

Cover Sheet: Request 15687

Modification to Aerospace 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 10:48:23 AM
Updated	3/8/2021 1:27:04 PM
Description of request	<p>Minor changes to BS Aerospace 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.	2/11/2021
Aerospace Engineering - Discussion - rev 2.docx					1/22/2021
Aerospace 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 15687

Info

Request: Modification to Aerospace Engineering BS Program

Description of request: Minor changes to BS Aerospace 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: 1/22/2021 12:30:14 PM

Form version: 3

Responses

Major Name

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

Response:
aerospace engineering

Major Code

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

Response:
ASE

Degree Program Name

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

Response:
aerospace 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. Move EAS4810C Aerospace Sciences Lab and Design from semester six to semester seven and move 3 credits of approved aerospace electives from semester seven to semester six. Adjust model semester plan to locate Quest 2 Social & Behavioral Science course in semester 4.

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. Swapping semesters of EAS4810C Aerospace Sciences Lab and Design with 3 Credits of approved aerospace electives accommodates a recent change in prerequisite for EAS4810C.

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

Aerospace 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 ~~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 ~~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
- [EGM 2511](#) with minimum grade of C
- [EAS 2011](#)
- 2.8 GPA required for all pre-professional critical-tracking courses
- 2.0 UF GPA required

SEMESTER 4

- Complete all pre-professional critical-tracking courses with minimum grades of C within two attempts
- ~~Complete 2 additional critical tracking courses with minimum grades of C within two attempts~~
- [EGM 3344](#) with minimum grade of C
- [EGM 3520](#) with minimum grade of C
- [EML 3100](#) with minimum grade 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 within two attempts~~
- [EGM 3401](#) with minimum grade of C
- [EAS 4101](#)
- ~~2.8 GPA required for all critical tracking courses~~
- ~~2.0 UF GPA required~~

SEMESTER 6

- Complete three of the remaining EAS 3XXX/4XXX required courses

SEMESTER 7

- Complete two of the remaining EAS 3XXX/4XXX required courses

SEMESTER 8

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

Aerospace 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 Six and Seven

Move "EAS4810C Aerospace Sciences Lab and Design" from semester six to semester seven and move 3 credits of "Approved Aerospace electives" from semester seven to semester six.

This change accommodates a recent change in prerequisite for EAS4810C Aerospace Sciences Lab and Design which added EAS4132 Compressible Flow as a prereqs.

6) Model Semester Plan Semesters Four, Five and Eight

Move "EMA 3010 Materials" From Semester Four to Semester Five

Move "State Core Gen Ed Social and Behavioral Sciences" from Semester Five to Semester Eight

Move "Gen Ed Social & Behavioral Science" From Semester Eight to Semester Four

Change "Gen Ed Social & Behavioral Science" to "Quest 2 (Gen Ed Social & Behavioral Science)"

This three way swap of courses allows the location of a Quest 2 Gen Ed Social & Behavioral Science course in semester four of the model semester plan.

Aerospace 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
CHM 2045	General Chemistry 1 (Pre-Professional Critical Tracking ; Gen Ed Physical Sciences)	3
or CHM 2095	or Chemistry for Engineers 1	
CHM 2045L	General Chemistry 1 Laboratory (Gen Ed Physical Sciences)	1
EML 2920	Department and Professional Orientation	1
MAC 2311	Analytic Geometry and Calculus 1 (Pre-Professional Critical Tracking ; State Core Gen Ed Mathematics)	4
	Quest 1 (Gen Ed Humanities)	3
	Gen Ed Composition ENC1101 or ENC1102 ; Writing Requirement: 6,000 words ^{1,2}	3
	Credits	15
SEMESTER TWO		

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EML 2023	Computer Aided Graphics and Design (Pre-Professional Critical Tracking)	3
ENC 3246	Professional Communication for Engineers (State Core Gen Ed Composition ; Writing Requirement: 6,000 words)	3
MAC 2312	Analytic Geometry and Calculus 2 (Pre-Professional Critical Tracking ; Gen Ed Mathematics)	4
PHY 2048	Physics with Calculus 1 (Pre-Professional Critical Tracking ; State Core Gen Ed Physical Sciences)	3
PHY 2048L	Laboratory for Physics with Calculus 1 (Gen Ed Physical Sciences)	1
Approved Science elective		3
Credits		17
SEMESTER THREE		
COP 2271	Computer Programming for Engineers (take the matlab section)	2
EAS 2011	Introduction to Aerospace Engineering (Critical Tracking)	3
EGM 2511	Engineering Mechanics: Statics (Critical Tracking) ³	3
MAC 2313	Analytic Geometry and Calculus 3 (Pre-Professional Critical Tracking ; Gen Ed Mathematics)	4

PHY 2049	Physics with Calculus 2 (<u>Pre-Professional Critical Tracking</u> ; Gen Ed Biological and Physical Sciences)	3
PHY 2049L	Laboratory for Physics with Calculus 2	1
Credits		16
SEMESTER FOUR		
EGM 3344	Introduction to Numerical Methods of Engineering Analysis (Critical Tracking) ³	3
EGM 3520	Mechanics of Materials (Critical Tracking) ³	3
EMA 3010	Materials	3
EML 2322L	Design and Manufacturing Laboratory	2
EML 3100	Thermodynamics (Critical Tracking) ³	3
MAP 2302	Elementary Differential Equations (<u>Pre-Professional Critical Tracking</u>)	3
Quest 2 (Gen Ed Social & Behavioral Science)		3
Credits		17
SEMESTER FIVE		

EAS 4101	Aerodynamics (Critical Tracking)	3
EEL 3003	Elements of Electrical Engineering ⁴	3
EGM 3401	Engineering Mechanics: Dynamics (Critical Tracking) ³	3
EMA 3010	Materials	3
MAP 4305	Differential Equations for Engineers and Physical Scientists	3
EML 3301C	Mechanics of Materials Laboratory (Writing Requirement: 6,000 words)	3
State Core Gen Ed Social and Behavioral Sciences ⁴		3
Credits		18
SEMESTER SIX		
EAS 4132	Compressible Flow (Critical Tracking)	3
EAS 4510	Astrodynamics (Critical Tracking)	3
EAS 4810C	Aerospace Sciences Lab and Design (Critical Tracking)	3
EML 4312	Control of Mechanical Engineering Systems	3

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Select one:		3
Gen Ed Humanities; Writing Requirement: 6,000 words ¹		
Gen Ed Social and Behavioral Sciences; Writing Requirement: 6,000 words ¹		
Approved Aerospace electives		<u>3</u>
Credits		15
SEMESTER SEVEN		
EAS 4200	Aerospace Structures (Critical Tracking)	3
EAS 4400	Stability and Control of Aircraft (Critical Tracking)	3
EAS 4810C	Aerospace Sciences Lab and Design (Critical Tracking)	<u>3</u>
State Core Gen Ed Humanities ¹		3
Approved Aerospace electives		6 3
Credits		15
SEMESTER EIGHT		

EAS 4300	Aerospace Propulsion (Critical Tracking)	3
EAS 4700 or EAS 4710	Aerospace Design 1 (Critical Tracking) or Aerospace Design 2	3
Gen Ed Social and Behavioral Sciences		3
State Core Gen Ed Social and Behavioral Sciences ¹		3
Approved Technical electives		6
Credits		15
Total Credits		128

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Plan of Study Grid

¹ Students are also expected to complete the Gen Ed International and Gen Ed Diversity requirements. This is often done concurrently with another general education requirement (typically, Gen Ed Composition, Gen Ed Humanities or Gen Ed Social and Behavioral Sciences).

² ACT/SAT placement scores do not exempt this requirement.

³ Minimum grade of C required.

⁴ Can substitute [EEL 3111C](#).

APPROVED ELECTIVES

Science Elective | Select One

Critical Tracking

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

Course List

Aerospace Electives | Select Two

Code	Title	Credits
EAS 4240	Aerospace Composites	3

Code	Title	Credits
EAS 4412	Dynamics and Control of Space Vehicles	3
EML 4140	Heat Transfer	3
EML 4220	Vibrations	3
EML 4507	Finite Element Analysis and Design	3
Any graduate-level course taught by the MAE department		3
Course List		