



COLLEGE OF ENGINEERING
LAMAR UNIVERSITY
STEM Outreach



Science



Technology



Engineering



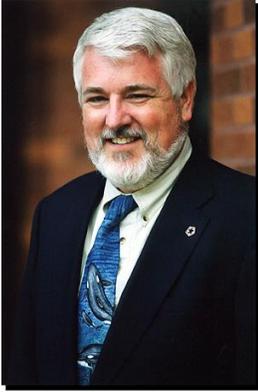
Math

Speakers

Speakers

Teacher STEM Seminar 2014

Speakers and Sessions



Presenter: Dr. Harley Myler, PE

Professor and Chair, Phillip M. Drayer Department of Electrical Engineering

Harley Myler is a Professor and Chair in the Phillip M. Drayer Department of Electrical Engineering at Lamar University in Beaumont. He received his PhD EE and MSEE degrees from the New Mexico State University in 1985 and 1981, and the BSEE from Virginia Military Institute in 1975. His research interests are in telecommunications, embedded systems and control. Dr. Myler is author or co-author of over 90 publications, including four books and various journal articles and conference submissions. In addition to his academic research, he has consulted extensively in industry for several years and is named in three patents. One of his patents is the first in the intellectual property portfolio of Lamar University and he is the first engineering faculty member to be awarded a Fulbright grant. With over thirty years in higher education, he has taught hundreds of students at the bachelor's, master's and doctoral levels of engineering instruction.

Session: Early Start Engineering: why engineering education should start at grade 10 and how to do it.

This presentation will begin by addressing a well-known saying from Spinoza where he stated that: *many errors, of a truth, consist merely in the application of the wrong names of things*. What exactly does it mean to be an engineer in today's society and how does a young person who aspires to be one prepare for engineering as a career? More importantly, how do our teachers help them do it? Possibly in antithesis to the title of this talk, engineering education can begin at any age, but the formal education should, according to Dr. Myler's thesis, begin in 10th grade and notwithstanding this assertion, the talk will appeal to teachers at all levels since preparation should begin as soon as possible and should be modulated to address student interest depending on where they are in the educational process. Dr. Myler will present an engineering career roadmap for teachers in all grades as an aid to getting their students what they need for engineering, with a focus on why engineering in 10th grade, and the preparation for it and following it, is so important. He will also present a 10th grade engineering syllabus outline for discussion.



Speakers and Sessions



Presenter, co-author: Dr. C. Jerry Lin

Professor and University Scholar, Department of Civil Engineering

Dr. C. Jerry Lin is professor of environmental engineering at Lamar University, Beaumont, TX. He was named the 2012 University Professor and Ann Die-Hasselmo Faculty Scholar by Lamar University, the 2008 University Scholar by Lamar University, and was the recipient of the Chi-Epsilon (the civil engineering honor society) James M. Robbins Excellence in Teaching Award.

Dr. Lin received his BS in Chemical Engineering at Tatung University (Taipei, Taiwan) in 1991, MS in Environmental Engineering at Duke University (Durham, NC, USA), and Ph.D. at the University of Cincinnati (Cincinnati, OH, USA). He was a postdoctoral associate from 1998-1999 at Oak Ridge National Laboratory. Dr. Lin has been a faculty member at Lamar University since 1999 and a registered professional engineer in the State of Ohio since 2000.

Dr. Lin is a prolific researcher. His areas of expertise are air quality and water & wastewater engineering. As a principal investigator for numerous research programs funded by NSF, EPA, DoD, USDA and TCEQ, he has authored or co-authored more than 70 peer-reviewed publications in membrane technology, wastewater treatment and fate and transport of atmospheric pollutants, which have been cited more than 1,500 times. Dr. Lin has given more than 45 invited talks (including two plenary), and received a number of research awards. He serves as a member in the USEPA Science Advisory Board and TxDOT Technical Advisory Panel. He also works extensively with refinery and paper industries in a number of waste-to-energy, biological wastewater treatment and emission control projects. In addition to his research, Dr. Lin is also an active proponent of STEM education through his research activities and educational outreaches. In the past 14 years with Lamar, he has been hosting summer laboratory visits for K-12 students, giving seminars on environmental science & engineering to students from elementary to graduate schools, and leading high-school, undergraduate and graduate students to conduct environmental research and to participate in regional and national science/engineering competitions.

January 13, 2014

Speakers and Sessions



Co-author: Dr. Nicholas A. Brake

Assistant Professor, Department of Civil Engineering

Dr. Brake is an assistant professor of civil engineering at Lamar University, Beaumont, TX. He received his B.S. in 2005, M.S. in 2008, and Ph.D. in 2012, from Michigan State University (East Lansing, MI, USA). Dr. Brake received the College of Engineering Outstanding Graduate Student Award in 2012 from Michigan State University. He has been at Lamar University since 2012.

His research interests include fatigue fracture of cementitious and composite material, structural health monitoring using optical methods, early-age concrete pavement performance and durability interactions, finite element analysis, steel-concrete bond enhancement, and the development of blast-resistant multi-functional structures.

Dr. Brake currently teaches six courses at Lamar University: Civil Engineering Materials, Pavement Analysis and Design, Statics, Structural Analysis I and II, and Structural Dynamics. He is the faculty adviser for Engineers without Borders (EWB), and faculty mentor for the ASCE steel bridge and concrete canoe teams. Dr. Brake also serves on two Transportation Research Board (TRB) committees focused on enhancing properties of concrete and rigid pavement design.

Session: Effective engineering teaching: from theoretical to real-world applications

College students find themselves in an exciting transformative period. The successful student will have learned to efficiently manage their time, problem solve, and develop a passion for the long-life pursuit of knowledge. University professors are responsible for being the transformative catalyst that inspires these students' interest, expands their intellect, and guides their academic progress and maturation. A successful professor has mastered the techniques of teaching, leaving students enlightened, inspired, and prepared to face real-world challenges.

The objective of this seminar is to better explain the teaching methods used by a variety of university faculty in engineering so high school STEM field educators can better prepare students for college. Lowman's two dimensional teaching model is first presented, along with some notes on college-level engineering student preparedness, accountability, and performance measures. Two sample engineering problems are then provided to show the teaching model in action and provide a deeper understanding of the importance of basic calculus and physics in the field of engineering.



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Speakers and Sessions



Co-author: Dr. Alberto Marquez, PE

Professor, Department of Industrial Engineering

His research interests include modeling for decision making and optimization with applications to supply chain, heuristic algorithm development, effective modeling and training for decision making. His publications encompass the developing of decision support systems for supply chain design; manufacturing, transportation and warehousing optimization, manufacturing capacity modeling and forecasting, simulation, scheduling, inventory policy, and process design and optimization

He got his Ph.D. in Industrial Engineering at Arizona State University in 1999 with a Fulbright-Contact scholarship. His previous academic appointment was Department Chair of Industrial Engineering at Tecnológico de Monterrey in Mexico City.

He has worked for or had projects with Procter & Gamble Mexico, IBM Canada, Vitro, Motorola and Burr-Brown, and others. He has functional experience in logistics, distribution, industrial engineering, and education. The industries he has worked with include high-tech manufacturing, consumer products and auto-parts manufacturing.

January 13, 2014

Speakers and Sessions



Co-author: Dr. Weihang Zhu

Professor, Department of Industrial Engineering

Weihang Zhu got his Ph.D degree from Industrial Engineering at NC State University in 2003. He received his B.S. and M.S., both in Energy Engineering, from Zhejiang University, China, in 1997 and 2000 respectively. His research interests include computer haptics, haptic applications in CAD/CAM, multi-axis NC surface machining, polyhedral machining, high speed machining, computational geometry, discrete-event computer simulation, and logistics. His past research interest in Zhejiang University was in Power Plant Automation and Optimization.

He started out working at Yantric Inc., founded by Dr. Srinivasan at MIT Touch Lab. Then later went to work for SensAble Technologies, Inc, the leading provider of desktop haptic devices. He was working as a Product Specialist for Haptic Devices and Toolkits.

Weihang Zhu served as the Vice President of IEGSA (Industrial Engineering Graduate Student Association), Vice President of the NCSU Chinese Tai Chi club. In addition, he was also the IE Departmental Ambassador for OISSS (Office of International Students and Scholars). He was active in volunteering. His past volunteer experience included NC food bank, Habitat for Humanity, Exploris, Service Raleigh, OISSS, etc.

Session: Mobile Apps for STEM Education

Mobile multimedia learning: A review of some available apps to aid in STEM courses in and out of the class room. Discussion of our own experience using apps to support teaching an engineering course or science course.

