Aviation Safety + Security Program

NEW ACCIDENT INVESTIGATION LAB
SMS IMPLEMENTATION
GLOBAL CONTRACT COURSES
CERTIFICATES IN AVIATION SAFETY AND SYSTEM SAFETY
The year 2012 will be the sixtieth anniversary of the USC Aviation Safety and Security Program. From our earliest days, in a shared effort with the United States Air Force, the program has grown to serve the interests of the global aviation community. The program strives to lead aviation safety efforts and aviation safety ideas in a way that will create the greatest benefit system-wide. It remains our welcome challenge to serve this ever-changing industry and to continue to represent the gold standard for aviation safety training. It is in this spirit that we are offering our catalog for 2012-2013.

The cover of our 2012-2013 catalog features the Boeing 787 Dreamliner. It represents the growth and improvement that characterize the global world of aviation. Within the USC Aviation Safety and Security Program the year 2012 will see the growth and continued development of the new USC Aviation Accident Investigation Facility.

Dynamic change is an ever-present reality within the aviation environment. It is because of this element of change that our core course, *Aviation Safety Management Systems*, is so necessary in ensuring the safety of aviation operations. The International Civil Aviation Organization (ICAO) has recognized the critical nature of implementing the Safety Management Systems (SMS) covered by our curriculum; the ICAO has issued standards to all 190 signatory states that SMS be adopted by international airports, air carriers, and air traffic providers.

The USC Aviation Safety and Security Program has supported the SMS initiative for over seven years and is responsible for training much of the current SMS leadership cadre worldwide. Besides offering our constantly evolving training program, we have also participated in rule-making projects that are responsive to the new ICAO requirements. This participation has allowed us to make our SMS curriculum as relevant and current as possible.

Speaking of pioneering work, our Systems Safety Certificate Program continues to grow as more individuals earn the program certificate each year. This sequence of courses addresses the technical and engineering-
oriented issues that are encountered in industrial environments that require systems safety.

Our success is measured in our usefulness to you, the members of the aviation community. One initiative that has been a clear success is a course that is in its second year — SMS for Managers. This course has been frequently requested by aviation organizations around the world to be conducted for their management cadre.

We take this as a vote of confidence for its relevance and utility.

The success of the USC Viterbi School of Engineering stems from a vision where effective research and education addresses real-world problems from a global perspective. The Aviation Safety and Security Program shares this vision, and is contributing to the creation of a significant global presence for the Viterbi School.

The University of Southern California strives to be a university of choice for future leaders from all over the world. The USC Aviation Safety and Security Program has made strong contributions to this effort, and will continue to do so.

Yannis C. Yortsos, Dean
USC Viterbi School of Engineering
In 1952, USC established the first Aviation Safety Program at a major research university. Since then the program has gained a highly respected reputation nationally and internationally, with more than 24,000 aviation professionals from over 70 nations having completed its courses.

The program was originally developed by a project team of faculty from three disciplinary areas: engineering, management and psychology. The courses they developed integrated appropriate subject matter from these areas into a comprehensive systems approach to safety.

There are 21 different courses available, with approximately 50 total sessions scheduled each year. Courses are scheduled consecutively to permit out-of-state and international students to complete a sequence of courses or an entire certificate program in one stay. Contract courses are conducted in addition to the scheduled courses at locations worldwide.

The Certificate Program in Aviation Safety and Security, which requires an individual to complete a series of courses, has been completed by over 1600 students.

A brief list of organizations with employees who have attended includes:

- International air carriers recognized for their outstanding safety records including Air New Zealand, Virgin Atlantic, SAS, Singapore Airlines, Korean Airlines, and JAL;
- U.S. government agencies managing air safety and accident investigations and recommendations — the FAA and the National Transportation Safety Board, the FBI and the equivalent agencies of Canada, France, Great Britain, Italy, Japan, Singapore, New Zealand, Trinidad/Tobago, South Africa, Taiwan, and Brazil;
- The U.S. Army, Air Force, Navy, Marines and Coast Guard;
- All U. S. major air carriers and aircraft manufacturers;
- Other international air carriers including Air Canada, Alitalia, El-Al Israel Airlines, Egypt Air, Nigeria Airways, Kenya Airways, Royal Jordanian Airlines, Saudi Arabian Airlines and Yemen Airways;
- International aircraft manufacturers including Airbus, Embraer, and Bombardier;
- International military organizations including the Royal Netherlands Air Force, the Royal Air Force, the Irish Air Corps, the Royal Danish Air Force, the Republic of Singapore Air Force and the Canadian Defense Forces;
- Aviation elements of the United Nations.

Continuing Education Units (CEU’s) are available upon request. One CEU is awarded for every 10 hours of instruction.

More information can be accessed on our website, [http://viterbi.usc.edu/aviation](http://viterbi.usc.edu/aviation).

**AVIATION SAFETY AND SECURITY CERTIFICATE PROGRAM**

Individual courses are designed to provide the student with expertise in a particular subject area. While each course is constructed as a whole and taught independently of the others, those interested in preparing for a full-time career in aviation safety should consider a program of courses that provides broad knowledge. We award the University of Southern California’s **USC Aviation Safety and Security Certificate** to those successfully completing the required program. It certifies completion of training in several multidisciplinary areas including Aviation Safety Management Systems, Accident Investigation, Human Factors and Technology.

Students satisfying the four categories below will be awarded the **USC Aviation Safety and Security Certificate**. There is a 7-year time limit for completion of the certificate program.

1. One of the following 3 management courses:
   - Aviation Safety Management Systems (ASMS)
   - Safety Management for Aviation Maintenance (MAINT)
   - System Safety (SSC)

2. One of the following 3 accident investigation courses:
   - Aircraft Accident Investigation (AAI)
   - Helicopter Accident Investigation (HAI)
   - Gas Turbine Engine Accident Investigation (GTAI)
3. Human Factors in Aviation Safety

4a. Two of the following:
   - Accident/Incident Response Preparedness (AIP)
   - Legal Aspects of Aviation Safety (LEGAL)
   - Photography for Aircraft Accident Investigation (PHOTO)
   - Role of the Technical Witness in Litigation (TWW)
   - Incident Investigation/Analysis (IIA)
   - Threat and Error Management (TEM)
   - SMS for Managers (SMS-MGR)
   OR

4b. One of the following:
   - Aviation Security Program Management (AVSEC)
   - Software Safety (SFT)
   - One additional management course from #1
   - One additional accident investigation course from #2

Either Gas Turbine Engine Accident Investigation or Helicopter Accident Investigation will be considered the equivalent of two short courses when accompanied by another investigation course.

SYSTEM SAFETY CERTIFICATE PROGRAM

The USC Aviation Safety and Security Program also offers a certificate program in System Safety. This certificate is designed to address the needs of engineers and project managers with responsibilities for system safety. The principle method of system safety analysis and the extension of this program plan are taught in the flagship class of the certificate program — System Safety. The emphasis is on complex, high technology programs.

Today’s systems are highly dependent upon software to operate and monitor. Software requires special attention in system planning, architecture, design and test. The Software Safety Course teaches software design principles which are fault tolerant and acceptably safe.

System safety analysis of engineered systems must often deal with the possibility of human error leading to adverse conditions. Therefore, human error probability evaluation is an essential element in system safety analysis.

The three courses: System Safety (SSC), Software Safety (SFT), and Human Error Analysis for System Safety (HEASS) form the three core courses of the System Safety Certificate Program. Additionally, in order to complete the requirements of the System Safety Certificate, two short elective courses are necessary.

Students have 7 years from the start of their first course to complete the System Safety Program certificate requirements. The program certificate can be completed with 4 or 5 courses, depending on the courses chosen to attend. All courses are Monday through Friday, 8:00 AM to 4:00 PM, unless stated otherwise. A course listed with a half-day ends at noon on the last day of the course.

To complete the program certificate individuals must meet the following requirements:

1. Complete each of the following 3 required courses:
   - System Safety (SSC)
   - Software Safety (SFT)
   - Human Error Analysis (HEASS)

2a. Two of the following courses:
   - Damage Assessment for System Safety (DASS)
   - Hazards: Effects and Control Strategies (HAZSS)
   - Mathematics for System Safety Analysis (MATH)
   OR

2b. One of the following courses:
   - Advanced System Safety (ADVSS)

Please visit http://viterbi.usc.edu/aviation for the most current information.
## AVIATION SAFETY AND SECURITY CERTIFICATE PROGRAM SERIES

For individuals interested in completing the Aviation Safety and Security Certificate Program entirely in one continuous time frame, we are offering the following series:

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Each course in a certificate program series must be registered for individually. You may list up to 5 courses on one registration form.

The USC Aviation Safety and Security Certificate Program has been accepted by the FAA Aviation Maintenance Technical Award Program to assist in qualifying for awards in that program. Portions of the training requirements for each of the award levels can be satisfied using training received in this program. CEU’s earned while attending classes in the USC Aviation Safety and Security Program may be used towards receiving the FAA’s highest award, the “Diamond Award”, given to eligible technicians and their employers (please see FAA Advisory Circular (AC) 65-25E for eligibility requirements).

In addition, the International Federation of Air Line Pilots’ Association (IFALPA) recognizes recipients of the USC Aviation Safety Certificate as experts in Aviation Safety.

**CONTRACT COURSES**

Contract courses are courses from the USC Aviation Safety and Security Program that are offered at locations other than our Los Angeles classroom facilities. Any course in the catalog may be offered as a contract course. Courses may be conducted at international locations or at a location within the United States. Frequently, organizations striving to provide aviation safety or systems safety education to significant numbers within their organization choose to arrange for a contract course at their own facility.

In the recent past numerous contract courses have been provided at international locations in Asia, Oceania, Africa, and the Caribbean. Within the United States the USC Safety and Security Program has conducted training for the Federal Aviation Administration. Typically, civil aviation authorities, airlines, and other government organizations will require a contract course.

Organizations such as Japan Airlines, Air New Zealand, Korean Airlines, the CAA of South Africa, the CAA of Trinidad and Tobago, the FAA, the U.S. Navy, and IFALPA have arranged contract courses.

The contract course can provide an organization with an economical vehicle for providing aviation safety or system safety education to a large number of employees within a relatively short amount of time. Inquiries regarding contract courses should be made to the USC Aviation Safety and Security Program Director, or the Contract Course Coordinator at Avsafe@usc.edu.

**AVIATION SAFETY MANAGEMENT SYSTEMS (ASMS)**

Aviation safety management has changed greatly over the past years. It began with the safety officer being responsible for the whole program. It was negatively orientated and relied on inspections and mishaps to let the organizations know where their problems existed. This was a reactive and expensive system. As time progressed, risk identification, assessment, and management concepts were incorporated into safety programs. This became SMS. Safety joined Quality Assurance and became a team that was looking at systems errors. It requires that organizational management take responsibility for the company’s safety program. The SMS approach requires that the safety/quality team be educated in their duties and responsibilities. This course will provide you with the essential skills needed to manage an organizational Safety Management System (SMS). The attendee will be able to manage a Safety Management System that includes risk management, audits, data collection, analysis, and incident investigations.

This course is designed for the individual responsible for planning or directing an aviation Safety Management System program. Fundamentals in systems organization and structure provide the individual with the essential skills and methodology needed to plan and manage an effective program. Emphasis is placed on understanding the principles of risk management, identifying program development strategies, audits and applying the knowledge toward effective management systems and interoperability with Quality Assurance.

**Objectives:** To provide the individual with the skills and practical methods to plan, manage and maintain an effective Aviation Safety Management System (SMS).

**Who Should Attend:** Individuals responsible for planning, directing or managing an aviation safety management program and supervisors who are required to supervise an accident prevention/risk management program.
This includes airline, commuter, corporate, fixed base operator, government, insurance, hospital emergency medical service, law enforcement and airport management.

Course Outline

1. Safety Management Systems (SMS)
   Accident Prevention Concepts/Methods
   Safety Systems
   International Procedures
   Interaction with Quality Assurance
   Education and Training
   Corporate Safety Culture
   Motivating Safe Behavior
   Role of Management
   Safety Climates/Management Styles
   Cost of Accidents
   Office Procedures
   Risk Identification
   Incident Investigation
   Change Management Process
   Risk Management and Risk Assessment
   Report Writing
   Airfield Safety
   Accident Response Planning
   Audits
   Safety Analysis
   Aviation Safety Advisor Duties

2. Communication Skills
   Perception
   Meaning/Language/Jargon
   Information Overload
   Managing Conflict
   Listening

3. Medical Issues
   Fatigue Risk Management
   Sleep and Fatigue
   Stress

4. Ramp/Maintenance Safety

5. Legal Aspects
   Official Investigations & Civil Litigation
   FAA Enforcement
   International Aviation Safety and Legal Issues
   Legal Rights of Pilots and Other Aviation Professionals
   ICAO Annexes 6 and 14
   ICAO Doc. 9859
   FAA Advisory Circulars, NPRM’s

6. Practical Applications/Case Study

Course Duration: 9.5 Days

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AIRCRAFT ACCIDENT INVESTIGATION (AAI)

The course is designed for individuals who have limited investigation experience. All aspects of the investigation process are addressed, starting with preparation for the investigation through writing the final report. It covers National Transportation Safety Board and International (ICAO) procedures. Investigative techniques are examined with emphasis on fixed wing investigation. Data collection, wreckage reconstruction and cause analysis are also studied in the classroom.

Objectives: To provide concepts and practical techniques on aircraft investigation methodology.

Who Should Attend: Persons associated with aircraft accident investigation including manufacturers, operators, associations, insurers, air carriers, government agencies, law enforcement and military.
1. Investigations
   - Introduction and History
   - Authority and Theory
   - Principles of Investigation
   - Initial Actions
   - Site Safety
   - On-Scene Investigation Procedures
   - Investigation of Aircraft Fires
   - Reciprocating Engines and Propellers
   - Gas Turbine Engines
   - Systems Investigation
   - Inflight Breakup and Midair Collisions
   - Technical Assistance
   - Analysis and Report Writing
   - Flight Data Recorders
   - Cockpit Voice Recorders

2. Technology
   - Types of Material Failures
   - Metal and Composite Materials
   - Identifying Failures in the Field
   - Understanding Aircraft Stability
   - Wind Shear – Aerodynamics

3. Human and Biomedical Factors
   - Human Factors
   - Casualty Identification
   - Aeromedical Role in Investigation

4. Aircraft Accident Communication Techniques

5. Media Relations
   - Overview of Strategy
   - Message Development and Thought Process
   - Interactive Exercises to Illustrate Techniques
   - Critique and Analysis of Potential Situations
   - The Role and Reality of Media in Accident Investigation

- **Course Duration:** 9.5 Days

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**HELIOPER ACCIDENT INVESTIGATION (HAI)**

The course examines helicopter rotor systems, controls, performance variables, flight hazards and material characteristics involved in helicopter operations and accidents. Although Aircraft Accident Investigation is not a prerequisite, it is assumed that the attendee has either completed AAI or has some experience in aircraft accident investigation.

**Objectives:** To provide concepts, practical techniques and methodologies essential to rotary wing aircraft accident investigation.

**Who Should Attend:** Persons associated with rotary wing accident investigation including manufacturers, operators, associations, insurers, law enforcement, military and government agencies.

**Course Outline**

1. Investigation
   - Role of the Investigator
     - Investigation Skills
     - Assessing Indicators of Accidents
     - Investigative Process
     - Data Collection
     - Report Development and Analysis
     - Investigative Tools
     - Risk and the Operating Environment
   - Pre-Investigative Planning
     - Operational Procedures
     - Responsiveness
     - Support Sources
     - Equipment for Investigation
Technical Information

On-Site Helicopter Accident Investigation

- Initial On-Site Actions
- Jurisdiction
- Importance of Arriving Early
- Accident Scene Identification
- Fluid Sample Analysis
- Inventory of Aircraft Wreckage
- Photography
  - External Sources for Photography
  - Types of Photography (Digital/Film, Video)
  - Aspects: Overhead, Flight Path, Witness and Instrument
- Reconstruction
- Impact Force Determination
- Rotor System Examination
- Fire Investigation; Source and Temperature
- Powerplant Investigation; Turbine and Reciprocating
- Composite Materials and Considerations
- Instrument Examination
- Support Service Investigation
- Off-Site Investigation
- Maintenance Record Evaluation
- Operational Investigation; Training, Operations, Policies, Pilot Records
- Witness Interview
- Other Human Factors
- Pathological Support
- Crashworthiness
- Meteorological Investigation
- Communications
- Air Traffic Control
- RADAR Data
- Case Study

2. Helicopter Fundamentals and Material Factors

- Material Failure Analysis
- Rotor System Characteristics
- Hover and Low Speed Operations
- Downwind Operations

Forward Flight Operations
- Mast Bumping
- Height/Velocity Variables
- Dynamic Stall
- Compressibility Effects
- Autorotation Variables
- Vortex Ring State
- Dynamic Rollover
- Ground Resonance
- Air Resonance
- Rotor Divergence
- Tail Rotor/Anti-Torque Performance Variables
- Energy Attenuation Systems/ Crashworthiness

3. Various Exemplar Examinations-Films Exercises Related to Operational Factors

- Risk and Consequence
- External Influence on Helicopter Pilots
- Improper Performance Planning
- Component Failure
- Improper Design
- Improper Maintenance
- Physiological/Psychological Factors
- Hover and Downwind Operations

Course Duration: 4.5 Days

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GAS TURBINE ENGINE ACCIDENT INVESTIGATION (GTAI)

This specialized accident investigation course is directed to fixed wing turbojet and turboprop as well as turbine powered rotary wing aircraft. The course examines specific turbine engine investigation methods and provides technical information in the related area of material factors. This is a fundamental accident investigation course. Individuals with many years of engine investigations may find this course too basic. It is assumed that the attendee has a basic understanding of jet engines.
**Objectives:** To provide the participant with the basic skills and knowledge to effectively examine the involvement of a turbine engine in an aircraft accident.

**Who Should Attend:** Individuals with responsibility for the post-accident examination of gas turbine engines and individuals responsible for integration of engine information into the total accident investigation.

**Course Outline**
1. Aviation Gas Turbine Engine Accident Investigation
   - Types of Gas Turbine Engines
   - Mounting of Turbine Engines
   - Major Components
   - Controls and Accessories
   - Related and Interfacing Aircraft Components
   - Engine Operating Characteristics
   - Potential In-Flight Engine Occurrences
   - Role of the Investigator
   - Best Practices in Investigations
   - Documentation of Physical Evidence
   - Investigation of Incidents
   - Investigation at the Accident Site
   - Engine Disassembly Investigation
   - Engine Operation Speed at Terrain Impact
   - Engine Uncontained Components
   - Engine Fire
   - Documentation

2. Material Factors
   - Investigation Procedures
   - Basic Metallurgy of GT Materials
   - Failure Analysis – Fundamentals and Mechanical Factors
   - Failure Analysis – Fracture Mechanisms
   - Corporate Culture
   - Engineer a Safety Culture
   - Threat and Error Management

3. Case Study

**Course Duration:** 4.5 Days

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<td>18 – 22 Nov 2013</td>
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**HUMAN FACTORS IN AVIATION SAFETY (HFH)**

Humans design, build, operate, and maintain the aviation system. It is no wonder that the majority of aviation accidents and incidents have roots in human factors. With this realization, comes the conclusion that quality human factors training is effective in improving safety. This course presents human factors information in a manner that can be readily understood and applied by aviation practitioners. Emphasis is placed on identifying the causes of human error, predicting how human error can affect performance, and applying countermeasures to reduce or eliminate its effects. The course content follows the subjects recommended in FAA Advisory Circular 120-51E. The course also addresses some of the topics recommended in the International Civil Aviation Organization’s Human Factors Digest No. 3: *Training Operational Personnel in Human Factors*. The emphasis is from the pilot’s perspective, but is applicable to all phases of aviation operations. The course relies heavily on participation, case studies, demonstrations, self-assessment, and practical exercises.

**Objectives:** To provide class participants with human factors knowledge and practical tools that can be readily applied to improve safety within their respective organizations.

**Who should attend:** This course has been carefully designed to appeal to a wide-spectrum of professionals actively involved in aircraft operations. There is special emphasis for safety managers, training, flight department and maintenance managers and supervisors, pilots, air traffic controllers, dispatchers and schedulers.

**Course Outline**
1. Overview of Human Factors and Recent Advances
   - Human Error
   - Systems Approach to Aviation Safety Improvements
   - Cases of Aircraft Accidents Due to Human Error

2. Introduction to Human Error Accident Reduction Training
   - Reason Model
   - SHEL Model
   - Human Factors in Automation
   - Corporate Culture
   - Engineering a Safety Culture
   - Threat and Error Management
   - Fatigue and Alertness Management
SAFETY MANAGEMENT FOR AVIATION MAINTENANCE (MAINT)

This course provides supervisors with aviation safety principles and practices needed to manage the problems associated with aircraft maintenance operations. In addition, it prepares attendees to assume safety responsibilities in their areas of operation. It does not teach aircraft maintenance and assumes the attendee has a maintenance background.

**Objectives:** To provide the individual with maintenance safety principles and guidelines for the development of effective maintenance safety programs.

**Who Should Attend:** Aircraft maintenance supervisors at all levels.

**Course Outline**
1. Safety Program Administration
   - Sequence of Safety Definitions
   - Risk Assessment/Management/Prevention

2. Flight Line Safety

3. Aircraft Maintenance Safety

**Course Duration:** 4.5 Days

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**PLEASE VISIT HTTP://VITERBI.USC.EDU/AVIATION FOR THE MOST CURRENT INFORMATION.**
ACCIDENT/INCIDENT RESPONSE PREPAREDNESS (AIP)

This course is designed for individuals who are involved in either preparing for an accident or responding to one as a representative of their organization. It is based on the premise that accidents are relatively rare events and organizations may have little experience in dealing with them. While the situation is usually complex, challenging, and stressful, the impact on individuals or an organization can be reduced by preparation and developing an effective response plan.

Objectives: To provide information on the effective preparation for an accident including organizational policy and planning. To provide organizational representatives with the knowledge and skills to function effectively during post-accident activities and situations. To provide the attendee with the knowledge required to write an effective company response plan.

Who Should Attend: Management and safety personnel involved in planning, response or recovery from accident/incident situations.

Course Outline
1. Communications and Media Planning
   - Communication Reality and Strategy Development
   - Aviation and Crisis Communication Principles
   - Message Development and Responding on Aviation Issues
   - Getting It Right and Getting It Wrong — Lessons Learned
   - Interview Guidelines
   - Parties to an Investigation and Their Communication Styles
   - The International Element and Differences in Cultural Styles of Communication

2. Family and Victim Assistance in Aviation Accidents
   - Understanding the Need for Humanitarian Response
   - Critical Needs and Issues for Families, Survivors, and Carriers/Operators
   - Preparing and Implementing a Family Assistance Plan
   - How to Effectively Assist Victims and Survivors

3. Accident / Incident Response Plan Development
   - The Challenge of Planning for and Responding to Aviation Accidents
   - Response Planning Benefits and Problems

Air Carrier / Aircraft Operator Planning Process
Response Plan Development – Putting It All Together
Other Aviation Related Response Plans
Effectively Interacting with Government Investigations

Course Duration: 3.0 Days

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LEGAL ASPECTS OF AVIATION SAFETY (LEGAL)

This course is designed to provide information on the legal risks inherent in aviation operations and an overview of the legal system as it relates to aviation safety. The judicial process, current litigation trends, legal definitions and procedures will be covered.

Objectives: To provide the participant with a working knowledge of the legal processes and trends affecting aviation safety.

Who Should Attend: Individuals in aviation safety who may be involved in aircraft accident investigation.

Course Outline
1. Aviation Accident Litigation
   - Civil Litigation
   - How a Case Is Structured
   - Discovery
   - Deposition
   - Trial
   - Damages/Insurance factors
   - FAA/TSA/DOT Regulations
   - Sources of Law
   - Legal Terminology

2. Legal Aspects of Accident Investigation
   - Jurisdiction of Federal Agencies
   - Investigative Power vs. Private Rights
   - NTSB Probable Cause Safety Investigations
FAA Role
Accident Reports and Litigation
Witness Statements
Legal Issues of Accident Response Planning
Private Accident Investigations – Work Product Protection
Accident Liability
Comparative Fault
Airline, Air Taxi, Corporate and G/A Accident Issues
ICAO

3. Pilot’s Duty of Care and Legal Aspects of Selected Safety Regulations
   Role of Governmental Agencies in Enforcing Aviation Safety Regulations
   FAA Enforcement Alternatives
   Administrative/Criminal Action
   Compliance with Safety Regulations
   Deviation and Non-Compliance
   Affirmative Defenses, Waivers and Mitigating Factors
   Aviation Standards of Care: FAR’s, Advisory Circulars
   Special Legal Doctrines Involving Aviation Safety
   Case Study – Analyzing legal issues
   Burden of Proof, negligence
   FAA’s Emergency Orders
   Accident/Incident Reports

4. Product Liability
   Strict Liability in Tort
   Basic Elements
   Persons Liable

5. Current Issues
   FOQA & ASAP
   Voluntary Disclosure
   Criminal Liability
   Safety in Conflict with Legal Rights
   Employer vs. Employee Issues
   Avoiding Legal Exposure for Safety Managers

Course Duration: 2.0 Days

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ROLE OF THE TECHNICAL WITNESS IN LITIGATION (TWW)

Most evidence in litigation is introduced through the use of technically-qualified “expert” witnesses. The judgments rendered are dependent on the quality of the witnesses and the evidence presented. This course is designed to improve the quality of technical testimony. Attorneys and experienced technical witnesses teach the course to provide a balanced presentation.

Objectives: To provide practical instruction and demonstration in the skills and techniques needed by individuals who serve as technical consultants or witnesses in litigation.

Who Should Attend: This course is particularly valuable to any aviation professional who may give testimony in hearings, deposition or trial as well as consultants, investigators, safety managers, union representatives and managers whose responsibilities may involve them in the legal process. Experienced expert witnesses will find the course both challenging and informative to help them enhance their role as an expert/technical witness. Also individuals who may wish to enter this profession or, because of their job, may become involved in litigation from accidents will find this course beneficial.

Course Outline
1. The Litigation Process
   The United States Legal System
   Origins of U.S. Common Law
   The Federal and State Systems
   Sources of Law
   Structure of U.S. Courts
   The Legal Profession
   The Jury System
   Pre-Trial Discovery
   Objectives/Forms of Discovery
   Overview of Related Theories of Liability
2. The Rules of Evidence
   Admissibility of Evidence and Testimony
   Rules Pertaining to Experts

3. The Role, Qualifications and Characteristics of the Technical Witness
   Scope of Activity
   Responsibilities
   The “In-House” Expert/Consultant
   Formulation of Opinion
   Research
   Pre-Accident/Litigation Activity
   Post Accident/Pre-Litigation Activity
   Legal Requirements
   Qualifications
   Evidence of Experience
   Resumes
   Characteristics of a “Good” Expert
   Communication Skills
   Personal Style

4. Ethical Considerations
   The Privilege of Expert Testimony
   The Pressures on Experts
   The Responsibilities

5. Consultant as a Technical Witness
   Getting Started
   Agreements with Law Firm (Client)
   Investigation
   Deposition/Trial Preparation
   Development of Communication Skills

6. Deposition and Trial
   Oral Depositions
   Trial
   Mechanics of Trial
   The Expert at Trial

7. Accident Case Study
   Students assume roles from an actual NTSB accident investigation case
   Experienced aviation trial attorneys instruct on depositions
   Simulated trial – direct and cross examination

Course Duration: 2.0 Days

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PHOTOGRAPHY FOR AIRCRAFT ACCIDENT INVESTIGATION (PHOTO)

This specialized course in accident investigation is designed to assist the investigator to improve photographic documentation of an accident site. Course participants will take photographs of components and critique them as a class. This course assumes that the investigator is not a professional photographer.

Objectives: To provide the aircraft accident investigator with basic accident photographic and video techniques.

Who Should Attend: Individuals involved in aircraft accident investigation.

Course Outline
   Digital Photography
   Basic Photographic Equipment
   Lenses and Camera Controls
   Electronic Flash
   General Techniques
   Macro Photography
   Lighting
   Picture Identification
   Specialized Photographic Techniques
   On-Site Photographic Priorities
   Student Practice Session
   Critique of Student Photographs
Videography
Basics in Videography
Uses of Video in an Aircraft Accident Investigation

Required: Each student should bring a Digital SLR camera or digital camera equipped with a Macro (close-up) lens feature, if available, and a flash. A limited number of cameras are available to be checked out from the USC program; please coordinate beforehand to determine availability.

Course Duration: 2.0 Days

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SYSTEM SAFETY (SSC)

Instruction is given in both system safety engineering and management with emphasis on complex, high technology systems. Engineering methods are illustrated with practical, numerical examples. The principal system safety analysis method is taught with classroom and homework problems. Preparation of a system safety program plan and management of the system safety process in all phases of the system life are examined in depth. A classroom project provides students with the opportunity to apply system safety management and engineering methods while working as a team. Enrichment lectures in special areas of knowledge essential to the system safety process will also be presented. Each student should bring a calculator with statistical functions.

Objectives: To provide a level of knowledge of system safety sufficient to manage a system safety program and to perform associated system safety engineering tasks.

Who Should Attend: Individuals who have safety responsibilities in the design and operation of complex systems in which an accident can cause substantial loss. Emphasis is upon military projects and contracts.

Course Outline
1. Quantitative Methods
   - System Safety Fundamentals
   - Set/Probability Theories
   - Bernoulli Process and Binomial Distribution
   - Poisson Analysis
   - Series/Parallel Networks
   - Fault Tree Analysis
   - Event Tree Approach
   - Boolean Algebra
   - Failure Data Analysis
   - Decision Theory
   - Risk Ranking

2. Management
   - System and System Safety Life Cycle
   - Hazard Analysis Techniques including:
     - Logic/Change Analysis
     - Energy/Trace
     - FHA/FMECA
     - FTA
     - SCA
   - Hazard Analysis Types including
     - PHA/SSHA, SHA and O & SHA
   - System Safety Order of Precedence
   - Amelioration
   - System Safety Management Tasks
   - Objectives/Life Cycles
   - System Safety Program Plan
   - Types of Risks/Assumption of Risks

Prerequisite: Attendees should have an engineering or hard science background.

Course Duration: 9.5 Days

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SOFTWARE SAFETY (SFT)

Software requires special attention in system planning, architecture, design and test. This course presents philosophies and methods of developing and analyzing software and highlights managing a software safety program. Software design principles will be taught to create programs that are fault tolerant and acceptably safe. Several software hazard analyses methods will be evaluated, including Fault Tree/Soft Tree, Software Sneak Analysis and Petri Nets.

Objectives: To provide an understanding of the nature of software hazards, root causes, and the methods by which these hazards may be prevented or discovered. The course will also provide instruction in administrative methods and documentation needed to establish and manage a software safety program. Providing evidence for a safety case or proof will also be covered.

Who Should Attend: System managers and engineers, system safety engineers and software engineers who are involved with developing systems that possess major software components and are responsible for the safety of such systems. Attending the System Safety Engineering course and some understanding of software beforehand is highly recommended.

Course Outline
1. Software
   - Safety Overview
   - Definitions and Concepts
   - Design Requirements
   - Software Regulations/References
   - System Safety Team Organization
   - Risk Processing/Management
   - Risk by Agency
     - Hazard and Security
     - Catastrophic
     - Probability of Occurrence
   - Reliability Issues
   - Probability
   - Hazard Consideration/Analysis
   - Risk Assessment and Risk Levels
   - Program Documentation

   - Software Reliability/Risk
   - Software Engineering/Requirements
   - Software Safety Life Cycle Goals
   - Security Engineering
   - VDHL Synthesis
   - Error Classification and Types
   - Software Safety Requirements Traceability
   - Petri-Net Modeling
   - Software Safety Checklist
   - Preliminary Hazard Analysis
   - Software Language Analysis
   - Fault Tree Analysis
   - Formal Mathematical Models
   - Software Safety Testing
     - Testing Schemes/Strategies
   - Software Safety Reliability/Maintenance

2. References
   - Joint Software Systems Safety Engineering Handbook, 2010 version
   - Generic Software Systems Safety Program Plan
   - NASA Dryden Flight Research, FAA Software Safety, Office of Secretary of Defense Safety websites
   - Mishap reports: Ariane 5, NASA Mars Climate Orbiter and Mars Polar Lander, Lauda 767
   - MIL-STD-882D, CHG 1
   - Java Safety Guidelines
   - Software Reliability Newsletter

Course Duration: 4.0 Days

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INCIDENT INVESTIGATION/ANALYSIS (IIA)

This course is designed for managers and supervisors who may be required to investigate, implement or review safety findings and recommendations resulting from aviation incidents. The course presents the principles of Management, Investigation and Analysis. It will explain how incidents are discovered, investigated, and reported in writing. Finally, the student will learn the techniques of data collection and analysis. There is considerable overlap with the AAI, MAINT and ASMS courses. It is not recommended that students who attend these courses attend the IIA presentation.

Objectives: To provide concepts and practical knowledge to be used in incident investigation and trend analysis programs.

Who Should Attend: Supervisors who will investigate incidents, part time safety advisors, Quality Assurance, and ATC supervisors. This a good course for personnel responsible for the data analysis program. It is not intended for individuals who have already attended Aircraft Accident Investigation (AAI) or who plan to attend AAI in the future.

Course Outline
1. Investigations:
   - Basis for Incident Investigation
   - Need for a Database
   - Review of Available Databases
   - Reporting Criteria
   - Discovery Methods
   - Methods of Reporting
   - Investigation Techniques
   - Technical Aspects
   - Analysis, Root Cause Analysis Techniques, Data Programs (FOQA)
   - Report Writing
   - Preparations of the Findings
   - Recommendations
   - Coordination
   - Implementation
   - Organizational Management, Accountability and Responsibilities

2. Human Factors:
   - Stress
   - Fatigue
   - Decision Making
   - Human Reliability and Error Analysis
   - Judgment Chain
   - Attitude
   - Behavior
   - SHEL Models, HFACs

Course Duration: 3.5 Days

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AVIATION SECURITY PROGRAM MANAGEMENT (AVSEC)

This course is designed for individuals responsible for managing and implementing aviation security measures at medium to small size aircraft operators, all airports and Indirect Air Carriers (IAC’s). The course stresses program management of aviation security. As an integral part of the USC Aviation Safety and Security curriculum this course demonstrates how to apply the SMS principles in the aviation security environment. This course recognizes the necessity to achieve full compliance with TSA requirements and ICAO standards, and integrates this priority into a system that reflects organizational values and mission accomplishment. Note: This is a non-SSI course.

Objectives: To provide individuals with the knowledge and skills to institute an aviation security management system within an organization that is compliant with Federal requirements, International Standards and reflective of organizational needs.

Who Should Attend: Individuals responsible for implementation of aviation security requirements in medium to small size aircraft operators, all airports and Indirect Air carriers. This course would also be of interest to those individuals and managers who are seeking to apply a systems management approach to aviation security within their
particular areas of jurisdiction. Individuals involved in the design and integration of security measures into airport environments would find benefit in this course. This course would be beneficial to government agencies responsible for aviation security.

**Course Outline**

1. Primary Lessons of Aviation Security
   - Evolution of the Threat
   - Evolution of the Response
   - Development of Countermeasures

2. Legal Programs as Countermeasures
   - ICAO
   - U.S. Regulations
   - TSA Enforcement Actions, ICAO measures

   - Positive Leadership Culture
   - Data-based Decision Making
   - Involvement of Management

4. Audits and Inspections
   - Internal Audits
   - Risk Assessment Matrix
   - Synergy with ICAO and National Requirements and Inspections

5. Practical Applications
   - Best Practices
   - Proper Handling of Sensitive Security Information (SSI)
   - Non-regulatory Security Practices that Make Sense and Diminish Risk
   - Operating in Unfamiliar Environments

6. Security Technologies
   - Cost Benefit
   - Emerging Technologies

7. Threats
   - Threats to Aircraft
   - Threats to Airports

8. Case Studies and Practical Exercise
   - Audit of Aviation Entity
   - Application of SMS Principles

**Course Duration:** 4.0 Days

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**SAFETY MANAGEMENT SYSTEMS FOR MANAGERS (SMS MGR)**

SMS has dramatically changed how safety programs are conducted and managed. Its success or failure is dependent on management understanding and support. ICAO has established it as a standard for airports, commercial aircraft operators and air traffic providers. SMS is being implemented throughout the aviation industry. A key feature of Safety Management Systems (SMS) is the active involvement at all levels of management in the safety process. This course is designed to explain the fundamentals of the SMS process to managers and supervisors. It focuses on the particular functions and responsibilities that managers have within a SMS. The particular benefits of an SMS are detailed. Additionally, potential issues which may cause friction as a result of an SMS are discussed.

This course is an introductory level course. It is not intended as a substitute for the full length SMS courses: Aviation Safety Management Systems (ASMS), Safety Management for Aviation Maintenance (MAINT), or System Safety (SSC). The ten hour format is primarily designed for presentation to managers. It will conducted both at USC and via on-site contracts.

**Objectives:** To provide managers and supervisors an understanding of the principles of an SMS and a clear vision of the role of the manager.

**Who should attend:** Managers and supervisors of aviation operations and aviation related organizations including aircraft operators, airports, and air traffic control facilities.
Course outline:
Overview of SMS
Management Roles and Responsibilities
Management Accountabilities
Program Document
Goals and Objectives
Risk Assessment
Change Management Process
Audits and Safety Reviews
Motivating Safe Behavior
Safety Action Groups
Safety Culture and Climates
Education and Training
Just Reporting System
Latent Conditions/Active Errors
Accident/Incident Costs
Mishap Investigation
Data Analysis
Obstacles to SMS

Course Duration: 1.5 Days

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THREAT AND ERROR MANAGEMENT DEVELOPMENT (TEM)

Threat and Error Management (TEM) Development is being implemented by operators throughout the world. This course is designed to train those who wish to develop a TEM program within their own organizations. Taught by a leader in TEM development, this course provides an applied, practical approach to explaining TEM principles. Attendees will gain sufficient knowledge to implement a TEM program and LOSA program for their respective organizations. In addition Line Operational Safety Audit (LOSA), a tool for collecting data on successful and unsuccessful human performance, will be explained.

The course begins with an introduction to “threats,” which are those things that can increase operational complexity and if not handled properly, can decrease safety margins. Flight operations examples include black hole non-precision approaches, white out conditions and low light conditions, icing, improper use of automation, weather, terrain, mechanical malfunctions and distractions. Maintenance examples are fatigue, poor lighting, unclear work directives, time pressures and uncompleted work that is handed over to another shift. Examples pertaining to cabin crew members are cabin fires — both hidden and overt, command interruptions, disruptive passengers, rushing and malfunctioning cabin equipment.

At the heart of an effective LOSA program is the non-jeopardy systematic assessment of normative performance by flight crews, maintenance personnel, or any number of departments involved in aviation. The course will detail the training and performance of LOSA observers and the nuts and bolts of creating a LOSA program.

Objectives: To provide class participants with sufficient knowledge to develop a TEM program and a LOSA program within their respective organizations. To provide participants with the knowledge to effectively add TEM and LOSA to an organization’s Safety Management System.

Who should attend: This course has been carefully designed to appeal to those who are responsible for developing a Threat and Error Management program and/or a Line Operation Safety Audit program within their organization. It will also provide a detailed understanding of TEM to those who wish to improve their professional skills through greater knowledge of TEM and LOSA.

Course outline:
1. Introduction to Threats and Errors
   Threats and Threat Recognition
   Error Avoidance and Trapping
   LOSA and the expected training benefits
   Personnel Performance during a LOSA

2. ABCD’s of Threat and Error Management
   Assessing Threats and Acknowledging Errors
   Barriers to Error and How to Effectively Build Them
   Communications and its Relationship to Threat and Error Management
   Distraction and Interruption Management
   SOPs and Their Role in Threat and Error Management
Sensibility Check and Ensuring Situational Awareness
The Need for Well Trained LOSA Observers
The Effective Application of LOSA Data in Training Curriculum

3. Case Studies and Class Exercises
4. TEM / LOSA Applied to All Divisions Within an Organization
5. TEM Toolkit for Incident and Accident Analysis
6. TEM Applied to Automated Aircraft
7. TEM as an Integral Part of a Safety Management System (SMS)

Course Duration: 2.5 Days

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ADVANCED SYSTEM SAFETY ANALYSIS (ADVSS)

This course is a continuation of System Safety course focused on engineering aspects of the course. The objective is to address advanced issues in system safety analysis and broaden the trainees’ perspective on system safety issues. Engineering methods addressed in the System Safety course are reviewed briefly and special advanced topics are addressed. Additional methods for system safety analysis are addressed focusing on the application of these methods.

Objectives: To provide an advanced level of knowledge of system safety analysis methods.

Who Should Attend: Individuals who desire to gain a broad perspective of system safety analysis.

Course Outline
- Special Topics in FMEA / FMECA
- Special Topics in Fault Tree Analysis
- Common Cause Failure Analysis
- Event Tree Analysis
- Cause Consequence Analysis
- Hazard and Operability Analysis
- Special Topics in Decision Theory

Prerequisite: Attendees should have completed the System Safety Course.

Course Duration: 4.5 Days

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DAMAGE ASSESSMENT FOR SYSTEM SAFETY (DASS)

Sophisticated mathematical models and methods have been developed to estimate the level of impact of a hazardous condition. This course is intended to provide an overall understanding of these methods to help managers and system safety analysis reviewers understand the analysis conducted and results obtained by the experts in the field. Specifically, methods for modeling the impact of fire and explosion, debris distribution from an explosion, and toxic gas dispersion are discussed.

Objectives: To provide an overall understanding of the methods and models used to estimate the damage extent caused by hazardous conditions.

Who Should Attend: Individuals who desire to gain a broad perspective of system safety analysis.

Course Outline
- Fire and explosion phenomena and modeling
- TNT Equivalents
- Debris field caused by a vessel explosion or missile explosion in the air
- Hazardous material (liquid) spill and evaporation
- Toxic gas dispersion
- Expected casualty computation for space and missile applications
**Prerequisite:** Attendees should have an engineering or hard science background.

**Course Duration:** 3.0 Days

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**HAZARD EFFECTS AND CONTROL STRATEGIES (HAZSS)**

System safety analysis requires a clear understanding of sources of harm (hazards) inherent to a system. System safety analysis should identify the energy sources within the system, target the attack and the barriers that reduce the risk. The purpose of this course is to understand hazard effects and control strategy methodologies. The discussions are focused on underlying physical, chemical, and biological characteristics and effects, and hazard control strategies. The following hazards are specifically addressed: electrical hazards, electrostatic discharge, toxicity, kinetic hazards, ionizing and non-ionizing radiation, thermal hazards, noise, fire and explosion, high pressure, etc.

**Course Objective:** To familiarize class participants with the underlying physical, chemical, and biological phenomena of and control strategies for various hazards.

**Who Should Attend:** Individuals who intend to conduct or review system safety analyses.

**Course Outline**
1. Overview of Hazards
2. Specific discussions on each hazard type that includes:
   - Physical properties
   - Chemical properties
   - Biological impact
   - Barriers that can limit the level of harm
3. The following hazard types will be addressed:
   - Electrical hazards
   - Electrostatic discharge
   - Toxic gases and liquids
   - Kinetic energy hazards
   - Ionizing radiation hazards
   - Non-ionizing radiation hazards
   - Thermal hazards
   - Noise levels
   - Fire and explosion phenomena
   - High pressure

**Prerequisite:** Attendees should have an engineering or hard science background

**Course Duration:** 2.0 Days

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**HUMAN ERROR ANALYSIS FOR SYSTEM SAFETY (HEASS)**

System safety analysis of engineered systems must often deal with the possibility of human error leading to adverse conditions. Hence human error probability evaluation is an important part of system safety. This course presents a summary of the methods and underlying theory for estimating human error probabilities. The course begins with a discussion on human factors and its influence on human error possibility. The various methods for estimating human error probabilities under different conditions are presented. For each method, their background, underlying theory, advantages and disadvantages will be covered. Typical human error probability values used in various industries will be provided.

**Course Objective:** To familiarize class participants with the human error probability evaluation process.

**Who Should Attend:** Individuals who intend to enhance their understanding and capabilities in system safety analysis.
Course Outline
- Overview of human factors
- Major events caused by human error
- History of human error probability evaluation
- Performance shaping factors
- THERP method
- ASEP method
- Other methods
- Modeling dependencies among human actions

Prerequisite: Attendees should have completed the System Safety Course.

Course Duration: 2.0 Days

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MATHEMATICS FOR SYSTEM SAFETY ANALYSIS (MATH)

This course is focused on the mathematics used in system safety. The purpose of this course is to provide the trainees with a working understanding of the mathematical theories underlying system safety analysis. From this course, the trainees will be able to properly interpret the results of a system safety analysis and use it in their intended applications. The course will begin with the fundamentals of probability theory and will cover the uses of that theory for solving various system safety problems. Statistical methods will also be covered in relations to establishing equipment failure frequencies. System safety examples will be used throughout the course. Each student should bring a calculator with statistical functions.

Course Objective: To provide a level of understanding of the mathematical concepts used in conducting system safety analyses.

Who Should Attend: Individuals who intend to take the system safety course or would like to enhance their understanding of the fundamental mathematical theories used in system theory.

Course Outline
- Probability Theory
- Permutations and Combinations
- Bernoulli Process and Binomial and Multinomial Distributions
- Normal Distribution
- Poisson Process and Distribution
- Boolean Algebra
- Statistics and Failure Data Analysis
- Uncertainty Analysis Using Bayesian Method

Prerequisite: Attendees should have an engineering or hard science background.

Course Duration: 3.0 Days

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Please visit http://viterbi.usc.edu/aviation for the most current information.
## PROGRAM INFORMATION

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<tr>
<th>Position</th>
<th>Name</th>
<th>Phone</th>
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<tbody>
<tr>
<td>Director</td>
<td>Thomas Anthony</td>
<td>310-342-1349</td>
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<tr>
<td>Financial Manager</td>
<td>Aileen Hongo</td>
<td>310-342-1350</td>
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<tr>
<td>Registrar</td>
<td>Jeff Hughes</td>
<td>310-342-1348</td>
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<td>Student Services</td>
<td>Raquel Delgadillo</td>
<td>310-342-1345</td>
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<tr>
<td>Audio Visual/Repro</td>
<td>Oscar DeJesus</td>
<td>310-342-1351</td>
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<td>Contract Courses</td>
<td>Harrison Wolf</td>
<td>310-342-1352</td>
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<tr>
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<td>310-417-3808</td>
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<tr>
<td>Email</td>
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<tr>
<td>Web Site</td>
<td><a href="http://viterbi.usc.edu/aviation">http://viterbi.usc.edu/aviation</a></td>
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### Class Hours:
Class hours may vary slightly with each course, but are normally from 8:00 AM to 4:00 PM.

Note: The first day of class now begins at 8:00 AM.

### Certificate/Attendance:
Students are expected to attend all class sessions. Certificates of Completion will only be granted to those who attend at least 90% of a specific class.

### Tuition:
A 50% deposit is required for each course. The balance of the tuition payment is due on the first day of class in order to continue the class. For individuals being sent by the U.S. government or corporations contracting with the University, a training document or purchase order is required. Checks should be made payable to the University of Southern California. Tuition fees include all course materials, certificates, audio-visual presentations, and lab time when applicable. Transportation, housing and meals are not included. VISA, MasterCard and Discover may be used. Credit for classes is dependent upon full payment of tuition.

### Discounts:
Discounts are offered to organizations sending three or more participants to an individual class.

### Registration:
All registrations must include an Email address and fax number to assure written confirmation of space in classes. Registration must be made with a hard copy or scanned PDF copy.

### Cancellation and Refund Policy:
Participants must inform the program’s administrative office of cancellation at least two weeks prior to the course start date. If cancellations are made by phone, a written statement must follow within ten working days of the call in order to receive the refund. Cancellations of confirmed registrations received less than two weeks prior to the start of the course are subject to 50% of the tuition fees. If a course is cancelled, enrollees will be notified no less than 10 days prior to the scheduled course opening. USC is not responsible for any airfare penalties incurred in the event of course cancellation. USC has the right to cancel courses and/or substitute faculty when necessary.

### Transfers and Substitutions:
If you are confirmed in a course but unable to attend, you may send a substitute or transfer your registration one time to a future course within the same academic year. The academic year is from July to June. Tuition that is unused within a given academic year will be refunded. Funds are not transferable to other individuals. Individual transfer of funds are valid only in the same academic year.

### Parking:
Reduced parking rates are available at the Crowne Plaza Hotel. Long term parking is also available please see USC Aviation staff for details.

### Housing:
**Sheraton Gateway Hotel**
6101 Century Blvd., Los Angeles
Telephone: 310-642-1111
Toll-free: 800-820-3408
* $119 + tax/Traditional Room (includes hot breakfast buffet in the Brasserie Restaurant)
* $149 + tax/Club Level (Club Lounge includes continental breakfast and hors d’oeuvres)
Parking – $13.20 self and valet $24.00
Across the street from classroom
www.sheratonlosangeles.com
Crowne Plaza Hotel and Resort
5985 Century Blvd., Los Angeles
Telephone: 310-642-7500
Toll-Free: 888-315-3700
Fax: 310-342-7010
*$119.00 – Standard Room Rate – single/double occupancy
*$149.00 – Executive Level Room Rate – single/double occupancy
Rates include breakfast buffet. Ask for breakfast vouchers at time of check in.
Parking – $8.00 self & $20.00 valet
Adjacent to the USC Aviation Safety Program offices
www.crowneplaza.com/lax.intlapt

Marriott LAX
5855 Century Blvd., Los Angeles
Toll Free: 800-228-9290
Telephone: 310-665-5946
Fax: 310-337-8084
E-mail: melissa.ayala@marriott.com
*$135 + tax/Single/Double Occupancy
Parking – $13.00 overnight
www.marriott.com
(5 minute walk from Aviation Offices)

Four Points Hotel/Sheraton
9750 Airport Blvd., Los Angeles
Telephone: 310-645-4600
Toll Free: 800-529-4683
Fax: 310-645-7489
*$99/single & $139/double – Standard Room
Rates include Full Breakfast Buffet
Reduced parking at $8.00 per day
Rates listed are net, non-commissionable, and do not apply to group bookings. These rates may be booked by your travel agency by calling the hotel direct at (310) 645-4600, or calling Four Points’ central reservation line at (800) LAX Hotel and requesting the corporate rate for USC AVIATION SAFETY.
Complimentary shuttle to/from USC LAX campus.
www.fourpointslax.com

Residence Inn by Marriott
1700 N. Sepulveda Blvd., Manhattan Beach
Manhattan Beach/3.5 miles from LAX
Telephone: 310-546-7627
Toll Free: 800-331-3131
Fax: 310-545-1327
USC Aviation rate from $122 to $174 depending on dates.
Hot breakfast buffet daily; Light dinner with beer, wine, & soft drinks.
Free parking.
www.residenceinn.com

Crowne Plaza Resort, Redondo Beach
300 N. Harbor Drive, Redondo Beach
Telephone: 310-318-8888
This is a waterfront hotel for students with rental cars. It is adjacent to a marina and fishing pier. It is located approximately 8 miles south of our LAX classrooms. Shuttle and bus is not available. Rates vary per season. Contact hotel directly.

Reservations should be made three (3) weeks in advance to assure accommodations. To receive the special room rates, you MUST contact the hotel directly and request the “USC Aviation Safety Program” when making your reservations.

*These rates are subject to change by individual management.

PLEASE VISIT HTTP://VITERBI.USC.EDU/AVIATION FOR THE MOST CURRENT INFORMATION.
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### USC Aviation Safety and Security Classes

#### August 2012
- **13 – 17**: MAINT 13-1
- **20 – 21**: LEGAL 13-1
- **22 – 23**: TWW 13-1
- **27 – 30**: AVSEC 13-1
- **27 – 30**: SFT 13-1

#### September 2012
- **5 – 7**: TEM 13-1
- **10 – 21**: ASMS 13-1
- **24 – 28**: HFH 13-1

#### October 2012
- **1 – 12**: AAI 13-1
- **15 – 17**: AIP 13-1
- **15 – 16**: HAZSS 13-1
- **17 – 19**: MATH 13-1
- **18 – 19**: PHOTO 13-1
- **22 – Nov 2**: SSC 13-1
- **29 – Nov 1**: IIA 13-1

#### November 2012
- **5 – 9**: HFH 13-2
- **12 – 16**: HAI 13-1
- **12 – 16**: ADVSS 13-1
- **19 – 20**: SMS-MGR 13-1
- **26 – 30**: GTA1 13-1
- **26 – 27**: HEASS 13-1
- **28 – 30**: DASS 13-1

#### December 2012
- **3 – 14**: AAI 13-2
- **17 – 19**: TEM 13-2

#### January 2013
- **7 – 18**: ASMS 13-2
- **21 – 25**: HFH 13-3
- **28 – Feb 1**: MAINT 13-2

#### February 2013
- **5 – 8**: AVSEC 13-2
- **11 – 22**: AAI 13-3
- **18 – 19**: HAZSS 13-2
- **20 – 22**: DASS 13-2
- **25 – Mar 1**: HAI 13-2

#### March 2013
- **4 – 15**: ASMS 13-3
- **11 – 13**: MATH 13-2
- **14 – 15**: HEASS 13-2
- **18 – 22**: HFH 13-4
- **25 – 27**: AIP 13-2
- **28 – 29**: PHOTO 13-2

#### April 2013
- **3 – 5**: TEM 13-3
- **8 – 12**: SFT 13-2
- **15 – 26**: SSC 13-2
- **29 – May 2**: IIA 13-2

#### May 2013
- **6 – 10**: GTA1 13-2
- **13 – 24**: AAI 13-4
- **20 – 24**: ADVSS 13-2
- **28 – 29**: LEGAL 13-2
- **30 – 31**: TWW 13-2

#### June 2013
- **3 – 14**: ASMS 13-4
- **17 – 21**: HFH 13-5

#### July 2013
- **JULY 2013**: NO COURSES

#### August 2013
- **12 – 16**: MAINT 14-1
- **19 – 20**: LEGAL 14-1
- **21 – 22**: TWW 14-1
- **26 – 29**: AVSEC 14-1
- **26 – 29**: SFT 14-1

#### September 2013
- **4 – 6**: TEM 14-1
- **9 – 20**: ASMS 14-1
- **23 – 27**: HFH 14-1
- **30 – Oct 11**: AAI 14-1

#### October 2013
- **Sep 30 – 11**: AAI 14-1
- **14 – 16**: AIP 14-1
- **17 – 18**: PHOTO 14-1
- **21 – 24**: IIA 14-1
- **21 – Nov 1**: SSC 14-1

#### November 2013
- **4 – 8**: HFH 14-2
- **11 – 15**: HAI 14-1
- **18 – 22**: GTA1 14-1
- **25 – 26**: SMS-MGR 14-1

#### December 2013
- **2 – 13**: AAI 14-2
- **16 – 18**: TEM 14-2
The USC Aviation Safety and Security Program offices are conveniently located near Los Angeles International Airport (LAX), the arrival point of most of our attendees, and adjacent to a number of hotels that provide accommodations within easy walking distance to our classes.

Our address is 6033 West Century Boulevard, Suite 920.

<table>
<thead>
<tr>
<th>FIRST NAME</th>
<th>M. I.</th>
<th>LAST NAME</th>
</tr>
</thead>
<tbody>
<tr>
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<table>
<thead>
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<th>DOB</th>
<th>EMAIL ADDRESS</th>
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<table>
<thead>
<tr>
<th>POSITION/TITLE</th>
<th>EMPLOYER</th>
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<tr>
<th>CITY</th>
<th>STATE/PROVINCE</th>
<th>COUNTY</th>
<th>ZIP/POSTAL CODE</th>
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<th>DAYTIME PHONE</th>
<th>FAX NUMBER</th>
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<table>
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<tr>
<th>COURSE(S)</th>
<th>DATE(S)</th>
<th>TUITION*</th>
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- Bill my credit card for $__________
- Mastercard
- Visa
- Discover

<table>
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<tr>
<th>CARD#</th>
<th>EXP. DATE</th>
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<th>AUTHORIZED SIGNATURE</th>
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</table>

- Company PO# ______
- Company check or cashiers check enclosed

Mail or Fax to:
University of Southern California
Aviation Safety and Security Program
6033 W. Century Boulevard, Suite 920
Los Angeles, CA 90045
Telephone: 310-342-1345  Fax: 310-417-3808

REGISTRATION VALID ONLY WITH AUTHORIZED SIGNATURE.

*A fifty percent (50%) deposit is due prior to the course. The balance of the tuition is due by the end of the first day of class or the student will not be allowed to continue the course. If other payment arrangements have been made, i.e., purchase orders, wire transfers, etc., please note this on your registration form or contact us so that we may update your records.