

**College of Engineering
Department of Biomedical Engineering and Mechanics
Minor in Engineering Science and Mechanics
For Students Graduating in Calendar Year 2017**

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

Amanda Stanley (Room 225 Norris Hall) has been appointed to advise all students studying for a minor in ESM. In accordance with University policy and regulations, she will perform all functions appropriate to an advisor for students studying for a minor

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

2 Complete the following courses

ESM 2104	Statics	3 ___
ESM 2204	Mechanics of Deformable Bodies	3 ___
ESM 2304	Dynamics	3 ___
ESM 3054	Mechanical Behavior of Materials	3 ___

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

ESM 3234	Fluid Mechanics I-Control Volumes	3 ___
or		
ESM 3024	Introduction to Fluid Mechanics	3 ___
or		
ME 3404 †	Fluid Mechanics	3 ___
or		
CEE 3304 †	Fluid Mechanics for CEE	3 ___
or		
AOE 3104 †	Aircraft Performance	3 ___
and		
AOE 3014 †	Aero/Hydrodynamics	3 ___
or		
AOE 3204 †	Ship Hydrodynamics	3 ___
and		
AOE 3014 †	Aero/Hydrodynamics	3 ___

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

ESM 3034	Fluid Mechanics Laboratory	1 ___
ESM 3064	Mechanical Behavior of Materials Lab	1 ___
ESM 3124	Dynamics II-Analytical & 3D Motion	3 ___
ESM 3134	Dynamics III-Vibration and Control	3 ___
ESM 3154	Solid Mechanics	3 ___
ESM 3334	Fluid Mechanics II-Differential Analysis	3 ___
ESM 3444	Mechanics Laboratory	2 ___
ESM 4014	Applied Fluid Mechanics	3 ___
ESM 4024	Advanced Mechanical Behavior of Materials	3 ___
ESM 4044	Mechanics of Composite Materials	3 ___
ESM 4084/AOE 4084	Engineering Design Optimization	3 ___
ESM 4105	Engineering Analysis of Physiologic Systems	3 ___
ESM 4106	Engineering Analysis of Physiologic Systems	3 ___
ESM 4114	Nonlinear Dynamics and Chaos	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	3 ___
ESM 4246	Mechanics of Animal Locomotion	3 ___
ESM 4304	Hemodynamics	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