



WHITE EAGLE
AEROSPACE



Root Cause Failure Analysis

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 nearly 40 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 Root Cause Failure Analysis (RCFA) 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.





Target Audience

The Root Cause Failure Analysis (RCFA) short course is intended for the aerospace professional seeking expert instruction in key concepts and proven methods related to the identification and elimination of root failure causes occurring in complex systems, subsystems and components.

The course will show participants how to successfully work in a multi-disciplinary team environment to resolve complex system failures. Training will explore proven methods used to objectively identify all potential failure causes and proactively eliminate additional potential failure causes before they occur. This knowledge and its application are essential to the development and optimization of lean manufacturing processes. Professionals from a wide variety of aerospace, process, industrial, manufacturing and engineering related disciplines will benefit from the RCFA training program.

Guided by a master instructor and renowned expert with years of direct experience in the field of manufacturing optimization, this 2-day intensive training course will provide participants with invaluable real-world knowledge.

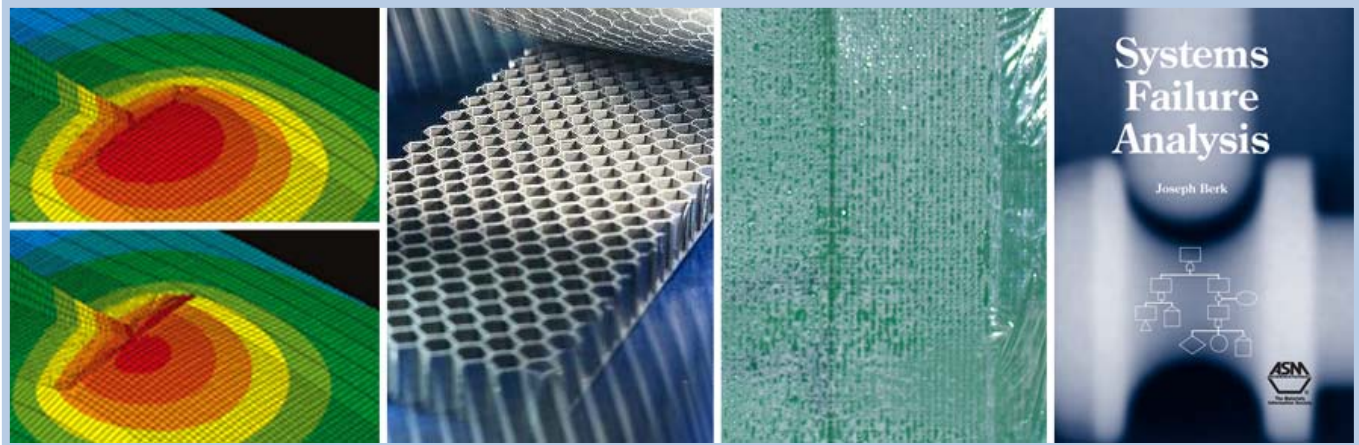
Who Will Benefit

- Design Engineers
- Process Engineers
- Software Engineers
- Systems Engineers
- Aerospace Engineers
- Production Supervisors
- Operations Supervisors
- Purchasing Agents
- Logisticians
- Management Analysts
- Manufacturing Managers
- Project Managers
- Engineering Managers
- Production Managers
- Operations Managers
- Program Managers
- College Students

Customize It!

Whatever the nature of your system and objective, be it failure prevention or cause determination, we can customize this course to meet your organization's specific needs. We can also schedule a post-course workshop to allow participants time to apply technologies learned and practice failure analysis under an experienced practitioner's guidance. Contact us to learn how we can help MAKE YOUR ORGANIZATION SOAR!





Course Description

This Root Cause Failure Analysis (RCFA) short course provides a comprehensive training experience in the key concepts and proven methods related to the identification and elimination of root failure causes occurring in complex systems, subsystems and components.

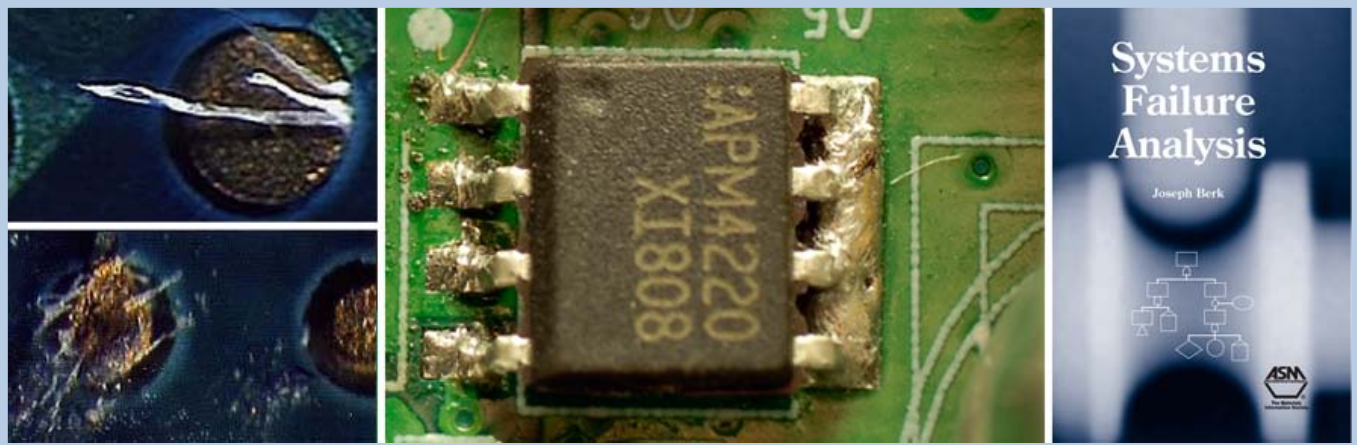
The course emphasizes the development and implementation of a failure analysis methodology for use throughout the organization. Participants will be armed with procedures and technologies for working through various types of systems failures through the use of Ishikawa diagrams, mind-mapping, and fault tree analysis for identifying potential failure causes. They will learn how to define potential root failure causes and develop evaluation plans by using hardware analysis, statistical analysis, experiment design, technical data package evaluation and other pertinent tools. The course presents corrective action alternatives and a framework for selecting optimal intermediate and longer-term corrective actions.

This intensive training program utilizes real-life case studies to help participants effectively apply the new toolkit to their jobs. At the end of the course, they will know how to identify dominant failure modes through quantity and cost-based Pareto analyses, identify the root causes of systems failures, select and implement effective corrective actions and work as an inter-organizational, multi-disciplinary failure analysis team.

Key Course Topics

- Failure Analysis Philosophy
- 4-Step Problem Solving
- Continuous Improvement
- Quality Measurement
- Mind-Mapping
- Ishikawa Diagrams
- Fault Tree Analysis
- Test & Inspection Data
- Material Certifications
- SPC Data
- Flow Charts
- Failed Hardware Analysis
- Hardware Evaluations
- Metallurgical Evaluations
- Electronic Evaluations
- Experiment Design
- Design Modifications
- Process Modifications
- Component Failure Analysis
- Leak Analysis
- Significant Lessons Learned
- Failure Prevention





Course Outline

The Root Cause Failure Analysis (RCFA) short course is an intensive 2-day training program that provides a maximum training experience to aerospace professionals with minimum time away from work.

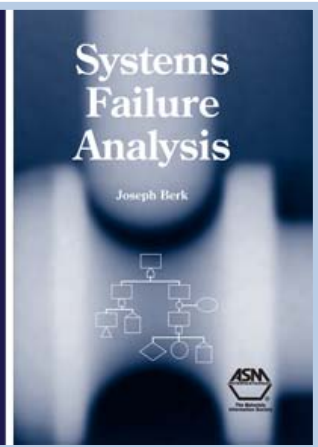
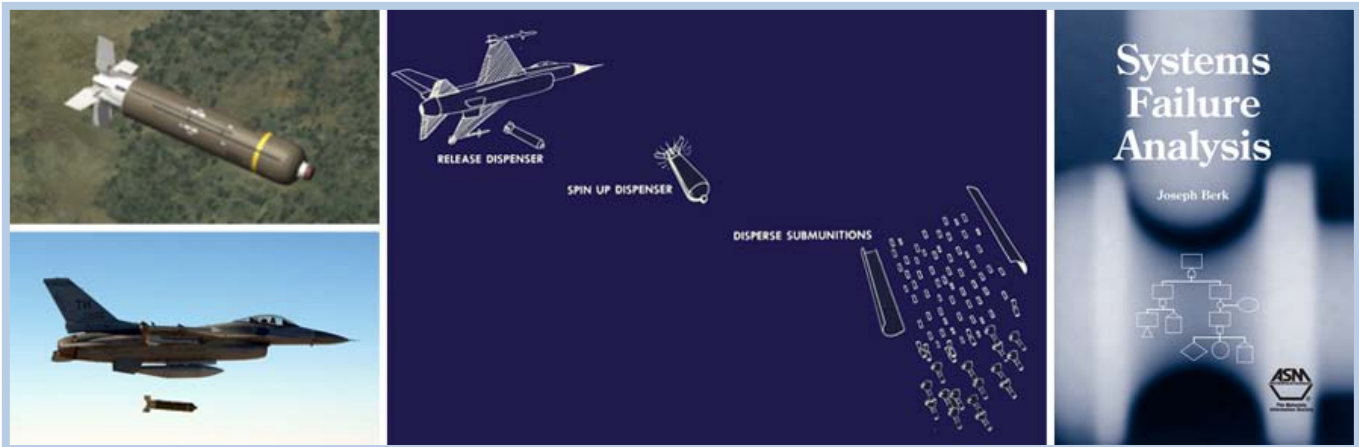
Day 1: Identification

The first day of the RCFA course teaches participants how to objectively identify potential root failure causes. Topics include: failure analysis philosophy, the four-step problem solving approach, systems and component failure analyses, continuous improvement, quality measurement, brainstorming, mind-mapping, Ishikawa diagrams, fault tree analysis, test and inspection data, material certifications, SPC data, flow charts and failed hardware analysis. In addition, students will explore the relationship between logic operators and events, the usage and interpretation of fault tree gate, the usage of inhibit functions to model probability distributions, quantification of undesired events and the usage of fault trees to identify redundancy-defeating failure modes. Real world case studies will be explored, along with vital lessons-learned.

Day 2: Evaluation

The second day of the RCFA short course provides participants with detailed instruction on how to objectively evaluate each of the hypothesized failure causes and proactively eliminate additional potential failure causes before they occur. Topics include: hardware evaluation (through microscopy, SEM, FTIR, EDAX, X-ray, N-ray, SIMS, Auger, and other analysis techniques) metallurgical and electronic evaluations, leaks, design of experiments approaches, corrective action alternatives (including design modifications, process modifications, requirements relaxation, screening and other corrective actions), and using the FMA&A to manage the failure analysis. The course includes numerous real world examples based on the instructor's experience in a variety of industries, case studies and class exercises to solidify comprehension.





Information at a Glance

The Root Cause Failure Analysis (RCFA) short course is intended for the aerospace professional seeking expert instruction in key concepts and proven methods related to the identification and elimination of root failure causes occurring in complex systems, subsystems and components.

The course will show participants how to successfully work in a multi-disciplinary team environment to resolve complex system failures. Training will explore proven methods used to objectively identify all potential failure causes and proactively eliminate additional potential failure causes before they occur.

Guided by a master instructor and renowned expert with years of direct experience in the field of manufacturing optimization, this 2-day intensive training course will provide participants with invaluable real-world knowledge.

Key Course Information

- **Instructor:** Joseph H. Berk
- **Duration:** 2 instructional days; 16 instructional hours.
- **Text:** “Systems Failure Analysis”, ASM International, 2010; Joseph H. Berk.
- **Materials:** Course textbook and copies of all presentation and case study materials.
- **Cost:** \$800 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 Phyllis White at pjwhite@whiteeagleaerospace.com.

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Joseph H. Berk

Manufacturing Optimization Instructor

Joseph H. Berk is an adjunct faculty member at California State Polytechnic University's College of Engineering and an expert witness on product assurance, statistical analysis and manufacturing issues. He is an internationally acclaimed author of several textbooks on continuous improvement and manufacturing optimization.

Berk offers 35+ years of training, management and consulting experience in high-technology, engineering and manufacturing organizations. His training repertoire includes courses on quality management, statistical applications in industrial environments, cost reduction, failure analysis and related topics. His audiences give him high marks for his course material mastery, his practical experience in the subject field and his teaching skills.

Berk's work focuses on helping organizations improve their engineering, manufacturing, service and process capabilities, with an emphasis on quality management, process improvement and failure analysis. His work in these areas has exposed him to a wide set of industries, including the US Department of Defense, power generation, electronics, electro-optical, aerospace, automotive, biomedical, marine, ordnance, consumer goods, water treatment and metal fabrication.

Berk developed quality management approaches based on his personal experience implementing improvements in many organizations. He is widely published in these areas, including Quality Management for the Technology Sector (Elsevier), Systems Failure Analysis (ASM International) and his most recent book, Cost Reduction and Optimization for Manufacturing and Industrial Companies (Wiley).

Before starting his training/consulting practice, Berk held senior management positions in engineering, manufacturing and quality assurance. A well-rounded professional, his job experience also includes operations, quality assurance and plant management. His long and diverse career brings a "real-world" dimension to his training and consulting engagements that his clients appreciate.

Berk is a sought-after expert witness on process optimization, management, product assurance, statistics, cost estimation and failure analysis before the U.S. Armed Services Board of Contract Appeals. He holds undergraduate and graduate degrees in mechanical engineering from Rutgers University and an MBA from Pepperdine University.

Courses Offered

- **Delivery Performance Improvement**
- **Quality Management**
- **Root Cause Failure Analysis**
- **Rapid Cost Reduction**
- **Statistical Process Control**

Contact Information

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