March 31, 2010

They have more than 100 combined years of teaching experience at MSU. They have had a profound impact on thousands of students who have gone on to establish highly successful career paths in engineering. For some, their former students work right alongside them in the Engineering Building on a daily basis. For others, their former students are located halfway around the globe or are attending graduate school across the country. Meet five extraordinary faculty members in the College of Engineering who have transformed the lives of countless Spartan Engineers.

**Mentor and Caring Educator Provides Support Long after Graduation**

"Craig Somerton has been a mentor and caring educator of students inside and outside the classroom for more than 25 years," says Alejandro Diaz, interim chairperson of the Department of Mechanical Engineering.

Somerton, associate chairperson and professor of mechanical engineering, is regarded in glowing terms by his students. "I never had a professor more willing to help students and go out of his or her way to make sure every student understands the material." This typical comment is repeated again and again by Somerton's students and reflects the contributions his teaching has made to transforming the lives of countless students.

His contributions go well beyond the classroom. He leads curriculum development and supervises undergraduates in independent study research projects and capstone design projects. For 25 years, he has served as faculty adviser for the American Society of Mechanical Engineering student section; under his tutelage, MSU design teams have won 17 of the last 19 competitions at the Midwest Regional Conference.

In fact, his impact reaches far beyond the borders of the MSU campus. He is a national leader in engineering education with more than 55 scholarly publications in engineering education to his credit. He has also served as a program evaluator on 10 accreditation visits and also as a consultant to universities on accreditation issues. This summer he will begin serving a team as an alternate member to the Engineering Accreditation Commission of ABET.

"Craig Somerton continues to offer students his guidance and support long after they have graduated from Michigan State University," Diaz sums up. One of his former students confirms this: "I have known Dr. Somerton for 17 years as a professor, teacher, researcher, mentor, and colleague," says Laura Genik (BS '91, MS '94, PhD '98 Mech Egr). "His classroom demeanor and interpersonal skills are directly responsible for my own interest in the thermal sciences. As a young undergraduate student in thermodynamics, the 'light came on' through Dr. Somerton's lectures." Genik continued to work with Somerton as a graduate student, completing both her master's and doctorate degrees under his supervision. After spending a number of years as a faculty member in the School of Engineering at the University of Portland, in Portland, Oregon, she returned to MSU's mechanical engineering department in January 2007 as an academic specialist, where she collaborates with Somerton in curriculum development and course content. She teaches a broad range of undergraduate and graduate courses and is involved in engineering education research.

**Passionate Teacher Prepares Students for Real (and Virtual) World**

Charles Owen, associate professor of computer science and engineering and director of MSU's Media and Entertainment Technologies Lab (METLAB), has been a dedicated teacher at MSU since 1998.

One student who recently completed CSE 471 – Media Processing & Multimedia Computing says that for him, Owen "parted the mystical fog that is multimedia programming."

Students say that Owen's passion for sharing knowledge encouraged them to go above and beyond what was
required. “I pretty much loathed programming until this class,” one student says. “Dr. Owen kept the class fun and interesting. I felt as if I’d learned more in this class than any other CSE class. This was by far my favorite programming course.”

Says Eric Arnold (BS Comp Sci ’02): “My college career was full of unique experiences and memorable classes, but one professor stands head and shoulders above the rest for me. Dr. Owen brought a combination of passion and immense knowledge that I sat in awe of during each of his classes.” Arnold, who graduated with honors, is now a senior programmer for Volition Inc. (a subsidiary of THQ), where he is primarily responsible for physics and destruction systems in video games for PS3 and Xbox 360.

“From the intricate demos that Dr. Owen just ‘whipped up’ the night before, to the complex group projects where he gave us creative freedom to build something special, every class was as entertaining as it was informative,” says Arnold. “Not only were his classes thoroughly enjoyable, they did more to prepare me for the real world than any others. Even the group projects, which I fought tooth and nail to get out of, were a blessing in disguise to get me ready for the 100+ person teams that are needed to create top tier video games. My senior year I was lucky to have the opportunity to work with Dr. Owen in his lab on some amazing research, an experience I will cherish for the rest of my life. I cannot thank him enough for all he gave to me (and countless students throughout the years). Saying that he merely transformed my life as an engineer would be an insult given what he means to me.”

**Enthusiastic Instructor Challenges Students to Think**

Roger B. Wallace is described as an effective, enthusiastic, and caring teacher who provides effective constructive criticism and is approachable and available outside of class. An associate professor, he joined the Department of Civil and Environmental Engineering in 1981. In addition to teaching classes in fluid mechanics and hydrology, he led the development of the senior capstone design course (CE 495—Senior Design in Civil Engineering) in 2003 and has been lead instructor for the past few years.

“Dr. Wallace challenges his students to think instead of providing the answer, but he will help you find the solution,” a former student says. Others say: “He does a good job of applying real-world scenarios to problems given in class.” “Of all the professors I have had at Michigan State and the University of Notre Dame, he is among the best … if not the best.”

This last statement comes from one of Wallace’s previous students, James Robertson (BS Civ Egr ’08), who is currently preparing to finish his MS in civil engineering (transportation) at Texas A&M University. Robertson attended MSU from August 2002 to July 2003, then went to Notre Dame and received his BA in psychology in 2007. He returned to MSU and finished his degree in civil engineering the following year.

“Dr. Wallace is constantly looking to improve student instruction,” says Robertson, who had Wallace as an instructor for a fluid mechanics course and the senior design courses. “His care for student learning is evident in his teaching style and active interest in psychology.

“He is also willing to risk changing already strong courses, like senior design, to make them better. During my senior design course he implemented the project manager position, the role I played in my group. The project manager was responsible for leadership of the team and the non-technical report.” Project managers were mentored by Wallace and a group of professional engineers. “This opportunity to lead and to be part of a group led by a peer was an invaluable experience for all involved,” notes Robertson. “It is this type of teaching provided by Dr. Wallace and other faculty at MSU that allows former students to be leaders in their field.”

A case in point—Robertson and fellow classmate Elibe Elibe (BS Civ Egr ’08) have been selected to attend the 2010 Eno Transportation Foundation Leadership Development Conference in May. This program selects only 20 graduate students from across the country in transportation-related disciplines to attend a week-long leadership conference. “This is in no small part the result of my experience with Dr. Wallace,” says Robertson. “I know, for me, the experience I had with Dr. Wallace has left a lasting impression on my career; and he is still one of the best professors I’ve ever had.”
Brilliant Man,” “Amazing Teacher” Reveals the Mysteries of Thermodynamics

Carl Lira, associate professor, is often cited as a favorite professor in the Department of Chemical Engineering and Materials Science. Since joining MSU in 1986, he has taught a variety of courses from the core chemical engineering curriculum, but his course specialty— thermodynamics—is one of the most theoretically challenging.

“I enjoy the process of discovery and the adrenaline rush when I finally understand something about nature that was initially puzzling,” says Lira. “I derive great satisfaction from helping students begin to understand the intricacies of thermodynamics, especially when I see them with a sparkle in their eye after ‘getting it.’"

Jason Fuller (BS Chem Egr ’00) was one such student. Fuller took thermodynamics out of sequence—as his first chemical engineering course—so he had a lot of questions. “Dr Lira was most approachable, and genuinely interested in making sure I understood the intricacies of thermodynamics,” says Fuller. “I attribute his patience with my long-winded curiosity as one of the key factors that developed my early interest in research.”

Lira also requires significant homework from students to help them build their skills and confidence in applying the concepts. He works hard to keep his courses relevant by using real-world situations. He recalls attending professional meetings in the early ’90s where colleagues would complain about the traditional thermodynamics textbooks. After much deliberation over the impact it would have on his research efforts, in the mid-1990s, he joined colleague Richard Elliott from the University of Akron to develop course notes with the goal of developing a new textbook. Their textbook, Introductory Chemical Engineering Thermodynamics, was published in 1999. The first edition has been printed 16 times, and has been used at some of the top programs in the country. They are now working on the second edition.

Also interested in technology for education, Lira requires significant use of software in his courses. In addition, he teaches a graduate level ‘bridging course’ online (CHE 804) to help students without CHE degrees bridge into a CHE graduate program. The course is used by various departments across the country. One student who just completed the course says: “I felt very well prepared for the challenges of learning a new subject at the graduate level. The course presentation and content was top-notch. After finishing all my master’s classes I realized how out-of-the-ordinary the one-on-one contact and class chats were. I think I had more professorial access time in one chat session at MSU than in all the rest of my (online) graduate education.”

Lira has repeatedly been described as “an amazing teacher” and “a brilliant man” and one who deserves “great respect and admiration.”

Fuller says it was the scientific discussions with Lira that led him to do undergraduate research in Lira’s lab. “It was my first experience doing independent supervised research—as a junior at MSU! Through this experience, and through taking Dr. Lira's section of unit operations lab, I honed my research skills and decided I wanted to continue in academic research. With Dr. Lira's mentorship I formulated research proposals that would take me to Cambridge University and MIT.” Fuller, a 2000 Churchill Scholar, earned his Master of Philosophy in engineering at Cambridge University in 2001. Upon returning to the United States, Fuller completed a PhD at Massachusetts Institute of Technology in 2008.

Today, Fuller is a senior associate at Third Rock Ventures in Boston, a firm that specializes in matching venture capital with successful start-up companies. They build and invest in early-stage pharmaceutical and bio-tech companies.

“It goes without saying that the technical foundation I gained from Dr. Lira's classes and from doing independent research with him helps me evaluate technologies,” says Fuller. “But in addition, I spend a lot of time listening and patiently understanding other peoples’ viewpoints and then helping mentor them to a common understanding with us. It's a rare skill that I observed in Dr. Lira and try to emulate myself.”

Dedicated Prof’s Teaching Is a Shining Example of What University-Level Education Should Be

Gregory Wierzba, associate professor, joined the Department of Electrical and Computer Engineering in 1984 and has had a positive impact on hundreds of students every year since. He maintains one of the highest numbers of student-credit-hours in the department on a regular basis, teaching 200- through 800-level courses in electric circuits, electronics, and analog circuit design. He has a genuine respect and concern for each student’s education. In the
introductory courses, students comment on how he has motivated them and sparked their interest in electrical engineering. He also ensures student readiness in follow-on courses, making it his mission to assure that the linkages between courses are intact.

James E. Burk II (BS Elec Egr ’98), now employed at MIT Lincoln Laboratory, took two courses with Wierzba, beginning in fall 1996, and an independent study during the summer of 1998, his final semester.

“I recall this time as an incredible learning experience that challenged me to achieve. I also looked upon Dr. Wierzba as a mentor,” says Burk. “Taking a course with him was an immersive experience. The education and training that I received from Dr. Wierzba has been instrumental in my accomplishments and successes. One of my initial assignments at Lincoln was a hardware design project that went from early pencil-and-paper block diagrams through final prototype construction and testing. I was directly prepared for this sort of project through the analog electronics capstone course that I had with Dr. Wierzba at MSU.”

Wierzba uses a problem-based approach, in which he provides many examples and exercises to explore the concepts and methods that are essential for electrical and computer engineers. “I learned many things that have enabled me to do the work that I do today,” says Burk, who is currently on a field-site assignment with Lincoln Laboratory at the Reagan Test Site on the Kwajalein Atoll in the Marshall Islands. “The courses I had with Dr. Wierzba stand as shining examples of what a university-level education should provide.”

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