

Havelock Engineering Program
Degree: Bachelor of Science in Engineering
Concentration: Mechanical Engineering Systems – Fall 2024

FRESHMAN YEAR

<u>Fall Semester</u>	<u>Credits</u>	<u>Spring Semester</u>	<u>Credits</u>
CH 101 Chemistry – A Molecular Science ^{B,2}	3	MA 241 Calculus II ^{A,2}	4
CH 102 General Chemistry Laboratory ^{B,2}	1	PY 205 Physics for Engineers. & Sci. I ^{B,2}	3
E 101 Intro. to Engineering & Prob. Solving ¹	1	PY 206 Physics for Engineers. & Sci. I Lab ²	1
ENG 101 Academic Writing and Research ^{1,H}	4	Physical Education/Healthy Living Elective ^E	1
MA 141 Calculus I ^{A, J,2}	4	PE 1XX Fitness and Wellness Course ^E	1
GC 120 Foundations of Graphics	3	EC 205 Fundamentals. of Economics ^D	3
	16	*** **	3
		GEP – Ethics ^C	3
			16

SOPHOMORE YEAR

<u>Fall Semester</u>	<u>Credits</u>	<u>Spring Semester</u>	<u>Credits</u>
MAE 206 Engineering Statics ¹	3(CP)	MAE 208 Engineering Dynamics ¹	3(CP)
MSE 201 Structure and Properties of Engr Materials	3	MAE 214 Solid Mechanics ¹	3(CP)
MA 242 Calculus III	4	MA 341 Applied Differential Equations I	3
PY 208 Physics Engr. & Sci. II ^B	3	MES 201 Engineering Systems Lab 1	2
PY 209 Physics Engr. & Sci. II Lab	1	CSC 111/113/116 Python, MATLAB or Java	3
MES 200 Introduction to Engineering Systems	2	MA 305 Introductory Linear Algebra and Matrices	3
	16		17

JUNIOR YEAR

<u>Fall Semester</u>	<u>Credits</u>	<u>Spring Semester</u>	<u>Credits</u>
MAE 201 Engineering Thermodynamics I ¹	3(CP)	MAE 316 Strength of Mechanical Components	3
MAE 308 Fluid Mechanics	3	MES 300 Systems Engineering	3
MAE 315 Dynamics of Machines	3	MAE 435 Principles of Automatic Controls	3
MES 301 Engineering Systems Junior Design Lab	2	MES 302 Mechanical Engineering Systems Lab 1	2
ENG 331 Communication for Engineering & Tech	3	GEP Additional Breadth Requirement ^F (Hum/SS/VPA)	3
	14		14

SENIOR YEAR

<u>Fall Semester</u>	<u>Credits</u>	<u>Spring Semester</u>	<u>Credits</u>
MAE 413 Design of Mechanical Systems	3	MAE 412 Design of Thermal Systems ¹	3
MAE 310 Heat Transfer Fundamentals	3	MES 403 MES Capstone Design II	3
MES 401 MES Capstone Design I	3	ECE 331 Principles of Electrical Engineering	3
MES 400 Mechanical Engineering Systems Lab 2	2	GEP Interdisciplinary Perspectives Requirement ^G	3
GEP Humanities Requirement ^C	3	GEP Interdisciplinary Perspectives Requirement ^G	2 or 3
GEP Social Science Requirement ^D	3		14 or 15
	17		

Minimum Credit Hours Required for Graduation* I,J,K = 124

Major/Program requirements and footnotes:

¹Minimum grade of C- required

²Minimum grade of C required

***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://www.ncsu.edu/uap/academic-standards/gep/courselists/index.html>.

- A. **Mathematical Sciences** (6 credit hours – one course with MA or ST prefix)
Choose from the University approved GEP Mathematical Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **MA 141,241**
- B. **Natural Sciences** (7 credit hours – include one laboratory course or course with a lab)
Choose from the University approved GEP Natural Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **CH 101, 102, 201, 202, PY 205, 208**
- C. **Humanities** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Humanities course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **PHI 214, PHI 221, PHI 375**
- D. **Social Sciences** (6 credit hours selected from two different disciplines/course prefixes)
Choose from the University approved GEP Social Sciences course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **EC 205**
- E. **Physical Education/Healthy Living** (2 credit hours – at least one 100-level Fitness and Wellness Course)
Choose from the University approved GEP Physical Education/Healthy Living course list.
- F. **Additional Breadth** - (3 credit hours to be selected from the following checked University approved GEP course lists)
 Humanities/Social Sciences/Visual and Performing Arts or Mathematical Sciences/Natural Sciences/Engineering
- G. **Interdisciplinary Perspectives** (5-6 credit hours)
Choose from University approved GEP Interdisciplinary Perspectives course list or the following course(s) if completed as part of the Major requirements may fulfill part or all of this requirement: **None**
- H. **Introduction to Writing** (4 credit hours satisfied by completing **ENG 101** with a C- or better)

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

- I. **U.S. Diversity**
Choose from the University approved GEP U.S. Diversity course list or choose a course identified on the approved GEP course lists as meeting the U.S. Diversity (USD) co-requisite. The following course(s) if completed as part of the Major requirements may fulfill this requirement: **None**
- J. **Global Knowledge**
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. The following course(s) if completed as part of the Major requirements may fulfill this requirement: **None**
- K. **Foreign Language proficiency** - Proficiency at the **FL_102** level is required for graduation.