

# **Racing to Learn Engineering**

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## Abstract

Students are encouraged to drive a race car in order to learn more about the job of a Motorsports Engineer. Mechanical Engineering students at the University of North Carolina at Charlotte can focus on a new Motorsports program which emphasizes skills in the area of the large and growing motorsports industry. In one particular course, Motorsports Instrumentation, the classroom extends to the engine shop, the race shop, and the race track.

Students analyze the requirements of the instrumentation, install video and dozens of sensors on the class race car, calibrate the sensors, and then drive the car. Driving the former FSAE race car is not required; however, it is very popular. Afterwards, the data files are analyzed for everything from correct line, to handling balance. Comparisons between laps, and/or drivers accentuate details and add to the learning experience.

The course builds on the traditional instrumentation material with several hands on labs and students are encouraged to ask questions and explore details deeper than in a normal lecture style class. The competitive nature of the industry is found with the students in the program and teams of students in the labs compete for the best solution. The outcome is that student participation in these labs exceeds the requirements by a great margin.

The Motorsports program is a focus area in the Mechanical Engineering department and the students will graduate with a Mechanical Engineering degree; however, while they are at school they are intensely engaged. UNC Charlotte has a Race Shop, (Motorsports Lab), and large numbers of students are found there every evening working on cars and working on homework.