Aerospace Engineering (14AEBS)

Freshman Year

Fall Semester			*Credits*	*Spring Semester*			*Credits*
CH	101	Chemistry, A Molecular Science[1]	3	CSC	113	Intro Comp MATLAB	3
CH	102	General Chemistry Lab[1]	1	GC	120	Foundations of Graphics	3
E	101	Introduction to Engr & Prob Solv[1,2]	1	MA	241	Calculus II[1]	4
E	115	Intro to Computing Environ[1,2]	1	PY	205	Physics for Engr & Sc I[1]	3
ENG	101	Academic Writing and Research[1,2]	4	PY	206	Physics for Engr & Sc I[1] Lab	1
MA	141	Calculus I[1]	4	HES	***	Health & Exercise Studies	1
EC	205	Economics (or EC 201 or ARE 201)*	3	E	102	Engineering in the 21st Cent	2
HESF	10*	Fitness & Wellness	1				
		Semester Total	18			Semester Total	17

Sophomore Year

Fall Semester			*Credits*	*Spring Semester*			*Credits*
MA	242	Calculus III	4	MA	341	Applied Differential Eq	3
MAE	206	Engineering Statics[2,3]	3	MAE	208	Engineering Dynamics[2,3]	3
MAE	250	Introduction to Aerospace Engineering	1	MAE	214	Solid Mechanics[2,3]	3
MAE	251	Aero Vehicle Perf[2]	3	MAE	252	Aerodynamics I[2]	3
PY	208	Physics for Engr & Sc II	3	MAE	253	Experimental Aerodynamics I	1
PY	209	Physics for Engr & Sc II Lab	1	***	***	GEP Requirement*	3
		Semester Total	15			Semester Total	16

Junior Year

Fall Semester			*Credits*	*Spring Semester*			*Credits*
MAE	201	Thermal-Fluid Sciences[2]	3	MAE	351	Aerodynamics II	3
MAE	315	Fundamentals of Vibrations	3	MAE	352	Experimental Aerodynamics II	1
MAE	371	Aero Struc I	3	***	***	Math Elective[7]	3
MAE	372	Aero Vehicle Struc Lab	1	***	***	GEP Requirement*	3
		English Elective[4]	3	MAE	***	Flight/Space Elective[6]	3
***	***	Ethics (GEP Requirement*)[5]	3	MAE	***	Structures Elective[6]	3
		Semester Total	16			Semester Total	16

Senior Year

Fall Semester			*Credits*	*Spring Semester*			*Credits*
MAE	405	Controls Lab	1	MAE	481	Aero Vehicle Design II	3
MAE	435	Princ of Automatic Controls	3	***	***	GEP Requirement*	3
MAE	451	Experimental Aerodynamics III	1	***	***	GEP Requirement*	3
MAE	480	Aero Vehicle Design I	3	MAE	***	Flight/Space Elective[6]	3
MAE	***	Propulsion Elective[6]	3	MAE	***	Technical Elective[6]	3
MAE	***	Technical Elective[6]	3				
		Semester Total	14			Semester Total	15
						Minimum Total Credit Hours Required for Graduation	127

Major/Program requirements and footnotes:

[1]Courses required for Change of Degree Audit (CODA): CH 101, 102; MA 141, 241; PY 205, 206 must be completed with C or higher.

[2]Minimum grade of C-, E 115 requires satisfactory completion (S).

[3] Students must have a 2.5 GPA to enroll in this course.

[4]ENG 331 Comm Engr & Technology or other approved course.

[5] Select from EED 414, IDS 201, MS 402 (ROTC only), NS 420 (ROTC only), STS 302, STS 304, PHI 214, PHI 227, PHI/STS 325 or PHI 375

[6] **Flight/Space** (6 credit hours) MAE 457 Flight Stability & Control and MAE 467 Intro to Space Flight; **Structures** (3 credit hours) Select either MAE 472 Aero Structures II or MAE 430 Applied Finite Element; **Propulsion** (3 credit hours) Select either MAE 458 Propulsion or MAE 459 Rocket Propulsion; **Open** (6 credit hours) Select from approved lists: https://www.mae.ncsu.edu/academics/undergraduate-programs/electives/

[7]Math Elective (3 credit hours) Select either MA 305, MA 405, ST 312, ST 370, ST 371, ST 372 or other approved course.

***General Education Program (GEP) requirements and GEP Footnotes:**

To complete the requirements for graduation and the General Education Program, the following category credit hours and co-requisites must be satisfied.

University approved GEP course lists for each of the following categories can be found at http://oucc.ncsu.edu/gep-courses.

Humanities (6 credit hours selected from two different disciplines/course prefixes)

Choose from the University approved GEP Humanities course list .

Social Sciences (6 credit hours selected from two different disciplines/course prefixes)

Choose 3 credits from the University approved GEP Social Sciences course list in a discipline other than Economics.

Economics 205 (or EC 201 or ARE 201), taken as part of the Major requirements, satisfies 3 credit hours needed to fulfill the GEP Social Sciences requirement.

Health and Exercise Studies (2 credit hours – must include one HESF 100-level course and one additional HES course)

Choose from the University approved GEP Health and Exercise Studies course list.

USDEI - (3 credit hours to be selected from the following University approved GEP course lists)

Choose from the University approved GEP USDEI course list

Interdisciplinary Perspectives (5-6 credit hours)

Choose from the University approved GEP Interdisciplinary Perspectives course list.

The following **Co-Requisites** must be satisfied to complete the General Education Program requirements:

I. **Global Knowledge** (GK)
Choose from the University approved GEP Global Knowledge course list or choose a course identified on the approved GEP course lists as meeting the Global Knowledge (GK) co-requisite.

J. **Foreign Language proficiency** - Proficiency at the FL_102 level is required for graduation.