

# AEROSPACE SHORT COURSES



**COMPLETE 2024 SCHEDULE INSIDE**

Online courses, webinars, and more ways to learn

**KU JAYHAWK  
GLOBAL**

The University of Kansas

# CONTENTS

Learning is ongoing ..... 1

Project and technology management; leadership and communications ..... 2

In-person course information..... 3

Course fees and discounts..... 3

Scheduled online courses ..... 4

Scheduled in-person courses ..... 4-5

Certificates of specialization ..... 6-7

Course descriptions ..... 8-30

What people are saying ..... 31

How to register..... 32

Policies..... 33

Catalog index ..... 34

Registration form ..... 35

## ORGANIZATIONS TRUST KU AEROSPACE SHORT COURSES

For more than 40 years, aerospace organizations have looked to the University of Kansas Aerospace Short Course Program to deliver high-quality training. Now that same high-quality training can be delivered in-person or online. Contact us today to find out how you and your team can benefit from training delivered directly to your organization:

- 50-plus courses available.
- Flexible scheduling.
- Customizable content.
- Competitive pricing.
- No employee travel.
- Online and in-person.

**Do you have questions about bringing a course to your organization? Reach out to us today for a no-cost, no-obligation proposal. Contact Marina Enclarde at 913-897-8781 or email [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).**



# LEARNING IS ONGOING

## Learn Online – Look for the icon

Now more Aerospace Short Courses are available online than ever before – for both individual and organization-based delivery.

See our publicly scheduled online classes on page 4.

## Learn where you work

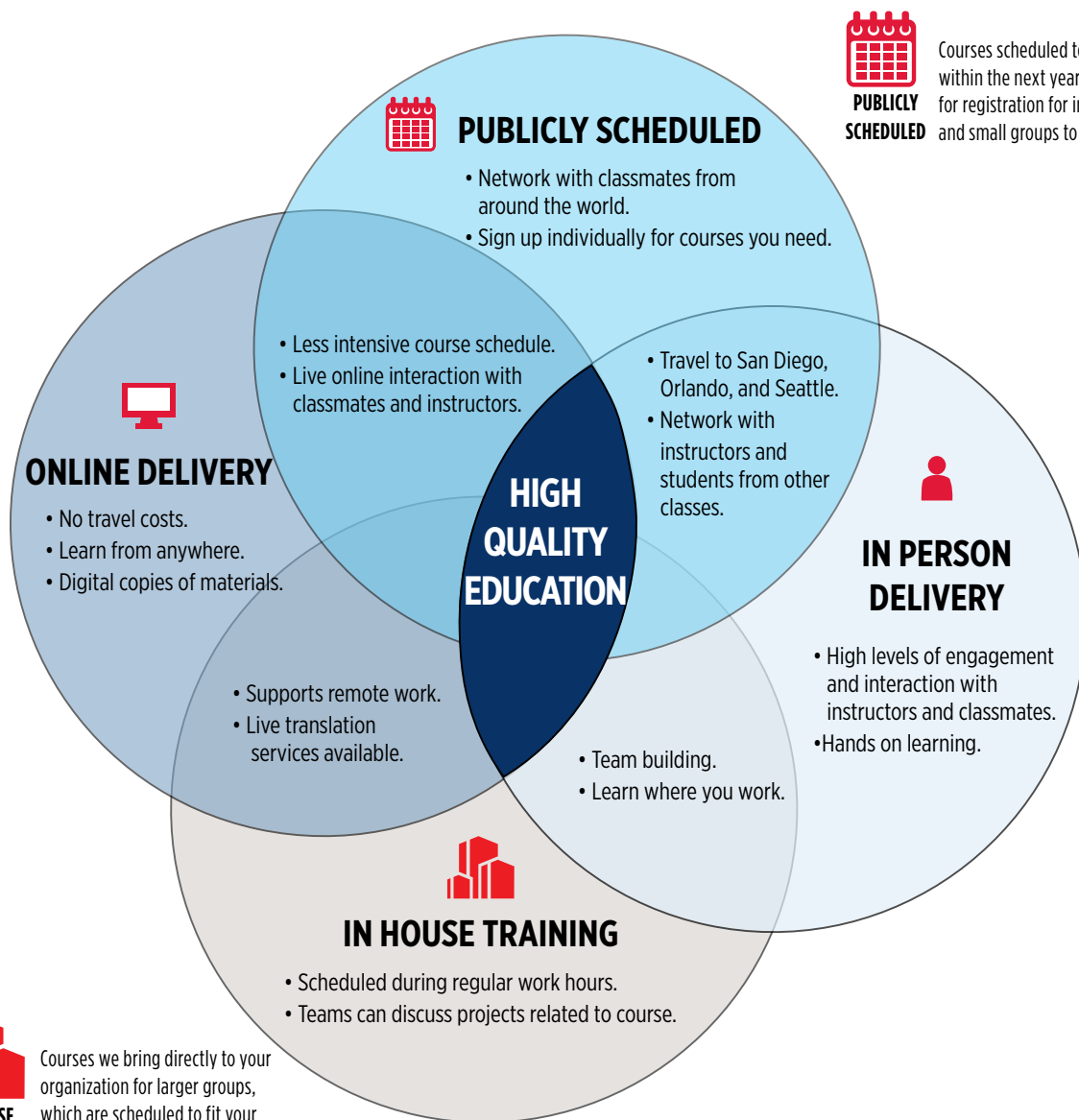
Interested in online or in-person course delivery at your organization? Only have a small group in your organization that needs a specific course?

Contact Marina Enclarde at 913-897-8781 or email [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## Learn in the classroom – Look for the icon

Each year, the KU Aerospace Short Course program brings groups of short courses to popular U.S. locations, including Seattle, San Diego, and Orlando. Individual courses range from one to five days in length and are delivered in a traditional classroom setting. Learn in-person from industry expert instructors, enhanced by group discussions. Network with aerospace peers from around the globe.

See publicly scheduled in-person courses beginning on page 4.



Courses we bring directly to your organization for larger groups, which are scheduled to fit your organization's timeframe and needs.

# PROJECT AND TECHNOLOGY MANAGEMENT

These project and technology management classes are all available online. These self-paced (not live) classes will fit anywhere in your busy schedule. Learn at your own pace, complete at your convenience.

## ONLINE AND SELF-PACED

### Learn Six Sigma Green Belt Certification

This face-to-face and online five-day program prepares new Green Belts to lead projects and contribute to improving services and manufacturing. It is delivered at the KU Edwards Campus and online.

### Warehouse and Distribution Center Layout Seminar

Learn to reduce operating costs by improving warehouse processes and inventory control by optimizing layout, methods selection, space, and material handling.

### Planning Lean Layouts with SLP

System Layout Planning (SLP) is recognized throughout the world as the most organized way to lay out a facility for efficient operation. This course will prepare you to lead layout projects using SLP and to achieve remarkable results in record time.

Visit [jayhawkglobal.ku.edu/engineering-technology-courses](http://jayhawkglobal.ku.edu/engineering-technology-courses) for additional classes.

# LEADERSHIP AND COMMUNICATIONS

## LIVE ONLINE

### Overcoming Resistance to Change

In this program, we explore the critically important change framework of tasks, relationships and identities. We also examine how to have effective change management conversations and how to diagnose whether resistance to change is caused by thoughts, fears, or skill capacity.

### Leading with Emotional Intelligence

Just being great at your job is no longer enough. Technical competence is only half the picture in the current business landscape. Employers want professionals who possess high Emotional Intelligence, or EQ, which is an array of social competencies that determine how we relate to ourselves and others and how we deal with the demands and pressures of our work and family lives.

### Building a Winning Culture

In this program, we explore the three essential levels of organizational culture: artifacts, espoused values, and underlying assumptions. We also discuss the five tribes - or team identities - that exist in most cultures, and how to ladder teams up to higher performance and higher levels of satisfaction. Finally, we investigate the role of five key dysfunctions in impeding cultural growth.

## ONLINE AND SELF-PACED

### New Manager Essentials: 15 Terrific Tools

There is no "owner's manual" for first-time supervisors and new managers. It can be daunting to effectively manage a team of professionals, make important decisions and navigate through organizational change without losing momentum. This package of recorded webinars is designed to equip new managers with tools to lead people, enhance productivity and avoid costly decisions.

Visit [jayhawkglobal.ku.edu/leadership](http://jayhawkglobal.ku.edu/leadership) for additional classes.



# UPCOMING IN-PERSON COURSE INFORMATION

Visit each program’s website listed below for details on the course venue, accommodation options, course descriptions, registration information, and other relevant information.

## SEATTLE, WASHINGTON

DoubleTree by Hilton Seattle  
Airport Southcenter  
April 8 - 12, 2024  
[jayhawkglobal.ku.edu/aero-seattle](http://jayhawkglobal.ku.edu/aero-seattle)

## SAN DIEGO, CALIFORNIA

San Diego Marriott  
Mission Valley  
Sept. 16 - 20, 2024  
[jayhawkglobal.ku.edu/aero-sandiego](http://jayhawkglobal.ku.edu/aero-sandiego)

## ORLANDO, FLORIDA

B Resort  
Disney Springs  
Oct. 14 - 18, 2024  
[jayhawkglobal.ku.edu/aero-orlando](http://jayhawkglobal.ku.edu/aero-orlando)

### Lodging

A limited number of rooms will be available at the course venue or nearby hotel for attendees to book lodging at a discounted rate. For rate information and booking instructions, visit the program’s website.

### International travelers

Are you planning to attend one of our courses in the United States but are not a U.S. citizen? Please visit [travel.state.gov](http://travel.state.gov) for visa and travel information.

## COURSE REGISTRATION FEES

CLASS LENGTH	IN-PERSON COURSE	ONLINE COURSE
1-day class	\$995/\$1,045*	N/A
3-day class	\$1,995/\$2,095*	\$1,795/\$1,895*
4-day class	\$2,295/\$2,495*	\$1,895/\$2,095*
5-day class	\$2,595/ \$2,795*	\$2,195/\$2,395*

\* Save up to **\$200** on the course registration fee when you register and pay at least 45 days in advance for in-person courses, and seven or more days in advance for online courses.

## DISCOUNTS

### ★ U.S. Federal Employee discount

All courses are available to U.S. federal employees at 10% off the registration fee. To receive the federal employee discount, you must enter the code fgvt116 on the registration form or during the online checkout process.

### 🍁 Canada Department of National Defence Discount

Most courses are available to Canada DND employees at 10% off the registration fee. Please contact the DND Procurement Authority (DAP 2-3) for details. Please note you cannot register using our online system when requesting this discount.

### 🇳🇱 Netherlands Defence Academy Discount

All courses are available to Netherlands Defence Academy employees at a discounted registration fee. Please contact the NDA Procurement and Contracting department for details. You cannot register using our online system when requesting this discount.



# SCHEDULED ONLINE COURSES

Advance your knowledge, skills, and career from wherever you are.

We’re actively developing new online learning opportunities so you can continue meeting your professional development goals. Now you can take advantage of high-quality and engaging live online Aerospace Short Courses – our highest-demand topics from instructors working in industry and academia. Visit our Online Learning page at [jayhawkglobal.ku.edu/aero-online-courses](http://jayhawkglobal.ku.edu/aero-online-courses) for complete details.



## Upcoming open enrollment online classes:

- **Advanced Avionics** – Oct. 23, 2023.
- **Application of Human Factors Engineering to the Life Cycle Management of Aeronautical Products and Systems** – Jan. 16, 2024.
- **Electrical Interconnection System (EWIS) and FAA Requirements** – Jan. 30, 2024

Visit [jayhawkglobal.ku.edu/aero-online-courses](http://jayhawkglobal.ku.edu/aero-online-courses) for more information on upcoming online classes.

Did you know? We keep recordings of all our previously held webinars at [jayhawkglobal.ku.edu/aero-online](http://jayhawkglobal.ku.edu/aero-online). Keep an eye out for more webinars coming this fall!

# 2024 PUBLIC COURSES BY DATE AND LOCATION

SEATTLE, WASHINGTON | APRIL 8-12, 2024

DoubleTree Suites by Hilton Hotel Seattle Airport Southcenter | [jayhawkglobal.ku.edu/aero-seattle](http://jayhawkglobal.ku.edu/aero-seattle)

MONDAY 4/8	TUESDAY 4/9	WEDNESDAY 4/10	THURSDAY 4/11	FRIDAY 4/12
Aircraft Lightning: Requirements, Component Testing, Aircraft Testing and Certification p. 11				
Aircraft Propulsion Systems: Principles and Practices p. 11				
Aircraft Structural Loads: Criteria, Analysis, and Validation p. 12				
Electrical Wiring Interconnection System (EWIS) Safety Assessment - 25.1709 p. 16				
Flight Testing Unmanned Aircraft Systems - Unique Challenges p. 19				
Introduction to FAA Airworthiness Approval Requirements p. 23				
Introduction to RTCA DO-160 Qualification: Purpose, Testing and Design Considerations p. 24				
Stress Analysis for Aerospace Structures p. 28				
System Safety Assessment for Commercial Aircraft Aviation p. 29				

# 2024 PUBLIC COURSES BY DATE AND LOCATION

## SAN DIEGO, CALIFORNIA | SEPT. 16 - 20, 2024

San Diego Marriott Mission Valley | [jayhawkglobal.ku.edu/aero-sandiego](http://jayhawkglobal.ku.edu/aero-sandiego)

MONDAY 9/16	TUESDAY 9/17	WEDNESDAY 9/18	THURSDAY 9/19	FRIDAY 9/20
Aerodynamic Design of Military Aircraft p. 9				
Aircraft Avionics Test and Evaluation Fundamentals p. 10				
Aircraft Icing: Meteorology, Protective Systems, Instrumentation, and Certification p. 10				
Airplane Flight Dynamics p. 13				
Dynamics for Aerospace Structures p. 15				
FAA Type Certification Process p. 18				
Fundamentals of V/STOL Rotorcraft p. 20				
High-Intensity Radiated Fields (HIRF) Certification and Compliance p. 21				
Introduction to Electromagnetic Effects and Aircraft Engineering Requirements p. 23				
Operational Test and Evaluation: User-Centric Systems Testing p. 26				

## ORLANDO, FLORIDA | OCT. 14 - 18, 2024

B Resort | [jayhawkglobal.ku.edu/aero-orlando](http://jayhawkglobal.ku.edu/aero-orlando)

MONDAY 10/14	TUESDAY 10/15	WEDNESDAY 10/16	THURSDAY 10/17	FRIDAY 10/18
Aerodynamic Design Improvements: High-Lift & Cruise p. 8				
Aircraft Structures: Analysis and Design p. 12				
Electrical Wiring Interconnection System (EWIS) and FAA Requirements p. 16				
Electromagnetic Effects Aircraft Level Testing and FAA Requirements p. 17				
Flight Control and Hydraulic Systems p. 18				
Flight Test Principles and Practices p. 19				
Principles of Aeroelasticity p. 26				





# CERTIFICATES OF SPECIALIZATION

## Enhance Your Knowledge—Advance Your Career

Certificates of Specialization are for those who desire concentrated study in a specific area of interest. Achieving a Certificate of Specialization demonstrates to employers, coworkers and the aerospace industry that you are qualified, competent and current in your field. It distinguishes you as a professional who is committed to your career and strives to be the best. Earn a Certificate of Specialization by completing four courses within one of the following nine specializations.

### AEROSPACE COMPLIANCE (AC)

- p. 10 Aircraft Icing: Meteorology, Protective Systems, Instrumentation and Certification
- p. 11 Aircraft Lightning: Requirements, Component Testing, Aircraft Testing and Certification
- p. 12 Aircraft Structural Loads: Criteria, Analysis, and Validation
- p. 14 Complex Electronic Hardware Development and DO-254
- p. 16 Electrical Wiring Interconnection System (EWIS) and FAA Requirements
- p. 16 Electrical Wiring Interconnection System (EWIS) Safety Assessment 25.1709
- p. 17 Electromagnetic Effects Aircraft Level Testing and FAA Requirements
- p. 17 FAA Type Certification Plan Development
- p. 18 FAA Type Certification Process
- p. 21 High-intensity Radiated Fields (HIRF) Certification and Compliance
- p. 22 Integrated Modular Avionics (IMA) and DO-297
- p. 23 Introduction to FAA Airworthiness Approval Requirements
- p. 24 Introduction to Fuel Tank Safety and Ignition Prevention: Design, Certification, and Compliance
- p. 24 Introduction to RTCA DO-160 Qualification: Purpose, Testing, and Design Considerations
- p. 25 MIL-STD Qualification: Purpose, Testing and Design Considerations
- p. 28 Software Safety, Certification and DO-178C (or DO-178B)
- p. 29 System Safety Assessment for Commercial Aircraft Certification

### AIRCRAFT STRUCTURES (AS)

- p. 12 Aircraft Structural Loads: Criteria, Analysis, and Validation
- p. 12 Aircraft Structures: Analysis and Design
- p. 15 Dynamics for Aerospace Structures
- p. 28 Stress Analysis for Aerospace Structures
- p. 29 Structural Composites

### AIRCRAFT DESIGN (AD)

- p. 8 Aerodynamic Design Improvements: High-Lift and Cruise
- p. 9 Aerodynamic Design of Commercial Airplanes
- p. 9 Aerodynamic Design of Military Aircraft
- p. 11 Aircraft Propulsion Systems: Principles and Practices
- p. 12 Aircraft Structural Loads: Criteria, Analysis, and Validation
- p. 12 Aircraft Structures: Analysis and Design
- p. 13 Airplane Flight Dynamics
- p. 13 Airplane Preliminary Design
- p. 15 Conceptual Design of Unmanned Aircraft Systems
- p. 15 Dynamics for Aerospace Structures
- p. 18 Flight Control and Hydraulic Systems
- p. 20 Fundamentals of V/STOL Rotorcraft
- p. 21 Future Propulsion Systems and Energy Sources in Sustainable Aviation
- p. 26 Principles of Aeroelasticity
- p. 27 Propulsion Systems for UAVs and General Aviation Aircraft
- p. 28 Stress Analysis for Aerospace Structures

### AIRCRAFT MAINTENANCE AND SAFETY (AMS)

- p. 10 Aircraft Icing: Meteorology, Protective Systems, Instrumentation and Certification
- p. 14 Application of Human Factors Engineering to the Life Cycle Management of Aeronautical Products and Systems
- p. 16 Electrical Wiring Interconnection System (EWIS) and FAA Requirements
- p. 16 Electrical Wiring Interconnection System (EWIS) Safety Assessment 25.1709
- p. 17 Electromagnetic Effects Aircraft Level Testing and FAA Requirements
- p. 21 High-intensity Radiated Fields (HIRF) Certification and Compliance
- p. 23 Introduction to Electromagnetic Effects (EME) and Aircraft Engineering Requirements
- p. 24 Introduction to Fuel Tank Safety and Ignition Prevention: Design, Certification, and Compliance
- p. 29 System Safety Assessment for Commercial Aircraft Certification



## AVIONICS AND AVIONIC COMPONENTS (AAC)

- p. 8 Advanced Avionics
- p. 10 Aircraft Avionics Test and Evaluation Fundamentals
- p. 11 Aircraft Lightning: Requirements, Component Testing, Aircraft Testing and Certification
- p. 14 Complex Electronic Hardware Development and DO-254
- p. 16 Electrical Wiring Interconnection System (EWIS) and FAA Requirements
- p. 16 Electrical Wiring Interconnection System (EWIS) Safety Assessment 25.1709
- p. 17 Electromagnetic Effects Aircraft Level Testing and FAA Requirements
- p. 20 Fundamental Avionics
- p. 21 High-intensity Radiated Fields (HIRF) Certification and Compliance
- p. 22 Integrated Modular Avionics (IMA) and DO-297
- p. 23 Introduction to Electromagnetic Effects (EME) and Aircraft Engineering Requirements
- p. 24 Introduction to RTCA DO-160 Qualification: Purpose, Testing, and Design Considerations
- p. 25 MIL-STD Qualification: Purpose, Testing and Design Considerations
- p. 28 Software Safety, Certification and DO-178C (or DO-178B)
- p. 29 System Safety Assessment for Commercial Aircraft Certification
- p. 30 Unmanned Aircraft System Software Airworthiness

## ELECTROMAGNETIC EFFECTS (EME)

- p. 11 Aircraft Lightning: Requirements, Component Testing, Aircraft Testing and Certification
- p. 16 Electrical Wiring Interconnection System (EWIS) and FAA Requirements
- p. 17 Electromagnetic Effects Aircraft Level Testing and FAA Requirements
- p. 21 High-intensity Radiated Fields (HIRF) Certification and Compliance
- p. 23 Introduction to Electromagnetic Effects (EME) and Aircraft Engineering Requirements
- p. 24 Introduction to Fuel Tank Safety and Ignition Prevention: Design, Certification, and Compliance
- p. 24 Introduction to RTCA DO-160 Qualification: Purpose, Testing and Design Consideration

## ELECTRICAL WIRING INTERCONNECTION SYSTEM (EWIS)

- p. 16 Electrical Wiring Interconnection System (EWIS) and FAA Requirements
- p. 16 Electrical Wiring Interconnection System (EWIS) Safety Assessment – 25.1709
- p. 22 Instructions for Continued Airworthiness Using Enhanced Zonal Analysis Procedure (EZAP)
- p. 24 Introduction to Fuel Tank Safety and Ignition Prevention: Design, Certification, and Compliance
- p. 29 System Safety Assessment for Commercial Aircraft Certification

## FLIGHT TESTS AND AIRCRAFT PERFORMANCE (FT)

- p. 10 Aircraft Avionics Test and Evaluation Fundamentals
- p. 11 Aircraft Propulsion Systems: Principles and Practices
- p. 13 Airplane Flight Dynamics
- p. 19 Flight Test Principles and Practices
- p. 19 Flight Testing Unmanned Aircraft Systems – Unique Challenges
- p. 20 Fundamentals of V/STOL Rotorcraft
- p. 21 Future Propulsion Systems and Energy Sources in Sustainable Aviation
- p. 25 Operational Aircraft Performance and Flight Test Practices
- p. 26 Operational Test and Evaluation – User-Centric Systems Testing
- p. 26 Principles of Aeroelasticity

## UNMANNED AIRCRAFT (UA)

- p. 15 Conceptual Design of Unmanned Aircraft Systems
- p. 19 Flight Testing Unmanned Aircraft Systems – Unique Challenges
- p. 27 Propulsion Systems for UAVs and General Aviation Aircraft
- p. 30 Systems and Safety for Electric/Hybrid Electric Aircraft and Urban Air Mobility
- p. 30 Unmanned Aircraft System Software Airworthiness

**Want to find out if you are on a certificate track? You could be closer than you think.**

**Contact us at [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu) to inquire today.**



# 2024 AEROSPACE SHORT COURSES

Pages 8-30

 **IN-PERSON**  **ONLINE**  **NEW COURSE**

## Advanced Avionics

Instructor: Albert Helfrick

### ONLINE SESSION

Oct. 23 – Nov. 10, 2023

### FEE

\$2,395 (\$2,195 early rate – register and pay by Sept. 8, 2023)

### CEUS

35 classroom hours  
3.5 CEUs

**DISCOUNTS** ★ 🍷 🍁

### CERTIFICATE TRACKS


AAC

### Description

Advanced Avionics covers systems that will be the mainstay of CNS (communications, navigation and surveillance) in the future. Course material reviews the basic theory of navigation and provides a thorough introduction and survey of global navigation satellite systems (GNSS) with emphasis on GPS. Modern surveillance systems based on Mode-S and ADS-B are also covered as are both wired and wireless communications systems. This course includes in-class exercises that involve college-level mathematics.

### Who should attend?

This course is intended for engineers involved in the design and development of avionics components and systems.

 “I strongly recommend this course for those inspectors (whether they work in operations or airworthiness) willing to improve their knowledge and experience regarding avionics uses and principles of operations. The instructor is very well qualified, with wide experience in the design aspects of the systems treated during the course.”

– David, Aeronautical Products Certification Manager, Colombian Civil Aviation Authority

## Aerodynamic Design Improvements: High-Lift and Cruise

Instructor: Case van Dam and Paul Vijgen

### ORLANDO, FLORIDA

Oct. 14-18, 2024  
Monday - Friday  
8 a.m. – 4 p.m.

### FEE

\$2,795 (\$2,595 early rate – register and pay by Aug. 30, 2024)

### CEUS

35 classroom hours  
3.5 CEUs

**DISCOUNTS** ★ 🍷

### CERTIFICATE TRACK

AD

### Description

This course covers recent advances in high-lift systems and aerodynamics as well as cruise drag prediction and reduction. It includes discussion of numerical methods and experimental techniques for performance analysis of wings and bodies and boundary-layer transition prediction/detection.

### Who should attend?

Designed for engineers and managers involved in the aerodynamic design and analysis of airplanes, rotorcraft and other vehicles.

# Aerodynamic Design of Commercial Airplanes

Instructor: Roelof Vos

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

35 classroom hours  
3.5 CEUs

**DISCOUNTS** ★ 

## CERTIFICATE TRACK

AD

## Description

In this course participants learn how aerodynamics drive the detailed exterior design of transport aircraft. Which aerodynamic phenomena play a role in the exterior design of a wing, a cockpit or an engine intake? What is the effect of aerodynamic add-ons such as vortex generators, fairings or winglets? What are the advantages and penalties of wing sweep, and how can the penalties be mitigated by the aerodynamic design of the wing? These are some of the questions this course addresses. Participants learn how the various aircraft components should be shaped in order to fulfill aerodynamic requirements in all corners of the flight envelope. The strong ties between aircraft performance, aircraft aerodynamics and aircraft exterior design are demonstrated through numerous historical and contemporary examples. Although the main focus is on jet aircraft, the course also covers the effects of propeller installation on the aerodynamic design of the empennage.

## Who should attend?

Designed for aeronautical engineers, pilots with some engineering background, government research laboratory personnel, engineering managers and educators.

---

# Aerodynamic Design of Military Aircraft

Instructor: Roelof Vos

## SAN DIEGO, CALIFORNIA

Sept. 16-20, 2024  
Monday - Friday  
8 a.m. – 4 p.m.

## FEE

\$2,795 (\$2,595 early rate – register and pay by Aug. 2, 2024)

## CEUS

35 classroom hours  
3.5 CEUs

**DISCOUNTS** ★ 

## CERTIFICATE TRACK

AD

## Description

In this course it is demonstrated how the aerodynamic design of combat aircraft affect their overall performance. Particular topics that are treated are the effect of (supersonic) aerodynamics on trim, stability, control, and (supersonic) maneuverability.

## Who should attend?

This course is targeted to aeronautical engineers, pilots with some engineering background, government research laboratory personnel, engineering managers and educators.

# Aircraft Avionics Test and Evaluation Fundamentals

Instructor: Mark J. Swaney

## SAN DIEGO, CALIFORNIA

Sept. 16-20, 2024

Monday – Friday

8 a.m. – 4 p.m.

### FEE

\$2,795 (\$2,595 early rate – register and pay by Aug. 2, 2024)

### CEUS

35 classroom hours

3.5 CEUs

**DISCOUNTS** ★ 🍷 🍷

### CERTIFICATE TRACKS

AAC, FT

## Description

This course provides an overview of avionics systems flight test, test planning and risk management, as well as fundamentals of flight test instrumentation and data collection. Students will understand challenges of integrated system testing, as well as the importance and sources of time, space and position information (TSPI) and its use for data acquisition, reduction and analysis. They will review methods of software flight test and basic issues of electromagnetic interference. Students will also become familiar with aerospace data bus architectures, communications and navigation systems, Global Navigation Satellite (GNSS), RADAR, as well as electro-optical and infrared systems and required flight test techniques. Students will also understand the challenges of human-machine interfaces requiring crew station and workload evaluations as part of the aircraft and systems certification process.

## Who should attend?

Flight test engineers and managers, instrumentation engineers and project/program managers new to aircraft avionics flight test. The course also offers an opportunity for those who have been out of flight test to refresh their knowledge. It is also applicable to aerospace industry electronics and avionics suppliers and manufacturers of unmanned air systems interested in how their products will be flight tested to meet specifications and user requirements. It is applicable to military and civilian organizations and has no prerequisites. Attendees should have a basic knowledge of college mathematics.

---

# Aircraft Icing: Meteorology, Protective Systems, Instrumentation and Certification

Instructors: Wayne R. Sand and Steven L. Morris

## SAN DIEGO, CALIFORNIA

Sept. 16-19, 2024

Monday – Thursday

8 a.m. – 4 p.m.

### FEE

\$2,495 (\$2,295 early rate – register and pay by Aug. 2, 2024)

### CEUS

28 classroom hours

2.8 CEUs

**DISCOUNTS** ★ 🍷 🍷 🍷

### CERTIFICATE TRACKS

AC, AMS

## Description

This course covers the meteorology and physics of aircraft icing. Topics include forecasting, finding and avoiding icing conditions, designing and evaluating ice protection systems, and certification of aircraft for flight into known icing conditions.

## Who should attend?

Designed for aerospace engineers, flight test and design engineers, test pilots, line pilots, meteorologists, FAA engineers and Designated Engineering Representatives (DERs) and program managers.

# Aircraft Lightning: Requirements, Component Testing, Aircraft Testing, and Certification

Instructors: C. Bruce Stephens, Darren L. Stout (This course may be taught by either instructor.)

## SEATTLE, WASHINGTON

April 8-12, 2024  
Monday – Thursday  
8 a.m. – 4 p.m.  
Friday  
8 a.m. – 11:30 a.m.

## FEE

\$2,795 (\$2,595 early rate – register and pay by Feb. 23, 2024)

## CEUS

31.5 classroom hours  
3.15 CEUs

## DISCOUNTS

## CERTIFICATE TRACKS

AAC, EME, AC

## Description

This course provides details for direct and indirect effects of aircraft lightning testing and certification. Requirements for both composite and metallic aircraft, including proper RTCA/DO-160 classifications, are examined. The course will also include a high-level overview of Electromagnetic Compatibility (EMC), High-Intensity Radiated Fields (HIRF), Precipitation Static (P-Static) and Electrical Bonding requirements. The new requirements of Electrical Wiring and Installation System (EWIS) and Fuel Tank Safety (14 CFR 25.981 Amd. 102) will also be addressed.

## Who should attend?

All design engineering disciplines, including project managers, project engineers and laboratory personnel whose aircraft system may require protection from the effects of lightning.

 "This was my first professional development course. I had a very positive experience and left equipped with the tools that I need to help make me and my company successful. Bruce was well-prepared with numerous real-life stories that made the course material relevant. I am sure this won't be the last KU course in my career."

– Daniel Rykert, Engineer, Aerospace

# Aircraft Propulsion Systems: Principles and Practices

Instructor: Ray Taghavi

## SEATTLE, WASHINGTON

April 8-12, 2024  
Monday – Friday  
8 a.m. – 4 p.m.

## FEE

\$2,795 (\$2,595 early rate – register and pay by Feb. 23, 2024)

## CEUS

35 classroom hours  
3.5 CEUs

## CERTIFICATE TRACK

AD, FT

## Description

In this course, students will review the basic principles of propulsion systems with emphasis on jets and fan systems. They will also review inlets and nozzles, compressors, burners, fuels, turbines, and jets culminating in design and off-design engine analysis, performance, and environmental considerations. The impact of propulsion system integration on external aerodynamics and (noise and IR) signature reduction is also presented, along with an introduction to novel concepts in propulsion.

## Who should attend?

Engineers, engineering managers, pilots, administrators, and educators involved in rotary wing design, testing, evaluation, or other technical aspects. This course is also suitable for entry through intermediate level students, engineers, and pilots who are new to the industry.

# Aircraft Structural Loads: Criteria, Analysis, and Validation

Instructor: Josh Sementi

## SEATTLE, WASHINGTON

April 8-12, 2024  
Monday – Friday  
8 a.m. – 4 p.m.

### FEE

\$2,795 (\$2,595 early rate – register and pay by Feb. 23, 2024)

### CEUS

35 classroom hours  
3.5 CEUs

**DISCOUNTS** ★ 🍷 🍁

### CERTIFICATE TRACKS

AS, AD, AC

## Description

This course provides an overview of aircraft structural external loads analysis including: criteria, design, analysis, fatigue, certification, validation, and testing. It covers 14 CFR Part 25 airplane load requirements and historical 14 CFR Part 23 requirements, which form the basis of the current ASTM standards. However, the general concepts are also applicable to many military structural requirements, UAV's, and experimental planforms.

## Who should attend?

Designed for practicing engineers and engineering managers whose responsibilities relate to aircraft Structures and Loads, either developing Loads, as a recipient of Loads data, or providing input data for Loads analysis.

“This is a very effective course for learning aircraft structural loads. Dr. Sementi is a great instructor. He provided a lot of practical and useful examples from the industry that supplements the understanding.”

– Kamruz Zaman, Aerospace Engineer, FAA

# Aircraft Structures: Analysis and Design

Instructor: Mark S. Ewing

## ORLANDO, FLORIDA

Oct. 14-18, 2024  
Monday – Friday  
8 a.m. – 4 p.m.

### FEE

\$2,795 (\$2,595 early rate – register and pay by Aug. 30, 2024)

### CEUS

35 classroom hours  
3.5 CEUs

**DISCOUNTS** ★ 🍷

### CERTIFICATE TRACKS

AS, AD

## Description

This course delivers an introduction to analysis and design of aircraft structures. Course content includes design criteria, structural design concepts, loads and load paths, metallic and composite materials, static strength, buckling and crippling, durability and damage tolerance, practical design considerations and certification, and repairs. Analysis exercises and a design project are included to further involve students in the learning process.

## Who should attend?

This course is designed for engineers, educators and engineering managers whose responsibilities include aircraft structures.

“This was an incredible experience for me to be in here, listening to Mark Ewing about aerospace and meeting with people from all around the world.”

– Tarik Gençay, System Installation Engineer, Turkish Aerospace

# Airplane Flight Dynamics

Instructor: Willem A.J. Anemaat

## SAN DIEGO, CALIFORNIA

Sept. 16-20, 2024

Monday – Friday

8 a.m. – 4 p.m.

### FEE

\$2,795 (\$2,595 early rate – register and pay by Aug. 2, 2024)

### CEUS

35 classroom hours

3.5 CEUs

### DISCOUNTS

### CERTIFICATE TRACKS

FT, AD

## Description

Participants learn an overview of airplane static and dynamic stability and control theory and applications, as well as classical control theory and applications to airplane control systems. An overview of flying qualities and regulations is included.

## Who should attend?

Aeronautical engineers, mechanical engineers, electrical engineers needing to learn more about flight dynamics, along with pilots with some engineering background, government research laboratory personnel, engineering managers, and educators.

 I thoroughly enjoyed the course. I would highly recommend the course to other professionals looking to fill in gaps in their knowledge of flight dynamics. I look forward to taking more courses in the future.”

– 2022 Airplane Flight Dynamics participant

---

# Airplane Preliminary Design

Instructor: Willem A.J. Anemaat

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

### CEUS

35 classroom hours

3.5 CEUs

### CERTIFICATE TRACK

AD

## Description

This course provides an overview of the fixed-wing airplane design decision-making process and the relation of design to manufacturing, maintainability, and cost-effectiveness. It is applicable to jet transport, turboprop commuter transport, and military (trainers, fighter bomber, UAV) and general aviation aircraft. The design process covers sizing (weight, wing area, thrust/power), aerodynamics, weight and balance, stability, control, and cost. Numerous examples are shown. Lessons learned and “what to watch out for” are discussed.

## Who should attend?

Aeronautical engineers, mechanical engineers, and electrical engineers needing to learn more about design, pilots with some engineering background, government research laboratory personnel, engineering managers, and educators.



# Application of Human Factors Engineering to the Life Cycle Management of Aeronautical Products and Systems

Instructor: Andrew Appleton

## ONLINE SESSION

Jan. 16 – Feb. 8, 2024  
Tuesdays and Thursdays  
5:30 p.m. – 9 p.m.

## ONLINE FEE

\$2,095 (\$1,895 early rate –  
register and pay by Jan. 9, 2024)

## CEUS

28 classroom hours  
2.8 CEUs

## CERTIFICATE TRACK

AMS

## 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.

## Who should attend?

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

---

# Complex Electronic Hardware Development and DO-254

Instructor: Jeff Knickerbocker

This course is not currently  
scheduled.

Interested in bringing this course  
to your company? Contact Marina  
Enclarde, Business Development  
Manager at 913-897-8781 or  
[professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

21 classroom hours  
2.1 CEUs

**DISCOUNTS** ★ 🍷 🍁

## CERTIFICATE TRACKS

AAC, AC

## Description

This course reviews the fundamentals of developing and assessing electronic components to the standard RTCA/DO-254 Design Assurance Guidance for Airborne Electronic Hardware. The course also provides insight into the FAA's review process and guidance along with practical keys for successful development and certification. Practical exercises and in-class activities further enhance the learning process.

## Who should attend?

Designed for developers, avionics engineers, systems integrators, aircraft designers, and others involved in development or implementation of complex electronic hardware and programmable devices (application specific integrated circuits, field-programmable gate arrays, etc.).

# Conceptual Design of Unmanned Aircraft Systems

Instructor: Willem AJ Anemaat

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

21 classroom hours  
2.1 CEUs

**DISCOUNTS** ★ 🍷 🍁

## CERTIFICATE TRACKS

AD, UA

## Description

This course provides a conceptual approach to overall design of Unmanned Aircraft Systems (UAS) including concepts of operations, communications, payloads, control stations, air vehicles and support. It also covers requirements and architecture development, initial sizing and conceptual-level parametric and spreadsheet assessment of major system elements.

## Who should attend?

This course is designed primarily for practicing conceptual-level design engineers, systems engineers, technologists, researchers, educators, and engineering managers. For maximum course benefit, students should have some knowledge of basic aerodynamics and conceptual aircraft design, although it is not mandatory. A basic knowledge of spreadsheet analysis methods is assumed.

“I took this course because it was a systems-oriented course, and I was also interested in UAS as a hobby. I was pleasantly surprised to find how everything covered in class closely related to job duties, and how applicable it would all be to designing a full-scale aircraft. I came away from the course feeling that I have a good grasp of all the concepts required in putting an UAS together, and where to concentrate efforts to increase the fidelity of the design.”

– Xavier Dulin, Systems Engineer, Sierra Nevada Corporation

# Dynamics for Aerospace Structures

Instructor: Dennis Philpot

## SAN DIEGO, CALIFORNIA

Sept. 16-19, 2024  
Monday – Thursday  
8 a.m. – 4 p.m.

## FEE

\$2,495 (\$2,295 early rate – register and pay by Aug. 2, 2024)

## CEUS

28 classroom hours  
2.8 CEUs

## CERTIFICATE TRACKS

AD, AS

## Description

This course is designed to provide participants with a strong theoretical as well as practical knowledge of the methodologies for performing rigid body and modal-based dynamics analysis on a wide range of structural and mechanical systems. The course builds upon the theoretical foundation with practical applications that can be immediately put into practice in the workplace. Both the theory and practice of classical “hand” analysis techniques are presented, along with the more modern (numerical/computational) methods used in the industry. The subject matter difficulty level is intermediate.

## Who should attend?

This course will benefit design engineers who would like to become more familiar with the techniques and modern practices of dynamics analysis to help them be more knowledgeable and bring more capability to the work place. It is also appropriate for mechanical engineers who need to become more proficient in structural dynamics due to a particular job assignment or new career opportunity. Department managers whose staff are involved in loads and dynamics work are also encouraged to attend.

# Electrical Wiring Interconnection System (EWIS) and FAA Requirements



Instructors: C. Bruce Stephens, Franklin L. Cummins, Thomas N. Taylor (This course may be taught by any of these instructors.)

## ORLANDO FLORIDA

Oct. 14-18, 2024  
Monday – Thursday  
8 a.m. – 4 p.m.  
Friday, 8 a.m. – 11:30 a.m.

### FEE

\$2,795 (\$2,595 early rate –  
register and pay by Aug. 30,  
2024)

## ONLINE SESSION

Jan. 30 – Feb. 27, 2024

### ONLINE FEE

\$2,395 (\$2,195 early rate –  
register and pay by Jan. 23, 2024)

### CEUS

31.5 classroom hours  
3.15 CEUs

### DISCOUNTS ★ 🍷 🍁

### CERTIFICATE TRACKS

AC, AMS, AAC, EWIS, EME

## Description

This course discusses the FAA Code of Federal Regulations (CFRs) and design concepts required to ensure all aspects of aircraft electrical wiring and installation are safe. It examines aircraft wiring as a system and reviews all Part 25 CFRs related to EWIS FAA certification. Student teams will review FAA Advisory Circulars and present practical applications of the information in a simulation of the EWIS certification process. EWIS requirements for aircraft maintenance and inspection will also be discussed.

## Who should attend?

The course is designed for all aircraft design areas including electrical, avionics, and HIRF/lightning engineers, and aircraft technicians. Aircraft managers and project engineers working in electrical/avionics related areas should also attend.

---

# Electrical Wiring Interconnection System (EWIS) Safety Assessment–25.1709



Instructors: Thomas N. Taylor, C. Bruce Stephens (This course may be taught by either instructor.)

## SEATTLE, WASHINGTON

April 8-12, 2024  
Monday – Thursday  
8 a.m. – 4 p.m.  
Friday, 8 a.m. – 11:30 a.m.

### FEE

\$2,795 (\$2,595 early rate –  
register and pay by Feb. 23,  
2024)

### CEUS

31.5 classroom hours  
3.15 CEUs

### DISCOUNTS ★ 🍷 🍁

### CERTIFICATE TRACKS

AC, AMS, AAC, EWIS

## Description

This course focuses on the requirements and methods that can be used to demonstrate compliance to 14 CFR 25.1709 (EWIS Safety Analysis). The discussion will examine the use of FAA AC 25.1701-1 to prepare a functional and physical analysis. The course will also include an overview of the EWIS requirements included in 14 CFR Part 25, subpart H.

## Who should attend?

The course is designed for engineers, technicians, and managers involved in the design and certification of Transport Category Aircraft. The course is intended for both original equipment manufacturers (OEMs) and aircraft modifiers.

“The course was very intuitive and highlighted the importance of EWIS considerations. It also highlighted the fatal consequences of not considering EWIS, which was a definite eye-opener. Really enjoyed the interactive problem solving and activities throughout the course.”

– Matthew Walker, New Zealand Defence Force

# Electromagnetic Effects Aircraft Level Testing and FAA Requirements



Instructors: C. Bruce Stephens, Darren L. Stout (This course may be taught by either instructor.)

## ORLANDO, FLORIDA

Oct. 14-18, 2024

Monday – Thursday

8 a.m. – 4 p.m.

Friday, 8 a.m. – 11:30 a.m.

## FEE

\$2,795 (\$2,595 early rate – register and pay by Aug. 30, 2024)

## CEUS

31.5 classroom hours

3.15 CEUs

**DISCOUNTS** ★ 🍷 🍁

## CERTIFICATE TRACKS

AMS, AAC, AC, EME

## Description

This course presents aircraft ground and flight testing concepts that may be required to ensure aircraft-level systems are safe for operation when exposed to electromagnetic effects including high-intensity radiated fields (HIRF), lightning, precipitation static (P-static) and transmitting personal devices (TPEDs). Students will review aircraft testing fundamentals for these conditions and how to coordinate all aspects of EME aircraft-level testing. Students will identify aircraft testing problems and solutions, determine the requirements for ground testing versus flight testing and analyze test data results to demonstrate compliance for HIRF, lightning, P-static and TPEDs.

## Who should attend?

The course is designed for engineers and technicians working in all aircraft design and testing areas, including electrical, avionics and communications. Aircraft managers and project engineers who coordinate airplane testing and/or certification-related areas are also recommended to attend.

“I was not expecting to make as many network connections. I enjoyed meeting people from all over the world and discussing our companies/roles as well as cultural differences. I learned a ton on FAA certification process.”

– Lauren Meyer, Flight Test Instrumentation Engineer, Boeing, 2023 EME Testing Participant

# FAA Type Certification Plan Development

Instructors: Travis L. Dahna, Scott West (This course may be taught by either instructor.)

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

28 classroom hours

2.8 CEUs

**DISCOUNTS** ★ 🍷

## CERTIFICATE TRACK

AC

## Description

This course will prepare attendees to develop a thorough FAA certification plan/project specific certification plan (CP/PSCP) that meets the requirements of Order 8110.4C associated with new type certification projects. Tools for developing a robust compliance checklist (CCL) and the use of appropriate means of compliance will be discussed in detail including the necessary sections, required information and how to define the appropriate documentation supporting those means of compliance. Attendees will utilize the outline and sample template of a certification plan, which can be crafted to meet their project's specific needs. Attendees will also become familiar with the requirements and activities associated with an FAA conformity plan.

## Who should attend?

Those actively involved in product or article certification (aircraft/equipment OEM, aircraft modifiers, suppliers, and ODA personnel) including airworthiness engineers, consultants, certification specialists, FAA designees (engineering/manufacturing), and FAA Organization Designation Authorization (ODA) unit and support personnel.

# FAA Type Certification Process

Instructors: Travis L. Dahna, Scott West (This course may be taught by either instructor.)

## SAN DIEGO, CALIFORNIA

Sept. 16-19, 2024  
Monday – Thursday  
8 a.m. – 4 p.m.

### FEE

\$2,495 (\$2,295 early rate –  
register and pay by Aug. 2, 2024)

### CEUS

28 classroom hours  
2.8 CEUs

DISCOUNTS ★ 🍷

### CERTIFICATE TRACK

AC

## Description

This course will focus on how to successfully complete an FAA type certificate project based on the published process outlined by the FAA, including a review of all required FAA forms and when to use them. Attendees take a deep dive into the type certification process outlined in FAA Order 8110.4, specifically focusing on chapters 1-5 (chapters 6 and 7 will also be discussed, but not in great detail). The instructor will draw from hundreds of real-world type certificate and supplemental type certificate projects – distilling years of information to provide insight into this lengthy and potentially complex process.

## Who should attend?

Those involved in product or article certification (aircraft/equipment OEM, aircraft modifiers, suppliers, and ODA personnel) including design engineers, airworthiness engineers, consultants, certification specialists, project managers, quality assurance managers, FAA designees (engineering/manufacturing), and FAA Organization Designation Authorization (ODA) unit and support personnel.

“Amazing course! A unique chance to benefit from a highly experienced teacher still practicing in the domain. Invaluable opportunity to interact and network with people in the industry.”

– Isabelle, Bell Textron Canada Limited

# Flight Control and Hydraulic Systems

Instructors: Wayne Stout, Michael Jenkins (This course may be taught by either instructor.)

## ORLANDO, FLORIDA

Oct. 14-18, 2024  
Monday – Thursday  
8 a.m. – 4 p.m.  
Friday, 8 a.m. – 11:30 a.m.

### FEE

\$2,795 (\$2,595 early rate –  
register and pay by Aug. 30,  
2024)

### CEUS

31.5 classroom hours  
3.15 CEUs

DISCOUNTS ★ 🍷

### CERTIFICATE TRACK

AD

## Description

This course covers fundamental design issues along with analysis and design methodologies for aerospace hydraulic and flight control systems. Topics include design requirements, component description and operation, component and system math modeling, component sizing, system layout rationale, system sizing, and airframe integration. The course emphasizes the fundamentals and necessary engineering tools (both analytical and otherwise) needed to understand and design aerospace hydraulic and flight control systems. Practical examples and actual systems are presented and discussed throughout the class.

## Who should attend?

This course is designed for system- and component-level engineers and managers including airframe, vendor, industry, and government. It is also designed for educators involved with aerospace mechanical systems.

“This course is excellent for mechanical systems engineers who are relatively new to the field. The course provides a strong foundation in a short period of time, quickly allowing engineers to understand existing hydraulic and flight control systems or take an active role in the design of new ones.”

– Lucas Sganderlia, Engineer, Hydraulic Systems

# Flight Test Principles and Practices

Instructors: George Cusimano and Greg Lewis

## ORLANDO, FLORIDA

Oct. 14-18, 2024

Monday – Friday

8 a.m. – 4 p.m.

### FEE

\$2,795 (\$2,595 early rate – register and pay by Aug. 30, 2024)

### CEUS

35 classroom hours

3.5 CEUs

**DISCOUNTS** ★ 🍷 🍁

### CERTIFICATE TRACK

FT

## Description

This course introduces and defines the basic flight test process and application of engineering principles to flight test and description of common flight test practices, and provides an introduction to the flight test discipline. The course is embellished with a variety of examples from completed flight test programs.

## Who should attend?

The course is designed for all levels of engineers and managers in industry working on flight test projects, military and civil project engineers, test pilots and flight test engineers, government research laboratory personnel, and FAA and other regulatory agency engineers. It is ideally suited for engineers and managers from other disciplines who are moving into the flight test discipline for the first time or who must interact with flight test engineers regularly on a given project.

---

# Flight Testing Unmanned Aircraft Systems – Unique Challenges

Instructor: George Cusimano

## SEATTLE, WASHINGTON

April 8-10, 2024

Monday – Wednesday

8 a.m. – 4 p.m.

### FEE

\$2,095 (\$1,995 early rate – register and pay by Feb. 23, 2024)

### CEUS

21 classroom hours

2.1 CEUs

**DISCOUNTS** ★ 🍷 🍁

### CERTIFICATE TRACKS

FT, UA

## Description

This course introduces the primary challenges associated with flight-testing remotely piloted and command-directed (a.k.a. autonomous) vehicles, with primary emphasis on Tactical, MALE, and HALE class systems. The course also recommends solutions to these challenges that are meant to either mitigate or eliminate potential problems before they become unmanageable.

## Who should attend?

The course is designed for practicing flight test engineers, test pilots, test managers, aircraft engineers, aircraft designers, and educators who already possess a fundamental understanding of flight test principles and practices. The course content is also appropriate for civilian, military, and academic researchers.

# Fundamental Avionics

Instructor: Albert Helfrick

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

35 classroom hours  
3.5 CEUs

**DISCOUNTS** ★ 🍷 🍁

## CERTIFICATE TRACK

AAC

## Description

This course provides a very broad overview of avionics. It covers the historical evolution of the avionics industry and usage of avionics to the present day. You will learn why avionics is what it is today, in addition to understanding how it works. The course covers legacy systems still in use and the latest state-of-the-art systems currently being installed. The avionics environment is an important part of this course. In the context of this course, “environment” refers not only to the physical environment of pressure, temperature, vibration, etc. but the regulatory environment. Systems are an important part of this course, and system communications and assessment are covered. This course introduces you to the unique language of avionics (abbreviations, terms and acronyms) and connects these terms to the systems they represent.

## Who should attend?

This course is for engineers and technicians involved with avionics but may not have attended formal courses in avionics. It would also suit those who work in a specific area of avionics and who would benefit from learning the latest developments in areas outside of their discipline or a brush-up on basics.

---

# Fundamentals of V/STOL Rotorcraft

Instructor: Harold Rosenstein

## SAN DIEGO, CALIFORNIA

Sept. 16-19, 2024  
Monday – Thursday  
8 a.m. – 4 p.m.

## FEE

\$2,495 (\$2,295 early rate – register and pay by Aug. 2, 2024)

## CEUS

28 classroom hours  
2.8 CEUs

**DISCOUNTS** ★ 🍷 🍁

## CERTIFICATE TRACK

FT, AD

## Description

This course will present key aspects of vertical flight and rotorcraft challenges through a review of the historical evolution, basic principles, and enabling technologies. It will cover the fundamental principles underlying rotorcraft flight, flight performance, rotor limitations, configurations, and conceptual design. Emphasis is placed on relating rotorcraft aerodynamics to airplane aerodynamics for those making the transition.

## Who should attend?

This course is designed for engineers, engineering managers, pilots, administrators, and educators who are involved in rotary wing design, testing, evaluation or other technical aspects. The course is also suitable for entry- through intermediate-level students, engineers, and pilots who are new to the industry.

“With 50 years of experience and knowledge gained from working in the industry, Mr. Rosenstein provided invaluable information, starting from the very basics of V/STOL rotorcraft to producing a raw design that is sound and viable.”

– David Bates, Technology Investment Manager



# Future Propulsion Systems and Energy Sources in Sustainable Aviation



Instructor: Saeed Farokhi

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

35 classroom hours  
3.5 CEUs

## DISCOUNTS ★ 🍷

## CERTIFICATE TRACKS

AD, FT

## Description

This course explores developing propulsion systems and energy sources to support future sustainable air transportation. Students will review the impact of air transportation on the environment and explore new technology development for sustainable aviation including innovations in alternative jet fuels, hybrid electric, all-electric, and nuclear propulsion power. Students will examine modern propulsion for transonic and supersonic-hypersonic aircraft and the impact of propulsion on aircraft design. They will review major advances in the field that will provide performance enhancement, revolutionize design configurations, and ensure the long-term viability of sustainable power.

## Who should attend?

Propulsion and power technologists, practicing engineers in aircraft industry, engineers at NASA, FAA, DoD and DOE Labs, engineering faculty, mechanical, aerospace, industrial and power engineers. Engineering students, undergraduates, graduate students and postdocs, government officials working in aviation, and decision makers working on policies dealing with the future of aviation should also attend.

---

# High-intensity Radiated Fields (HIRF) Certification and Compliance

Instructors: C. Bruce Stephens, Darren L. Stout (This course may be taught by either instructor.)

## SAN DIEGO, CALIFORNIA

Sept. 16-20, 2024  
Monday – Thursday  
8 a.m. – 4 p.m.  
Friday, 8 a.m. – 11:30 a.m.

## FEE

\$2,795 (\$2,595 early rate – register and pay by Aug. 2, 2024)

## CEUS

31.5 classroom hours  
3.15 CEUs

## DISCOUNTS 🍷

## CERTIFICATE TRACKS

AMS, AAC, EME, AC

## Description

This course presents design concepts required to ensure all aspects of aircraft HIRF electrical wiring, installations, and aircraft-level systems are safe for operation. Students will review the typical HIRF certification process and examine all steps used by aircraft OEMs to demonstrate compliance to HIRF regulations. Students will utilize 14 CFR Part 25, Section 25.1317 *High-intensity Radiated Fields (HIRF) Protection* to determine how HIRF requirements relate to different areas of the aircraft. They will analyze bench testing related to DAL A criticality system rig data and implement safety aspects for HIRF. Students will also review HIRF requirements for aircraft maintenance and inspection. Student teams will simulate the HIRF certification process.

## Who should attend?

The course is designed for all aircraft design areas including electrical and avionics, along with HIRF engineers, and laboratory and aircraft technicians. Aircraft managers and project engineers working in electrical/avionics related areas should also attend.

# Instructions for Continued Airworthiness Using Enhanced Zonal Analysis Procedure (EZAP)

Instructors: C. Bruce Stephens, Thomas N. Taylor (This course may be taught by either instructor.)

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

21 classroom hours  
2.1 CEUs

DISCOUNTS ★  


CERTIFICATE TRACK  
EWIS

## Description

This course will discuss the Enhanced Airworthiness Program for Airplane Systems/Fuel Tank Safety (EAPAS/FTS) rule. This rule requires design approval holders (DAH) and applicants to develop instructions for continued airworthiness (ICA) consisting of maintenance and inspection tasks, intervals and procedures for the representative airplane's electrical wiring interconnection systems (EWIS) for each affected type design.

## Who should attend?

The course is designed for all aircraft design areas including electrical, avionics, EWIS and HIRF/lightning engineers, and aircraft technicians. Maintenance and inspection managers, operators and aircraft managers should also attend.

 "This course was very informative with a lot of great information regarding regulatory definitions, implementation and recommendations. The best take-away is the extreme importance and emphasis on safety and wiring/systems (how they are installed, the history of problems)."  
– Adrienne Meyers, Maintainability Engineer III

# Integrated Modular Avionics (IMA) and DO-297

Instructor: Jeff Knickerbocker

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

7 classroom hours  
.7 CEUs

DISCOUNTS ★ 

CERTIFICATE TRACKS  
AAC, AC

## Description

This course provides the fundamentals for developing and integrating IMA systems, using TSO-C153 (Integrated Modular Avionics Hardware Elements), FAA Advisory Circular 20-170 (Integrated Modular Avionics Development, Verification, Integration and Approval Using RTCA/DO-297 and Technical Standard Order C153) and DO-297 (Integrated Modular Avionics (IMA) Development Guidance and Certification Considerations). Discussions and in-class activities further enhance the learning process.

## Who should attend?

This course is designed for developers and integrators of integrated modular avionics systems. The focus will be on identifying challenges with IMA and satisfying the regulatory guidance.

# Introduction to Electromagnetic Effects (EME) and Aircraft Engineering Requirements

Instructors: C. Bruce Stephens, Darren L. Stout (This course may be taught by either instructor.)

## SAN DIEGO, CALIFORNIA

Sept. 16-20, 2024

Monday – Thursday

8 a.m. – 4 p.m.

Friday, 8 a.m. – 11:30 a.m.

### FEE

\$2,795 (\$2,595 early rate – register and pay by Aug. 2, 2024)

### CEUS

31.5 classroom hours

3.15 CEUs

### DISCOUNTS

### CERTIFICATE TRACKS


AMS, AAC, EME

## Description

This course will provide participants with an understanding of electromagnetic effects related to aircraft engineering requirements, FAA certification requirements, testing requirements for both DO-160 bench testing and aircraft level testing related to EMC/P-Static/ESD/TPED's/HIRF/EWIS and lightning.

## Who should attend?

The course is designed for all aircraft design areas including certification engineers and managers, electrical, avionics, HIRF and lightning engineers, and DO-160 laboratory and aircraft technicians. Aircraft managers, project engineers and all other system engineers working in electrical/avionics/HIRF/lightning/EWIS-related areas should also attend.

 "This course was very helpful in making the correlation between DO-160 testing, electrical bonding, P-static, and FAA regulations."  
– Introduction to Electromagnetic Effects (EME) and Aircraft Engineering Requirements attendee

---

# Introduction to FAA Airworthiness Approval Requirements

Instructors: Travis L. Dahna, Scott West (This course may be taught by either instructor.)

## SEATTLE, WASHINGTON

April 8-11, 2024

Monday – Thursday

8 a.m. – 4 p.m.

### FEE

\$2,495 (\$2,295 early rate – register and pay by Feb. 23, 2024)

### CEUS

28 classroom hours

2.8 CEUs

### DISCOUNTS

### CERTIFICATE TRACK

AC

## Description

Title 14, CFR Part 21 regulations are the backbone of the regulatory framework that enables the Aircraft Certification Service (AIR) to conduct its certification responsibilities on products and articles. This course will provide an overall understanding of the 14 CFR Part 21 requirements necessary to obtain design, production, and airworthiness approvals for civil aviation products and articles. In addition to 14 CFR part 21, this course will delve into certain aspects of 14 CFR Part 43, outlining the requirements to receive approval for alterations/repairs of airworthy products and articles. An overview is provided on FAA organizational structure, additional 14 CFR Parts, regulatory/guidance material, and rule making procedures.

## Who should attend?

This course is designed for certification engineers, design engineers, engineering management, program managers, business development personnel, Designated Engineering Representatives (DER) and Organization Designation Authorization Unit Members (ODA UM).

# Introduction to Fuel Tank Safety and Ignition Prevention: Design, Certification, and Compliance

Instructors: C. Bruce Stephens, Darren L. Stout (This course may be taught by either instructor.)

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

31.5 classroom hours  
3.15 CEUS

**DISCOUNTS** ★ 🍷

## CERTIFICATE TRACKS

AMS, EME, AC, EWIS

## Description

This course provides details on all elements of fuel tank design needed for compliance with the regulation with specific emphasis on electrical design aspects. Some review of regulatory history and 25.981 [25-102] is included for reference and TCA, STC work. Specific design implementations are examined and evaluated. The course will also include a high-level overview of electromagnetic effects and compatibility (EME/EMC), lightning effects (direct and indirect), high-intensity radiated fields (HIRF), precipitation static (P-static), electrical bonding requirements, and requirements for electrical wiring interconnection system (EWIS).

## Who should attend?

This course is designed for all design engineering disciplines, project managers, project engineers, and laboratory personnel whose aircraft system may require protection of the airplane's fuel system from ignition/explosion.

“Good course provided by a knowledgeable and experienced instructor. I would certainly recommend it to anyone dealing with 25.981(a).”

– Raouf, 2022 Fuel Tank participant.

---

# Introduction to RTCA DO-160 Qualification: Purpose, Testing, and Design Considerations

Instructors: C. Bruce Stephens, Darren L. Stout

## SEATTLE, WASHINGTON

April 8-12, 2024  
Monday – Thursday  
8 a.m. – 4 p.m.  
Friday  
8 a.m. – 11:30 a.m.

## FEE

\$2,795 (\$2,595 early rate – register and pay by Feb. 23, 2024)

## CEUS

31.5 classroom hours  
3.15 CEUS

**DISCOUNTS** ★ 🍷 🍁

## CERTIFICATE TRACKS

AC, AAC, EME

## Description

This is an introductory class, designed to educate engineers of all disciplines in the aspects of DO-160 as it pertains to equipment qualification in support of aircraft certification. For each test section of DO-160, we discuss the purpose, adverse effects, and categories. We also provide a high-level, step-by-step guide through the test procedure and design considerations for passing the test. A high-level review of related FAA advisory material and certification requirements will be discussed.

## Who should attend?

This class is designed for system engineers responsible for developing requirements for airborne electronic equipment, hardware design engineers responsible for building such equipment, and test engineers responsible for writing test plans.

# MIL-STD Qualification: Purpose, Testing and Design Considerations

Instructors: Tom Cash and Kevin Renew

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

21 classroom hours  
2.1 CEUs

**DISCOUNTS** ★ 🍷 🍁

## CERTIFICATE TRACKS

AAC, AC

## Description

This class is designed to educate program managers, system engineers, design engineers and test engineers/technicians about U.S. military standard-oriented environmental, electromagnetic interference and power quality testing, with the goal of obtaining an airworthiness certification. The course will acquaint personnel involved in new military aircraft efforts or the modifications of existing military aircraft with information about the required testing. It will assist system and design engineers to develop equipment designs that are robust enough to pass the Military Standard testing and test engineers to properly design test plans for their equipment. Program managers will become aware of the time necessary to accomplish this testing.

## Who should attend?

This course is designed to benefit any program manager, systems engineer, design engineer and/or test personnel who are or may become involved in the design and manufacturing of any items for which an airworthiness certification is desired.

---

# Operational Aircraft Performance and Flight Test Practices

Instructor: Mario Asselin

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

35 classroom hours  
3.5 CEUs

**DISCOUNTS** ★ 🍷

## CERTIFICATE TRACK

FT

## Description

This course provides an overview of airplane performance theory and prediction, certification standards, and basic flight test practices. The course will focus on turbojet/turbofan powered aircraft certified under JAR/CAR/14 CFR Part 25. This standard will briefly be compared to military and Part 23 standards to show different approaches to safety, certification, operational, and design differences. This course will briefly touch on hybrid-electric propulsion.

## Who should attend?

This course is designed for aeronautical engineers in the design or flight test departments, educators, aircrews with engineering background, and military personnel involved in managing fleets of 14 CFR Part 25 (FAR 25) certified aircraft.

“This was an excellent course. I came in with a desire to improve my knowledge of flight test engineering, but I am leaving with more enthusiasm about being an aircraft performance engineer. Thank you for the spark to explore taking my career in a different direction.”

– Operational Aircraft Performance and Flight Test Practices attendee

# Operational Test and Evaluation: User-Centric Systems Testing

Instructors: George Cusimano and Kent Nelson

## SAN DIEGO, CALIFORNIA

Sept. 16-20, 2024

Monday – Friday

8 a.m. – 4 p.m.

## FEE

\$2,795 (\$2,595 early rate – register and pay by Aug. 2, 2024)

## CEUS

35 classroom hours

3.5 CEUs

**DISCOUNTS** ★ 🍷

## CERTIFICATE TRACK

FT

## Description

This course is designed to introduce students to the language, processes and assorted tools to estimate, plan, accomplish risk assessment, conduct, analyze, and report on operational tests. It focuses on the challenges of safe and effective OT&E of ground support elements, aerospace vehicles, on-board systems, human-system interaction issues, and logistics suitability.

The course focuses mainly on military systems but is equally applicable to commercial systems.

## Who should attend?

This course is designed specifically for operators, maintainers, engineers, and other support personnel. It is also appropriate for those personnel involved in planning, provisioning, conducting, reporting and supporting operational test activities. The course is applicable for military, and civilian students as well as academic researchers. It may also be beneficial to those involved in writing user requirements or those involved with defining new system concepts based on market analysis.

---

# Principles of Aeroelasticity

Instructor: Thomas M. Hermann

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

31.5 classroom hours

3.15 CEUs

**DISCOUNTS** ★ 🍷 🍁

## CERTIFICATE TRACKS

FT, AD

## Description

This course is designed to provide a qualitative understanding of aeroelastic behavior for aerospace vehicles. The class will explore different forms of aeroelastic phenomena and associated issues in structural dynamics and aerodynamic-structure interaction. Topics include solution methodologies, computational methods for aeroelastic analysis, development of the operational flight boundary, aeroservoelasticity, and contemporary topics such as limit cycle oscillations and related nonlinear pathologies in aeroelastic systems. The class addresses practical issues such as ground and flight tests. The course material will require selected study of the essential equations.

## Who should attend?

This course is designed for engineers and technical managers involved in aerospace vehicle design, analysis and testing related to aeroelastic response and stability issues. The level of class instruction is appropriate for engineers and managers with an undergraduate degree in engineering.

# Process-Based Management in Aerospace: Defining, Improving and Sustaining Processes

Instructor: Michael Wallace

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

35 classroom hours  
3.5 CEUs

## CERTIFICATE TRACKS

This course is not assigned to a certificate track.

## Description

This course covers foundational principles and the tools and techniques of Process Based Management (PBM) and delineates the strategies for successful implementation of PBM in an aerospace organization. Course content focuses on how to depict an enterprise process view, develop process measures, define key components, and identify critical success factors to maintain the focus on priority requirements for managing processes to achieve sustainable performance improvements. The course includes how these concepts fit with and support Lean, Six Sigma, Total Quality Management, and the Toyota Production System. Several aerospace organizational case studies are used to augment the theoretical components.

## Who should attend?

This course is designed for managers, engineers, quality, IT, and planning professionals in the aerospace industry who are responsible for the identification, implementation, and improvement of existing organizational processes and the development of new processes necessary to compete in the future.

---

# Propulsion Systems for UAVs and General Aviation Aircraft

Instructor: Ray Taghavi

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

35 classroom hours  
3.5 CEUs

## DISCOUNTS

## CERTIFICATE TRACKS

AD, UA

## Description

This course provides an in-depth understanding of the state-of-the-art propulsion issues specific to UAVs and general aviation aircraft including propulsion options, cycle analysis, principles of operation, systems, components, performance, and efficiencies.

## Who should attend?

This course is designed for propulsion engineers, aircraft designers, aerospace industry managers, educators, and research and development engineers from NASA, FAA and other government agencies.

 “Excellent introductory course or refresher for aeronautical engineers with no or minimal previous exposure to general aviation power plants and accessory systems.”  
– Propulsion Systems for UAVs and General Aviation Aircraft attendee



# Software Safety, Certification and DO-178C

Instructor: Jeff Knickerbocker

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

28 classroom hours  
2.8 CEUs

**DISCOUNTS** ★ 🍷 🍁

## CERTIFICATE TRACKS

AAC, AC

## Description

This course provides the fundamentals for developing and assessing software to the standard RTCA DO-178B and DO-178C Software Considerations in Airborne Systems and Equipment Certification as well as associated RTCA DO-178C supplements in DO-330, DO-331, DO-332, and DO-333. Similarities and differences to RTCA DO-278A for CNS/ATM equipment will also be addressed. The course also provides insight into the FAA's software review process, the FAA's software policy, practical keys for successful software development and certification, common pitfalls of software development, and software challenges facing the aviation community. Practical exercises and in-class activities will further enhance the learning process.

## Who should attend?

This course is designed for software developers, avionics engineers, systems integrators, aircraft designers, and others involved in development or implementation of safety-critical software. The focus is on civil aviation, certification, and use of RTCA DO-178C; however, the concepts may be applicable for other safety domains, such as military, medical, nuclear, and automotive.

---

# Stress Analysis for Aerospace Structures

Instructor: Dennis Philpot

## SEATTLE, WASHINGTON

April 8 – 12, 2024  
Monday – Thursday  
8 a.m. – 4 p.m.  
Friday, 8 a.m. – 11:30 a.m.

## FEE

\$2,795 (\$2,595 early rate – register and pay by Feb. 23, 2024)

## CEUS

31.5 classroom hours  
3.15 CEUs

**DISCOUNTS** ★ 🍷 🍁

## CERTIFICATE TRACKS

AD, AS

## Description

This course is designed for the practicing engineer who has an interest in the various aspects of stress analysis in aerospace structural-mechanical design and would like to enhance their expertise in this important field. The approach taken in this course is to start with a strong theoretical foundation and then build upon that foundation with practical applications that can be immediately put into practice in the workplace. In this manner, both the theory and practice of classical “hand” analysis techniques are presented as well as the more modern (numerical/computational) methods used in the industry. The subject-matter difficulty level is intermediate.

## Who should attend?

This class benefits design engineers who would like to become more familiar with the techniques and modern practices of stress analysis to help them be more efficient and productive. It is also ideal for mechanical engineers who have been out of college for a while and need to become more knowledgeable in the area of stress analysis due to a job assignment or career opportunity that requires analyzing structures. Department managers whose staff are involved in stress analysis work should also attend.

# Structural Composites

Instructor: Max Kismarton

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

31.5 classroom hours  
3.15 CEUs

**DISCOUNTS** ★ 🍷

## CERTIFICATE TRACK

AS

## Description

This course provides an introduction to high-performance composite materials, covering both engineering and manufacturing of composite parts and assemblies, basic material properties of the constituents (fiber and matrix), how they combine to form plies, or lamina, how to obtain lamina properties, how laminae are combined to form laminates, and how to obtain the laminate properties. Other engineering topics include stress analysis, failure criteria, and testing methods. Case studies and lessons-learned will be discussed. Design using composites will include material selection, lamination rules of thumb, weight analysis, fabrication process description, tool design, and preliminary cost and production rate analysis.

## Who should attend?

The course has proven very helpful to those wanting a broad overview and/or intensive intervention in composites, experienced engineers looking for a refresher course, and stress engineers wanting to understand how composites work or fail and what to look out for when analyzing parts, data, and margins. It is useful for practicing engineers and managers with metal experience wishing to expand their skill set, anyone new to the field, and engineering teams embarking on new projects involving composites.

---

# System Safety Assessment for Commercial Aircraft Certification

Instructor: Pierre Trudel

## SEATTLE, WASHINGTON

April 8 – 12, 2024  
Monday – Thursday  
8 a.m. – 4 p.m.  
Friday, 8 a.m. – 11:30 a.m.

## FEE

\$2,795 (\$2,595 early rate –  
Seattle: register and pay by Feb.  
23, 2024)

## CEUS

31.5 classroom hours  
3.15 CEUs

**DISCOUNTS** ★ 🍷 🍁

## CERTIFICATE TRACKS

AC, AMS, AAC, EWIS

## Description

This course develops the skills necessary to write and review system safety assessments for regulatory compliance to 14CFR 2X.1309 and 23.2510. Class participants are guided through the evolution of the safety rule and specific techniques for compliance through a comprehensive look at the regulations and current regulatory guidance. In-depth reviews of industry standards in system safety such as SAE ARP4761 and SAE ARP4754A, and ASTM F3230-17 followed by exercises, examples and class discussions strengthens the students' understanding of safety for compliance. By the end of the class, students gain the ability to develop meaningful system safety requirements, design safety compliant systems and equipment, and improve their skills in developing system safety compliance documentation.

## Who should attend?

This course is intended for anyone involved in the regulatory compliance aspects of system safety. It is specifically designed for Parts 23, 25, 27, and 29 system certification engineers, system designers, FAA Designated Engineering Representatives (DERs), ODA Unit Members (UM), system safety engineers, engineering leadership, and military personnel procuring civil equipment.

# Systems and Safety for Electric/Hybrid Electric Aircraft and Urban Air Mobility

Instructor: James Lawson

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

21 classroom hours  
2.1 CEUs

**DISCOUNTS** ★ 🍷

**CERTIFICATE TRACKS**  
UA

## Description

Electric and hybrid-electric technologies and autonomy pose a unique set of challenges. Nevertheless, using these technologies, the opportunity exists to create novel fault tolerant and redundant architectures. In this course, students gain practical knowledge of the certification approach afforded by Part 23 Amendment 64 applied to non-traditional aircraft types. Students will consider the application of industry consensus standards for electrical propulsions systems, energy storage systems, and sense and avoid. They will recognize different techniques for the creation of safety process artifacts, including Functional Hazard Analysis (FHA), Fault Tree Analysis (FTA), Failure Modes and Effects Analysis (FMEA), and Failure Modes Effects Summary (FMES), and how these might be performed on a complex electric or hybrid-electric aircraft that could incorporate vertical takeoff and landing capabilities. Throughout the course, agile techniques are considered in order that the safety process can guide the design and development of the aircraft.

## Who should attend?

This course is designed for Part 23 and Part 33 systems/safety and certification engineers and those involved in the certification of electric and hybrid-electric non-traditional aircraft types. The course assumes a basic understanding of the safety process and certification of a type design aircraft and caters to those wishing to achieve an advanced understanding of how the processes might be adapted to non-traditional aircraft types.

---

# Unmanned Aircraft System Software Airworthiness

Instructor: Willie J. Fitzpatrick, Jr.

This course is not currently scheduled.

Interested in bringing this course to your company? Contact Marina Enclarde, Business Development Manager at 913-897-8781 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

## CEUS

21 classroom hours  
2.1 CEUs

**DISCOUNTS** ★ 🍷 🍁

**CERTIFICATE TRACKS**  
AAC, UA

## Description

This course covers the software airworthiness requirements for unmanned aircraft systems (UAS). It addresses the development and airworthiness evaluation of complex integrated software intensive unmanned aircraft systems, as well as the relationship between the acquisition/development processes for these systems and the key software airworthiness assessment processes. The course also identifies the deliverables, artifact requirements, and approaches for documenting the software airworthiness assurance case, which is required to ultimately provide the certification/qualification basis for approval of the airworthiness of the unmanned aircraft system. The course offers key lessons learned in the application of the airworthiness assessment processes in software-intensive, unmanned aircraft systems.

## Who should attend?

This course is intended for managers, systems engineers, software system safety engineers, and software engineers who design, develop or integrate software in unmanned aircraft systems or evaluate these systems to provide the qualification/certification basis for their software airworthiness.

## WHAT PEOPLE ARE SAYING ABOUT US

“I loved this course! Very reminiscent of my Aerodynamics classes in college. The videos visualizing the concepts we were covering was a nice touch to the experience, especially the textbook that was written by Mario himself. I appreciate the very well done slideshows and supporting books which will be great references for me! I can’t say enough good things about this course!”

– John, Flight Test Engineer, Boeing, 2023 Operational Aircraft Performance and Flight Test Practices participant

“Great class that helped in both high level and detailed explanations. The highlight for me was being able to hear the experience, thoughts, and opinions from various people within the industry. The dialogue paired with the instruction was both interesting and informative. Also, Pierre Trudel is a great instructor and I highly recommend.”

– Shayne Carpenter, System Safety Engineer, Boeing, 2023 System Safety Assessment participant

“This course was time very well spent. It was a great introduction that really helped me understand the scope and complexity of the topic. That’s exactly what I needed as a program manager on an aircraft modification project. I don’t need to be the expert but I need to understand what the experts are up against.”

– Paul, Flight Test Engineer, 2022 FAA Type Certification participant

“[George Cusimano’s] experience from the side of testing design, experimentation, and development of new technologies such as the F-117 program provide very useful experience. He always exhibits a wide knowledge in the process of data acquisition, flight test planning, and flight testing design.”

– 2022 In-house Flight Test participant

“[Greg Lewis is] one of the most experienced pilots and engineers I have known and learned from. He adds valuable knowledge for flight test to the course, specifically because he has had the chance to experience first-hand flight testing processes in civilian and military applications.”

– 2022 In-house Flight Test participant



## CERTIFICATES OF SPECIALIZATION

Certificates of Specialization are for those who desire concentrated study in a specific area of interest. Achieving a Certificate of Specialization demonstrates to employers, coworkers and the aerospace industry that you are qualified, competent and current in your field. Complete four courses within one of the following nine specializations to earn a certificate:

- Aerospace Compliance (AC).
- Aircraft Design (AD).
- Aircraft Maintenance and Safety (AMS).
- Aircraft Structures (AS).
- Avionics and Avionic Components (AAC).
- Electromagnetic Effects (EME).
- Electrical Wiring Interconnected System (EWIS).
- Flight Tests and Aircraft Performance (FT).
- Unmanned Aircraft (UA).

Visit [jayhawkglobal.ku.edu/aero-certificate](http://jayhawkglobal.ku.edu/aero-certificate) for more information on Certificates of Specialization and required courses.



## HOW TO REGISTER

### To Register Online

Visit [www.enrole.com/kupce](http://www.enrole.com/kupce) or scan the QR code.



### Register By Mail

- Download the registration form (PDF) from our website.
- Complete the form and attach a check or money order payable to University of Kansas. Please reference Jayhawk Global on your check.
- Mail the form and payment to:  
Jayhawk Global  
Contact Center  
12600 Quivira Road  
Overland Park, KS 66213 USA

### Register By Phone

Please contact us at 785-864-6779.

### Payment

All fees are payable in U.S. dollars and due upon registration.

#### Payment by credit card

Online registrations must be paid by credit card. KU accepts MasterCard, VISA, Discover, and American Express. When you register online you will be prompted for your credit card information. For security reasons, KU cannot accept credit card information via email or regular mail.

#### Payment by check or money order

Please mail your check or money order in U.S. dollars to the address listed above. Make your check payable to "University of Kansas." Please reference "Jayhawk Global" on your check. *A \$30 fee will be charged for returned checks.*

#### Payment by wire transfer

Please contact us at [jayhawkglobal@ku.edu](mailto:jayhawkglobal@ku.edu) for wire transfer instructions.

#### Pre-register with an invoice

If your organization requires an invoice prior to issuing payment, please contact us at [jayhawkglobal@ku.edu](mailto:jayhawkglobal@ku.edu). To qualify for an invoice, participants must provide 1) a valid purchase order, 2) contact information for a person responsible for payment within the organization, and 3) any additional information or documentation that the organization will require in order to make payment to KU. KU will not register for a company account or payment portal to collect payment. Visit [jayhawkglobal.ku.edu/aero-registration#payment](http://jayhawkglobal.ku.edu/aero-registration#payment) for full details.

Visit [jayhawkglobal.ku.edu/aero-registration](http://jayhawkglobal.ku.edu/aero-registration) for more registration details and policies.



# POLICIES

## Audio or Video Recording

Audio or video recording is not permitted in the classroom.

## Cancellation Policy

KU Jayhawk Global reserves the right to cancel a course and return all the registration fees in the event of insufficient registrations, inclement weather or other unforeseen circumstances. The liability of the University of Kansas is limited to the registration fee. The University of Kansas will not be responsible for any losses incurred by a registrant including, but not limited to, airline cancellation charges or hotel deposits.

If you are unable to attend a publicly scheduled course, please contact us in writing, and request one of the following options:

- Send a substitute: Substitutions can be made at any time up to the start of the class.
- Transfer to another course: Transfer requests must be made more than five days prior to the course start date.
- Request a refund: Cancellations made up to five days prior to the course start date are subject to a \$250 cancellation fee. Cancellations made less than five days prior to the start of a course are not eligible for a refund.

Contact us at [jayhawkglobal@ku.edu](mailto:jayhawkglobal@ku.edu).

## Certificate of Attendance

A certificate of attendance is awarded to each participant. The certificate is accessible through our online registration system.

## CEUs

Continuing Education Units (CEUs) are assigned to each course and are listed on each course page. CEUs may not be used for college credit.

## Course Materials

University of Kansas Aerospace Short Course notebooks are for participants only and are not for sale. Reproduction or redistribution of course materials is strictly prohibited.

## Course Schedule

KU Jayhawk Global and/or its instructors reserve the right to adjust course outlines, schedules and/or materials. Course times and total hours

are approximate and may be adjusted by the instructor(s) as the situation warrants.

## Instructor Substitution

KU Jayhawk Global reserves the right to substitute an equally qualified instructor in the event of faculty illness or other circumstances beyond its control.

## Nondiscrimination Policy

The University of Kansas prohibits discrimination on the basis of race, color, ethnicity, religion, sex, national origin, age, ancestry, disability status as a veteran, sexual orientation, marital status, parental status, gender identity, gender expression, and genetic information in the university's programs and activities. Retaliation is also prohibited by university policy. The following persons have been designated to handle inquiries regarding the nondiscrimination policies and are the Title IX coordinators for their respective campuses: Director of the Office of Civil Rights and Title IX, [civilrights@ku.edu](mailto:civilrights@ku.edu), Room 1082, Dole Human Development Center, 1000 Sunnyside Ave., Lawrence, KS 66045, 785-864-6414, 711 TTY (for the Lawrence, Edwards, Parsons, Yoder, and Topeka campuses); Director, Equal Opportunity Office, Mail Stop 7004, 4330 Shawnee Mission Parkway, Fairway, KS 66205, 913-588-8011, 711 TTY (for the Wichita, Salina, and Kansas City, Kansas medical center campuses).

## Privacy Policy

KU Jayhawk Global does not share, sell or rent its mailing lists. You have our assurance that any information you provide will be held in confidence by KU Jayhawk Global.

## Program Accessibility

Individuals with disabilities are encouraged to attend University of Kansas sponsored events. If you require a reasonable accommodation in order to participate in a course or event, please contact us at [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu) or 913-897-8457 at least four weeks in advance of the course or event.

# CATALOG INDEX

	PAGE		PAGE
<b>A</b>		<b>I</b>	
Advanced Avionics.....	8	Instructions for Continued Airworthiness Using Enhanced Zonal Analysis Procedure (EZAP) .....	22
Aerodynamic Design Improvements: High Lift and Cruise .....	8	Integrated Modular Avionics (IMA) and DO-297 .....	22
Aerodynamic Design of Commercial Airplanes .....	9	Introduction to Electromagnetic Effects (EME) and Aircraft Engineering Requirements.....	23
Aerodynamic Design of Military Aircraft .....	9	Introduction to FAA Airworthiness Approval Requirements .....	23
Aircraft Avionics Test and Evaluation Fundamentals .....	10	Introduction to Fuel Tank Safety and Ignition Prevention: Design, Certification, and Compliance.....	24
Aircraft Icing: Meteorology, Protective Systems, Instrumentation and Certification.....	10	Introduction to RTCA DO-160 Qualification: Purpose, Testing, and Design Considerations .....	24
Aircraft Lightning: Requirements, Component Testing, Aircraft Testing and Certification.....	11		
Aircraft Propulsion Systems: Principles and Practices .....	11	<b>L</b>	
Aircraft Structural Loads: Criteria, Analysis, and Validation .....	12	Learning is ongoing.....	1
Aircraft Structures: Analysis and Design .....	12		
Airplane Flight Dynamics .....	13	<b>M</b>	
Airplane Preliminary Design.....	13	MIL-STD Qualification: Purpose, Testing and Design Considerations.....	25
Application of Human Factors Engineering to the Life Cycle Management of Aeronautical Products and Systems.....	14		
		<b>O</b>	
<b>C</b>		Online courses.....	4
Certificates of Specialization.....	6-7, 32	Operational Aircraft Performance and Flight Test Practices.....	25
Complex Electronic Hardware Development and DO-254.....	14	Operational Test and Evaluation: User-Centric Systems Testing .....	26
Conceptual Design of Unmanned Aircraft Systems .....	15		
Course descriptions .....	8-30	<b>P</b>	
		Policies.....	33
<b>D</b>		Principles of Aeroelasticity .....	26
Dynamics for Aerospace Structures .....	15	Process-Based Management in Aerospace: Defining, Improving and Sustaining Processes.....	27
		Propulsion Systems for UAVs and General Aviation Aircraft.....	27
<b>E</b>		Public courses information .....	3
Electrical Wiring Interconnection System (EWIS) and FAA Requirements.....	16	Public courses schedule .....	4-5
Electrical Wiring Interconnection System (EWIS) Safety Assessment – 25.1709 .....	16		
Electromagnetic Effects Aircraft Level Testing and FAA Requirements .....	17	<b>R</b>	
		Registration form.....	35
<b>F</b>		Registration – how to register.....	32
FAA Type Certification Plan Development .....	17		
FAA Type Certification Process.....	18	<b>S</b>	
Flight Control and Hydraulic Systems .....	18	Software Safety, Certification and DO-178C.....	28
Flight Test Principles and Practices .....	19	Stress Analysis for Aerospace Structures.....	28
Flight Testing Unmanned Aircraft Systems – Unique Challenges .....	19	Structural Composites .....	29
Fundamental Avionics.....	20	System Safety Assessment for Commercial Aircraft Certification .....	29
Fundamentals of V/STOL Rotorcraft .....	20	Systems and Safety for Electric/Hybrid Electric Aircraft and Urban Air Mobility .....	30
Future Propulsion Systems and Energy Sources in Sustainable Aviation.....	21		
		<b>T</b>	
<b>H</b>		Testimonials .....	31
High-intensity Radiated Fields (HIRF) Certification and Compliance .....	21		
How to register .....	32	<b>U</b>	
		Unmanned Aircraft System Software Airworthiness .....	30



# AEROSPACE SHORT COURSES

## 2024 REGISTRATION FORM

### Easy Ways to Register

**Online** [aeroshortcourses.ku.edu](https://aeroshortcourses.ku.edu)

**Phone** 785-864-6779

**TDD** 800-766-3777

**Email** [jayhawkglobal@ku.edu](mailto:jayhawkglobal@ku.edu)

**Mail** Complete the registration form and mail with payment to:

KU Jayhawk Global  
12600 Quivira Road  
Overland Park, KS 66213 USA

#### 1 Please print. If your mailing address requires a different format than indicated here, please use that format and ignore the printed guidelines.

Full name (first, middle initial, last name or surname, suffix)

Email address (Your confirmation letter and receipt will be sent to this email address.)

Company or organization

Position/job title

Mail stop, building or room number (if needed)

Street address or post office box ☐ Home ☐ Work

City, state or province

Zip+four or postal code

Country

Daytime phone

Alternate/evening phone

Are you a U.S. Citizen? ☐ Yes ☐ No If no, country of citizenship: \_\_\_\_\_

☐ I am an international attendee who requires a VISA letter from KU Aerospace Short Courses.



If you require a reasonable accommodation in order to participate in this event, please contact us at 785-864-6779 or [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu) at least four weeks in advance.

#### 2 Please register me for the following course:

Course Name

Dates

Location

#### 3 FEES (Registration fees in U.S. dollars are listed on each course page. Please check the course page online at [aeroshortcourses.ku.edu](https://aeroshortcourses.ku.edu) or in the Course Catalog.)

☐ Early registration fee (must be paid before the published early registration deadline)

☐ Regular registration fee

☐ I am a U.S. federal employee requesting the federal discount (10% off the registration fee). Enter discount code (required): \_\_\_\_\_

#### 4 PAYMENT

Amount due \$ \_\_\_\_\_

☐ Check enclosed, payable in U.S. dollars, to **The University of Kansas**.

☐ I will call and pay by credit card.

Please call our Registration Team at 785-864-6779. KU's business hours are 8 a.m.–5 p.m. CDT, Monday–Friday. You may opt to register and pay online by credit card at [aeroshortcourses.ku.edu](https://aeroshortcourses.ku.edu).

☐ Payment by wire transfer, purchase order, or other.

Please see the "Pre-Registration With an Invoice" instructions online at [jayhawkglobal.ku.edu/aero-registration#payment](https://jayhawkglobal.ku.edu/aero-registration#payment).

For cancellation policy please see p. 33 of the catalog.



# AEROSPACE SHORT COURSES

## **Learning is ongoing.**

KU Aerospace Short Courses makes it easy to get the education you need to succeed.

## **Learn online.**

Convenient virtual classroom-style delivery. New online classes available now.

## **Learn where you work.**

Short courses delivered at your workplace, on your team's schedule.

## **Learn in the classroom.**

Learn & network at our traditional annual training locations – Seattle, San Diego, and Orlando.



[aeroshortcourses.ku.edu](https://aeroshortcourses.ku.edu)

**KU** JAYHAWK  
GLOBAL

The University of Kansas



**The University of Kansas**

1515 St. Andrews Drive  
Lawrence, KS 66047-1619  
U.S.A.

Nonprofit Org.  
U.S. Postage  
PAID  
Lawrence, KS 66044  
Permit #110

## **GOT IDEAS? CONTACT US!**

Part of our mission in delivering the best possible educational experience to our attendees includes new course content. We are always on the lookout for new talent and ideas. Do you or someone you know in your industry have a wide breadth of experience that could take our classes to the next level? Contact us at [professionalprograms@ku.edu](mailto:professionalprograms@ku.edu).

**[aeroshortcourses.ku.edu](http://aeroshortcourses.ku.edu)**