West Texas A&M University

Mechanical Engineering

Roy Issa, Ph.D.
Associate Professor of Mechanical Engineering

Research Areas and Expertise

Thermal-Fluid Sciences
Transfer and Fluid Dynamics (Single Phase, Multi-Phase Flow, Newtonian Fluids, and Non-Newtonian Fluids)
Sustainable Energy Systems
Power Generation
Numerical Modeling
Air Mist Cooling in Metal Production

Contact

Roy Issa, Ph.D.
Associate Professor of Mechanical Engineering
West Texas A&M University
WTAMU Box 60767
Canyon, TX 79016
806-651-5261
rissa@wtamu.edu
http://bit.ly/2GDtI8h

Wind Turbine Research Interest

Dr. Issa is interested in conducting a life cycle assessment study on a wind turbine mill to examine the eco-aspects associated with its life cycle stages. Economic, energy, and environmental impact analysis on its different life cycle stages can be performed. These stages include wind turbine design and development, raw materials resources, manufacturing of various system components, lifetime operation, and disposal and recycling at the end-of-life. The relative impact the wind turbine system components will have on energy resources and the environment, along with the interaction between the different sectors in the economy can then be assessed.

Professional Profile

Dr. Issa joined the School of Engineering, Computer Science, and Mathematics in 2004, a year after it started. Since joining the department, he has been in charge of the enhancement of the thermal sciences undergraduate laboratory. His background is in the area of thermal-fluid sciences and particularly in single and multi-phase heat transfer. Dr. Issa has four years of prior work experience in the aerospace industry, and eight years of experience in the steel rolling industry. While working in the steel industry, he conducted extensive studies on the cooling of rolls and flat products in the hot strip mill. He is a co-inventor on a U.S. patent on the rolling of flat products.

Academic Research

His academic activities focus on conducting research in areas that are important to the industry, but are fundamental in nature such as using multi-phase (air-mist) cooling in the quenching of metals for the steel industry, tempering of glass for the auto industry, and chilling of beef carcasses for the meat processing industry. In addition, he has conducted studies on sustainable energy systems such as wind towers for indoor cooling, green roofs, active solar distillation, and the incorporation of phase change materials in conventional building walls. Recently, he has conducted studies on the enhancement of the thermal transport in heat exchanger systems using water-based nanofluids.

Education

- University of Tennessee, Mechanical Engineering – B.S., M.S.
- University of Pittsburgh, Mechanical Engineering – Ph.D.

Publications

Dr. Issa is an author and co-author of over 40 journal and conference papers in the area of heat transfer and fluid dynamics.

Accolades

He was selected as a Fulbright Scholar to Austria in 2015-2016.

Patents

Co-inventor for U.S. patent on rolling of flat products.