000</td>
<td>Yes</td>
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</tbody>
</table>

The second aspect of this proposal is to raise the average Critical Tracking GPA based on best attempt from a 2.5 to a 2.8. Note that students are required to make a C or better on each critical tracking course and are allowed a maximum of two attempts. In addition to earning the C or better in each attempt, students currently are required to earn a 2.5 GPA average on the best of the attempts in
all Critical Tracking courses. The proposal is to raise the CT GPA average from a 2.5 to a 2.8. The
program has observed that students with higher CT GPA tend to have higher overall UF GPA at time
of graduation. The motivation to raise CT GPA is to promote higher average overall UF GPA at time
of graduation to a 3.0 (on average for all students). Feedback from students within the program,
gradiating seniors, recent graduates, the Career Connections Center, and the Department External
Advisory Board indicate that a 3.0 UF GPA is increasingly becoming a target UF GPA set by
engineering recruiters for new hires. Some employers will not even interview students with lower
GPAs. Additionally, students with a 3.0 or higher UF GPA have maximum opportunities for advanced
study. Multiple constituencies of the mechanical and aerospace engineering program have identified
the desirability of raising academic standards and the positive impact this will have on the
marketability and long term value of the degree for our students.

An analysis of graduating seniors in 2017 is shown in Figure 1. UF GPA at time of graduation is
plotted vs. Critical Tracking GPA (CT GPA). The dashed line is a linear curve fit to the data showing
that a target GPA of 3.0 at graduation corresponds to the proposed CT GPA of 2.8. Also notice in this
figure a few odd features. It is possible to have a CT GPA below 4.0 with a UF GPA of 4.0. This is due
to transfer students since the UF GPA is based only on courses taken at UF while CT GPA includes
courses taken at other schools. Also note that some students with a perfect CT GPA of 4.0 have lower
UF GPA at time of graduation. Various factors can cause a drop in performance as students move into
the upper division, including financial, family, injury, psychological, medical, and other issues.

Impact on Enrollment, Retention, Graduation

Students are currently advised by the Herbert Wertheim College of Engineering First Year Advising
Program the first two semesters. Students in good academic standing that meet relevant critical
tracking criteria then matriculate to their chosen major for advising at the end of two semesters.
Students who are “off track” are placed on UES-Probation where they are given additional counseling
and either resolve the academic difficulties or change majors to a more appropriate option. Currently
the HWCOE had 1416 first year students in summer 2018. With a 2.5 CT GPA requirement 13% (187)
were placed on UES Probation and not allowed to matriculate to their selected major at the start of the
Fall 2018 semester. Mechanical and Aerospace Engineering (MAE) portion of this student population is
approximately 345 entering the mechanical and aerospace engineering BS programs and 47
students in UES-Probation seeking admission to the ME or AE BS programs. Raising the CT GPA
from 2.5 to 2.8 would cause an additional 24 students not being allowed to matriculate into the ME or
AE BS programs. The percentage of students not meeting the CT GPA requirement would rise from
the current 13% to 20%. Students who don’t meet the CT GPA would be detected early in their
academic careers (during the first two semesters). Some would be able to fix their academic problems
and eventually compete the degree programs. Others would change to new majors. Since these
student would be detected early, they would have a large degree of flexibility in terms of identifying a
more suitable major and would still be able to graduate in a timely manner.

In summary, raising the CT GPA from a 2.5 to 2.8 for the aerospace engineering and mechanical
engineering BS degree programs would affect approximately 24 student each fall semester and a
much small number each spring semester (approximately 6 students in the spring term). For the
aerospace engineering program alone, this change would affect approximately 16 students each fall
semester and 3 students in the spring semester. The affected students we be at the end of their
second semester and eligible to change to other majors at UF.

The new Critical Tracking course (EML2023 Computer Aided Graphics and Design) is not available at
the majority of state colleges and the vast majority of transfer students with the AA degree would not
complete this course prior to transfer. For purposes of transfer admissions, the science elective would
continue to be used. Transfer students would complete EML2023 during their first semester (as is
currently done) and this would delay graduation for these students. The MAE program already accepts
as transfer credit any state college or university offerings of EML2023 or equivalent.

Initially the program speculated that CT GPA would have a strong influence on time to graduation.
However, analysis of several years of recent graduation data has shown only a weak, although
statistically significant, correlation between terms in school and CT GPA (R = -0.338, p= 1.1e-15). A
more detailed analysis is needed that accounts for the many factors including internships, double
majors, minors, participation in professional societies, traumatic events, illness, study abroad,
participation in 4/1 program, etc.
Assessment Data Review Please see attached document for better formatting

Program Goal 1: Prepare students to meet the expectations of employers of mechanical engineers. Anecdotal feedback from Career Resource Center (Career Connections Center) and Exit Interview with graduating students indicates desirability of 3.0 GPA at time of graduation in terms of maximizing opportunities for job placement and graduate study options.

Program Goal 4: Increase diversity of undergraduate student population

Graduation Data from UF Office of Institutional Planning and Research (ir.aa.ufl.edu/degrees-grades)
ME BS Degree

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<th></th>
<th>Female</th>
<th>Asian</th>
<th>Black or African American</th>
<th>Hispanic / Latino</th>
<th>Nonresident Alien</th>
<th>White</th>
<th>Unreported</th>
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<td>2015/16</td>
<td>45</td>
<td>18</td>
<td>5</td>
<td>52</td>
<td>3</td>
<td>14</td>
<td>16</td>
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<tr>
<td>(269 degrees)</td>
<td>(16.7%)</td>
<td>(6.7%)</td>
<td>(1.86%)</td>
<td>(19.3%)</td>
<td>(1.2%)</td>
<td>(5.2%)</td>
<td>(65.8%)</td>
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<td>2016/17</td>
<td>57</td>
<td>6</td>
<td>21</td>
<td>57</td>
<td>3</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>(293 degrees)</td>
<td>(19.5%)</td>
<td>(7.2%)</td>
<td>(2.0%)</td>
<td>(19.5%)</td>
<td>(1.0%)</td>
<td>(5.5%)</td>
<td>(64.8%)</td>
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</table>

Academic Learning Compact and Academic Assessment Plan No changes to the Academic Learning Compact requested
MECHANICAL ENGINEERING

MAJOR

Critical Tracking records each student’s progress in courses that are required for entry to each major. Please note the critical-tracking requirements below on a per-semester basis.

Equivalent critical-tracking courses as determined by the State of Florida Common Course Prerequisites may be used for transfer students.

SEMESTER 1

- Complete 1 of 8 tracking courses with a minimum grade of C within two attempts: CHM 2045 or CHM 2095, approved science elective EML2023, MAC 2311, MAC 2312, MAC 2313, MAP 2302, PHY 2048, PHY 2049
- 2.58 GPA required for all critical-tracking courses
- 2.0 UF GPA required

SEMESTER 2

- Complete 1 additional critical-tracking course with a minimum grade of C within two attempts
- 2.58 GPA required for all critical-tracking courses
- 2.0 UF GPA required

SEMESTER 3

- Complete 2 additional critical-tracking courses with minimum grades of C within two attempts
- 2.58 GPA required for all critical-tracking courses
- 2.0 UF GPA required
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<td>- Complete 2 additional critical-tracking courses with minimum grades of C within two attempts</td>
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<td>- 2.58 GPA required for all critical-tracking courses</td>
</tr>
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<td>- 2.0 UF GPA required</td>
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<th>SEMESTER 5</th>
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<tbody>
<tr>
<td>- Complete all 8 critical-tracking courses with minimum grades of C within two attempts</td>
</tr>
<tr>
<td>- 2.58 GPA required for all critical-tracking courses</td>
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<tr>
<td>- 2.0 UF GPA required</td>
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</table>
**Request:** Change Critical Tracking Criteria for Mechanical Engineering

**Description of Request:**

**Submitter:** Bruce Carroll  
* bfc@ufl.edu

**Major Name:** Mechanical Engineering (Bachelor of Science)

**Major Code:** ME

**Degree Program Name:** Mechanical Engineering

**Undergraduate Innovation Academy Program:** No

**Effective term and Year:** Fall 2019

**Current Curriculum for Major:**

A) Students must complete the following courses with a minimum grade of C within two attempts:

1. CHM2045 General Chemistry or CHM2095 Chemistry for Engineers 1
2. Approved Science Elective (AST3018, AST3019, BSC2010, CHM2046, CHM2096, or PHY3101)
3. MAC2311 Analytical Geometry and Calculus 1
4. MAC2312 Analytical Geometry and Calculus 2
5. MAC2313 Analytical Geometry and Calculus 3
6. MAP2302 Elementary Differential Equations
7. PHY2048 Physics with Calculus 1
8. PHY2049 Physics with Calculus 2

B) Students must maintain a minimum critical tracking GPA of 2.5 (based on best attempt in each tracking course)

**Proposed Curriculum Changes: (Changes in Bold and Underlined)**

The proposed curriculum change includes two parts. First is to replace the critical tracking course “science elective” with the course “EML2023 Computer Aided Graphics and Design”. Second is to raise the minimum Critical Tracking GPA from 2.5 to 2.8.

A) Students must complete the following courses with a minimum grade of C within two attempts:

1. CHM2045 General Chemistry or CHM2095 Chemistry for Engineers 1
2. **EML2023 Computer Aided Graphics and Design**
3. MAC2311 Analytical Geometry and Calculus 1
4. MAC2312 Analytical Geometry and Calculus 2
5. MAC2313 Analytical Geometry and Calculus 3
6. MAP2302 Elementary Differential Equations
7. PHY2048 Physics with Calculus 1
8. PHY2049 Physics with Calculus 2
B) Students must maintain a minimum critical tracking GPA of 2.8 (based on best attempt in each tracking course)

Note that both the science elective and the course EML2023 are currently required in the curriculum. This proposal simply exchanges the two as critical tracking courses. Thus, no changes to the semester by semester recommended plan of study is required.

Pedagogical Rationale / Justification:
(Describe the rationale for the proposed changes to the curriculum)

Critical Tracking / Universal Tracking is an important academic monitoring and feedback mechanism that provides students with assessment of timely progress toward completion of degree requirements. Semester 1 and Semester 2 are particularly important for helping students evaluate the suitability of their declared major. For the aerospace engineering and mechanical engineering BS degree programs, the semester 1 and semester 2 critical tracking courses are CHM2045 Chemistry 1, CHM2046 Chemistry 2 (or other approved science elective), MAC2311 Analytical Geometry and Calculus 1, MAC2312 Analytical Geometry and Calculus 2, and PHY2048 Physics with Calculus 1. The effectiveness of these courses as predictors of success in engineering is shown in Table 1 which provides the correlation between course grade and upper division engineering GPA. The course EGM3520 is also included in Table 1 for comparison to show the standardized correlation for an upper division engineering course within the major (correlation coefficient of 0.267 for both female and male students with high level of significance). Surprisingly, MAC2311 and PHY2048 do not display good statistical significance for either male or female students. CHM2045, CHM2046, and MAC2312 are acceptable predictors for male students, but are not statistically significant predictors for female students. Thus, the program currently does not have a critical tracking course that serves as a good predictor of success within the major for both female and male students. Evaluation of alternative courses revealed that the semester 2 course EML2023 Computer Aided Graphics and Design is a good predictor of success within the major for both female and male students.

Further analysis has shown that many students delay taking the CHM2046 or other science elective options since they are not required as a prerequisite for other courses in the curriculum. However, students do not delay taking EML2023 since it is a prerequisite for other required courses in the major. In summary, the course EML2023 Computer Aided Graphics and Design is an outstanding candidate as a critical tracking course since it is a good predictor of success in the major for both male and female students and is typically taken during the second semester by the majority of first time in college students.
<table>
<thead>
<tr>
<th>Course</th>
<th>Term</th>
<th>Gender</th>
<th>Standardized Correlation Coefficient</th>
<th>Significance</th>
<th>Good Predictor</th>
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<tr>
<td>CHM2045 Chemistry 1</td>
<td>1</td>
<td>F</td>
<td>0.139</td>
<td>0.018 &gt; 0.05</td>
<td>No</td>
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<td>M</td>
<td>0.071</td>
<td>0.006</td>
<td>Yes</td>
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<tr>
<td>MAC2311 Analytical Geometry &amp; Calculus 1</td>
<td>1</td>
<td>F</td>
<td>0.150</td>
<td>0.010 &gt; 0.05</td>
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<td>0.149</td>
<td>0.012 &gt; 0.05</td>
<td>No</td>
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<td></td>
<td>M</td>
<td>0.119</td>
<td>0.000</td>
<td>Yes</td>
</tr>
<tr>
<td>PHY2048 Physics 1 with Calculus</td>
<td>2</td>
<td>F</td>
<td>0.123</td>
<td>0.068 &gt; 0.05</td>
<td>No</td>
</tr>
<tr>
<td></td>
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<td>0.047</td>
<td>0.091 &gt; 0.05</td>
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<td>0.101 &gt;0.05</td>
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<td>0.064</td>
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<td>Yes</td>
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<td>EML2023 Computer Aided Graphics &amp; Design</td>
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<td>F</td>
<td>0.193</td>
<td>0.000</td>
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<td>0.148</td>
<td>0.000</td>
<td>Yes</td>
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<tr>
<td>EGM3520 Mechanics of Materials (Provided for comparison – Not a Critical Tracking Course)</td>
<td>5</td>
<td>F</td>
<td>0.267</td>
<td>0.000</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>0.267</td>
<td>0.000</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The second aspect of this proposal is to raise the average Critical Tracking GPA based on best attempt from a 2.5 to a 2.8. Note that students are required to make a C or better on each critical tracking course and are allowed a maximum of two attempts. In addition to earning the C or better in each attempt, students currently are required to earn a 2.5 GPA average on the best of the attempts in all Critical Tracking courses. The proposal is to raise the CT GPA average from a 2.5 to a 2.8. The program
has observed that students with higher CT GPA tend to have higher overall UF GPA at time of graduation. The motivation to raise CT GPA is to promote higher average overall UF GPA at time of graduation to a 3.0 (on average for all students). Feedback from students within the program, graduating seniors, recent graduates, the Career Connections Center, and the Department External Advisory Board indicate that a 3.0 UF GPA is increasingly becoming a target UF GPA set by engineering recruiters for new hires. Some employers will not even interview students with lower GPAs. Additionally, students with a 3.0 or higher UF GPA have maximum opportunities for advanced study. Multiple constituencies of the mechanical and aerospace engineering program have identified the desirability of raising academic standards and the positive impact this will have on the marketability and long term value of the degree for our students.

An analysis of graduating seniors in 2017 is shown in Figure 1. UF GPA at time of graduation is plotted vs. Critical Tracking GPA (CT GPA). The dashed line is a linear curve fit to the data showing that a target GPA of 3.0 at graduation corresponds to the proposed CT GPA of 2.8. Also notice in this figure a few odd features. It is possible to have a CT GPA below 4.0 with a UF GPA of 4.0. This is due to transfer students since the UF GPA is based only on courses taken at UF while CT GPA includes courses taken at other schools. Also note that some students with a perfect CT GPA of 4.0 have lower UF GPA at time of graduation. Various factors can cause a drop in performance as students move into the upper division, including financial, family, injury, psychological, medical, and other issues.
Impact on Enrollment, Retention, Graduation:
(Describe any potential impact on students who are currently in the major)

Students are currently advised by the Herbert Wertheim College of Engineering First Year Advising Program the first two semesters. Students in good academic standing that meet relevant critical tracking criteria then matriculate to their chosen major for advising at the end of two semesters. Students who are “off track” are placed on UES-Probation where they are given additional counseling and either resolve the academic difficulties or change majors to a more appropriate option. Currently the HWCOE had 1416 first year students in summer 2018. With a 2.5 CT GPA requirement 13% (187) were placed on UES-Probation and not allowed to matriculate to their selected major at the start of the Fall 2018 semester. Mechanical and Aerospace Engineering (MAE) portion of this student population is approximately 345 entering the mechanical and aerospace engineering BS programs and 47 students in UES-Probation seeking admission to the ME or AE BS programs. Raising the CT GPA from 2.5 to 2.8 would cause an additional 24 students not being allowed to matriculate into the ME or AE BS programs. The percentage of students not meeting the CT GPA requirement would rise from the current 13% to 20%. Students who don’t meet the CT GPA would be detected early in their academic careers (during the first two semesters). Some would be able to fix their academic problems and eventually compete the degree programs. Others would change to new majors. Since these student would be detected
early, they would have a large degree of flexibility in terms of identifying a more suitable major and would still be able to graduate in a timely manner.

In summary, raising the CT GPA from a 2.5 to 2.8 for the aerospace engineering and mechanical engineering BS degree programs would affect approximately 24 student each fall semester and a much small number each spring semester. The affected students we be at the end of their second semester and eligible to change to other majors at UF.

The new Critical Tracking course (EML2023 Computer Aided Graphics and Design) is not available at the majority of state colleges and the vast majority of transfer students with the AA degree would not complete this course prior to transfer. For purposes of transfer admissions, the science elective would continue to be used. Transfer students would complete EML2023 during their first semester at UF (as is currently done) and this would not delay graduation for these students. The MAE program already accepts as transfer credit any state college or university offerings of EML2023 or equivalent.

Initially the program speculated that CT GPA would have a strong influence on time to graduation. However, analysis of several years of recent graduation data has shown only a weak, although statistically significant, correlation between terms in school and CT GPA (R = -0.338, p= 1.1e-15). A more detailed analysis is needed that accounts for the many factors including internships, double majors, minors, participation in professional societies, traumatic events, illness, study abroad, participation in 4/1 program, etc.
Assessment Data Review:
(Describe Student Learning Outcome and/or Program Goal Data that was reviewed to support the proposed changes.)

Program Goal 1: Prepare students to meet the expectations of employers of mechanical engineers.
Anecdotal feedback from Career Resource Center (Career Connections Center) and Exit Interview with graduating students indicates desirability of 3.0 GPA at time of graduation in terms of maximizing opportunities for job placement and graduate study options.

Program Goal 4: Increase diversity of undergraduate student population
Graduation Data from UF Office of Institutional Planning and Research (ir.aa.ufl.edu/degrees-grades) ME BS Degree

<table>
<thead>
<tr>
<th></th>
<th>Female</th>
<th>Asian</th>
<th>Black or African American</th>
<th>Hispanic / Latino</th>
<th>Nonresident Alien</th>
<th>White</th>
<th>Unreported</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015/16 (269 degrees)</td>
<td>45 (16.7%)</td>
<td>18 (6.7%)</td>
<td>5 (1.86%)</td>
<td>52 (19.3%)</td>
<td>3 (1.2%)</td>
<td>177 (65.8%)</td>
<td>14 (5.2%)</td>
</tr>
<tr>
<td>2016/17 (293 degrees)</td>
<td>57 (19.5%)</td>
<td>21 (7.2%)</td>
<td>6 (2.0%)</td>
<td>57 (19.5%)</td>
<td>3 (1.0%)</td>
<td>190 (64.8%)</td>
<td>16 (5.5%)</td>
</tr>
</tbody>
</table>

Academic Learning Compact and Academic Assessment Plan:
(Describe the modifications to the Academic Learning Compact (for the undergraduate programs) and the Academic Assessment Plan that result from the proposed change)

No changes to the Academic Learning Compact requested