Program of Study

Degree Requirements (126 hours)

1. **Carolina Core (34-46 hours)**
    a. **CMW** (6 hours)
        i. ENGL 101 - Critical Reading and Composition –*must be passed with a grade of C or higher*
        ii. ENGL 102 - Rhetoric and Composition
    b. **ARP** (8 hours) –*must be passed with a grade of C or higher*
        i. MATH 141 - Calculus I
        ii. MATH 142 - Calculus II
    c. **SCI** (8 hours) –*must be passed with a grade of C or higher*
        i. CHEM 111 - General Chemistry I
        ii. CHEM 111L - General Chemistry I Laboratory
        iii. PHYS 211 - Essentials of Physics I
        iv. PHYS 211L - Essentials of Physics I Lab
    d. **GFL** (0-6 hours): Students in the College of Engineering and Computing are required to demonstrate proficiency in one foreign language equivalent to the 121 course by 1) a score of two or better on the foreign language placement test; or 2) completion of the 109 and 110 courses in FREN, GERM, LATN, or SPAN or completion of the 121 course in another foreign language.
    e. **GHS** (3 hours): any approved CC-GHS course
    f. **GSS** (3 hours): any approved CC-GSS course
    g. **AIU** (3 hours): any approved CC-AIU course

    Carolina Core Stand Alone or Overlay Eligible Requirements:
    Up to two of these requirements may be met in overlay courses. At least one of these requirements must be satisfied by a course not applied elsewhere in general education. (3-9 Hours)

    h. **CMS** (3 hours) Choose from:
        i. PHIL 325 - Engineering Ethics (CMS/VSR overlay)
        ii. any approved overlay or stand-alone CC-CMS course
    i. **INF** (0-3 hours): any approved overlay or stand-alone CC-INF course
    j. **VSR** (0-3 hours) Choose from:
        i. PHIL 325 - Engineering Ethics (CMS/VSR overlay)
        ii. any approved overlay or stand-alone CC-VSR course

2. **College Requirements:** No college-required courses for this program.

3. **Program Requirements (53 hours)**
    a. **Supporting Courses** (53 hours)
        i. CHEM 112 - General Chemistry II
        ii. CHEM 112L - General Chemistry II Laboratory
        iii. MATH 241 - Vector Calculus
        iv. MATH 242 - Elementary Differential Equations
        v. MATH 344 - Applied Linear Algebra
        vi. PHYS 212 - Essentials of Physics II
        vii. PHYS 212L - Essentials of Physics II Lab
        viii. STAT 509 - Statistics for Engineers
        ix. **Lower Division Engineering** (18 hours):
            1. AESP 101 - Introduction to Aerospace Engineering *or* ENCP 101 - Introduction to Engineering I

2. EMCH 111 - Introduction to Engineering Graphics and Visualization *or* ENCP 102 - Introduction to Engineering II
3. EMCH 200 - Statics –*must be passed with a grade of C or higher*
4. EMCH 201 - Introduction to Applied Numerical Methods *or* ENCP 201 - Introduction to Applied Numerical Methods
5. EMCH 260 - Introduction to the Mechanics of Solids *or* ENCP 260 - Introduction to the Mechanics of Solids
6. EMCH 290 - Thermodynamic Fundamentals *or* ENCP 290 - Thermodynamic Fundamentals

x. **Track Electives** (15 hours) Select one of the following tracks:

1. **Aeromechanical Systems**
    a. AESP 415 - Aircraft Design I
    b. EMCH 585 - Introduction to Composite Materials
    c. EMCH 308 - Introduction to Finite Element Stress Analysis
    d. Plus two of:
        i. EMCH 332 - Kinematics and Dynamics of Machines
        ii. EMCH 354 - Heat Transfer
        iii. EMCH 535 - Robotics in Mechanical Engineering
        iv. EMCH 544 - Compressible Fluid Flow
        v. EMCH 530 - Engineering Optimization
2. **Integrated Information Technology**
    a. ITEC 233 - Introduction to Computer Hardware and Software Support
    b. ITEC 245 - Introduction to Networking
    c. Plus two of:
        i. ITEC 444 - Introduction to Human-Computer Interaction
        ii. ITEC 445 - Advanced Networking
        iii. ITEC 493 - Information Technology Security for Managers
    d. Plus one of:
        i. ITEC 370 - Database Systems in Information Technology
        ii. ITEC 447 - Management of Information Technology
3. **Power Electronics Systems**
    a. ELCT 221 - Circuits
    b. ELCT 222 - Signals and Systems
    c. ELCT 371 - Electronics
    d. ELCT 331 - Control Systems
    e. ELCT 572 - Power Electronics
4. **Control Systems**
    a. ELCT 221 - Circuits
    b. ELCT 222 - Signals and Systems
    c. ELCT 371 - Electronics
    d. ELCT 331 - Control Systems
    e. ELCT 531 - Digital Control Systems
5. **Communication Systems**
    a. ELCT 221 - Circuits
    b. ELCT 222 - Signals and Systems
    c. Plus 3 of:
        i. ELCT 321 - Digital Signal Processing
        ii. ELCT 361 - Electromagnetics
        iii. ELCT 562 - Wireless Communications
        iv. ELCT 564 - RF Circuit Design for Wireless Communications

4. **Major Requirements (39 hours)**
    a. **Major Courses** (39 hours)
        i. AESP 265 - Aerodynamics I Incompressible Flow
        ii. AESP 314 - Energy, Power and Propulsion
        iii. AESP 350 - Aerospace Systems
        iv. AESP 361 - Aerospace Laboratory I

v. AESP 362 - Aerospace Laboratory II
vi. AESP 420 - Flight and Orbital Mechanics
vii. AESP 428 - Design I
viii. AESP 466 - Flight Dynamics and Control
ix. EMCH 310 - Dynamics *or* ENCP 210 - Dynamics
x. EMCH 330 - Mechanical Vibrations *or* ENCP 330 - Introduction to Vibrations
xi. EMCH 371 - Engineering Materials
xii. EMCH 377 - Manufacturing Processes
xiii. EMCH 577 - Aerospace Structures I

Program GPA

Program GPA requirement policies are described in the College of Engineering and Computing section of this bulletin. For the purpose of these policies, the following courses are used to determine the Program GPA for the Aerospace Engineering B.S.E. program: all Lower Division Engineering courses, all Aerospace Engineering Major courses, and all Track Electives courses.