

# AEROSPACE

## SHORT COURSES

### **Application of Human Factors Engineering to the Life Cycle Management of Aeronautical Products and Systems (AERO0150)**

**Instructor: Andrew Appleton**

#### **Course Description**

This introductory course will provide attendees with a solid foundation of knowledge and skills necessary to successfully apply Human Factors Engineering (HFE) and Human System Integration (HSI) to their daily work. Attendees will attain familiarity with and trust in HFE/HSI principles and practices to consider and implement at their workplace. This understanding will provide attendees with the knowledge and skills to inject HFE/HSI at an early stage in the life cycle of their aeronautical products and systems. Doing so will produce a safer, user-centered product that can lower the cost of the product over the entire course of its life cycle.

#### **Learning Objectives**

- Understand Human Factors Engineering (HFE) and Human System Integration (HSI);
- Analyze and apply HFE airworthiness standards
- Evaluate and assess the usability and utility of aeronautical products
- Understand the HFE aspects of aircraft displays and aircraft controls
- Analyze anthropometrics and how it applies to integrating aircraft technical systems and the human
- Assess aircraft display graphical user interfaces
- Understand the HFE aspects of aircraft auditory displays
- Assess the aircraft cockpit for reach, vision and accommodation

#### **Who Should Attend?**

Aeronautical product designers, aeronautical system specialist engineers, aviation system safety specialists, aircraft occupant safety specialists and airworthiness program managers.

#### **Course Highlights**

- Characteristics and capabilities of aircrew and how they are affected by the technical aircraft systems with which they work
- How the application of HFE and HSI considerations to aeronautical product and system design and modification contributes to safe operation

- How to consider and apply HFE and HSI principles and practices in aviation design, modification or maintenance duties
- How to consider and apply HFE in a systems integration approach to aeronautical product and system design and modification
- How to apply Human Factors requirements traceability to aeronautical product and system design and modifications
- The cost-savings to aeronautical product and system or airworthiness projects through the early injection of HFE and HSI

## **Course Outline**

### **Day 1**

- Introduction to Instructor
- User-centered design
- Human factors engineering and human system integration
- HFE Standards, applied to aeronautical systems
- Applying human engineering in system design of aeronautical products

### **Day 2**

- HFE considerations for flightdeck visual displays
- HFE considerations for flightdeck controls
- HFE considerations of flightdeck auditory signals and alarms
- Usability and utility of flightdeck displays and controls
- Translating technical requirements to operator requirements

### **Day 3**

- Introduction to anthropometrics
- Application of anthropometrics to aeronautical products
- Assessing flightdeck and cabin for reach, vision and accommodation
- Aircrew workload and situation awareness

### **Day 4**

- Measurement of aircrew workload and situation awareness
- HFE of aircraft training
- HFE system integration in aircraft design and modification
- Course material review/student feedback

## **Classroom hours / CEUs**

28.00 classroom hours

2.8 CEUs

## **Certificate Track**

Aircraft Maintenance and Safety

**Course Fees**

Early registration course fee: \$2,295 if you register and pay by the early registration deadline (45 days out).

Regular registration course fee: \$2,495 if you register and pay after the early registration deadline.

**Course Materials**

Course materials, including outlines, presentation copies, and supplementary materials, will be accessible through Canvas, KU's online learning system. Instructions to access Canvas will be provided upon completed registration. Students are required to bring a computer or other electronic device with PDF-viewing capabilities with them to class each day. If you require accommodation contact us at [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu) and we will work with you on an accessible solution.

**U.S. Federal Employee Discount**

This course is available to U.S. federal employees at 10% off the registration fee. To receive the federal employee discount, you must enter the code **FGVT116** during the checkout process. Please note that you must validate your eligibility to receive this discount by entering your U.S. government email address (ending in .gov or .mil) when creating your online registration profile. This discount is available for both the early registration and regular registration fees.

**Canada Department of National Defence Discount**

This course is available to Canada DND employees at 10% off the registration fee. Please contact the DND Procurement Authority (DAP 2-3) for details. Please note that you cannot register using our online system when requesting this discount. This discount is available for both the early registration and regular registration fees.

**Instructor Bio**

Andrew Appleton, CD M.Sc. is a consultant in human factors engineering and human systems integration engineering. He served 26 years in the Canadian Forces, including 15 years as a commissioned officer. While with the Canadian Forces, Andrew obtained his B.Sc. from St. Mary's University and his Master of Science in Ergonomics/Human Factors from Loughborough University (UK). Andrew retired from the Canadian Forces in January 2009. He then served as a human factors consultant at CAE Professional Services Canada Inc., where he applied his skills to the Halifax Class Modernization Project for the Canadian Navy, and the Canadian Air Force/Navy Maritime Helicopter Project. In 2012, Andrew formed his own consultancy company, AJ Appleton Consulting Inc. He is currently a Senior Aerospace Engineer in the Project Management Office for the Royal Canadian Air Force's Medium Heavy-Lift Helicopter (PMO MHLH).

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