# Advanced Automotive Systems Emphasis

## Department of Mechanical and Aerospace Engineering, Ohio State University

- A total of 12 credit hours are required to complete the Technical Elective Requirements
- Students must complete two courses (a minimum of 6 credit hours) from two of the three categories (Design, Computational, Applications)
  **This is an example curriculum. All students must meet program requirements as detailed here: https://mae.osu.edu/mechanical-engineering-technical-electives**

### Design Classes- Take up to 9 credit hours of

| Course | Hours | Course Name |
| --- | --- | --- |
| ME 5194 (Metzler) | 3 | Smart Product Design |
| ME 5194 (Srinivasan) | 3 | Control System Design |
| ME 5240 | 3 | Mechanical Vibration |
| ME 5372 | 3 | Design and Control of Mechatronic Systems |
| ME 5374 | 3 | Smart Materials and Intelligent Systems |

### Computational Classes- Take up to 9 credit hours of

| Course | Hours | Course Name |
| --- | --- | --- |
| ME 5194 (Shah) | 3 | CAD Modeling Techniques for Mechanical Design using CATIA |
| ME 5139 | 3 | Applied Finite Element Method |
| ME 5339 | 3 | Simulation Techniques for Dynamic Systems |
| ME 5539 | 3 | Applied Computational Fluid Dynamics and Heat Transfer |

### Applications Classes- Take up to 9 of 12 credit hours of

| Course | Hours | Course Name |
| --- | --- | --- |
| ME 5194 (Midlam-Mohler) | 3 | Model Based Design and Hardware in the Loop |
| ME 5234 | 4 | Vehicle Dynamics |
| ME 5241 | 3 | Engineering Acoustics |
| ME 5502 | 3 | Engineering Thermodyamics |
| ME 5427 | 3 | Introduction to Turbomachinery |
| ME 5530 | 3 | Internal Combustion Engines |
| ME 5531 | 3 | Advanced Automotive Systems Analysis/ Laboratory |
| ME 5541 | 3 | HVAC |

### Other Classes- Take no more than 3 credit hours of the following

| Course | Hours | Course Name |
| --- | --- | --- |
| ECE 5553 | 3 | Autonomy in Vehicles |
| ECE 5554 | 3 | Powertrain Control Systems |
| ACCTMIS 2000 | 3 | Foundations of Accounting |
| BUSMHR 2500 | 3 | Entrepreneurship |
| PUBAFRS 3000 | 3 | Introduction to Public Policy Analysis |
| PUBAFRS 5600 | 3 | Science, Engineering, and Public Policy |