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Maintenance mishap investigation course

Gary I. Semones

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MAINTENANCE MISHAP INVESTIGATION COURSE

A Project Proposal Submitted to
The Faculty of California State University,
San Bernardino, School of Education
In Partial Fulfillment of the
Requirements of the Degree of
Master of Arts
in
Education, Vocational Option

Presented by
Gary I. Semones, M.A.
San Bernardino, California
1986

Approved by: [Redacted]
Advisor
[Redacted]
Second Reader
The prevention of a single mishap brings great joy to the individuals involved. This personal joy cannot be shared because of the reality that one is not permitted to state that an accident was prevented. The record shows that mishaps are occurring at a frequency of one and a half per 100,000 hours of flying today, and the rate was 100 times greater two decades ago. Teachers of aircraft accident investigation caused the rate to decrease. For the privilege of being a part of this effort, I give my humblest thanks to those friends and colleagues at the University of Southern California’s Institute of Safety and Systems Management. To my family, particularly to my wife, Elaine, for their time, love and understanding, I give the greatest thanks.

Special thanks to Colonel Lou Busch and his military staff and peers for their many hours of guidance and inspiration.

Again, to Elaine, I wish to thank you for the last four years of caring and giving.
STATEMENT OF THE PROBLEM

Introduction

The objective of this technical proposal is to provide a vehicle to improve the quality of aircraft mishap investigation. During the past ten years it was noted by the United States Air Force personnel assigned to the safety center and faculty at the University of Southern California that some 50 percent of the aircraft incidents reported were not properly investigated nor well written. Major accidents were investigated by personnel who had received university level education and these investigations were complete and accurate. Minor mishaps were investigated by personnel who had no prior education in the art of investigation. Their reports tended to be incomplete and inaccurate. Most of the people required to investigate these incidents were maintenance personnel.

Context of the Problem

The United States Air Force's effort to reduce the mishap rate has shown a dramatic reduction of major accidents. The reduction of minor mishaps has remained almost constant during the same period.

Money and time were expended to educate and train personnel to investigate the major mishaps. Little effort and no funds have been used to help prevent the minor problems. Management tracks all major problem areas and gives little attention to the minor problems. The Known Precedent Theory states that "Mishaps repeat." Safety experts at the University of
Southern California feel that minor mishaps are the Known
Precedent and thus indicators of trends to major problems.
The elimination of the cause factors in the minor mishaps,
therefore, would also eliminate them as causes of major
mishaps. A small group of experts in the analysis section
of the Air Force Safety Center are not sure there is a
relationship and consider the minor mishap investigations
of little value.

Problem Statement

Little time and funds are being used to investigate
minor aircraft mishaps. The maintenance personnel assigned
this task are not educated nor trained in the art of mishap
investigation. The reports submitted by these maintenance
personnel are not accurate and are of little value in the
overall aircraft mishap prevention program.

Purpose of the Technical Proposal

The purpose of this technical proposal is to provide
education and training for the United States Air Force mainten-
ance personnel assigned the task of investigation of minor
aircraft mishaps. It has been assumed that the majority of
safety personnel are correct that minor mishaps begat major
accidents. Therefore, improved investigation of minor
mishaps would result in recommendations that if acted upon
would prevent both minor and major aircraft mishaps.

Organization of the Technical Proposal

The proposal contains six sections. In the first section,
the proposal statement is presented along with special attention
items and a safety education overview.

The second section contains a history of the University of Southern California as it relates to safety education. A short overview of the proposed faculty is given with a list of faculty, subjects and hours. A master schedule is detailed. Class university credit is presented in the third section.

Section four deals with the support that will be provided by the contractor. Text issued to the students and library requirements are given.

Section five contains the course curriculum for the Maintenance Mishap Investigation Course to include the course purpose and objective.

Section six is the appendix. Appendix A provides resumes of all faculty while Appendix B contains job descriptions of administrative personnel. Appendix C and D, a summary and the bibliography, are provided but would not be submitted with the proposal to the United States Air Force. From the Introduction in Section One through the Appendix, the format required by the 63rd Military Airlift Wing Contracting Office was used.

Literature Review

Personnel assigned to the Safety Center at Norton Air Force Base were contacted and requested to make inputs on their perception of the problem, course curriculum, course length and course objective. Faculty of the Institute of Safety and Systems Management at the University of Southern California were contacted and requested to provide guidance
on the course purpose and objective. The faculty were requested to provide resumes, recommend text and aid in determining a master schedule. The staff of the University of Southern California were required to provide job descriptions of administrative personnel, a university safety education overview and a history of the Institute's experience in safety education.

The proposal for "Ground Safety Management Course," Solicitation Number F33600-85-C-0336, submitted by the University of Southern California to the 2750th Air Base Wing, PMR, Specialized Contracting Branch, Building 1, Area C, Wright-Patterson Air Force Base, Ohio 45433 was used for the format. An additional proposal for "Instructors Mishap Investigation Course," Solicitation Number Q3693, submitted to the 63 MAW/LGCCV, Norton Air Force Base, California 92409 was used to guide the format. The technical proposal must meet both contracting offices' requirements to insure acceptance by either unit when the proposal is submitted.

The proposal will be submitted to the base contracting office that has funds available at the end of the fiscal year. This determination will be made by the University of Southern California's coordinator who is assigned to Norton Air Force Base's Air Force Inspection and Safety Center.

Limitations

Several different faculty teams are capable of presenting a Mishap Investigation Course for maintenance personnel. The
contract offices at either Wright-Patterson or Norton Air Force Base contract for fixed cost plus profit. Faculty receive compensation based on tenure, degrees and many benefit programs. Because each faculty member's compensation is different, no cost proposal was prepared with this technical proposal. The University of Southern California has all the cost of faculty and support required for a two week course on computer. It is possible to prepare a cost proposal in just a few minutes after faculty makeup has been determined.

Prior approval of the format was given by the Chief of the Safety Education Division at the Air Force Inspection and Safety Center, Norton Air Force Base. However, Colonel Busch will be replaced by Colonel Wade on 30 November 1985. Colonel Wade will be the United States Air Force representative when the proposal is submitted in the third quarter of this fiscal year.

The bibliography is contained in the proposal, Appendix D. A brief summary and discussion are contained in Appendix C.
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1.0 INTRODUCTION

1.1 Proposal Statement

The University of Southern California, Institute of Safety and Systems Management, proposes to conduct an educational program entitled "Maintenance Mishap Investigation Course." This is an unsolicited response to the United States Air Force. The contracting office is the 63rd Military Airlift Wing (63 MAW/LGCV) at Norton Air Force Base, California 92409. The proposed course location is Norton Air Force Base and class dates would be as required by the 63 MAW.

1.2 Special Attention Item

Successful completion of this program will significantly enhance the student's knowledge and understanding of the aircraft mishap investigation process. The course, as structured, is demanding and will require clear demonstration of competency in the subject matter. Students may earn either four semester hours of undergraduate or three semester hours of graduate credit through the University of Southern California. Details regarding these options are contained in section 3.0 of this proposal.

It should be fully understood that the proposed curriculum is intense, as shown in the class schedule at paragraph 2.2.3, and will require considerable time and intellectual investment on the part of the student.

The course textbook, Modern Accident Investigation and Analysis was authored by Dr. Ted Ferry. Faculty teaching
individual blocks of instruction within the course have been selected because of their unique expertise as can be seen in the faculty resumes contained in Appendix A.

1.3 Safety Education Overview

The University of Southern California’s Institute of Safety and Systems Management has established a 30 year history of developing and conducting over 50 special education courses in aeronautical, industrial, occupational and transportation safety fields. This academic effort has included over 800 separate classes in safety education with enrollments of over 20,000 students. Safety training programs conducted for the United States Air Force have accounted for over 435 classes and 11,000 students.

During the past ten years, the University of Southern California has conducted classes in aeronautical safety with an average yearly enrollment of over 600 United States and allied military students. Norton Air Force Base, California, is the campus used for this education effort.

2.0 STATEMENT OF EXPERIENCE

2.1 History

The following discussion provides a brief history of the extensive safety educational programs conducted by the University including a listing of all special courses.

The initial effort of the Institute of Safety and Systems Management of the University of Southern California was to design and offer a course of instruction in Aircraft Accident
Investigation for the United States Air Force. The objective of that course was specifically to introduce more added insight into causative factors. From this modest beginning, the prevention aspects of safety were added and a full program of instruction for aircraft safety officers was created.

Following the initial offerings of the original Aircraft Accident Investigation course in 1953, and with the broadening of goals and the acquisition of greater faculty capability, additional programs were introduced and refinements made.

DEGREE PROGRAMS

Master of Science in Systems Management

In 1963, USC established the first graduate-level management program for American military personnel in an overseas area. The degree was the Master of Science in Aerospace Operations Management.

The curriculum and instruction was quickly proven effective as an improved approach to the complex managerial problems inherent in sophisticated aviation operations. Soon the realization grew that this same educational method was similarly applicable to modern management methods in a broad variety of high technology fields.

This realization led into a restructuring of the program to better meet these many needs. The degree then became the Master of Science in Systems Management in 1970.

Since then the successful applications of this method—an interdisciplinary systems approach to modern management—have
continued to expand. This expansion is reflected in the growth of the Institute of Safety and Systems Management.

Now the Institute has over 65 off-campus centers located throughout the world, with over 2,000 graduate students enrolled in the management program. The Institute has become a major academic unit at USC.

Curriculum

The MSSM Standard Program Curriculum includes four core courses in systems management which stress decision-theory; three core courses in human factors which emphasize the interaction in the man-machine-environment relationships; three core courses in one of several options, which deal with systems management in areas of specialization, and two electives. Electives can also be chosen from courses in options other than the one selected by the student. All required and elective courses are valued at 3 graduate units each, except for SSM 590, Directed Research (2-3 units), and 594a and 594b, Thesis, which are 2 units each.

Courses of Instruction

510 Systems Management Communication Theory (3)
Communication skills within managerial relationships. Application of principles of language, psychology, management, and problem solving; feedback measurements of communication effectiveness.

513 Systems Management and Organization Theory (3)
Basic systems concepts applied to managing large scale systems.
Perspectives and philosophies of organization. Functions and process of systems management.

517 Psychological Factors in Systems Management (3)
Human characteristics and their bearing on systems management; critical review of research on evaluation guidance and modification of behavior; cybernetic models; personnel strategies; communication.

512 Deterministic Models in Decision-Making (3)
Optimization theory, Lagrange multipliers, linear programming, network theory, critical path methods, PERT, PERT/COST, and line of balance.

523 Socio-Environmental Factors in Systems Management (3)
Behavioral dynamics as affected by environmental, social, and organizational factors; ecology and life science considerations in systems management.

525 Probabilistic Models in Decision-Making (3)
Stochastic decision-making. Topics include: expected values, Bayesian statistics, loss and pay-off tables, inventory control, queuing, simulation, economic lot size, game theory, reliability, and maintainability.

529 Computer-Aided Decision-Making (3)
Computer-aided decision-making using both deterministic and probabilistic models applied to simulation, inventory control, and network analysis. FORTRAN programming. Analysis of heuristic decision models.
531 Man-Machine Factors in Systems Management (3)
Human performance and interface problems in man-machine systems; human factors theory and data applied to effective systems management, design, operation, environment; personnel subsystems; reliability, safety.

543 Seminar in Management Systems Controls and Surveys (3)
Integrating management and control systems, program management; PERT/COST, organization interface networks, decision-making, simulation, data banks, quantitative controls, modeling theory, and dynamics of the enterprise.

545 Management of Logistics Systems (3)
Logistics systems concepts applied to management of operations, trends, relationships, issues, problems and practices as related to systems management.

547 Fiscal Aspects of Systems Management (3)
Theory and analysis of economic and financial aspects of systems management. Procedures for planning, budgeting, accounting, and control.

553 Systems Acquisition Management (3)
The acquisition of large scale, high cost systems; function and perspective of the program manager in government or industrial settings.

555 Problems in Systems Technology (3)
Application of systems technology and integration to highly technical, complex problems. The role of technology in the solution of such problems.
557 Systems Integration (3)
Principles and techniques utilized in the integration of sub-systems into total systems; subsystem development and evaluation criteria; trade-off studies; optimization; interface problems.

561 Legal Aspects of Systems Operations (3)
Management responsibility for law in product and corporate liability; negligence, warranty, tort and insurance.

563 Management of Information Systems (3)
Communications within the organizational structure; management information data processing for optimized decision-making; information classification storage, and retrieval.

565 Procurement and Contracting Management (3)
History, methods and types of procurement and contracting; procurement of contracting management processes from solicitation of bids through contract termination.

573 Statistics and Data Analysis (3)
Collection and analysis of data using descriptive and inferential statistics, sampling, correlation, regression, hypothesis testing; computer applications.

581 Logistics Systems Technology (3)
Concepts, methods, and design factors in logistics systems technology including capacities, limitations, rates and effectiveness of logistics handling, transportation, storage and associated subsystems.

583 Management of Research, Development, Testing & Evaluation (3)
History of R & D; planning, staffing, organizing, directing and
controlling; evaluating value structure and creativity of researchers and research managers; relating R & D to organizational goals.

665 Systems Analysis (3)

Within the Master of Science in Systems Management there are six optional areas available for concentration:

Systems Technology
The courses stress the role of the systems manager in a highly technological environment. The emphasis is on the interface of scientific and engineering disciplines and their relationship to management. The curriculum is designed to provide the student with knowledge and an understanding of the principles and theories of systems technology, to develop intellectual ability and skills in this discipline, and an ability to incorporate them into technological development and change through the decision-making process.

Logistics System
Emphasis is placed on the applications of systems management techniques of analysis, synthesis, and research to the entire logistics process. Courses deal with logistics concepts, trends, relationships, issues, problems and practices.
**Information Systems**

A primary objective of this option is to develop intellectual ability and skills in the management of information systems. Included is an understanding of the role of automatic data processing. Courses cover the fiscal, legal, technical, social and managerial aspects of information systems.

**Procurement**

This option emphasizes a systems approach to procurement and contracting in the acquisition of complex machinery/equipment in industry, government and the military. Courses stress the management process from bid solicitation to contract termination, financial aspects, and legal responsibilities and limitations.

**Research and Development**

Courses provide training in the organization and management of product and systems development. Problems include project or program selection and definition, organization, management and control, the setting or R & D objectives, marketing activity, government and industrial contracting, and aspects of the systems manager's interface with scientists and engineers.

**Safety Management**

Coursework is in accident prevention and investigation, human factors in safety, environmental safety, and research methods in the study of safety. The multidisciplinary option incorporates aspects of engineering, psychology, management, and law required of safety professionals who plan to work in industry, government or the military.
Bachelor of Science in Safety

The Bachelor of Science in Safety program is designed to provide for the undergraduate educational requirements of the safety professionals. Safety courses in the program are offered in late afternoon or evening to allow working safety professionals to participate. Students new to safety will experience great value from their association with their fellow safety professional students. This unique degree program presents a multidisciplinary education necessary to the understanding and application of the safety and health aspects of accident prevention. Centering on areas of management, technology, human factors, health, environment and communication the systems approach is emphasized. Further enrichment is gained through the application of related subject matter from the fields of: engineering, education, law, management, medical (public health), psychology, physiology, behavioral and natural sciences.

Master of Science in Safety

This safety program is presented using the academic techniques of lecture, discussion, individual study and research. While the underlying feature is a multidisciplinary approach to safety of man, machine, and environment, the development of a scientific approach and method of study will predominate. In addition to the study of Investigation and Prevention Techniques, the multidisciplinary theme will be represented by the fields of Engineering, Management, Mathematics, Physiology, Psychology, and Law.
Master of Science in Occupational Safety and Health

The program curriculum provides students with a comprehensive understanding of the provisions and intent of the federal Occupational Safety and Health Act and other legislative and performance requirements for regulating work hazards. Instruction also includes how to conduct systems analyses of workplace exposures, particularly with respect to identifying imminent hazards.

Master of Science in Industrial Hygiene

The Master of Science in Industrial Hygiene program prepares professional practitioners in the control of environmental hazards which have long range effect on the health of workers. The curriculum provides an understanding of pathophysiological effects of work exposure to chemical and physical agents in the work environment.

Master of Science in Safety Engineering

The program was developed in conjunction with the School of Engineering, and shares some of the Institute's courses.

EXTENSION PROGRAMS

The Institute, through its Extension and In-Service division has also provided a large number of professional programs (non-degree) on campus and to organizations in many parts of the world. Following is a short description of those courses in Aviation, Transportation and Industrial Safety and Occupational Safety and Health.
AVIATION

U.S. Navy Aviation Safety Officers Course (1954)
The objective of the course is the development of a broad base of skills in accident investigation and accident prevention for Naval Aviation. Areas of study include aerodynamics and physiology, investigation and prevention, management, and communication. An example of the course material developed supporting this program is the textbook, Aerodynamics for Naval Aviators.

The U.S. Air Force Flying Safety Officer Course (1956)
This course provides university level safety education for officers assigned to manage USAF Flight Safety programs. The objective is to provide students with an understanding of safety program management, psychology, and physiology. The course is general in nature. It provides an overview of Air Force safety problems and useful methods of dealing with these problems. It is designed as an educational process to prepare individuals to function as wing level flight safety officers. Personal motivation and initiative will be required in order for the student to use the knowledge gained in his local accident prevention programs. These aspects should be considered when selecting personnel to attend the course. The development of these qualities is also considered in the curriculum.

U.S. Army Aviation Safety Officers Course (1956)
The primary objective of this course is to develop the techniques of aircraft accident investigation and prevention. Major
areas of study include: aerodynamics and aircraft structures, aviation psychology and physiology, investigation and prevention, management and communications.

U.S. Navy Commanders Safety Course (1958)
The curriculum and materials for this special course were developed by the Institute faculty. The objective of the course is to provide an intensive executive overview of aviation safety problems and principles of safety management.

Federal Aviation Administration Special Technical Course (1960)
The faculty of the Institute developed course curriculum and course materials and taught a wide variety of specialized technical courses for the Federal Aviation Administration. These special courses of one and two weeks duration have been conducted in the following subjects: 1) Supersonic Transport Technology, 2) Metal Fatigue, 3) Thermodynamics of Propulsion Systems, 4) Applied Aerolastics and Flight Dynamics, 5) Accident Investigation. An outgrowth of the instructional materials supporting the course in Metal Fatigue is the textbook edited by A. F. Madayag, Metal Fatigue: Theory and Practice, published by Wiley.

U.S. Air Force Missile Safety Officer Course (1961)
The course objective is to provide students with an understanding of safety program management, safety principles, missile systems, and missile environment factors. The curriculum includes Theory of Applied Physics, Propellant Chemistry, Fluid Mechanics Propulsion Systems, Fundamentals of Structures, Basic Electronics and Industrial Psychology.
U.S. Army Commanders & Senior Staff Officers Safety Course (1962)
This course was developed primarily for the nonrated Army Commander with emphasis given to problems unique to aviation safety.

U.S. Air Force Advanced Safety Program Management Course (1964)
This special course was developed to provide specialized instruction in safety management. The objectives of this course are to develop the concepts of management as they relate to various aspects of safety programs. Primary areas of study include: Essentials of Management, Accident Data Collection and Analysis of Industrial Relations in Safety Management, Motor Vehicle Safety, Communications, Introduction to System Safety, and Legal Considerations in Accidents.

Royal Institute of Technology (RIT) in Stockholm, Sweden,
Special Accident Investigation and Prevention Safety Courses (1967)
In cooperation with the faculty of the Institute of Aerospace Safety at RIT, University of Southern California, faculty developed and prepared special short courses that are conducted in the fields of accident investigation, accident prevention, motor vehicle safety, and human factors. These courses have been taught jointly by the University of Southern California and RIT faculty in Stockholm, Copenhagen and Lisbon.

Airline Pilots' Association Accident Investigation Course (1967)
This course was developed to provide intensive instruction in the field of accident investigation for ALPA safety representatives. A similar course was developed for the Allied Pilot's Association.
This special course was developed by the Institute to provide a special executive overview of safety problems and solutions. Aircraft motor vehicle and industrial safety problems are treated as management responsibilities.

U.S. Air Force Aircraft Accident Investigation Course (1971)
This course was designed to train Air Force representatives in the techniques of investigating aircraft accidents. The course of instruction was specialized in technical systems investigation and those human factor topics directly related.

Allied Pilot’s Association Aircraft Accident Prevention Course (1971)
This course was developed to provide intensive instruction in the field of accident prevention for ALPA safety representatives.

Aviation Accident Prevention (1974 to 1980)
The course emphasizes a positive approach to the prevention of aviation accidents—an approach based upon the philosophy that such accidents can be prevented by using a systems approach. Instruction will cover the techniques necessary to conduct an aviation accident prevention program, including techniques involved in the organization and implementation of accident prevention; an understanding of the hazards in aviation, their recognition, and resources of the organization; the fundamentals of human performance and physiological limitations; man's psychological adaptation to flying and the application of human engineering to the prevention of accidents; and knowledge of the technical areas of aircraft structures and aerodynamics as they apply to accident prevention.
Aircraft Accident Investigation (1955 to Present)
This course provides students with the opportunity to learn how to obtain useful information on investigating and preventing aircraft accidents.

Much is known about human, material and operational causes of aircraft accidents, and this course fulfills the function of disseminating this information to those who need to know.

Helicopter Accident Investigation (1974 to Present)
This two week on-campus intensive course provides comprehensive information on how to properly investigate helicopter accidents and how to prevent them. The course is designed for helicopter safety managers, pilots, and maintenance personnel, as well as accident investigators from government organizations.

During the course, the complete spectrum of disciplines necessary to understand all aspects which have been identified as contributing to the causes of helicopter accidents will be studied. These include psychological, physiological, technological, and legal factors. An outstanding group of professionals, each an expert in a particular discipline, lectures during this course.

Human Factors (1978 to Present)
For aviation, industry and transportation. Advancing technology has caused new problems, and has also created new opportunities, in dealing with the Man-Machine Environment. Physiological, biomedical and psychological considerations, as well as human engineering, social influence and current
Photography for Aircraft Accident Investigation (1979 to Present)
This two day workshop develops photographic principles and techniques for effective utilization of the camera in accident investigation. It includes supervised photography of actual aircraft wreckage components with critique of the results by the instructors.

Communications in Aviation Management (1979 to Present)
In this workshop, students develop a sound working knowledge of how to apply communication concepts. Communications as personal interaction, persuasion, fear motivation, and feedback factors are examined.

Legal Aspects of Aviation Safety (1979 to Present)
The workshop is designed to develop an understanding of the legal processes and trends affecting aviation safety. The course includes risk management, liability, punitive damage considerations and providing expert testimony.

Aviation Safety Program Management (1980 to Present)
The course provides the graduate with workable practical concepts and tools needed to practice in an aviation safety program at the supervisory or management level. Curriculum includes human factors, analytical methods and flight line safety. Students also conduct a survey at a nearby airport and prepare a class report.

Aircraft Accident Investigation Course (1980 to 1982)
This two week course trains civilians in aircraft accident
investigation techniques and procedures; analyses of human factors and material failures involving aircraft structures, systems and power plants.

**Aircraft Accident/Helicopter Accident Investigation Course (1981)**
This eight and one-half day program was specifically tailored to conduct a simultaneous fixed and rotary wing investigation course. Investigation and Technology blocks of instruction were separated into fixed and rotary wing classes. Other subjects included Biomedicine, Psychology and Legal Aspects.

**Aviation Safety Management Seminar (1982)**
This course is designed to assist helicopter oriented management personnel, especially safety program managers, to better understand the role of accident prevention and safety management in company operations.

**Human Factors Course (1982)**
The course is designed specifically for Air Force pilot/navigator physiological training officers and biomedical science aerospace physiologists. The purpose of the course is to increase these officers' expertise in aviation human factors. This will enhance their teaching of aircrews on the psychophysiological and human factor aspect of military flying and aircraft mishap prevention.

**Flight Attendants Safety Program (1979)**
The objective of this course is to provide flight attendants with an understanding of practical safety techniques and principles. It provides an overview of safety problems and
useful methods of dealing with these problems. The course includes psychology, physiology, crash survival update and aircraft accident investigation.

Flight Safety Officers Course (1952 to Present)
Provides university level safety education for officers assigned to manage USAF Flight Safety Programs. The objective is to provide students with an understanding of safety program management principles and techniques. Course includes applied aerodynamics, communications, safety program management, psychology, physiology, maintenance safety, and mishap investigation segments. The course is general in nature. It provides an overview of Air Force safety problems and useful methods of dealing with these problems. It is designed as an educational process to prepare individuals to function as wing level flight safety officers. Personal motivation and initiative will be required in order for the student to use the knowledge gained. These aspects should be considered when selecting personnel to attend the course. The development of these qualities is also considered in the curriculum.

Flight Safety Course for Foreign Officers (1969 to Present)
Provides university level safety education for officers of foreign nations assigned to manage flight safety programs. The course objective is to provide students with an understanding of safety program management principles and techniques. Course includes applied aerodynamics, communications, management, psychology, physiology, mishap prevention and investigation.
The course is general in nature. It provides an overview of flight safety problems and useful methods of dealing with these problems. It is designed as an educational process rather than a training to prepare an individual for day-to-day operations. It is not intended to qualify personnel in any specific aircraft system. Personal motivation and initiative will be required in order for the student to use the knowledge gained. These aspects should be considered when selecting personnel to attend the course. The development of these qualities is also considered in the curriculum.

ANG Aircraft Mishap Prevention Program Course (1971 to Present)
A formal flight safety management course specifically designed for the Air National Guard. It is oriented toward commanders, operations officers. Subject matter stresses safety program development and management and provides key ANG personnel familiarity with safety concepts.

Aircraft Mishap Investigation Course (1953 to Present)
Trains officers/civilians in aircraft mishap investigation techniques and procedures. It covers the analysis of human factors, report submission, and material failures involving aircraft structures, systems and power plants. Curriculum is similar to investigation portion of the Flight Safety Officers Course. Course prepares students to be a member of an Air Force safety investigation board.

Aircraft Mishap Investigation Course Foreign Officers (1978-1980)
Trains officers in aircraft mishap investigation techniques and procedures. It covers analysis of human factors and material
failures involving aircraft structures systems and power plants. Curriculum is similar to investigation portion of the Flight Safety Officers Course. Course prepares students to be a member of an Air Force safety investigation board.

**System Safety Officers Course (1965 to Present)**
The System Safety Officers Course provides university level system safety education for officers and civilians assigned system safety management and system safety engineering responsibilities. Course includes: system safety analysis methods, statistical/quantitative methods, and system safety management. Course intended for personnel having system safety engineering and management responsibilities during the conceptual, validation, full-scale development, production and deployment phases of the system life cycle, and modifications of weapon systems.

**Chief of Safety Course (formerly Advanced Safety Program Management (1979 to Present)**
This course provides students with instructions in safety and related academic subjects to effectively conduct Air Force Safety Programs at wing/base level. The course stresses applied management principles. The instructor examples, projects and outside study efforts relate directly to the management of a base level safety office. The instruction covers the current and projected problem areas within the Air Force and provides tools toward solving some of these complicated problem areas.

Contact for validation for the above courses:

Chief, Safety Education Division, AFISC
Norton Air Force Base, California

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Aircraft Accident Prevention (Caracas, 1978)
The course emphasizes a positive approach to the prevention of aviation accident—an approach based upon the philosophy that such accidents can be prevented by using a systems approach. Instruction will cover the techniques necessary to conduct an aviation accident prevention program, including techniques involved in the organization and implementation of accident prevention; an understanding of the hazards in aviation, their recognition, and their elimination; the principles required to manage the safety resources of the organization; the fundamentals of human performance and physiological limitations; man's psychological adaptation to flying and the application of human engineering to the prevention of accidents; and knowledge of the technical areas of aircraft structures and aerodynamics as they apply to accident prevention.

Flight Safety Officer (Singapore, 1979)
Provides university level safety education for officers assigned to manage Flight Safety Programs. The objective is to provide students with an understanding of safety program management principles and techniques. Course includes engineering, communications, safety program management, psychology, and physiology. The course is general in nature. It provides an overview of safety problems and useful methods of dealing with these problems. It is designed as an educational process to prepare individuals to function as wing level flight safety officers. Personal motivation and initiative will be required in order for the student to use the knowledge gained in his
local accident prevention programs. These aspects should be considered when selecting personnel to attend the course. The development of these qualities is also considered in the curriculum.

**Management in Aircraft Accident Prevention** (Singapore 1979)
The purpose of the Management in Aircraft Accident Prevention course is to develop concepts for management pertinent to the various elements of safety programs. It will develop in the student an understanding of safety considerations in decision making and provide the executive with management knowledge necessary to coordinate and direct safety policies and programs, and achieve safety program objectives through the efforts of others.

**Aviation Accident Prevention** (Singapore 1980)
This course acquaints the student with problems and solutions in organizing and managing an effective accident prevention program with emphasis on the human rather than technical factors. Instruction includes the philosophy of safety, ramp and cargo safety, aircraft design and certification, crash survivability and crash fire prevention.

**Executives' Safety Management Course** (Canada 1980)
Responsibility for safety in an organization is seen as that of the senior executive with authority to order change in related organizations, and this course reflects this priority; in addition, this course is built on the premise that management's participation in safety activities is vital to the success of any accident prevention program. The course develops
and enhances the awareness of persons in management regarding safety and its implementation.

**Air Traffic Controllers' Investigation Course** (Canada 1980)

This course prepares the graduate to analyze effectively information gained from various sources as to its credibility and authenticity; to evaluate objectively the evidence obtained in investigations and apply its relative impact on the suspected separation loss; and thereby to optimize the Air Traffic Services system effectiveness.

**Helicopter Accident Prevention** (Mexico 1980, 1981)

The course emphasizes a positive approach to the prevention of helicopter accident—an approach based upon the philosophy that such accidents can be prevented by using a systems approach. Instruction covers the techniques necessary to conduct a helicopter accident prevention program, including techniques involved in the organization and implementation of accident prevention; an understanding of the hazards in aviation, their recognition, and their elimination; the principles required to manage the safety resources of the organization; the fundamentals of human performance and physiological limitations; man's psychological adaptation to flying and the application of human engineering to the prevention of accidents; and knowledge of the technical areas of helicopter structures and aerodynamics as they apply to accident prevention.

**Flight Safety Officer** (South Africa 1981)

Provides university level safety education for officers assigned to manage Flight Safety Programs. The objective is to provide students with an understanding of safety program
management principles and techniques. Course includes engineering, communications, safety program management, psychology, and physiology. The course is general in nature. It provides an overview of safety problems and useful methods of dealing with these problems. It is designed as an educational process to prepare individuals to function as wing level flight safety officers. Personal motivation and initiative will be required in order for the student to use the knowledge gained in his local accident prevention programs. These aspects should be considered when selecting personnel to attend the course. The development of these qualities is also considered in the curriculum.

TRANSPORTATION AND INDUSTRIAL SAFETY

Consumer Product Safety Course (1976)
The purpose of this course (Pilot Course on Concepts and Principles of Systems Product Safety for the Consumer Product Safety Commission) is to offer members of the CPSC's engineering staff an opportunity to enhance their knowledge and understanding of total system safety concepts, principles and specific methodologies that apply to consumer products. Emphasis is provided on legal ramifications and current uses of systems product safety in industrial technology.

Introduction to Safety Program Management Course (A.T. and Santa Fe Railway Company (1977)
This special four day course in Program Management Safety was developed in 1977 by the Institute of Safety and Systems Management for the Atchison, Topeka and Santa Fe Railway
Company officials. Primary subjects encompass safety program management including aspects of safety program organization and development of practical policies, procedures and performance standards for personnel, equipment and operations. Problems of training, work environments, motivation and stress are included.

Accident Prevention for Safety Program Managers in the Steel Industry Course (1975)
The Institute of Safety and Systems Management conducted a one week safety education course for program managers in cooperation with the American Iron and Steel Institute. Objectives included prevention aspects of safety program management, man-machine interfaces, accident systems analysis methods, human factors, etc.

Under contract to the U.S. Air Force, the Institute faculty conducted the required research, developed the program of instruction and designed the multimedia driver improvement education course. This project required extensive qualifications in the field of motor vehicle safety, human factors, and instructional technology.

Human Factors Course (1981)
This course is designed to teach selected current principles of behavior science particularly appropriate to the advancement of safety. The course will provide the students with a working knowledge of hazard control techniques within the Man-Product-Environment System.
U.S. Air Force Military Assistance Program/Advanced Safety Program Management Course (1972)

This special course was developed to provide advanced instruction in safety management to Military Assistance Program students. The objectives of the course are similar to those stated in the U.S. Air Force Advanced Safety Program Management course, stressing the essentials of management necessary to conduct a higher staff level program.

Traffic Safety Program Development (1972)

The student will acquire an understanding of the systems related to traffic safety; the need to recognize the role of traffic safety programs in the overall functioning of the highway transportation system; system performance benefits such as mobility, quality of life, economic growth; system performance costs such as traffic deaths, and injuries, environmental impacts, economic costs, consumption of energy and other resources.

Multidisciplinary Highway Collision Investigation Course (1972)

The course offers instruction in the conduct of on scene investigation and systematic methods to attain high quality, in-depth investigations. The program emphasizes the human, vehicle, and environment elements in relation to determine even the most subtle accident and injury causes.


This special course was developed to support the safety educational requirements of Ground Safety Officers, Civilian Safety
Program Managers, and selected senior noncommissioned officers. Course development required complete research of ground safety manager tasks and current subject matter publications, the impact of new public laws and implementation procedures. Major areas of study include: ground safety program management, safety technology, high hazard programs applications.


The Institute faculty developed the course curriculum and supporting materials for these two specialized courses. The purpose of these courses was to address the problems of System Safety Management as well as system safety analysis from the point of view of Naval Ships design. The course duration was two weeks. Courses were conducted at the Naval Ships Engineering Center in Washington, D.C.

**MORT Seminar** (1982 to Present)

The Management Oversight and Risk Tree (MORT) Seminar includes traditional safety concepts such as hazard evaluation, human performance and risk assessment as well as innovative safety concepts such as barrier analysis, change analysis and unwanted energy transfers.

**Accident Investigation Workshop** (1982 to Present)

Subjects include analytical methods, information collection, risk projection, human behavior, experiences of certified investigators, the role of the specialist, administrative considerations and the structure of the investigative report.
Appraisal Workshop (1982 to Present)
The program will demonstrate techniques which define audit points in the following areas of the safety assurance system: management implementation, hazard analysis, work process, human factors, information systems, and safety services.

Risk Analysis Workshop (1982 to Present)
Using this seminar format, discussions will focus on the concepts of analytical methods, designing of risk assessment applications for the participants' organizations, and guiding the participants in the performance development of the risk analyses required for safety analysis reports.

Operational Readiness Workshop (1982 to Present)
This workshop provides participants with competence in application of methods for assuring operational readiness for new or modified energy systems. Using lectures and participative exercises relating to operational readiness, analytical trees, work flow charts, and readiness matrices, the workshop will be coordinated with other elements of the MORT program.

Industrial Safety Awareness (1978 to Present)
Legislation in recent years has created a need for occupational safety and health education and training within industry. This course is designed to meet industrial safety and hygiene needs, both in the preventive and investigative aspects and can be tailored to meet specific needs of certain occupations with actual operational problems. Topics covered include Federal and State OSHA legislation, the history and evolution of safety,
training and behavior management, hazard recognition, elements of industrial hygiene, and inspection and investigation.

**System Performance Management (1982 to Present)**

This workshop provides participants with an introduction to available performance measurement techniques and methods; comparative evaluation of these techniques and methods, relationship of local efforts to DOE-wide programs and the integration of information and management reporting.

**Human Factors Workshop (1982 to Present)**

This workshop provides guidance in dealing with the human factor in energy systems: motivational and engineering considerations, anthropometric physiological-biomedical considerations, human engineering, human reliability and the nature of human error. Emphasis is placed on the need for evaluation of the consequences of human error.

**OCCUPATIONAL SAFETY AND HEALTH**

In 1980, the Occupational Safety and Health Continuing Education Program was initiated under a grant from the National Institute for Occupational Safety and Health, establishing the Region IX NIOSH Educational Resource Center in consortium with the University of California - Irvine. Courses are aimed at industrial hygienists, safety professionals, physicians, nurses and technicians in industry, government and the military.

**Identification, Sampling and Evaluating Airborne Asbestos Dust (1980 to Present)**

Designed for technicians conducting the sampling and evaluation of asbestos dust under professional direction, this five day
course examines the sampling and evaluation techniques in detail using the "hands-on" laboratory approach to reinforce learning.

**Industrial Ventilation** (1980 to Present)

This course covers the fundamentals of industrial exhaust ventilation including the air flow design of industrial exhaust systems. Topics include hood design, entry loss calculations, fans and blowers, measuring instruments and cost analysis of ventilation systems.

**Recognition of Occupational Health Hazards** (1980 to Present)

The technical content of this course consists of industrial hygiene fundamentals, survey techniques and procedures. Four major hazards—biological, chemical, environmental and physical—and their cause, effect and control are examined in detail.

**Recognition of Accident Potential in the Workplace Due to Human Factors** (1980 to Present)

This course is designed to provide the student with an understanding of the principle human factors typically involved in accident causation. Identification of the principle elements and methodology involved in accident potential recognition procedures is stressed.

**Respiratory Protection** (1980 to Present)

This course is designed to provide the necessary information to initiate or upgrade a program to comply with the requirement of the OSHA Act.
This course is designed to familiarize an individual with the fundamental principles of industrial hygiene with the major emphasis on recognition, evaluation and control of hazards.

Occupational Health Nursing: Basic Theory and Update (1981 to Present)
This course examines the basic principles and practice of occupational health nursing, and provides current nursing practice trends, health legislation and standards relating to occupational health nursing. The course is approved by the California Board of Registered Nursing Provider #00105.

Sampling Strategies (1981 to Present)
Using a micro-computer as a teaching aid, the course provides training for those responsible for designing and implementing a sampling program, making decisions based on its results and keeping records.

Ionizing and Non-Ionizing Radiation (1981 to Present)
This specialty course is an introduction to ionizing and non-ionizing radiation including sources and their attendant hazards to personnel. The non-ionizing area includes the basic principles of control, plus the evaluation and control of laser and microwave sources. The ionizing radiation section covers detection instruments and control methods.

Occupational Noise and Hearing Conservation: Compliance with the New Laws (1981 to Present)
This course covers concepts dealing with the physics of sound,
hearing, audiology, OSHA noise standards, engineering controls and personal protective devices. The student is taught to identify typical sources of industrial noise and to identify some causes of hearing loss.

Ergonomics (1981 to Present)
This course covers principles, concepts and applications of anthropometry, hand tool design, work/rest guidelines and workplace design to improve performance and reduce undue stress.

OSHA Guide to Voluntary Compliance (1982 to Present)
This course developed by OSHA enables employers to 1) assess the safety and health posture of an establishment, 2) interpret the Occupational Safety and Health Standards and their application to the workplace environment and 3) develop checklists and other aids for gaining compliance with standards.

This course is designed to provide the student with an understanding of the fundamentals of risk management, the decision making processes involved, the financial side of the costs of safety, and how alternatives are chosen.

2.2 Faculty Overview

The excellence of USC's educational effort--particularly the quality of the faculty, library and graduate and professional programs--is responsible for the University's election to membership in the Association of American Universities.
USC is one of the leading private research Universities in the United States with more than 50 Ph.D. degrees awarded each year. The University also receives annually more than ten million dollars in federal support of academic science. In fiscal 1980, the volume of sponsored research and training programs exceeded 50 million dollars.

The multidisciplinary nature of the educational and research programs of the Institute of Safety and Systems Management has evolved a unique faculty encompassing both operational experience and academic achievement in several complementary fields. All faculty members have extensive experience outside the University in industry, commerce, government and military. In addition, more than 60 percent hold doctoral degrees. The Institute's part-time faculty represents an additional exceptional resource in specializing fields.

Special attention should be drawn to the Executive Director of the Institute of Safety and Systems Management, Dr. John V. Grimaldi. Dr. Grimaldi held numerous positions at New York University from 1967 to 1977, including Director of the Center for Safety which originated the Ground Safety course for the United States Air Force and conducted the program for many years. His contribution to Ground Safety has been substantial and will enhance the continuation of the Air Force Safety program significantly through day-to-day involvement with the safety faculty.
Outstanding guest lecturers from the local area will be utilized at various points in the course of information to emphasize current research and activities and to assure students are aware of the state-of-the-art.

2.3 List of Faculty/Subject/Hours

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Subject</th>
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<tbody>
<tr>
<td>Gary I. Semones</td>
<td>Mishap Investigation Techniques and Field Project</td>
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</tr>
<tr>
<td>Ted J. Banick</td>
<td>Mishap Investigation Management and Field Project</td>
<td>18</td>
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<tr>
<td>Gay E. Jones</td>
<td>Analytical Methods</td>
<td>11</td>
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<td>Richard E. Wood</td>
<td>Mishap Photography and Field Project</td>
<td>9</td>
</tr>
<tr>
<td>Prof Chaytor D. Mason</td>
<td>Human Factors - Psychology</td>
<td>8</td>
</tr>
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<td>Dr. Albert Puskas</td>
<td>Human Factors - Physiology</td>
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<tr>
<td>Prof George B. Parker</td>
<td>Investigaton of Fire, Material Factors</td>
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<td>Staff</td>
<td>Orientation and Critiques</td>
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Note: More than one faculty member is required for certain portions of the course which brings total faculty hours to 86.
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3.0 CLASS CREDIT

Students attending this course will be given the option of registering in SSM 414 or SSM 514, depending on their individual qualifications. These are established degree program courses in the University's B.S. and M.S. Safety curriculum. All students will be mailed the course textbook ahead of time with a pre-reading assignment to be completed prior to the start of the course. Students registered in SSM 514 will be required to complete a research report to be mailed to the lead faculty member within forty-five days of course completion. Graduate level students will be given a different exam from the SSM 414 students. An additional option would be for a student to elect "no credit," however he or she would still be expected to take the SSM 414 exams.

A mid-term examination will be given and will form the basis on which either a "Certificate of Completion" or a "Certificate of Attendance" will be issued. In the event that a student fails the mid-term exam, but subsequently attains a sufficiently high grade on the final exam to pass the course, he will be mailed a Certificate of Completion to replace his Certificate of Attendance approximately two weeks after the final exam has been evaluated and a grade of C or better has been given by the lead faculty member.

It is understood that material in addition to that stated in the Request for Proposal will be included in the curriculum in order to satisfy the degree program course requirements.
In the event a student is judged by a faculty member to be having academic difficulty, he or she will receive counseling by the instructor and the Career Program Manager, SEP, will be advised.

4.0 SUPPLIES FURNISHED BY CONTRACTOR

4.1 Texts Issued to Students


4.2 Research/Reference Library Material List

All titles contained in the Safety Library maintained by the University in support of the other USAF contract courses at Norton Air Force Base. These titles are extensive and are open to review by Norton Contracting Personnel or representatives from AFISC/SEP.

5.0 COURSE CURRICULUM - MAINTENANCE MISHAP INVESTIGATION COURSE

5.1 Course Purpose

The purpose of the Maintenance Mishap Investigation Course is to provide students with the necessary mishap investigative skills and knowledge to enable them to effectively investigate and report aircraft mishaps. The course shall provide students with sufficient knowledge to effectively teach the investigative techniques and principles of Air Force occupational mishaps for independent investigators or functioning board members. The students will be qualified aircraft maintenance personnel. Therefore, the course will emphasize practical mishap
investigation principles rather than maintenance procedures. The instructor's examples, projects and outside study efforts will relate directly to managing or conducting Air Force aircraft mishap investigations. The course shall consist of a minimum of 70 hours of instruction. The hours will be allocated as follows:

<table>
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<tr>
<th>Topic</th>
<th>Hours</th>
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<tr>
<td>Registration and Announcements</td>
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<td>Air Force Safety Policy</td>
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<tr>
<td>Mishap Investigation Management</td>
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<td>Field Exercise</td>
<td>7</td>
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<tr>
<td>Administration/Course Evaluation</td>
<td>2</td>
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<tr>
<td><strong>Total Hours</strong></td>
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Note: Student progress will be evaluated (quizzes, exams, etc.). However, these evaluations will not involve more than ten percent of the available course time. Information from outside reading assignments should be included in student progress evaluations.

5.2 **Course Objective**

To prepare students to effectively investigate and report United States Air Force aircraft mishaps.

1) Mishap Investigation Management Objectives: To prepare students to function as an independent investigator or board member for Air Force class A, B, and C occupational
mishaps. The student shall have sufficient knowledge to understand and apply the concepts of mishap investigation management (plan, organize, coordinate, direct, control, and evaluate) to the investigation process.

2) Human Factors Objectives: The student will understand human factors involvement in Air Force occupational mishaps. Physical, psychological, physiological, psychosocial and pathological considerations will be emphasized. Students will appreciate the importance of fatigue, poor nutrition, alcohol, drugs, emotions, stress, poor physical conditioning, impulsiveness, peer pressure, depression, and suicidal tendencies in the causation of mishaps.

3) Analytical Techniques Objectives: Students will be able to apply analytical techniques to the investigation of Air Force occupational mishaps. Students will become familiar with analytical techniques such as management oversight risk technology and failure modes and effect analysis.

4) Mishap Investigation Techniques Objectives: Students will be able to systematically and thoroughly investigate Air Force occupational mishaps. Specifically, students will be able to perform these investigative functions as they relate to Air Force occupational mishaps.
   a) Fact finding.
   b) Gathering and preserving evidence.
   c) Interviewing witnesses.
   d) Developing drawings and schematics.
e) Taking and using photographs.
f) Analyzing information and data.
g) Determining findings and causes.
h) Evaluating energy transfer and modes of control.
i) Developing conclusions and methods to prevent recurrence.
j) Obtaining outside technical expertise.
k) Developing lessons learned to prevent recurrence.

5) Class Project/Field Trip Objectives: The purpose of the combined class project/field trip shall be to give the students an opportunity to demonstrate their knowledge of the course objectives. The students shall be divided into two or more teams and assigned a class project. The class project shall be designed so that it is related to and builds upon the field trip. An example of a suitable class project/field trip would be to assign students to positions on a mishap board (board president, investigating officer, etc., as appropriate) for the purpose of investigating Air Force occupational mishap. The students would then be taken on a field trip to the scene of a mock-up occupational mishap. Students would investigate the mishap, provide their inputs to the board president and prepare the formal report. The board president from each investigation team would present the report findings, causes and recommendations to the class for comments and critique. This exercise would be structured so that the preparation and field trip were conducted one day, the formal report would
be developed that evening on the student's own time, and the presentations to the class would be the next morning.

6) Administration/Course Evaluation Objectives: To provide student with knowledge of local procedures, facilities, and services. To receive feedback on course content, instructor performance, and adequacy of facilities.
### 6.0 APPENDIX

#### Appendix A

**RESUMES OF FACULTY**

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>Page</th>
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</thead>
<tbody>
<tr>
<td>Theodore J. Banick</td>
<td>45</td>
</tr>
<tr>
<td>Gay E. Jones</td>
<td>46</td>
</tr>
<tr>
<td>Chaytor D. Mason</td>
<td>47</td>
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<td>George B. Parker</td>
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<td>Albert Puskas</td>
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<td>Walter J. Schob, Jr.</td>
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<tr>
<td>Gary I. Semones</td>
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<td>Richard H. Wood</td>
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</tbody>
</table>
FACULTY MEMBER

NAME  THEODORE J. BANICK

POSITION  Field Assistant Professor of Safety Science, Institute of Safety and Systems Management, University of Southern California

EDUCATION  M.S.S., University of Southern California, 1982
B.G.S., University of Nebraska at Omaha, 1974
Pilot Training, United States Air Force, 1954
Other:
Airline Transport Pilot

LICENSES AND CERTIFICATIONS
Certified Safety Professional #7102

PROFESSIONAL EXPERIENCE

Positions  Colonel, USAF (retired). Over 27 years active duty.
Command Pilot - over 5000 flying hours (primarily fighter aircraft).
Extensive Aircraft Mishap Investigation experience.

PROFESSIONAL AFFILIATIONS
American Society of Safety Engineers Chapter President.
International Society of Air Safety Investigators.
FACULTY MEMBER

NAME	 GAY E. JONES

POSITION	 Field Assistant Professor, Safety Science, Institute of Safety and Systems Management, University of Southern California

EDUCATION	 Non-Accredited Masters Equivalent, USAF Test Pilots School, 1961-1962

M.S., Safety, University of Southern California, 1980

B.S., Air Force Institute of Technology, Dayton, Ohio, 1958-1960

University of Oklahoma, 1948 (one year)

Oklahoma Baptist University, 1946 (one year)

Other:

Community College Instructor Credential in Aeronautics

Airline Transport Pilot and Commercial Pilot including Rotary Wing

PROFESSIONAL EXPERIENCE

Positions


PROFESSIONAL AFFILIATIONS

Associate Fellow, Society of Experimental Test Pilots

Member International Society of Air Safety Investigators

Member Experimental Aircraft Association
<table>
<thead>
<tr>
<th>NAME</th>
<th>CHAYTOR D. MASON</th>
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<tbody>
<tr>
<td>POSITION</td>
<td>Associate Professor, Human Factors</td>
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<tr>
<td></td>
<td>Institute of Safety and Systems Management</td>
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<td>University of Southern California</td>
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<td>M.A., Clinical Psychology, George Washington University, 1952</td>
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<td>B.A., Psychology, George Washington University, 1949</td>
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**PROFESSIONAL EXPERIENCE**

**Positions**

University of Southern California, 1960 to present. Responsible for the conduct of regular classes in Aviation Safety Officers, the U.S. Air Force Flying Safety and the Allied Nations Flying Safety Officers. Additionally, conducts regular classes in the graduate and undergraduate programs.

**Aviation**

Over 5000 flying hours in single and multi-engine aircraft; propeller and jet aircraft and helicopters.


Consultant, aviation psychology and human factors for various corporations, airline organizations and international governmental agencies.

Consulting and staff psychologist for various hospitals and clinics since 1953.

Expert witness in aircraft accident litigation.

Editor Cabin Crew Safety Bulletin of the Flight Safety Foundation, Inc.
Presentations

Professor Mason has made numerous presentations to civilian and military agencies in this country and internationally to such organizations as the Portuguese Air Force, German Air Force, SwissAir Airlines, the Royal Canadian Air Force, U.S. Army Helicopter Training Center, the Royal Netherlands Air Force, and U.S. safety organizations, Royal Institute of Technology, Stockholm, Orient Airlines Association, Dutch Air Force Philips Corp. Holland and Flight Safety Foundation. Singapore Air Force and Airlines, Instituto Ingeniero Soperior, Lisbon.

Radio & TV


Frequent TV appearance on subjects of aviation, motor vehicle safety, criminology and psychology and commentary on human behavior.

PROFESSIONAL AFFILIATIONS

American Helicopter
American Psychological Association
Association of Flying Psychologists
California State Psychological Association
Group Psychotherapy Association of Southern California
Los Angeles County Psychologists in Private Practice
Western Psychological Association
Survival and Flight Equipment Association
Aviation Owner's & Pilot's Association
Civil Air Patrol: Search pilot, Safety officer
National Press Club, Washington, D.C.
American Federation of Television and Radio Artists
Association of University Professors
Publications


FACULTY MEMBER

NAME GEORGE B. PARKER

POSITION Associate Professor, Safety Department
Institute of Safety and Systems Management
University of Southern California
Los Angeles, California

EDUCATION M.S., Aerospace Operations Management,
University of Southern California
Los Angeles, California
B.S., Management Science, Jackson College

Other:
Graduate of numerous safety courses, including
those specializing in aviation, motor vehicle
and industrial safety, jet engine investigation,
and crash injuries

PROFESSIONAL EXPERIENCE

Positions 1962-Present - Associate Professor of Safety
Management, University of Southern California,
teaching graduate and undergraduate courses in
accident prevention and investigation to mili-
tary, foreign and civilian students.

Former Department Head, Accident Prevention and
Investigation Department; directed and adminis-
tered subject matter and faculty in safety
courses in subjects of accident prevention and
investigation. Courses offered to military,
civilian and foreign students in aerospace,
missile and multi-modal areas of safety.

Program manager, aircraft and motor vehicle
accident investigation courses, and USAF Senior
Officer's Safety Course.

Flight Safety Foundation Operational and Safety
Audit team chief.

Advisor to National Taiwan University on Safety.

Consultant and Participant in U.S. Air Force and
U.S. Navy safety films; consultant to various
corporate and civic organizations on aviation
safety.

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Aviation

Former airline pilot (2 years); held highest Federal Aviation Agency pilot ratings (ATR, Commercial Jet and Commercial Helicopter).

Safety
Lecturer and Associate Professor of safety courses, Institute of Safety and Systems Management, University of Southern California, Los Angeles, California.

Marine Corps Aviation Safety Officer.

Consultant in accident prevention and investigation to aircraft manufacturers, insurance companies and law firms.

PROFESSIONAL GROWTH

Publications


Research
Developed Flight Safety Opinion Survey.


Developed investigative procedures and techniques to be employed by graduates of the Safety Center courses.

Developed special accident prevention programs for the Army, Navy and Air Force.

Developed DOT/NHTSA Course in multidisciplinary highway collision investigation training.
FACULTY MEMBER

NAME ALBERT PUSKAS

POSITION Adjunct Associate Professor, Aviation Psychology

EDUCATION Board certified in Aerospace Medicine, 1967
M.Sc., Ohio State University, 1963
M.D., University of British Columbia, 1960

PROFESSIONAL EXPERIENCE

Positions University of Southern California, 1967 to present. As Adjunct Associate Professor, responsible for regular classes in aircraft accident investigation, human factors.

Private practice, 1976 to present.


Eighteen years experience as a pilot.

Single engine jet aircraft; 1250 flight hours, twin engine transports, private aircraft.

PROFESSIONAL GROWTH


"Casualty Patient Medical Evacuation;" Van Nuys Air National Guard, August 9, 1969.

1973 - Member of the six man team that devised and set up the aviation safety reporting system now utilized by USAF as "Hazardous Air Traffic Report Program (HATR)"

PROFESSIONAL AFFILIATIONS

American Medical Association
American College of Occupational Medicine
California Medical Association
Aerospace Medical Association
American College of Sports Medicine
Flying Physicians Association
Aircraft Owners and Pilots Association
NAME  WALTER J. SCHOB, JR.

POSITION  Lecturer, Institute of Safety and Systems Management, University of Southern California

EDUCATION  Master of Science (Aeronautical Engineering) Princeton University, Princeton, New Jersey

Bachelor of Aeronautical Engineering Rensselaer Polytechnic Institute, Troy, New York

Other:

USAF Aerospace Research Test Pilot School

Industrial College of the Armed Forces

The American Graduate University (Project Management)

PROFESSIONAL EXPERIENCE

Positions  Chief Flight Instructor, FAA Approved Flight Training School.

Trustee and Project Director, National Underwater Marine Agency.

Director of Aircraft and Missile Test Forces (F-5, F-15, F-16, A-10 Fighters; B-1 Bomber, Cruise Missile).

Supervisor (Deputy Commander) of 127 Test Pilots, Loadmasters and Air Refueling Operators.


Archaeologist (Underwater), United Kingdom.


Program Manager F-15 Fighter, Flight, Ground, Wind Tunnel.

Test Pilot/Project Manager (Weapon System Tests).

Combat Pilot, Vietnam (Speciality: Lowlight TV Bombing).
Teacher (College Level) and Flight Instructor, Aerospace Research Pilot School.

Public Relations Officer and Newspaper Editor, USAF.

Design Engineer, Cessna Aircraft Company, Kansas.

Aviation
Pilot, 5000 hours in Fighters, Transports, Bombers and Helicopters.

Air Transport Pilot License - Airplanes and Helicopters.

Flight Instructor License
Airplanes, Helicopters, Gliders
Instruments (Airplanes and Helicopters)

Military
USAF, retired, 1956-1978, Rank: Lt. Colonel

PROFESSIONAL AFFILIATIONS:

Society of Experimental Test Pilots
Order of Daedalians
British Sub Aqua Club
FACULTY MEMBER

NAME	GARY I. SEMONES

POSITION	Field Assistant Professor of Safety Science, Institute of Safety and Systems Management, University of Southern California

EDUCATION	B.S., Southern Illinois University

M.A., Candidate, California State University, San Bernardino, California

Military Education: Weather Forecaster School, 1957; Officer Candidate School, 1959; Pilot Training, 1960; Instructor Pilot School, 1960; Squadron Officer School, 1965; Air Command and Staff College, 1971.

Safety Education: Flying Safety Officers Course, University of Southern California; Advanced Safety Program Management, University of Southern California; Safety Program Organization and Administration, New York University; Crash Survival Investigation, Arizona State University.

PROFESSIONAL EXPERIENCE

Positions
1975 - Present -- Faculty, University of Southern California
1974 - 1975 -- Chief of Safety Education Division, HQ USAF
1973 - 1974 -- Chief of Safety Education Branch, HQ USAF; Completed 5,000 hours accident free flying
1971 - 1973 -- Chief of Safety, 12th Flying Training Wing
1966 - 1970 -- Chief of Safety, T-37 Pilot Instructor School
1965 - 1966 -- Senior Advisor Vietnam AF Pilot and Observer School
1960 - 1965 -- Instructor pilot, check pilot Undergraduate Pilot Training
1957 - 1959 -- Wing Weather Forecaster, Strategic Air Command
1952 - 1956 -- Ground Weather Equipment Operator

PROFESSIONAL GROWTH

1965 - Submitted VNAF modernization proposal that was implemented in late 1960's under the name of "Viet-Namization."
1967 - Eliminated Perrin AFB birdstrike hazard by developing procedures that permitted mission accomplishment with limited exposure to birds in flight. Published Staff Study 1970 Air Command and Staff College.

1968 - Eliminated tire tread separation problem T-37 aircraft by requiring quality control during retread proceedings.

1971 - Developed Randolph AFB Regional Compatible Land.

1973 - Use Program to insure utilization of land near airfield that would not hamper airfield operations.

1972 - Reduced batstrike hazard at Randolph AFB utilizing on-base and off-base radar to predict bat cloud movements. Local patterns for night flying were modified to remain clear of the swarms of bats.

1972 - Initiated thoroughfare Study Group to provide safe adequate surface traffic flow through all communities near Randolph AFB.

PROFESSIONAL AFFILIATIONS

International Society of Air Safety Investigators

American Vocational Association

The Honor Society of Phi Kappa Phi
### FACULTY MEMBER

**NAME**  
RICHARD H. WOOD, P.E., CSP

**POSITION**  
Field Assistant Professor, Department of Safety Science

**EDUCATION**  
M.S., Systems Management, University of Southern California, 1968

B.G.E., General Engineering, University of Omaha (now University of Nebraska at Omaha), 1966

Other:

U.S. Air Force Flight Safety School, University of Southern California, 1963

Aircraft Crash-Survival Investigation School, Arizona State University, 1971

System Safety Engineering, University of Southern California, 1975

**PROFESSIONAL EXPERIENCE**

**Positions**  


Various operational flying assignments, 1953-1963.
Aviation
Command Pilot, 6000 + hours diversified military, Commercial SMEL, Instruments

PROFESSIONAL AFFILIATIONS:

Registered Professional Safety Engineer, State of California
Chapter President, American Society of Safety Engineers
Member, International Society of Air Safety Investigators
Member, System Safety Society
Member, Society of Automotive Engineers; Safety Standardization Committee
Certified Safety Professional by Examination
# Appendix B

## JOB DESCRIPTIONS OF ADMINISTRATIVE PERSONNEL

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<td>Continuing Education Program Specialist</td>
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<td>Senior Secretary, Safety Department</td>
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<td>Coordinator, Air Force Programs</td>
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<td>Administrator Coordinator</td>
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<td>Secretary, Air Force Programs</td>
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<tr>
<td>Manager of Operations</td>
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<tr>
<td>Machine Operator</td>
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To supervise and implement University policy regarding personnel, financial administration, academic programs and marketing for all non-degree courses offered by the Institute of Safety and Systems Management.

(5) Major Duties and Responsibilities

- Supervises full-time and part-time faculty and administrative personnel.
- Recruits new faculty primarily for part-time teaching.
- Responsible for the professional development of faculty and staff of the directorate.
- Maintains administrative records.
- Attends and participates as a member of the administrative policy committee and administrative council.
- Implements marketing procedures for all non-degree courses.
- Coordinates the planning and management of programs with the Executive Director, the Academic Director and Department Chairman and Faculty.
- Prepare annual budget recommendations assuring the fiscal viability of the Office of Extension and In-Service Programs.
- Monitors the expenditures of the Office of Extension and In-Service Programs to assure conformance with budget.

(6) Nature of Supervision Received and Exercised:

- Supports and advises on unprogrammed decisions.
- Receives supervision from the Executive Director.
- Monitors the quality of output of personnel and provides a continuous evaluation process.
- Directly responsible for the Program Specialists, Program Assistant, Administrative Assistant and Clerical Specialist.

(7) Minimum Qualifications Required:

Terminal degree knowledge and understanding of faculty needs. Marketing, short course development experience and concept of continuing education.
ONIVERSITY OF SOUTHERN CALIFORNIA / JOB DESCRIPTION FORM

Continuing Education Program
Lauretta Gin

(1) Title: Specialist, Grade 7
(2) Prepared by: (Incumbent)
(3) Date: 8/85

(4) Reason Why This Position Exists:
To provide analysis of requirements in the community for educational and training needs in the area of responsibility assigned the position; To assure development of courses commensurate with the need identified; To administer the conduct of programs with highest qualified faculty throughout.

(5) Major Duties and Responsibilities: free world in accordance with department plans.

PROGRAM MARKET EVALUATION:
- Inputs of students, professors, journals, etc., provide data for assessment of evaluation of current and future program needs within the area of responsibility.

PROGRAM DEVELOPMENT:
- Information is translated into action: New programs developed, on-going courses, modified and improved.
- Forms Boards of Advisors which enlist service of high level, knowledgeable professionals to assist curriculum planning and faculty selection.
- Assembles course materials from scratch; outlines from instructors, course materials, all support requirements.
- Constructs all PR materials. Brochure design, cost and quantity needed is major part. Mail lists are determined and obtained.
- Conduct of all course world wide is responsibility of this position.

PROFESSIONAL KNOWLEDGE:
- Incumbent studies and reads to become knowledgeable in the technical aspects of courses within jurisdiction.

PROPOSALS:
- Prepare formal course proposals for signature of Contracts and Grants office.
- Gathers and edits all biographies involved. Determines most suitable professors.
- Prepares cost proposal determining all costs and calculating proper return.

(6) Nature of Supervision Received and Exercised:
- Supervises all support activity. Coordinates many elements of course delivery with agencies outside: publishers and printers, Institute administration, purchasing office, and many others.
- Receives advice and approval of Supervisor after briefing covering all alternatives. Makes many decisions independently.

(7) Minimum Qualifications Required:
- College degree required. Masters degree desired.
- Must have marketing and PR knowledge and experience.
- Typing skill, filing, office management experience.
- Must excel in dealing with high ranking professional people.
- Business acumen necessary.

Employee's Signature ____________________ Supervisor's Signature ____________________
(1) Title: Chairman, Safety
Dept. ISSM

(2) Prepared by: (Incumbent)

(3) Date: 8/85

(4) Reason Why This Position Exists:
The Safety Dept. requires an administrative and academic director. This
director is responsible for setting academic policy for the dept. faculty &
course offerings. He is further responsible for the implementation of this
policy. His position is that of director and operational mgr. of the aca-
demic and administrative activities of the department.

(5) Major Duties and Responsibilities:
- Responsibility for Programs, Project or Operations
  Administration of Curriculum, Course and Curriculum Content
  New Degree Program Development, New Professional Program Development
  Teaching Activity Direction
  Academic Quality
  Department Research Development

- Responsibility for Supervision of Personnel
  Faculty Recruitment, Evaluation, Performance, and Development
  Staff Recruitment, Development, and Evaluation
  Recommendations for Appointment and Promotion

- Responsibility for Student Relations
  Counsels Students on Enrollment
  Thesis Counseling
  Tutorial and Research Assignments
  Evaluates Student Petitions

- Responsibility for University Liaison
  Coordinates with Appropriate Disciplines in Other Schools
  Projects Academic Image to Campus and the Academic Community
  Develops Symposia Conferences and Other Multi-unit Activities
  Coordinates with Community Offices and Activities
  Supports and Enhances Student Recruitment

- Responsibility for Internal Liaison
  Coordinates Library Requirements with Faculty and University Libraries
  Meets Regularly with Exec. Dir. and Other Dept. Heads to Coordinate Policy
  and Operations

(6) Nature of Supervision Received and Exercised:
- Broadly supervised in matters of policy by Executive Director and
  Director of Degree Programs.
- Supervises faculty and staff of department in the above duties and
  responsibilities.

(7) Minimum Qualifications Required:
Requires earned Doctorate in appropriate discipline area with experience
in safety teaching, practice, and research. Requires ability to super-
vise manage, plan, and assist faculty, staff and department towards
academic goals.

Employee's Signature _______________ Supervisor's Signature _______________
UNIVERSITY OF SOUTHERN CALIFORNIA / JOB DESCRIPTION FORM

(1) Title: Safety Dept.
Senior Secretary

(2) Prepared by: (Incumbent)

(3) Date: 8/85

(4) Reason Why This Position Exists:
The Safety Dept. Chairman requires an assistant to help administer the Safety Dept., particularly, when he is off campus. Someone is needed also to carry out the administrative tasks of the Safety Dept. as directed by the Chairperson and assure normal operation of the dept. during the Chairperson's absence.

(5) Major Duties and Responsibilities:
- Establish and maintain administrative and academic files on full-time faculty including all letters, critiques, profiles, etc.
- Receives, distributes, and takes appropriate action on all mail.
- Arranges Chairman's daily agenda; making appointments and keeps Chairman informed of all activities.
- Handles special projects for Chairman, often requiring finesse and special handling.
- Maintains close contact with local and national safety community. Knows names, business, and maintains a good Institute relationship. Serves Los Angeles Dept. of Motor Vehicles Public Panel.
- Processes requirements for safety positions for recruiters and students, maintaining bulletin board and correspondence.
- In absence of marketing organization, actively recruits student candidates usually as part of a team effort with the Department Chairman.
- Maintains curricular files on 37 degree program courses to include currency requirements.
- Keeps records of all students taking comprehensive examinations, tracking grading process to various instructors, notifying involved offices, recordkeeping agency, and students of results.
- In the absence of and in coordination with Chairman, advises students on procedures, recommendations for action, and sends to Registrar as appropriate. Most students want to discuss safety courses with the department before registration.
- Processes and maintains faculty dossiers, profiles and resume.

(6) Nature of Supervision Received and Exercised:
Reports directly to the Department Chairman with minimum supervision.

(7) Minimum Qualifications Required:
The Department Secretary needs ability to speak from Bachelor's degree level (preferably safety) to students seeking advice and assistance in those areas. Completion of college level work (three years plus) and extra curricular work in communication. Must have mastered duties of departmental secretary at normal level and familiarity with both Bachelor and Masters degree program procedures.

Employee's Signature

Supervisor's Signature

64
Title: Coordinator, Air Force Programs

Reason Why This Position Exists:
To coordinate the academic, liaison, and administrative functions of the USAF Safety Programs and other courses as assigned. To function as the primary point of contact for the USAF Chief, Safety Education Division and other AFISC personnel on faculty, curriculum, (Contd on next page)

Major Duties and Responsibilities:
- Maintains liaison with Chief, Education Division, Directorate of Aerospace Safety, Norton AFB and with all support facilities available.
- Monitors the current USC - Air Force contract with regard to the AF courses to insure that both parties are accomplishing their respective requirements. Coordinates with USAF Directorate of Safety (Education) in regard to subject contract.
- Act as primary interface between the USAF course monitors and other base personnel and the Safety Center Department Chairman.
- Monitor classroom instruction periodically to assist department chairmen on matters relating to instructional programs. When appropriate and as needed, will work with individual instructors and department chairmen on student or course problems.
- Overall responsibility for all aspects of the operation and maintenance of the aircraft crash laboratory. Supervises the crash laboratory manager.
- Compile, analyze and distribute to the instructor, department chairmen, and course manager the student course critiques.
- Coordinate with the department chairmen, class teaching schedules and field activities to insure the best scheduling in accordance with the course objective.
- Insure a periodic review by the course manager, instructors, and chairmen, of course materials to match changing needs within the Air Force.
- Responsible for coordinating faculty load, and the preparation of faculty load reports.
- Assists in preparing budgets and in long range planning for the Director, Extension and In-Service Programs.
- Assists faculty and other staff members in solving classroom assignment, operation and maintenance problems, and Air Force connected publications and materials reproduction problems.
- Prepares staff studies and position papers as directed by the Director, Extension and In-Service Programs. (Contd on next page)

Nature of Supervision Received and Exercised:
- Report directly to the Director, Extension and In-Service Programs and receive broad guidance from him.
- Supervise Administrator Coordinator (Grade 7) and Secretary (Grade 5). General supervision as required per assigned responsibilities.

Minimum Qualifications Required:
Must have had the administrative, executive, and logistical background to be able to successfully communicate with senior officers of the Air Force, faculty members and junior officer students. Military experience desirable. Should have a BA or BS degree and preferably an MA or MS. Additionally, must be a full-time faculty member and teach a minimum of one hundred nor more than one hundred fifty classroom hours annually in Air Force Programs. (Contd on next page)
UNIVERSITY OF SOUTHERN CALIFORNIA / JOB DESCRIPTION FORM
(1) Title: Coordinator, Richard Davis
Air Force Programs
(2) Prepared by: (Incumbent)
(3) Date: 8/85

(4) Reason Why This Program Exists:
or administrative matters. Secondly, to serve as the principal advisor
to the Director, Extension and In-Service Programs, and to the Executive
Director, Institute of Safety and Systems Management, on all Air Force
Programs.

(5) Major Duties and Responsibilities:
- Coordinates field trips to off-base locations.
- Maintains liaison with the Directorate of Safety, USAF, prime monitor of
  Air Force safety courses. Visits USAF Directorate of Safety (Education
  Division) periodically to maintain good relations and communications with
  responsible officials of that agency.
- Coordinates with class senior officers. Selects the senior officers to
  serve as AF Class Leaders and brief them on their responsibilities.
- Prepares correspondence pertaining to AF Education Programs.
- Performs other services as may be assigned by the Director, Extension and
  In-Service Programs.
- Assists in arranging and conducting graduation exercises in which Air
  Force personnel are involved and accommodations for guest speakers for same
- Makes periodic inspections of classroom facilities to include audio visual
  equipment to insure that academic instruction can be carried out properly.
- Registers and provides orientation to incoming Air Force classes. Super-
  vises the preparation of individual orientation packets to be provided each
  student and decides on what material will be included in each packet.
- Conducts the stockage and issuance of Air Force publications to Air Force
  students and coordinates the stockage and issuance of other test material
  used in the various courses with Institute Manager of Operations and/or
  the Coordinator of Administrative Services.
- Arranges curriculum conferences upon request of USAF Directorate of Safety
  or the Director of Extension and In-Service Programs.
- Administers to the administrative and logistical needs of Air Force
  students. Coordinator will assist Air Force students in following areas:
  a. Pay
  b. Medical Services
  c. Contract Housing
  d. Recreation - tickets and passes to places of entertainment

(Contd on next page)

(7) Minimum Qualifications Required:
The level of judgment required ranges from simple day-to-day decisions to more
complex problems associated with curriculum, faculty, scheduling, student,
and USAF contract monitor interface.
UNIVERSITY OF SOUTHERN CALIFORNIA / JOB DESCRIPTION FORM

(1) Title: Coordinator, Air Force Programs
(Richard Davis)

(2) Prepared by: (Incumbent) (3) Date: 8/85

(5) Major Duties and Responsibilities:

e. Emergency Leave
f. Legal Affairs
g. Transportation
h. Personnel Matters (ID cards, passports, etc.)
i. Communications (Autovon services)
j. Mail services

- Prepares and signs academic reports on each Air Force student attending the AF courses.
- Serves as personal advisor and counselor to Air Force students.
- Provides protocol services for visiting dignitaries/guest speakers.

Employee's Signature ____________________ Supervisor's Signature ____________________
Title: Administrator Jim Stone Coordinator, Grade 7

Prepared by: (Incumbent) Date: 8/85

Reason Why This Position Exists:
Conducts the administrative activities of the Safety Center, Norton AFB, to facilitate all contractual obligations for presenting USAF Safety Courses. Supervises all administrative functions, assuring complete coordination with the Coordinator, Military Programs, the Faculty.

Major Duties and Responsibilities:
- Develops methods and practices towards achieving administrative objectives. This requires close coordination with the campus parent organization and with faculty and Air Force AFISC officials.
- Develops, publishes and maintains the schedules for all USAF contract courses in coordination with all on-campus, non-degree programs. Provides staffing for these schedules as directed by the Military Program Coordinator and in coordination with the Office of Extension and In-Service Programs.
- Carries out policies of the Director and Coordinator and implements new procedures after analysis of complex administrative functions.
- Proofreads student material prior to reproduction.
- Monitors faculty and staff expense report processing. Maintains records which assure prompt payment and no duplication.
- Exercises control of Air Force physical plant maintenance, such as air conditioning, janitorial services and classroom maintenance. Develops and supervises inventory controls and preparation of forms necessary to provide class materials as requested.
- Maintains records of monetary expenditure for cost control and contract proposal development.
- Trains, supervises and coordinates the activities of the subordinate office personnel.
- Assures the complete and satisfactory attention to individual student and class requirements.
- Assures the complete and effective administrative support for faculty teaching at Norton. This includes travel expenditure reporting, material reproduction, scheduling, provisioning audio visual aids, procurement of forms and publications.

Nature of Supervision Received and Exercised:
- Supervision received is general in nature. Majority of tasks are structured and are self-initiated.
- Supervision exercised consists of broad guidance to Senior Secretary and monitor of work. Also supervision of occasional part-time help.

Minimum Qualifications Required:
- Must be experienced officer manager accustomed to dealing with executive level personnel (senior military officers and faculty).
- Scheduling experience required.
- Typing, filing, and operation of modern office equipment necessary.
- Must be articulate, verbally and in writing.
- Must be familiar with budget/financial management procedures.
(1) Title: Administrator Coordinator, Grade 7 (2) Prepared by: (Incumbent) (3) Date: 8/85

(4) Reason Why This Position Exists:
both full-time and part-time, and the parent Special Programs' Office on campus.

(5) Major Duties and Responsibilities:
Supervises the following activities of the office delegated to subordinate:

- Preparation of faculty notes, handouts, and examination.
- Preparation of letters concerning course conduct and administration.
- Preparation of course critiques, class rosters.
- Textbook distribution.
- Purchases of office supplies.
- Control of reference and film library.
- Arrangements for graduation luncheons.
- Supervises the handling of administrative and logistics needs of students to include: pay, recreation, transportation and billeting.
- Supervises the preparation of individual registration packets.
- Controls the stockage and issuance of AF Publications to students.
- Compiles and distributes course student critiques to the Director, instructors, Department Chairman, and Air Force Program Monitor.
- Responsible for preparation of faculty load reports.

(7) Minimum Qualifications Required:
Working knowledge of 35mm and 16mm projectors, also video taping equipment. Must be able to plan, organize, and function effectively with minimum supervision.

Employee's Signature ______________ Supervisor's Signature ______________
UNIVERSITY OF SOUTHERN CALIFORNIA / JOB DESCRIPTION FORM

(1) Title: Senior Department Secretary, Grade 5
(2) Prepared by: Richard Davis
(3) Date: 8/85

(4) Reason Why This Position Exists:
To provide high quality secretarial and office administrative services for the Safety Center, Norton AFB. Recipients are faculty, students, and Air Force officials.

(5) Major Duties and Responsibilities:
- Assists with development and production of all schedules for classes.
- Prepares faculty handouts, notes and examinations.
- Prepares and processes course critiques.
- Prepares class rosters for all the Air Force classes.
- Keeps inventory of and distributes all textbooks.
- Purchases office supplies, materials and services necessary for conduct of courses.
- Maintains and controls mini technical reference materials library.
- Maintains and controls film library.
- Arranges graduation luncheons for classes as required.
- Maintains local student records.
- Accomplishes required reproduction.
- Performs general office secretarial duties such as typing and preparing correspondence and forms, answers the telephone, makes appointments, operates a reproduction machine and other related office procedures as directed.
- Operates a video tape playback and recording equipment and other related audio visual equipment.
- Types mail and correspondence pertaining to Safety Center and student personnel.
- Prepares refreshments as necessary and maintains associated supplies.
- Coordinates student housing and support problems with Norton AFB personnel.
- Prepares financial documents to include payroll, invoices, billing reports and faculty expense reports. Maintains records which assures prompt payment and no duplication.
- Maintains close liaison coordination with personnel in the office of Extension and In-Service Programs.
- Other duties as required.

(6) Nature of Supervision Received and Exercised:
- Supervision received is general in nature. Job is fairly structured and broad variety of tasks are mainly self-initiated.
- Supervises occasional part-time help.

(7) Minimum Qualifications Required:
- Must be a self-starter, requiring minimum supervision.
- Outstanding deportment and ability to communicate is an absolute requirement due to public relations requirements of the position.
- Ability to type 60-65 wpm with a minimum of errors.
- Must be able to use modern office equipment and have excellent proof-reading ability.

Employee's Signature  Supervisor's Signature
(1) Title: Manager of Operations
(2) Prepared by: Incumbent Lawrence M. Reed
(3) Date: 8/85

(4) Reason Why This Position Exists:
Under the supervision of the Associate Executive Director: To supervise all Administrative Services activities required for the Institute. Develop plans and programs for the maximum utilization of service and equipment; and coordinate activities with University and Institute representatives.

(5) Major Duties and Responsibilities:
- Responsible for establishing and implementing procedures for the effective operation of the Administrative Service functions including: mailroom and messenger service, printing and duplicating, audio visual service, equipment control, film library service, assembly of course materials, textbook inventory and control.
- Formulates and recommends policies and procedures concerning office and building service functions and see that approved policies and procedures are carried out.
- Prepare monthly reports on Xerox operations to the Office of the Executive Director.
- Maintains continuing, budgetary control for all Administrative Service functions.
- Procurement of text materials, audio visual aids, special equipment, outside productions, service and supplies in accordance with quality, cost and scheduling requirements of the various Institute Departments.
- Participate in meetings and discussions in planning course proposals, materials and services.
- Procuring common carrier transportation requirements for shipping textbook and course materials to off campus Study Centers.
- Serve as the Coordinating Institute Official with the University Safety Administrator.
- Responsible for developing Institute Safety policy to meet OSHA, State and University requirements.
- Works closely with all units of the Institute on matters relating to general office and building services.

(6) Nature of Supervision Received and Exercised:
- Reports directly to the Associate Executive Director of the Institute.
- Primarily works independently, receiving general guidance on special projects.
- Receives minimal supervision on routine tasks.
- Manages the Administrative Services Unit, and supervises coordinator.

(7) Minimum Qualifications Required:
The ability to reason, work independently with initiative, and have a working experience in personnel, budgeting, planning and administrative analysis. A Bachelor's Degree or equivalent experience in Business or Public Administration, or related fields is desired.

Employee's Signature ___________________________ Supervisor's Signature ___________________________
(4) Reason Why This Position Exists:
To provide for the efficient operation of Xerox equipment which includes printing, machine maintenance, stock control and records keeping. This position supports the reproduction requirements of 200 full and part-time employees on a daily basis. Assistance is also provided in the total operation of Service unit.

(5) Major Duties and Responsibilities:
- Primary Function: Machine operator for ISSM, responsible for timely reproduction of all staff, faculty, and external reproduction requests. This represents 150,000 copies, 60 cost centers, 200 faculty and staff members.

- The following responsibilities are associated with primary functions:
  a) Must be able to identify and establish priorities of work requests.
  b) Close liaison with users requests requiring: page arrangement - photographic layout - page sequencing - reduction - overhead transparencies - material deletion or inclusion.
  c) Monitoring of production to insure quality control.
  d) Daily and weekly attendance to inventory levels, placing stock orders with vendors, receipt and inventory of stock when received.
  e) Frequent rush requests to furnish reproduction required for Government Control Proposals.
  f) Maintain daily accounting log of volumes and department users.

- Skilled as operator and repair technician on Xerox 9200 and 3600-1.

- Responsible for daily preventative maintenance of Xerox 9200 to insure against frequent breakdowns.

- Assist the Administrative Coordinator.

- Provide backup support to Mail Room activities.

(6) Nature of Supervision Received and Exercised:
- Receives supervision from Administrative Coordinator.
- Gives direct supervision to part-time employees assigned for support as work load dictates.

(7) Minimum Qualifications Required:
- Minimum of high school education.
- Must have mechanical abilities necessary to maintain Xerox equipment.
- Must be able to work independently, and be willing to take directions.
- Must be a self-starter.

Employee's Signature ________________________ Supervisor's Signature ________________________
Appendix C

SUMMARY AND DISCUSSION

This Technical Proposal is complete, but requires a cost proposal to answer a military solicitation. A military solicitation will state the performance period and provide profit guidance. Current costs are approximately $18,000 per class of 25 students.

The idea of a Maintenance Mishap Investigation Course has its roots in some eighteen years of safety program management, accident investigation and teaching safety programs. All major accidents have people as the root cause. Either the designer, manufacturer, maintainer or operator failed to perform assigned tasks and the result is a mishap. The mishap history many times shows a series of minor events that lead to the undesired event. Adequate investigation and reporting is necessary to reduce the current mishap rate.

This year some units have added a maintenance position to their safety staffs. This proposal will provide the education required to make these maintenance technicians productive mishap preventors.

Personnel listed in the Bibliography contributed to this Technical Proposal.
Appendix D

Bibliography

Banick, T.J., Field Assistant Professor, Institute of Safety and Systems Management, University of Southern California.

Bush, W.L., Colonel, Chief, Safety Education Division, Directorate of Aerospace Safety, United States Air Force.


Dole, C.E., Field Associate Professor, Institute of Safety and Systems Management, University of Southern California.

Dull, C., Colonel, Fighter/Trainer Branch, Directorate of Aerospace Safety, United States Air Force.

Fennell, N., Major, Editor, Maintenance Magazine Branch, Directorate of Aerospace Safety, United States Air Force.

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Mason, C.D., Associate Professor, Institute of Safety and Systems Management, University of Southern California.


Miholick, T., Lt. Col., Chief, Data Analysis Branch, Directorate of Aerospace Safety, United States Air Force.


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Ribarich, T., Major, Final Evaluation Branch, Directorate of Aerospace Safety, United States Air Force.

Wood, R.H., Field Assistant Professor, Institute of Safety and Systems Management, University of Southern California.