



WHITE EAGLE
AEROSPACE



Aerospace Lessons-Learned

MAKE YOUR CAREER SOAR

Welcome

Thank you very much for your interest in White Eagle Aerospace. Since our founding in 2006, we have become a trusted leader in professional technical training and education throughout the aerospace industry.

As a fellow aerospace professional with over 50 years of industry experience, I understand the critical need for ongoing technical training in the workplace. White Eagle Aerospace was established in order to meet this pressing need.

For many years, we have recognized a looming crisis in the aerospace workforce. Throughout the industry, there is an increasingly bimodal distribution of aerospace professionals. One end of that distribution contains young, well trained, highly motivated, but very inexperienced professionals. The other end of that distribution involves individuals who have been around for a long time, have a great deal of experience and are on their way out of their chosen profession. This leaves a valley between the two.

Who is going to pass the baton to the upcoming generation of aerospace professionals? Where will they get their knowledge – knowledge that goes beyond academia and even graduate degrees? Much of what they need to know is not available in today's standard university curricula. What they need is:

- Specialized knowledge over a range of disciplines
- Knowledge provided by an experienced expert in the field
- Knowledge conveyed by a master instructor

White Eagle Aerospace recognizes these issues and provides effective solutions for your workforce. We are pleased to present you with this brochure, which outlines our Aerospace Lessons-Learned (ALL) professional short course. Our team of industry experts and master instructors is dedicated to your success. Should you have any questions about our course catalog or desire more information on how we can help MAKE YOUR CAREER SOAR, please contact us today.

Best Regards,



John Terry White,
President/CEO
White Eagle Aerospace



About Our Company

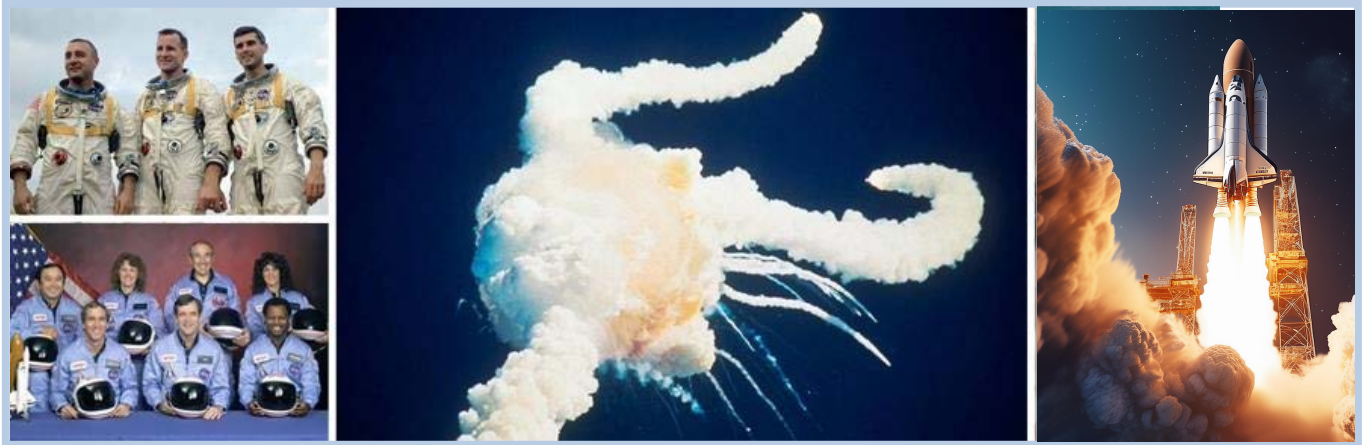
Whether you are new to the aerospace industry or have years of professional experience, we are your provider-of-choice for expert technical training.

Acquiring key knowledge, critical lessons-learned and technical know-how are crucial ingredients for success in today's complex and highly competitive aerospace market. Our nationally-acclaimed short courses cover a wide range of highly useful technical subjects. Each course is delivered by a subject matter expert who is also an expert technical instructor.

We offer you comprehensive technical training in essential topics, with minimal time away from work – all at a price that fits today's tight training budgets.



WHITE EAGLE
AEROSPACE



Target Audience

The Aerospace Lessons-Learned (ALL) short course is designed to help participants become aware of, retain and apply aerospace history's key lessons-learned. The course delivers a unique training experience that reaches far beyond text book learning and is immediately applicable in the workplace.

This unique program is designed to benefit a wide variety of technically-minded professionals involved at any level in today's demanding aerospace industry. Whether laboring in the engineering trenches, piloting air or space vehicles, or managing a critical developmental program, the course affords participants the timely knowledge, understanding and insight required to effectively apply a myriad of invaluable lessons-learned gleaned over the last half-century of aerospace history.

This program helps individuals and organizations avoid the costly and often tragic mistakes of the past and increase the likelihood of success now and in the future. Delivered by a master instructor and subject matter expert with over 50 years of professional aerospace experience, this outstanding 4-day training course is an absolute must for the serious aerospace professional.

Who Will Benefit

- Chief Engineers
- Engineering IPT Leaders
- Program Managers
- Project Managers
- Mission Planners
- Six-Sigma Leadership
- Commercial Space Specialists
- FAA AST Staff & Personnel
- Operations Research Specialists
- Military Personnel
- Military Leadership
- Military & Commercial Aircrew
- Flight Test Team Members
- College Students

Group Discounts

White Eagle Aerospace is dedicated to meeting your organization's professional training needs. In order to better serve you, we offer special group discounts rates and on-site training. If you have a group of 15 or more participants, we will bring our nationally acclaimed ALL short course to your location at a discounted rate. Please contact us today to learn how we can help MAKE YOUR ORGANIZATION SOAR!



Course Description

The Aerospace Lessons-Learned (ALL) short course provides participants with the key knowledge, understanding and insight required to effectively apply a myriad of hard-won lessons-learned gleaned over the last half-century of aerospace history.

Professionals in the modern global aerospace market ply their trade in an era that demands that they do more, in less time and with fewer resources than preceding generations. With optimistic schedules and tight budgets, today's programs cannot tolerate even minor deviations from the plan without facing the threat of cancellation. Ignorance of past lessons-learned leads to unwise decisions and unacceptable reinventing-the-wheel excursions. As such, an awareness and retention of hard-won aerospace lessons-learned is absolutely vital for success.

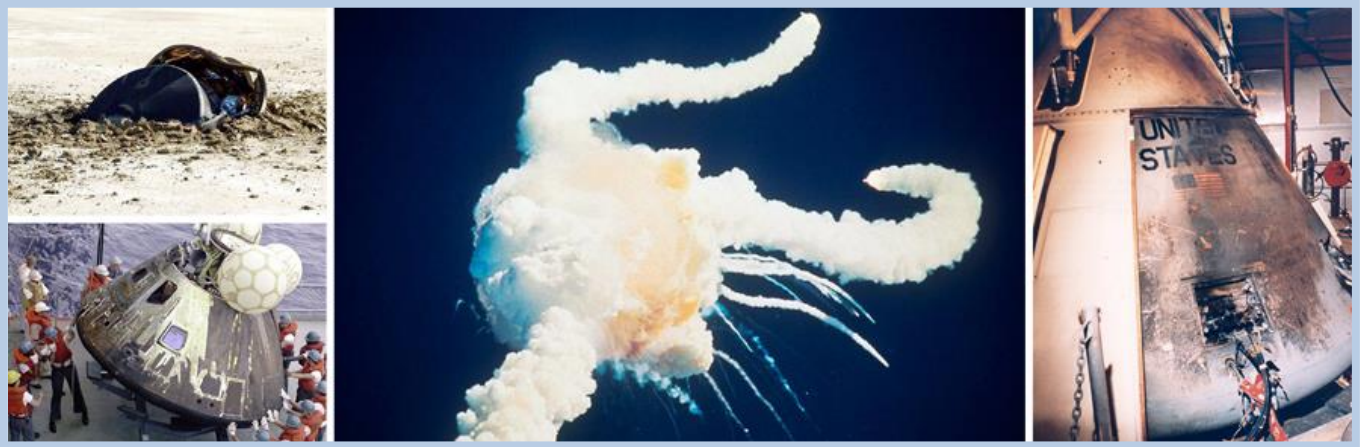
This valuable course stresses the critical importance of learning and retaining knowledge gained through past endeavors. Material focuses on significant historical events and mishaps; special emphasis is placed on what worked, what did not work and why.

Learning is accomplished through the medium of case history presentations which consider the background, root causes and abiding lessons-learned pertinent to a host of historically-significant events. These vital lessons-learned are technical, managerial, operational and cultural in nature. For added knowledge integration, each major case history presentation is followed by a class discussion.

Key Course Topics

- Hubble Telescope Flaw
- Galileo HG Antenna Anomaly
- Submarine Thresher Loss
- Gimli Glider Incident
- X-43A Launch Vehicle Mishap
- Apollo 13 Cryo Tank Explosion
- USS Forrestal Fire
- X-2 Speed Mission Mishap
- Nedelin Disaster
- X-15 Reentry Mishap
- Apollo AS-204 Fire
- Space Shuttle Challenger Disaster
- Space Shuttle Columbia Loss
- Concorde Airliner Disaster
- Mars Climate Observer Loss
- Genesis Entry Vehicle Mishap
- XB-70A Valkyrie Collision
- Palomares Broken Arrow Incident
- NF-104A Zoom Flight Mishap
- Delta II Launch Vehicle Explosion





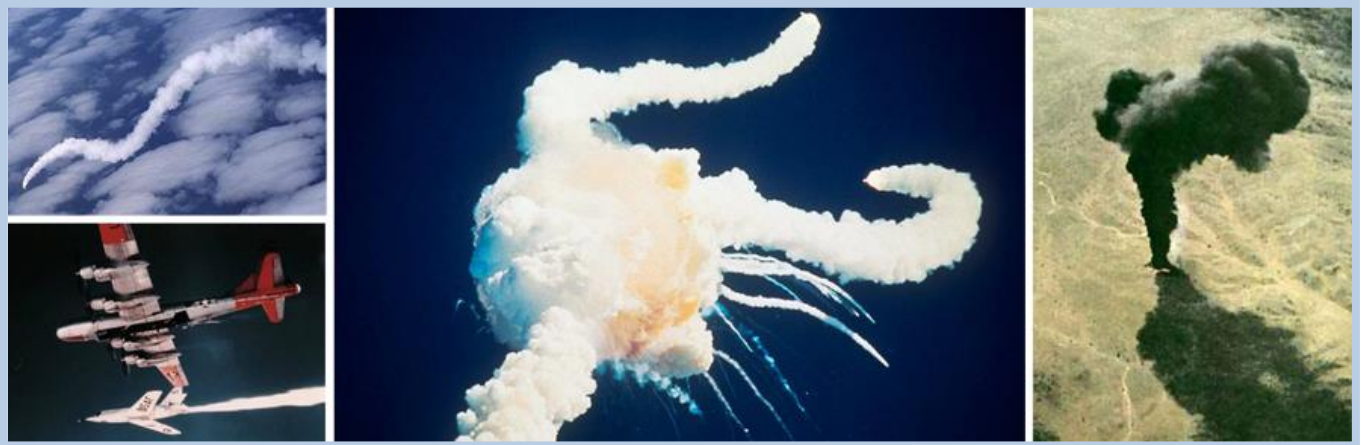
Course Outline

The Aerospace Lessons-Learned (ALL) short course consists of a diverse collection of case studies, each of which focuses on a historically significant mishap or event.

The formal presentation of each case study is followed by a class discussion period. This unique presentation-discussion format maximizes knowledge transfer within and interaction between the group of course participants. The three-fold objective of this course is to help each participant (1) become aware of, (2) retain and (3) in the future, apply critical aerospace lessons-learned.

Aerospace Lessons-Learned Mishap Categories and Case Format

Mishap Categories	Civil Aviation	9 Cases; includes Air Canada 143, BOAC 781, Aloha Airlines 27, Air NZ 901 Loss
	Military Aviation	6 Cases; includes USAF NF-104A; B-52H Clear Air Turbulence Event, M-21/D-21 Loss
	Experimental Flight	12 Cases; includes USAF X-2 Loss; XB-70A Crash; NASA M2-F2 Accident; X-43A Loss
	Maritime Vessels	4 Cases; includes USS Thresher Incident; RMS Titanic Sinking; Loss of USS Scorpion
	Launch Vehicles	5 Cases; includes USN Trident D5 Loss; NASA Skylab 1 Mishap; Nedelin Catastrophe
Case Format	Manned Spaceflight	6 Cases; includes Apollo 204 Fire; Challenger Disaster; Columbia Accident
	Robotic Spaceflight	7 Cases; includes NASA Genesis SRC Crash; Hubble Telescope Flaw; Loss of MCO
	Demonstration Aviation	7 Cases; USAF B-52G Air Show Training Crash; Thunderbirds Opposing Solo Mishap
	Background	This section both introduces the topic and provides context for a given study. Course participants are placed in the historical setting of what preceded the mishap or event to better understand the associated when-where-how-why aspects of same.
	Mishap	This section provides a factual and objective description of the mishap or event. Where possible, a chronology or timeline detailing the sequence of sub-events is provided. Key elements and participants are identified and explained as well.
Case Format	Causes	The causes of the mishap or event are explicitly identified. These include proximate, contributing and root causes. To the maximum extent possible, reference is made to the official mishap investigation report if such exists.
	Lessons-Learned	This is the “punch line” or “take-away message” portion of the case study. Enduring lessons-learned are summarized and explained. Lessons-learned are technical, procedural, operational, managerial and cultural in nature.
	Summary	Provides an overall wrap-up of the topic considered. Summarizes the long-term and historical ramifications of the mishap or event. As appropriate, <i>lessons-not-learned</i> and <i>lessons-forgotten</i> are identified as well.



Aerospace History

Much has transpired during the 100-plus years of powered flight. We are both the beneficiaries and stewards of the technological progress that previous generations have bequeathed to us.

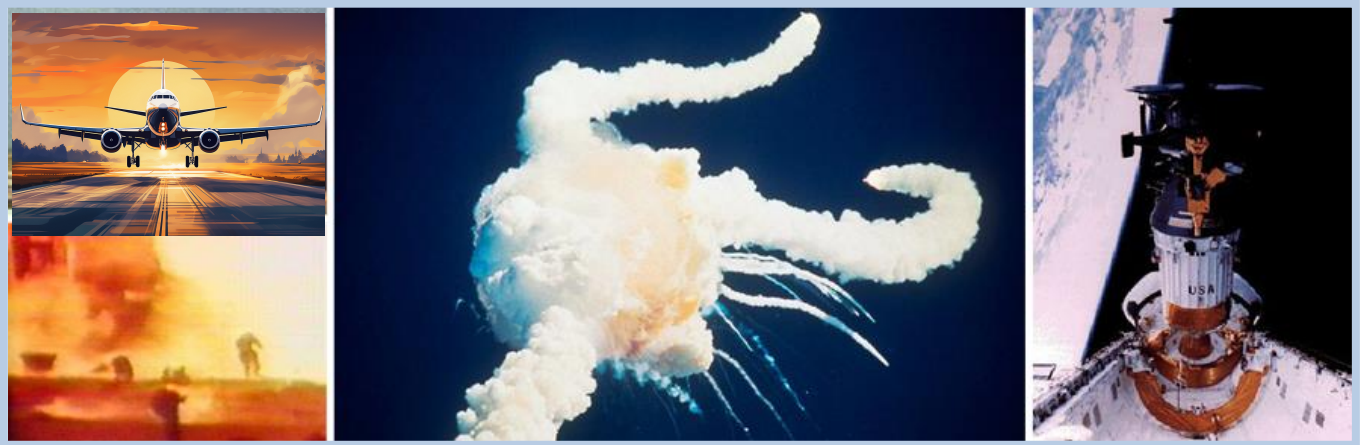
However, many professionals in today's aerospace workforce have little knowledge of the key people, events and innovations that comprise the history of their own profession. While we cannot live in the past, we must learn from it if we are to be successful now and in the future. Further, like our predecessors, we must protect and preserve this legacy knowledge for succeeding generations.

It is for these reasons that White Eagle Aerospace strongly emphasizes aerospace history in its technical short courses. This is done through the mediums of lecture material, videos, and photos. The Aerospace Lessons-Learned (ALL) short course features several key historical programs.

Featured Programs

- Bell X-1A
- Bell X-2
- D-558-II Skyrocket
- F-100 Super Sabre
- F-102 Delta Dagger
- F-104 Starfighter
- F-106 Delta Dart
- B-58 Hustler
- North American X-15
- XB-70 Valkyrie
- SR-71 Blackbird





Information at a Glance

The Aerospace Lessons-Learned (ALL) short course provides participants with the key knowledge, understanding and insight required to effectively apply a host of hard-won lessons-learned gleaned over the last half-century of aerospace history.

The course stresses the importance of being cognizant of and learning from defining events in aerospace history. Participants will learn about significant events and mishaps; what worked, what did not work and why. Training is directly applicable to anyone working in the aerospace industry.

The course helps individuals and organizations to (1) avoid the costly and often tragic mistakes of the past and (2) increase the likelihood of future success.

Delivered by a master instructor and subject matter expert with over 50 years of professional aerospace experience, this outstanding 4-day training course is a must for the serious aerospace professional.

Contact White Eagle Aerospace

White Eagle Aerospace
Oro Valley, AZ 85737
www.whiteeagleaerospace.com
training@whiteeagleaerospace.com
520-500-6093

Key Course Information

- **Instructor:** J. Terry White
- **Duration:** 4 instructional days; 32 instructional hours.
- **Materials:** 1) Comprehensive set of course lecture slides in bound form and 2) Shared drive access containing course lecture slides, images, videos, reference documents and homework solutions.
- **Cost:** \$2,195 for single seat.
- **Registration:** Please visit our website to view the most current Course Calendar. To register for a scheduled course, simply complete and submit the online registration form.
- **Group Discounts:** In order to better serve your organization, we offer special group discount rates and on-site training. For information, please contact Training at training@whiteeagleaerospace.com.



WHITE EAGLE
AEROSPACE



J. Terry White

Aerosciences Instructor

John Terry White is the Founder and Senior Technical Advisor of White Eagle Aerospace. With headquarters in Oro Valley, Arizona, White Eagle Aerospace is a leading provider of engineering consulting, professional training, historical flight lectures and technical publication services to the aerospace community.

White's over 50 years of professional aerospace experience includes the NASA Space Shuttle Program, NASA X-43A Flight Project, and United States Navy STANDARD Missile Program. During his extensive career, he has served on the engineering technical staff of Rockwell International, General Dynamics Corporation, Hughes Missile Systems Company, NASA Dryden Flight Research Center and Raytheon Missile Systems.

Courses Offered

- **Aerodynamics for Engineers**
- **Aerospace Lessons-Learned**
- **Advanced Missile Aerodynamics**
- **Aerospace Vehicle Performance**
- **Basic Missile Aerodynamics**
- **Basic Rocket Science**
- **Fundamentals of Earth Reentry**
- **Fundamentals of Gas Dynamics**
- **Fundamentals of Hypersonics**
- **Fundamentals of 6-DOF Aerodynamics Models**

In 2009, White completed his industrial career as manager of the Aerodynamics Department in the Guidance, Navigation, and Control Center at Raytheon Missile Systems in Tucson, Arizona. In this capacity, he was responsible for all aerodynamics work performed at the world's largest tactical missile producer. White resigned from Raytheon in 2010 as an Engineering Senior Fellow in Aerodynamics.

White has authored more than 180 technical papers on a wide variety of aerospace and aerospace subjects. His teaching credentials include 15 years as an instructor in the Aerospace Engineering Department of the California State Polytechnic University, Pomona, 10 years as an instructor in the professional development program at Raytheon and 6 years developing and teaching courses at White Eagle Aerospace. Those who have taken his courses say that White brings an uncommon passion and extensive technical knowledge to the training environment.

White is particularly well known for his inspiring aerospace history lectures and presentations. These "techno-histories" are intense, fast-paced reviews of historically-significant events in United States aerospace history. He has lectured extensively on aerospace history topics at the USAF Test Pilot School, the Society of Experimental Test Pilots, the National Aeronautics and Space Administration, the American Institute of Aeronautics and Astronautics, academia and industry. White also serves as a motivational keynote speaker for aerospace conferences, business functions,

Contact Information

J. Terry White, Founder/Senior Advisor
Mobile: 520-390-9157
Email: terry@whiteeagleaerospace.com