

# AUTOMOTIVE, MINOR

The Department of Mechanical Engineering has strong Dynamics, Systems and Controls (DSC) and Thermofluids Science (TFS) groups that are collectively research active with wide expertise in Transportation and Automotive systems including hybrid and electric drives and automation coupled with connected infrastructure. This Automotive minor will educate students in the Transportation and Automotive systems and will be accessible to non-ME students, e.g., Electrical Engineering, Computer Science, Chemical Engineering, Aerospace Engineering, Business, Management, Mathematics and Physics to just name a few. Students going through this minor will be prepared to enter a diverse and globally competitive workforce with interdisciplinary knowledge that can meet next-generation challenges relating to advancing automotive technology.

Advanced transportation and automotive systems are critical to our innovative and transformative economy which has driven great demand for engineers, managers and entrepreneurs trained in the complex inter-relationship of a wide variety of automotive systems. The University of Alabama Department of Mechanical Engineering is uniquely qualified to deliver this objective based on the institutional emphasis on transportation, its tremendous associated laboratory capability, and the popular student interest demonstrated in the outstanding automotive experience-based challenge programs available on campus (e.g. EcoCAR, Formula SAE, see ME Department Student Challenge Projects).

The automotive industry is dominated by large and diverse corporations, making understanding how they work essential to moving this technology forward. This Minor's objective is to provide this training while facilitating communication and interaction among the people participating in the transformation. The minor is open to all University students, however, it does require a number of prerequisites for the courses in the minor.

The Automotive Engineering Minor requires 19 total credits chosen by the students from the three categories of courses that follow. The hour ranges for each category indicate the minimum number of credits that must be completed in that category and the maximum number that can be applied to the minor requirements from that category. For example, if a student completes 12 credits from the technical category, they can satisfy the 19 credit requirement of the minor by taking the minimums of 3 experiential and 3 business courses plus the required 1 credit experiential capstone. Alternatively, if they complete only the minimum of 9 technical credits, then they must take an additional 3 credits from either the experiential or business categories.

Code and Title	Hours
<b>Experiential Course:</b>	<b>2-6</b>
ME 492 Automotive Experience (Automotive Experience) <sup>1</sup>	
<b>Experiential Requirement:</b>	<b>1</b>
ME 493 Automotive Experience Capstone (Automotive Experience Capstone) <sup>2</sup>	
<b>Technical Courses:</b>	<b>9-12</b>
At least one of ME 226 or ME 452 are required	
ME 226 Intro to Automotive Systems (Introduction to Automotive Systems)	
ME 364 Vehicle Dynamics	
ME 426 Internal Combustion Engines	
ME 452 Fundamentals of Auto. Systems	
ME 454 Auto. Elec. and Electron. Sys.	
ME 458 Mode. and Sim. Auto. Sys.	

## Management Courses: 3-6

ME 380 & ME 480	Engineering Leadership I and Engineering Leadership II
ME 480	Engineering Leadership II
ME 484	Product Innovation
AC 210	Intro To Accounting
EC 110	Principles of Microeconomics
LGS 200	Legal Environment of Business
MIS 200	Fundamentals of MIS
ST 260	Statistical Data Analysis
MGT 300	Org Theory & Behavior
MKT 300	Marketing
OM 300	Intro Operations Management

## Total Hours 15-25

### Footnotes

- These experiences associated with automotive design teams and automotive industry focused internships will be overseen by the design team advisors or appropriate faculty from the ME, ECE of CS departments. Students earn 1 credit hour per semester involved. At least 2 credits MUST come from automotive design team participation.
- This course serves as a portfolio of the experiences the student had within the teams and internships and documents how the courses they selected enhanced these experiences and vice versa. The course deliverables will include a report and presentation. The last of the three experience courses can be taken concurrently with this capstone course.