

CENTER FOR AUTOMOTIVE RESEARCH

Core sequences consist of basic courses of critical importance to automotive systems in areas matching the research areas of OSU CAR:

Core Focus Area 1: Advanced Propulsion Systems, APS ME 7383 Electrochemical Energy Conversion and Storage Systems for Automotive Applications ME 7384 Energy Modeling, Simulation, Optimization and Control of Advanced Vehicles
Core Focus Area 2: Powertrain Modeling and Control, PMC ME 5339 Simulation Techniques for Dynamic Systems Analysis and Design ME 7236 Powertrain Dynamics ME 8312 Diesel Powertrain Systems Control ME 8372 Fault Diagnosis in Dynamic Systems ECE 5554 Powertrain Control
Core Focus Area 3: Noise, Vibration and Harshness, NVH ME 5240 Mechanical Vibrations ME 5194 Engineering Acoustics ME 7260/1 Automotive Noise and Vibration Control I ME 7262/3 Automotive Noise and Vibration Control II ME 8260 Advanced Engineering Acoustics
Core Focus Area 4: Internal Combustion Engines, ICE ME 5427 Turbomachinery ME 5530 Internal Combustion Engines ME 5531 Automotive Powertrain Laboratory ME 7440 Internal Combustion Engine Modeling ME 7520 Wave Dynamics in Fluids
Core Focus Area 5: Electromechanical and Power Conversion Systems, EPC ME 7384 Energy Modeling, Simulation, Optimization and Control of Advanced Vehicles ECE 5025 Power Electronics Devices, Circuits and Applications ECE 5041 Electric Machine Fundamentals
Core Focus Area 6: Vehicle Systems – Connected and Automated Vehicles (CAV) ME 8194 Robust Control for Mechatronics Systems ME 8372 Fault Diagnosis in Dynamic Systems ECE 5400 Instrumentation, Signals, and Control in Transportation Applications ECE 5553 Autonomy in Vehicles ECE 7855 Large Scale and Cyber-Physical Systems
Core Focus Area 7: Vehicle Systems – Vehicle Dynamics and Control ME 5234 Vehicle Dynamics ME 8322 Vehicle System Dynamics and Control ME 8372 Fault Diagnosis in Dynamic Systems