

Cover Sheet: Request 15688

Modification to Mechanical Engineering BS Program

Info

Process	Major Curriculum Modify Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Bruce Carroll bfc@ufl.edu
Created	1/14/2021 12:06:18 PM
Updated	3/8/2021 1:20:30 PM
Description of request	<p>Changes to BS Mechanical Engineering program: 1) replace "Gen Ed Composition" with "ENC1101 or ENC1102", 2) change language in catalog to use "pre-professional critical-tracking" to designate the eight courses CHM2045 or CHM2095, MAC2311, EML2023, MAC2312, PHY2048, MAC2313, PHY2049, and MAP2302, and 3) change critical tracking requirements to complete 2 tracking courses in semester one and 2 more tracking courses in semester 2.</p> <p>The change of required number of tracking courses in semesters one and two from 1 per semester to 2 per semester is necessary to better align the critical tracking requirements with the model semester plan. If students only complete the current minimum number of critical tracking courses they will not be able to remain on track in following semesters due to inherently long pre-requisite chains for follow on courses. There is no anticipated impact on enrollment or retention. A small decrease in time to graduation may result due to improvements in first year advising processes that will result from these changes.</p>

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	ENG - Mechanical & Aerospace Engineering	Bruce Carroll		1/14/2021
No document changes					
College	Approved	ENG - College of Engineering	Heidi Dublin	Approved by the HWCOE Curriculum Committee and Faculty Council.	2/12/2021
Mechanical Engineering - Discusion - rev 1.docx					1/22/2021
Mechanical Engineering - Model Semester Plan - rev 1.docx					1/22/2021
Associate Provost for Undergraduate Affairs	Approved	PV - APUG Review	Casey Griffith		2/17/2021
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			2/17/2021
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					

Step	Status	Group	User	Comment	Updated
Academic Assessment Committee Notified					
No document changes					
College Notified					
No document changes					

Major|Modify_Curriculum for request 15688

Info

Request: Modification to Mechanical Engineering BS Program

Description of request: Changes to BS Mechanical Engineering program: 1) replace "Gen Ed Composition" with "ENC1101 or ENC1102", 2) change language in catalog to use "pre-professional critical-tracking" to designate the eight courses CHM2045 or CHM2095, MAC2311, EML2023, MAC2312, PHY2048, MAC2313, PHY2049, and MAP2302, and 3) change critical tracking requirements to complete 2 tracking courses in semester one and 2 more tracking courses in semester 2.

The change of required number of tracking courses in semesters one and two from 1 per semester to 2 per semester is necessary to better align the critical tracking requirements with the model semester plan. If students only complete the current minimum number of critical tracking courses they will not be able to remain on track in following semesters due to inherently long pre-requisite chains for follow on courses. There is no anticipated impact on enrollment or retention. A small decrease in time to graduation may result due to improvements in first year advising processes that will result from these changes.

Submitter: Bruce Carroll bfc@ufl.edu

Created: 2/12/2021 10:25:07 AM

Form version: 3

Responses

Major Name

Enter the name of the major. Example: "Mathematical Modeling"

Response:
mechanical engineering

Major Code

Enter the two-letter or three-letter major code.

Response:
ME

Degree Program Name

Enter the name of the degree program in which the major is offered.

Response:
mechanical engineering

Undergraduate Innovation Academy Program

Is this an undergraduate program in the Innovation Academy?

Response:
No

Effective Term

Enter the term (semester and year) that the curriculum change would be effective.

Response:
Earliest Available

Effective Year

Response:
Earliest Available

Current Curriculum for Major

Response:
In semester one of the model semester plan, 3 credits of Gen Ed Composition are required. There is also confusing language used in the catalog that does not make a distinction between the eight critical-tracking courses, taken during the first five semesters, that require a minimum of C or better within two attempts and 2.8 GPA, and other critical-tracking courses designated within the curriculum which do not require the C or better within two attempts and 2.8 GPA. The critical-tracking requirements only require completion of 1 tracking course in semester one and 1 additional tracking course in semester two.

Proposed Curriculum Changes

Describe the proposed changes to the curriculum. If the change is to offer the program through UF Online, please explain and attach a letter of support from the Director of UF Online.

Response:
Propose to change "Gen Ed Composition (3 credits)" to "ENC1101 or ENC1102 (3 Credits)."
Propose designating the eight critical-tracking courses that require minimum of C or better within two attempts and 2.8 GPA (i.e. CHM2045 or CHM2095, EML2023, MAC2311, MAC2312, MAC2323, MAP2302, PHY2048, and PHY2049) as "pre-professional critical-tracking" courses.
Propose changing critical-tracking requirements to require 2 tracking courses in semester one and 2 additional tracking courses in semester two. Change one Gen Ed Social and Behavioral Science to a Quest 2 (Social and Behavioral Science) and move this course to semester 3 of the model semester plan.

UF Online Curriculum Change

Will this curriculum change be applied to a UF online program as well?

Response:
No

Pedagogical Rationale/Justification

Describe the rationale for the proposed changes to the curriculum.

Response:
Change from "Gen Ed Composition" to "ENC1101 or ENC1102" is to better align this requirement with ENC3246 Professional Communication for Engineers which is required in Semester Two of the degree program model semester plan. The change to use the term "pre-professional critical-tracking" to designate the eight tracking courses CHM2045 or CHM2095, EML2023, MAC2311, MAC2312, MAC2323, MAP2302, PHY2048, and PHY2049 is needed to remove ambiguity in the catalog. This ambiguity was introduced in the 2020/2021 UG catalog when the term "critical tracking" was applied in the model semester plan to a large number of higher level courses required in the degree program. The change of required number of tracking courses in semesters

one and two from 1 per semester to 2 per semester is necessary to better align the critical tracking requirements with the model semester plan. If students only complete the current minimum number of critical tracking courses they will not be able to remain on track in following semesters due to inherently long pre-requisite chains for follow on courses.

Impact on Enrollment, Retention, Graduation

Describe any potential impact of the curriculum changes on students who are currently in the major.

Response:

There is no anticipated impact on enrollment or retention. A small decrease in time to graduation may result due to improvements in first year advising processes that will result from these changes.

Assessment Data Review

Describe the Student Learning Outcome and/or program goal data that was reviewed to support the proposed changes.

Response:

These changes were based on feedback from the freshman advising program and resulted from common misconceptions and confusion among first semester students.

Academic Learning Compact and Academic Assessment Plan

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

Response:

No modifications to the Academic Learning Compact or Academic Assessment Plan are necessary or proposed.

Catalog Copy

Submitter agrees to prepare and upload document showing the catalog copy with the current and proposed curricula edited using the "track changes" feature in Word.

Response:

Yes

Mechanical Engineering Critical Tracking Tab

Critical Tracking records each student's progress in courses that are required for progress toward 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 4-2 of 8 [pre-professional](#) critical-tracking courses with a minimum grade of C within two attempts: [CHM 2045](#) or [CHM 2095](#), [EML 2023](#), [MAC 2311](#), [MAC 2312](#), [MAC 2313](#), [MAP 2302](#), [PHY 2048](#), [PHY 2049](#)
- 2.8 GPA required for all [pre-professional](#) critical-tracking courses
- 2.0 UF GPA required

SEMESTER 2

- Complete 4-2 additional [pre-professional](#) critical-tracking course with a minimum grade of C within two attempts
- 2.8 GPA required for all [pre-professional](#) critical-tracking courses
- 2.0 UF GPA required

SEMESTER 3

- Complete 2 additional [pre-professional](#) critical-tracking courses with minimum grades of C within two attempts
- Complete [EGM 2511](#) with minimum grade of C
- 2.8 GPA required for [pre-professional](#) all critical-tracking courses
- 2.0 UF GPA required

SEMESTER 4

- ~~Complete 2 additional critical-tracking courses with minimum grades of C within two attempts~~ Complete all [pre-professional critical-tracking courses with minimum grades of C in each course within two attempts](#)
- Complete [EGM 3344](#), [EGM 3520](#), and [EML 3100](#) with minimum grades of C
- 2.8 GPA required for all [pre-professional](#) critical-tracking courses
- 2.0 UF GPA required

SEMESTER 5

- ~~• Complete all critical-tracking courses with minimum grades of C in each course within two attempts~~
- Complete EGM 3401 with minimum grade of C
- Complete EGN 3353C
- ~~• 2.8 GPA required for all critical-tracking courses~~
- ~~• 2.0 UF GPA required~~

SEMESTER 6

- Complete 4 of the remaining EML 3XXX/4XXX required courses

SEMESTER 7

- Complete 3 of the remaining EML 3XXX/4XXX required courses

SEMESTER 8

- Complete all remaining EML 3XXX/4XXX required courses

Mechanical Engineering Bachelor of Science

Discussion of Proposed Changes

1) Model Semester Plan Semester One

Change “Gen Ed Composition 3 credits” to “ENC1101 or ENC1102 3 credits.”

This change is requested to align this requirement with the prerequisites for the follow-on required course ENC3246 Professional Communication for Engineers which allows either ENC1101 or ENC1102 as prereq. The reason the requirement is listed as “ENC1101 or ENC1102” is to accommodate the incoming student English Composition Placement process (see <https://catalog.ufl.edu/UGRD/academic-advising/placement/>) which instructs students with 640 (or lower) verbal portion of SAT and/or a 28 (or lower) on the verbal portion ACT to enroll in ENC1101 while student with corresponding scores higher than 640 and/or 28 on the SAT and ACT, respectively, take ENC1102.

2) Model Semester Plan Semesters One Thru Five

Change “**Critical Tracking**” to “**Pre-Professional Critical Tracking**” for the eight courses CHM2045 or CHM2095, MAC2311, EML2023, MAC2312, PHY2048, MAC2313, PHY2049, and MAP2302

This change is requested to make a clear distinction between the eight critical courses in the model semester plan that must be completed within the first five semesters with specific grade and gpa requirements (designated “Pre-Professional Critical Tracking”) and the remaining critical-tracking courses that span the entire degree program (designated “Critical Tracking”).

The grade and gpa requirements for the pre-professional critical-tracking courses are listed under the critical tracking tab. They are a minimum grade of C within two attempts and 2.8 GPA.

3) Critical Tracking Tab

Change language to use term “pre-professional critical-tracking” to designate the eight courses CHM2045 or CHM2095, MAC2311, EML2023, MAC2312, PHY2048, MAC2313, PHY2049, and MAP2302

4) Critical Tracking Tab

Change number of pre-professional critical-tracking courses to be completed during semester 1 and 2 from 1 each semester to 2 each semester. This gives better agreement with the model semester plan while still allowing some flexibility for students to change majors or coming from non-traditional tracks. Giving students accurate guidance on the pre-professional critical-tracking goals is necessary to encourage timely completion of the degree program.

5) Model Semester Plan Semesters Three and Five

Move "State Core Gen Ed Social and Behavioral Sciences" From semester three to semester five

Move "Gen Ed Social and Behavioral Sciences" from semester five to three

Change "Gen Ed Social and Behavioral Sciences" to "Quest 2 (Gen Ed Social and Behavioral Sciences)"

Mechanical Engineering Model Semester Plan

To remain on track, students must complete the appropriate critical-tracking courses, which appear in bold. These courses must be completed by the terms as listed above in the Critical Tracking criteria.

This semester plan represents an example progression through the major. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

SEMESTER ONE		CREDITS
Select one:		3
<u>CHM 2045</u>	General Chemistry 1 (Pre-Professional Critical Tracking ; Gen Ed Physical Sciences)	
<u>CHM 2095</u>	Chemistry for Engineers 1 (Pre-Professional Critical Tracking ; Gen Ed Physical Sciences)	
<u>CHM 2045L</u>	General Chemistry 1 Laboratory (Gen Ed Physical Sciences)	1
<u>EML 2920</u>	Department and Professional Orientation (Critical Tracking)	1
<u>MAC 2311</u>	Analytic Geometry and Calculus 1 (Critical Tracking ; State Core Gen Ed Mathematics)	4
Quest 1 (Gen Ed Humanities)		3
Gen Ed Composition <u>ENC1101</u> or <u>ENC1102</u>	Writing Requirement: 6,000 words (ACT/SAT placement scores do not exempt this requirement)	3
Credits		15
SEMESTER TWO		
<u>EML 2023</u>	Computer Aided Graphics and Design (Pre-Professional Critical Tracking)	3

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<u>ENC 3246</u>	Professional Communication for Engineers (<u>State Core Gen Ed Composition</u> ; Writing Requirement: 6,000 words)	3
<u>MAC 2312</u>	Analytic Geometry and Calculus 2 (<u>Pre-Professional Critical Tracking</u> ; Gen Ed Mathematics)	4
<u>PHY 2048</u>	Physics with Calculus 1 (<u>Pre-Professional Critical Tracking</u> ; State Core Gen Ed Biological and Physical Sciences)	3
<u>PHY 2048L</u>	Laboratory for Physics with Calculus 1 (Gen Ed Physical Sciences)	1
	Science elective	3
	Credits	17
SEMESTER THREE		
<u>COP 2271</u>	Computer Programming for Engineers (take the matlab section)	2
<u>EGM 2511</u>	Engineering Mechanics: Statics (<u>Pre-Professional Critical Tracking</u>) ¹	3
<u>EML 2322L</u>	Design and Manufacturing Laboratory (<u>Critical Tracking</u>)	2
<u>MAC 2313</u>	Analytic Geometry and Calculus 3 (<u>Pre-Professional Critical Tracking</u> ; Gen Ed Mathematics)	4
<u>PHY 2049</u>	Physics with Calculus 2 (<u>Pre-Professional Critical Tracking</u> ; Gen Ed Biological Sciences and Physical Sciences)	3
<u>PHY 2049L</u>	Laboratory for Physics with Calculus 2 (Gen Ed Physical Sciences)	1
	<u>Quest 2 (Gen Ed Social and Behavioral Sciences)</u> ²	<u>3</u>
	<u>State Core Gen Ed Social and Behavioral Sciences</u> ³	<u>3</u>

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Credits		18
SEMESTER FOUR		
EGM 3344	Introduction to Numerical Methods of Engineering Analysis (Critical Tracking) ¹	3
EGM 3520	Mechanics of Materials (Critical Tracking) ¹	3
EMA 3010	Materials	3
EML 3100	Thermodynamics (Critical Tracking) ¹	3
MAP 2302	Elementary Differential Equations (<u>Pre-Professional</u> Critical Tracking)	3
State Core Gen Ed Humanities ²		3
Credits		18
SEMESTER FIVE		
EEL 3003	Elements of Electrical Engineering ³	3
EGM 3401	Engineering Mechanics: Dynamics (Critical Tracking) ¹	3
EGN 3353C	Fluid Mechanics (Critical Tracking)	3
EML 3301C	Mechanics of Materials Laboratory (Writing Requirement: 6,000 words)	3
State Core Gen Ed Social and Behavioral Sciences ²		<u>3</u>
Gen Ed Social and Behavioral Sciences ²		3
Credits		15

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SEMESTER SIX		
EML 3005	Mechanical Engineering Design 1 (Critical Tracking)	3
EML 4140	Heat Transfer (Critical Tracking)	3
EML 4220	Vibrations (Critical Tracking)	3
EML 4312	Control of Mechanical Engineering Systems (Critical Tracking)	3
Select one:		3
Gen Ed Humanities; Writing Requirement: 6,000 words ²		
Gen Ed Social and Behavioral Sciences; Writing Requirement: 6,000 words ²		
Credits		15
SEMESTER SEVEN		
EML 4147C	Thermal Sciences Design and Laboratory (Critical Tracking)	3
Select one:		3
EML 4501	Mechanical Engineering Design 2 (Critical Tracking)	
EAS 4700	Aerospace Design 1	
EAS 4710	Aerospace Design 2 (can substitute if dual ME/ASE student)	
EML 4507	Finite Element Analysis and Design (Critical Tracking)	3
Technical electives		6

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Credits	15
SEMESTER EIGHT	
EML 4314C Dynamics and Controls System Design Laboratory (Critical Tracking)	3
EML 4321 Manufacturing Engineering (Critical Tracking)	3
EML 4502 Mechanical Engineering Design 3 (Critical Tracking)	3
Specialization elective	3
Technical elective	3
Credits	15
Total Credits	128
Plan of Study Grid	

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- ¹ Minimum grade of C required.
- ² Students are also expected to complete the general education international (GE-N) and diversity (GE- D) requirements. This is often done concurrently with another general education requirement (typically, GE-C, H or S).
- ³ Can substitute [EEL 3111C](#).

APPROVED ELECTIVES

Science Elective

Critical Tracking | Select One

Code	Title	Credits
<u>AST 3018</u>	Astronomy and Astrophysics 1	3
<u>AST 3019</u>	<u>Astronomy and Astrophysics 2</u>	<u>3</u>
<u>BSC 2010</u>	Integrated Principles of Biology 1	3
<u>CHM 2046</u>	General Chemistry 2	3
<u>CHM 2096</u>	Chemistry for Engineers 2	3
<u>PHY 3101</u>	Introduction to Modern Physics	3
Course List		