First-year Engineering Courses Engage Students

By Colleen Carow and Josh Weinstein

Positive without a doubt that mechanical engineering is the thing for you? Undecided? Wondering what the heck a comparator is? Or just looking for some extra credit hours? The Russ College’s first-year engineering and technology courses get new students engaged in their majors right away while also opening the eyes of those who are undecided or just plain curious.

Aimed at helping students learn to use mathematics, experimentation, and computation to solve engineering problems, ME101, “Mechanical Engineering Gateway,” links its students with those in senior design courses to teach the culture and problem-solving methods of the mechanical engineering profession.

Professor David Bayless, who is also the director of the Ohio Coal Research Center and a leader in energy and the environment research on campus, taught the course for the first time fall quarter. “Bringing freshmen into the department like this is extraordinary—linking their design project to reviews by the senior design students. It’s so much better than my freshman experience,” he says.

The most popular of the Russ College’s beginning courses, ET280, “Engineering Technology: An Overview,” is intended for students of all majors. The course covers engineering and technology’s history and moral and ethical issues. Like many of the college’s other beginning courses, it also emphasizes a “problem-solving” approach, which is the hallmark of an engineering education.

ET280 Instructor John Dolan says the course’s hands-on aspects engage students. “We build a hands-free flashlight from a box of aluminum foil, some popsicle sticks, a plastic cup, and rubber bands, Dolan says. “We also have the students design an assembly line that builds Lego cars around the clock,” he added.

Sophomore Kylie Toy, a communication studies and prelaw major, never had an interest in engineering before she took the class. “It seems like a cool career if you’re into building and designing,” Toy says.

Mechanical engineering master’s student Jeremy Allen, B.S.M.E. ’09, another T.A. for ME101, is not only gaining experience right along with his students, but perspective as well.

“As a student, I looked up to T.A.s. I knew they were grad students and in my mind they knew everything. Now I realize they’re just regular students who are continuing their education,” he says. “In the end, it’s all about starting to prepare students for the rest of college and life after that.”

If you’re still wondering about that comparator, check out EE101, Introduction to Electrical Engineering. You’ll build a light detector that gives an audible output when light is present. The comparator is a handy device that shows voltage levels.

**Course Descriptions**

- **ME 101 • Mechanical Engineering Gateway Course:** Introduces students to the culture and problem-solving methods of mechanical engineering.

- **ET 280 • Engineering Technology: An Overview:** Provides an overview of the profession’s history, present status, and future opportunities.

- **EE 101 • Introduction to Electrical Engineering:** Introduces students to the profession of electrical engineering. Students develop knowledge of key technical concepts of electricity including voltage, current, resistance, and power.

- **ISE 200 • Introduction to Computers and Industrial Engineering:** Introduces the major skills that industrial engineers are responsible for in practice, including engineering economy, methods of analysis, and system design.