SEMICONDUCTORS AND SENSORS FOR AUTOMOTIVES (BRIDGE GRADUATE CERTIFICATE)

The Semiconductors and Sensors for Automotives graduate-level bridge certificate program is designed for students and professionals seeking to build a strong foundation in the technologies shaping the future of automotive electronics. The curriculum includes theoretical instruction and hands-on training in semiconductor fabrication, automotive sensors, and power semiconductor applications.

This certificate is well-suited for students transitioning from related fields, as well as professionals aiming to update their skill sets to be in line with current industry standards. This certificate can be stacked with other programs in the ECE department and applied toward the Master of Science in Electrical Engineering in the traditional format or Online Semiconductor Engineering track.

At the completion of this certificate program, students will be able to:

1. Identify the common sensing technologies used in automotive technology and explain their operation mechanisms
2. Define and describe semiconductor materials, and fundamental semiconductor device operation principles
3. Analyze and design fundamental readout circuits of sensors
4. Describe the fabrication methodology and processes used to manufacture semiconductor devices and sensors

To earn the certificate, students must complete a total of 12 credit hours, consisting of one core and three elective courses. Each course is 3-4 credits. A minimum grade of B- is required in each course, and an overall GPA of 3.0 must be maintained.

Code	Title	Credits
Required Courses (Select one of the following)		**3**
ECE 5550	Solid State Electronics	
ECE 5995	Special Topics in Electrical and Computer Engineering I (Introduction to Automotive Sensors (Fall))	
Elective Courses (Select three of the following)		**9**
ECE 5575	Introduction to Micro and Nano Electro Mechanical Systems (MEMS/NEMS)	
ECE 5675	Sensors and Sensor Instrumentation	
ECE 5410	Power Electronics and Control	
ECE 5580	Advanced Nanoelectronics	
ECE 7995	Special Topics in Electrical and Computer Engineering II	
Total Credits		**12**