GRADUATE EMBEDDED CERTIFICATE IN MECHANICAL PROPERTIES OF MATERIALS

Graduate students conducting research within the Mechanical Properties Research Laboratory (MPRL) are strongly encouraged to pursue the multidisciplinary certificate in Mechanical Properties of Materials, administered through the College of Engineering. This certificate is awarded along with the graduate degree, and denotes a specialty in mechanical properties and affiliation with the MPRL that may be useful in seeking future employment opportunities in addition to providing a well-balanced educational program.

A multidisciplinary certificate program consisting of coursework in which graduate students from participating Schools in the College of Engineering may participate to obtain an in-depth understanding of mechanical behavior and properties. The program is entitled "A Certificate in Mechanical Properties of Materials" and is administered through the Mechanical Properties Research Laboratory (MPRL) to graduate students in participating Schools in the College of Engineering.

The courses in the certificate program provide students with fundamentals of mechanical behavior as well as with advanced practical information on design and materials selection. As such, it supports their research programs in the MPRL and various academic units. This certificate program also meets the needs of industry for high-level practitioners for which materials/mechanics considerations are primary design obstacles.

This multidisciplinary certificate presently involves faculty members from the Schools of Aerospace Engineering, Materials Science and Engineering, and Mechanical Engineering, though others outside of these schools can qualify if they meet the requirements of the certificate program.

In consultation with his/her advisor, the student selects courses that constitute a coherent sequence from an approved list (see attached forms). The student then sends the proposed program to the MPRL Director for review and approval. Upon successful completion of the program, a recommendation is forwarded by the MPRL Director to the Dean of Engineering for final approval similar to other existing certificate programs.

Program of Study

Code	Title	Credit Hours
Core Courses		**3**
ME/MSE/CEE/AE 7772	Fundamentals of Fracture Mechanics	
ME/MSE/CEE/AE 7774	Fatigue of Materials and Structures	
Other courses		**9**
ME/MSE/CEE/AE 7773	Advanced Fracture Mechanics	
ME/AE 7775	Topics in Fracture and Fatigue of Metallic and Composite Structures [1]	
ME 6203	Inelastic Deformation of Solids	
MSE 7210	Dislocation and Deformation Mechanics	
ME/MSE/CHBE 7771	Mechanics of Polymer Solids and Fluids	
ME/CEE/CHBE/AE 4791	Mechanical Behavior of Composites	
ME/MSE/CEE/CHBE/AE 7791	Damage, Failure, and Durability of Composite Materials	
ME/MSE/CHBE 6768	Polymer Structure, Physical Properties, and Characterization	
ME 6796/6796	Structure-Property Relationships in Materials	
ME/MSE/AE/CHBE 8803	Special Topics in Manufacturing [2]	
Total Credit Hours		**12**

1 Not allowed if ME 7774 is taken as a core course.

2 Special Topics courses as approved by certificate administration.