

## Menu of Existing and Planned Courses for Concentration

Menu of Existing and **Planned** Courses Included in the Automotive Concentration to be Offered at UTK and UT Chattanooga

ME 470—Computer aided design & Principles of manufacturing	ME 599—Special Topic/Intro Nano manufacturing
ME 480— Intro/Hybrid Electric Vehicles	ME 599—Composite Materials
ME 517—Finite Elements for Engineering Applications	ME 559—Advanced Mechanics of Materials I
ME 587—Dynamic Modeling & Simulation	ME 610—Advanced Topics in Additive Manufacturing
ME 533—Dynamics	ME 647—Nonlinear Control Systems
ME 536—Continuum Mechanics	ME 655—Advanced. Topics in Computational Fluid Dynamics
ME 534—Mechanical Vibrations	ME 656—Advanced Computational Fluid Dynamics Practice
ME 541—Fluid Mechanics I	ME 659—Advanced Mechanics of Materials II
ME 542—Fluid Mechanics II	<b><i>MEXX1 Advanced Computer Aided Engineering for Automotive Applications</i></b>
ME 565—Structural Dynamics	<b><i>MEXX2 Advances in Metallic Materials and Manufacturing Methods (UTK)</i></b>
ME 567—Smart Structures/Materials	<b><i>MEXX3 Mechanics and Testing of Materials</i></b>
ME 476/586—Fuel Cell Engines	<b><i>ME599 Vehicle Modeling and Simulation</i></b>
ME 588—Intro/Hybrid Electric Vehicles	<b><i>MEXX6 Demonstration Project with Internship (3-6 credit)</i></b>
ME 589—Hybrid Vehicle Control System Design	<b><i>ENGR 5910—Automotive Engineering (taught via UT Chattanooga)</i></b>
ME 591—Advanced Engineering Analysis	<b><i>MEXX5 Computational Simulation of Manufacturing and Crash (taught via UT Chattanooga)</i></b>
ME 599—Advanced Vehicle Modeling & Simulation	
ME 599—Thermodynamic Modeling of Engines	
ME 599—Special Topics in Mechanical Engineering (additive manufacturing)	
ME 599—Special Topics—Frontiers of Automotive Materials and Manufacturing	

## Innovative Projects through Internships/Assistantships (3-6 credits)

The automotive concentration (both MS and PhD) will include the availability of internships, either in automotive industries or in groups involved in automotive related projects at the Manufacturing Demonstration Facility of Oak Ridge National Laboratory. This internship should be a minimum of 3 credits, not more than 6 credits, to be approved by the major professor and graduate program chair before initiation. The faculty team at MABE will facilitate this internship, which can be distinct or associated with thesis development research. Outstanding students may be eligible for paid fellowship, in both MS/PhD degree programs, to be obtained through competitive selection process.