Georgia Tech Aerospace Engineering
Daniel Guggenheim School of Aerospace Engineering

Gebhardt Distinguished Lecture Series presents

"Inventing the F-35 Joint Strike Fighter"

Prof. Paul Bevilaqua

Distinguished Professor, University of Miami, Florida

Thursday, December 6, 2012 -- 3:30pm -- Guggenheim (G442)

Abstract:

During the first century of flight, the focus of aerospace education has been on the methods of predicting lift and drag, with cost and schedule as dependent variables. Consequently, our engineers are very good at predicting performance, and aviation is one of the few areas where America sill has a favorable balance of trade. But America is facing new challenges as it works to adapt to the changing economy, energy, environmental and security demands of our nation. The mechanism for addressing these challenges during the next century of flight will be to focus education on achieving technical innovation with cost and schedule as independent variables and real constraints. This presentation will describe the development of the F-35 Joint Strike Fighter, which illustrates how technical innovation and a Lean approach to aircraft design can assure continued aviation leadership in this next century of flight. The technical innovation involves designing three highly common, but identical, variants of the same aircraft, incorporating a novel turboshaft cycle for vertical takeoff and landing. The principles of Lean Manufacturing were applied to the design process in order to control cost and schedule. The Collier Trophy, which each year recognizes "the greatest achievement in aeronautics or astronautics in America" was awarded to the development team for these accomplishments.

Bio:

Dr. Paul Bevilaqua has spent much of his career developing Vertical Take Off and Landing aircraft. He joined Lockheed Martin as Chief Aeronautical Scientist and became Chief Engineer of the Skunk Works, where he played a leading role in creating the Joint Strike Fighter. He invented the dual cycle propulsion system that made it possible to build a stealthy supersonic Vertical Take Off and Landing Strike Fighter, and suggested that conventional and naval variants of this aircraft could be developed to create a common, affordable aircraft for all three services. He subsequently led the engineering team that demonstrated the feasibility of building this aircraft. He retired from Lockheed Martin last year, and is currently a Distinguished Professor at the University of Miami, Florida.

Prior to joining Lockheed Martin, he was Manager of Advanced Programs at Rockwell International's Navy aircraft plant, where he led the design of VSTOL interceptor and transport aircraft. He began his career as an Air Force officer at Wright Patterson AFB, where he developed a powered lift system for an Air Force VSTOL Search and Rescue Aircraft. He received his BS in Aeronautical Engineering from the University of Notre Dame and MS and PhD degrees from Purdue University.

He is a member of the National Academy of Engineering and a Fellow of the American Institute of Aeronautics and Astronautics. He also received the AIAA and SAE Aircraft Design Awards, AIAA and AHS VSTOL Awards, Lockheed Martin AeroStar and Nova Awards, and a USAF scientific Achievement Award.

www.ae.gatech.edu