Abstract:

During this discussion, Dr. Rick Zadoks will touch on three areas that impact the future of Engineering Design Education, and ultimately how aspects of these three areas will or should impact the ME Senior Design experience at Purdue. As a starting point Dr. Zadoks will touch on some common (though not universal) strengths and weaknesses of today’s young engineers. He then will share some thoughts on the April 2017 changes to ABET Criterion 3 and 5 and how these relate, in general, to the current state of Purdue’s ME curriculum and, in particular, to the structure of ME463. Closing out the three areas, Dr. Zadoks will review industrial participation models used by various Mechanical Engineering programs in the US.

Based on these views of young engineers’ common strengths and weaknesses, new ABET Criterion 3 and 5, and industry participation, Dr. Zadoks will provide some short and long term proposals for opportunities to improve Purdue’s Mechanical Engineering Design Education, with strong focus on the Senior Design experience. This is expected to be a dialogue, with Dr. Zadoks’ views and proposals presented primarily to start the discussion with the audience.

Biography:

Dr. Rick Zadoks is the Engineering Technical Steward for Engine Dynamics in the Large Power Systems Division of Caterpillar Inc. Having served in this role since 2008, Dr. Zadoks is responsible for the technology used to simulate and validate the dynamic behavior of compression ignition (Diesel) and spark ignited (gaseous fuels) reciprocating engines, with a focus on crankshafts, torsional dampers, torsionally flexible couplings, engine gear trains, and valve trains. At Caterpillar, Dr. Zadoks has also been the Engineering Manager for Engine Thermo-Fluids Simulation Development and a 6 Sigma Black Belt (Certified). He currently serves on the Advisory Board for the Torsional Vibration Symposium and is the Chair of Purdue’s School of Engineering Education Industrial Advisory Council.

Prior to joining Caterpillar in 2000, Dr. Zadoks was an Associate Professor in Mechanical and Industrial Engineering at the University of Texas- El Paso, and an Assistant Professor in Mechanical Engineering at the University of New Mexico. He also worked as a Consultant for the Sandia National Laboratories. During this period, Dr. Zadoks taught undergraduate courses in the area of machine design, and graduate courses in the area of linear and nonlinear dynamics and vibration. He also directed research related to the dynamics of mechanical systems (bolts joints, gear trains, and wind turbines) and the use of electronic media to develop documentation for finite element analysis codes. Dr. Zadoks earned his Doctor of Philosophy degree (Mechanical Engineering) from Purdue University in 1988.