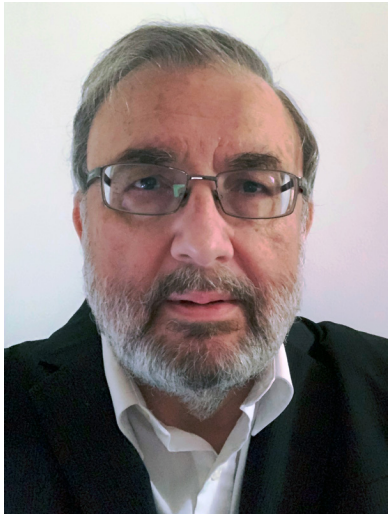
The University of Akron
College of Polymer Science and Polymer Engineering

FACULTY SPOTLIGHT

The College of Polymer Science and Polymer Engineering is proud of the intellectually rich experiential learning environment our faculty provide. Tell us about a faculty member that you want to see in the spotlight by emailing us at cpspe-alumni@uakron.edu.

Dr. Erol Sancaktar *is a Professor of Polymer Engineering and Mechanical Engineering. We recently had the pleasure of speaking with him about his career at The University of Akron's College of Polymer Science and Polymer Engineering. Read more about his life and career below.*



Tell us something about yourself:

I received my Ph.D. (Eng. Mechanics) and M.S. (Mech. Eng.) degrees from Virginia Tech. I am a Fellow of ASME (elected 1997), and served as Chair of ASME Technical Committee on Reliability Stress Analysis, and Failure Prevention (1997-2008; 2013-Present). I served as Associate Editor for the ASME Journal of Mechanical Design (1995-2006) and Medical Devices (2006-2013). I have served as a member of Editorial Boards for 7 different research journals (2 current: Reviews of Adhesion and Adhesives since 2012, and Journal of Adhesion since 2013). I organized 29 Conferences. I was a faculty member at the Mechanical Engineering Department at Clarkson University during 1978 to 1996 before joining The University of Akron (UA) in 1996 as a Professor of Polymer Engineering. I have also been appointed as a Professor of Mechanical Engineering at UA since 2009. I edited 24 books, authored over 107 refereed journal articles and 30 articles in books edited by others. I delivered over 239 technical presentations, and have 4 patents.

What were the driving factors in your decision to join the CPSPE faculty?

Before coming to Akron at the beginning of 1996, I had been with Clarkson University's Mechanical and Aeronautical Engineering (MAE) Department for 17½ years. I also taught as an instructor at Virginia Polytechnic Institute and State University's Engineering Science and Mechanics Department during the last year of my doctoral work there. In order to enhance my research activities, in 1996, I decided to come to The University of Akron to join the Polymer Science and Polymer Engineering College, which has been ranked second in the nation by the U.S. News and World Report.

What's your teaching philosophy or your outlook on higher education?

I have been involved in teaching at different institutions, and at different levels for 48 years. I taught 35 different University Courses from the freshmen to doctoral levels (14 at graduate level), 9 of which I introduced. I had 62 graduate students (16 Ph.D.'s) complete their degrees; so far, under my direction and served in thesis committees of more than 130 graduate students. I have had 19 foreign scholars visit my laboratories for 3 – 12 months visits. Four of the academic visitors were promoted to full professor at their universities shortly after their visits, three becoming department chairs and another, an institute director.

All these experiences provided me with a strong background in education, graduate and post-graduate mentoring, combined with a productive research career. I have been an active member of the team, which worked on the establishment and ABET accreditation of the novel interdisciplinary Mechanical Polymer Engineering Baccalaureate (BSMPE) Program at The University of Akron. I have taught 5 out of 9 courses specific to this program. I participated as co-investigator in many joint research and teaching proposals from UA, including two GANN (Graduate Assistance in Areas of National Need) proposals.

At Clarkson University, I served as the Departmental Laboratory Director, in charge of the laboratory budget for the MAE Department during January 1984 to August 1985, and successfully accomplished the reorganization of the Clarkson University's MAE Department's instructional laboratory for the 1984 ABET accreditation process, which was successful.

I emphasize the experiential learning process. For example, among some of the teaching innovations and improvements

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I implemented at Clarkson University's Undergraduate Program were the following: I obtained state of the art software packages which perform feasibility and optimization analysis for composite materials with respect to constituent (i.e. fiber and matrix) and lay-up (i.e. fiber angle w.r.t. loading axes) selection. I used these programs in ME 457, Mechanics of Composite Materials course, which I introduced. I used this software not only to support the basic composites knowledge conveyed in the course but also for design project purposes. Many students involved in car projects including the Solar Car, Mini Baja, and the Mini Indy utilized this software while they were taking my course and implemented actual parts for their car projects. Other students utilized the course and the software to implement their own design ideas such as canoe paddles, fishing poles etc. I believe the availability of these programs to the students greatly improved the quality and efficiency of the course while exposing them to the type of software packages they are likely to use in their future career.

At UA, I prepared teaching Modules for the "High Institute for Elastomer Industries", funded by Saudi Basic Industries Corporation (SABIC), Exxon Mobil Chemical, the Technical Vocational Training Corporation (TVTC) and the Saudi National Industrial Clusters Development Program (NICDP) (2011-2013). During 2000-2001, I was involved in acquisition of "Designsafe" Software to Incorporate Safety, Health, and Environmental Concerns in Capstone Engineering Design Courses for our BSMPE program as funded by the National Safety Council- Institute for Safety through Design. During 1996, I developed "Learning Modules for Adhesive Joining" as funded by the Ohio State University / NEMJET program.

I consider all my publications as teaching tools. Certainly, the Chapters I contributed to Handbook of Adhesion Technology (2 Chapters, 2nd Ed. 2018) and Engineered Materials Handbook Volume 3: Adhesives and Sealants (2 Chapters, 1990) are teaching tools. My research journal publications are also teaching tools; for example, if one of my open access journal papers with my graduate student published in Polymers Journal now has over 22,000 downloads, or another one listed at "Researchgate" has over 1,500 reads, we can say that they served as excellent teaching tools. Published patents are also teaching tools.

What are some of your favorite things to do when you're not teaching?
Spending time with my wife, two sons and their families with 3 grandkids, as well as with our friend for 12 years, our dog Candy. I should also add riding my 2003 "Anniversary Edition" Corvette or my 1985 C4 Corvette, as well as visiting our Vacation Home in Florida and enjoying my Tiger Shark Jet Ski there.

What do you love most about your job at The University of Akron, and your work through your particular department?
Mentoring/interacting with/learning from Graduate Students and Visiting Scholars; teaching classes and interacting with students; publishing our research works to contribute to science and technology.

What are your goals for CPSPE and your department?
If we look at Wikipedia under "University of Akron", the third sentence contains the word "polymers". As I mentioned earlier, the Polymer Science and Polymer Engineering College has been ranked second in the nation by the U.S. News and World Report. My goal, which I believe is the same for all other members of the College is to maintain and enhance this extraordinary reputation. The least we should do for this purpose is to look at our professional performance at the time of our hire at UA and make sure that our performance is treading an upward slope.

What is one thing that you hope each of your students learned from you?
Helping others.