To obtain a minor in ESM a student must complete 21 credit hours of ESM courses as indicated below.

1. Complete 21 hours of ESM coursework on an A/F basis. A GPA of 2.0 is required in the courses required for the ESM minor.

2. Complete the following courses:

   - ESM 2104 or ESM 2114 Statics  
     PRE: MATH 1226 or MATH 2204 or Statics and Structures  
     CO: MATH 2204 or MATH 2204H or MATH 2406H  
     3
   - ESM 2204 Mechanics of Deformable Bodies  
     PRE: ESM 2104 or 2114, MATH 2204 
     3
   - ESM 2304 Dynamics  
     PRE: ESM 2104 or 2114, MATH 2204 
     CO: MATH 2214 
     3
   - ESM 3054 Mechanical Behavior of Materials  
     PRE: ESM 2204, MSE 2034 or MSE 2044 or MSE 3094 or AOE 3094 or CEE 3684  
     3

3. Complete one of the following (Fluid Mechanics requirement):

   - ESM 3234 Fluid Mechanics I-Control Volumes  
     PRE: ESM 2304 PHYS 2306  
     3
   - or ESM 3024 Introduction to Fluid Mechanics  
     PRE: ESM 3040, MATH 2204  
     3
   - or ME 3404† Fluid Mechanics  
     PRE: ME 2124, MATH 2214  
     3
   - or CEE 3304† Fluid Mechanics for CEE  
     PRE: ESM 2104  
     3
   - or AOE 3104† Aircraft Performance  
     PRE: AOE 2104 OR AOE 2204, ESM 2104, AOE 2074  
     CO: ESM 2304  
     3
   - and AOE 3014† Naval Architecture  
     PRE: AOE 3104 OR AOE 3204, ESM 2304  
     3
   - or AOE 3204† Ship Hydrodynamics  
     PRE: ESM 2104, MATH 2204, AOE 2104 OR AOE 2204, AOE 2074  
     CO: ESM 2304  
     3
   - and AOE 3014† Aero/Hydrodynamics  
     PRE: AOE 3104 OR AOE 3204, ESM 2304  
     3

4. Complete six hours from the following list. At least 3 hours must be 4xxx or above.

   - ESM 3034 Fluid Mechanics Laboratory  
     PRE: ESM 2304, ECE 3054  
     CO: ESM 3234  
     1
   - ESM 3064 Mechanical Behavior of Materials Lab  
     PRE: ESM 2204  
     CO: ESM 3054  
     1
   - ESM 3124 Dynamics II-Analytical & 3D Motion  
     PRE: ESM 2304, MATH 2214, MATH 2204  
     3
   - ESM 3134 Dynamics III-Vibration and Control  
     PRE: ESM 3124, MATH 4564  
     3
   - ESM 3154 Solid Mechanics  
     PRE: ESM 2204, MATH 2214  
     CO: MATH 4574  
     3
   - ESM 3334 Fluid Mechanics II-Differential Analysis  
     PRE: ESM 3434 CO: MATH 4574  
     3
   - ESM 3444 Mechanics Laboratory  
     PRE: ESM 3234, ESM 3040, ESM 3054, ESM 3064, ESM 3124, ECE 3054  
     CO: ESM 3334, ESM 3345  
     3
   - ESM 4014 Applied Fluid Mechanics  
     3
   - ESM 4024 Advanced Mechanical Behavior of Materials  
     PRE: ESM/MSE 3054  
     3
   - ESM 4044 Mechanics of Composite Materials  
     PRE: ESM 2204  
     3
   - ESM 4084/AOE 4084 Engineering Design Optimization  
     PRE: MATH 2204  
     3
   - ESM 4105 Engineering Analysis of Physiologic Systems  
     3
   - ESM 4106 Engineering Analysis of Physiologic Systems  
     3
   - ESM 4114 Nonlinear Dynamics and Chaos  
     PRE: ESM 2304 or PHYS 2504, MATH 2214  
     3
   - ESM 4204 Musculoskeletal Biomechanics and Biologic Control  
     3
   - ESM 4224 Biodynamics & Control  
     3
   - ESM 4234 Mechanics of Biological Materials and Structures  
     3
   - ESM 4245 Mechanics of Animal Locomotion  
     PRE: ESM 3054  
     3
   - ESM 4246 Mechanics of Animal Locomotion  
     PRE: ESM 3234  
     3
   - ESM 4304 Hemodynamics  
     3
   - ESM 4614 Probability-Based Modeling, Analysis, and Assessment  
     PRE: ESM 2204  
     3
   - ESM 4734/AOE 4024 Introduction to Finite Elements  
     3
   - ESM 5405 or 5406 Clinical Internship in Biomedical Engineering  
     3

5. Students completing the minor must obey all prerequisite rules. Some courses above may have additional prerequisites not required for the minor.

† Students taking a non-ESM course for this minor requirement must take an additional 3 credit hours of ESM coursework from #4.