

# AAE TEACHING SEMINAR

## Aircraft Take-Off and Landing Performance

**TUESDAY APRIL 7TH 2:00PM-2:50PM**  
**ARMS B061 OR ZOOM**

### JOHN MULLIN

#### Abstract

Dr Mullin will teach on Aircraft Take-Off and Landing Performance. The aim of the class will be for the students to learn the basic definition and derivation of the equations for aircraft take-off and landing. Then take the FAA requirements and further apply these equations across the take-off and landing segments to refine their application to the aircraft design cycle. Throughout the demonstration, industrial insights will be pointed out and discussed. The learned knowledge should support senior design classes or capstone projects that include design and performance of an aircraft.

As part of this teaching demonstration and as a part of my teaching philosophy this lecture starts with a statement of prior knowledge detailing what I'd expect the students to have learned from previous classes that support the subject. The teaching material is aimed at Aerospace Undergraduates between Sophomore and Senior levels. This demonstration will be a lecture style class with built in questions/dialog to monitor class engagement and learning.

#### Biography

Dr. Mullin has over 25 years of aerospace industrial experience in research, development, and product delivery in fluid dynamics, cryocoolers, high energy laser weapon systems, aircraft systems, space systems, system engineering and program management.

Dr. Mullin is currently employed at Northrop Grumman Aeronautics Systems where he is the Director for the Autonomous Collaborative Platform Operating Unit. In previous roles at NGC, he has been the Director of a Strike Program Operating Unit, Chief Engineer and Director of System Engineering on the Next Generation Polar (NGP) Missile Warning Program and a Payload Program within the National Security Space Programs. In these roles he led diverse system engineering teams while holding the technical responsibility for the programs. Earlier he was a Program Director for the US Navy Maritime Laser Weapon System Demonstrator Program and the Deputy Program Manager and Chief Engineer on the NASA Mid-Infrared Instrument Cryocooler Program for the James Webb Space Telescope. He has led and managed cross functional teams through the capture, design, manufacturing, integration, and testing phases.

Before joining Northrop Grumman, Dr. Mullin was the Chief Engineer at the duPont Aerospace Company where his responsibilities encompassed providing direction and technical leadership to the engineering team. His primary focus was on the development and testing of an all composite Vertical Take-Off and Landing jet aircraft.

Dr. Mullin received his Bachelor of Science degree in Aerospace Engineering from the University of Southern California in 1995 with a focus on Aerodynamics and Flight Performance. He received a Master of Science and Ph.D. in Aerospace Engineering from the University of Michigan in 2004 with a focus on fluid dynamics of reacting and non-reacting turbulent flows. His measurements provided the first experimentally obtained direct, highly resolved measurements of the complete nine-component velocity gradient tensor providing detailed data for Large Eddy Simulation Modeling (LES). He is the author of peer reviewed journal articles and has presented at technical conferences.