

LEWIS UNIVERSITY AVIATION DEPARTMENT

College of Aviation, Science and Technology

SAFETY MANAGEMENT SYSTEM MANUAL

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The Lewis University Aviation and Transportation Department's #1 priority is the safety of its students, faculty, and staff. This is not only a verbal commitment, but an intrinsic part of the department's curriculum, teaching and facilities. In the past we have been resolute in our dedication to this safety ethos. In keeping with this culture of safety we have solidified and enhanced our protocols into a systemic program laid out within the attached document.

This Safety Management System (or SMS) program will be interwoven into the fabric of everything we do as a department. These protocols are not meant to be interpretive, but rather a lockstep guide for implementation of the SMS. If you are ever in doubt as to what to do in the event of an emergency situation, this guide will tell you the approved department policies. If you have any recommendations or supplements that you feel should be included, please inform Ryan or myself and we will discuss this as a team to verify any changes.

Again, this is not an optional or suggestive list of guidelines. These are to be completely inputted into our day to day operations within Lewis University's Aviation and Transportation Department. Thank you so much for your continued efforts instilling our safety driven culture into our future aviators.

Dr. Ryan Phillips

Department Co-Chairman of Aviation and Transportation Studies

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Section 1

Introduction

General

Lewis University Aviation (LUA) regards an effective safety program as an integral part of a Safety Management System (SMS) and vital in achieving the mission of the Aviation and Transportation Department. In recognition of this fact, the department is committed to providing a safe and healthy working environment for its personnel by mitigating the risk associated with recognized hazards. In pursuit of this goal, an aggressive safety strategy and established SMS shall be incorporated into all department activities. A safety culture starts with the individual and is evidenced by their thinking, planning, and actions. All Department personnel will be held accountable for fulfilling their responsibilities under this safety program.

The cornerstone of an effective safety program is active risk management to prevent accidents. LUA is committed to eliminating hazards and minimizing potential risks through the diligent practice of risk analysis included in the SMS. Hazards and risks resulting from department operations shall be identified at all levels. Conditions and acts posing unacceptable risk shall be eliminated or changed to prevent injury, illness, property damage or loss.

LUA shall ensure compliance with all regulatory safety requirements through a comprehensive education and training program and scheduled safety evaluation and assessment.

For the purposes of this document the term “personnel” consists of all individuals who operate in the department as an administrator, educator, instructor, technician, operations support, or student. Safety will be incorporated and central to the entire operation of the Aviation and Transportation Department.

Objectives

The LUA SMS manual will provide Lewis University personnel with a systematic path to achieving safety. These policies are a proactive approach to safety and provide a framework to further the safety goals of the department.

Safety Program

The Safety Management System at Lewis University is designed to collect norms, create standards, and change perceptions and behaviors with respect to safety.

The LUA SMS program will accomplish the following goals:

- Develop a program designed to reduce the number of accidents, incidents, and safety related occurrences for Lewis University Aviation.
- Establish and maintain a proactive safety culture across all department programs as well as Aviation Services.
- Be actively ingrained and promoted through all LUA personnel including administration, faculty, staff, and students.
- Be incorporated and promoted throughout all aspects of the Lewis University Aviation and Transportation Department.
- Promote safety policy through data driven means.
- Establish an immediate quick response handbook (*see Appendix D*)
- Provide proactive training for all personnel.

- Create a framework of confidential reporting for data tracking without fear of reprisal. *(see Appendix C)*
- Internally assess the SMS program to gauge effectiveness.

Safety Culture

Safety Culture or climate may be thought of as the department's collective norms, standards, perceptions and behaviors with respect to safety. In other words, it's the way business is conducted from day to day. Management's fostering of a positive safety culture is critical to any effective safety program. The following concepts and actions are elements of a positive safety culture:

- Unqualified commitment to safety as a behavioral pattern and pervasive way of life from the top down.
- Clear and straightforward personnel expectations from each level of management will ensure safe life patterns and work habits.
- Availability of quality-standardized and fully-functioning equipment to accomplish the assigned tasks.
- Clear, easily understood standard operating procedures, followed without deviation.
- Inclusive system of communications for collecting, analyzing, and exchanging data related to safety.
- Non-retribution system for submission of incident data and risk identification.
- Retraining without penalty or stigma when safety is involved.
- System for tracking incident and accident data, analysis of trends, and feedback of results.
- Peer acceptance that accidents are preventable, regardless of operations.
- Peer acceptance that safety is a matter of lifestyle and the culture of the department and its programs.
- Safety Culture Survey *(see Appendix B)*

Section 2

SMS PILLAR 1 – Safety Policy

Safety Responsibility

All Lewis University personnel are responsible for safety. LUA management is committed to continually improving safety by defining methods, processes and organizational structure to achieve established safety objectives.

The Lewis University Department Chair(s) is/are the designated individual(s) responsible for the LUA SMS and will provide resources as necessary for the successful implementation of the LUA SMS program. The Coordinator of Aviation Safety (CAS) will chair the Lewis University Aviation Safety Committees (LUA SC's). The Department Chair(s) will work closely with the CAS, Director of Flight Safety, Chief of Pilot Training and Assistant Chief Pilots, Director of Aviation Maintenance, Aviation Services, administration, faculty and staff, and the Joliet Regional Port District during the implementation and maintenance of the LUA SMS. Specific responsibilities of the Department Chair(s) include:

- Final authority with respect to the LUA SMS.
- Oversight of the CAS and LUA SC

- Allocation of budget and approval of financial resources required for the implementation and maintenance of the LUA SMS.

Coordinator of Aviation Safety (CAS)

The Coordinator of Aviation Safety (CAS) is tasked with the responsibility for development and implementation of the LUA Safety Program. The CAS reports directly to the Department Chair(s) on all safety issues and shall serve as an advisor on safety matters. The CAS will work closely with the Department Chair(s), Director of Flight Safety, Director of Maintenance Safety, Director of UAS Safety, Chief of Pilot Training, Director of Aviation Maintenance, Aviation Services, administration, faculty and staff, and the Joliet Regional Port District during the implementation and maintenance of the LUA SMS specific responsibilities include:

- Develop and implement safety programs and procedures for LUA personnel and students to prevent accidents.
- Foster an environment that is conducive to a strong safety culture through continuous monitoring, proactive management processes, data collection and effective communication through the dissemination of safety-related information.
- Maintain effective communications between the Department Chair(s), LUA SC, Department of Aviation and Transportation, Aviation Services, and the Joliet Regional Port District.
- Chair the LUA SC's to review policies on a biannual basis and formulate recommendations for policy changes.
- Perform annual facility safety audits and hazard assessments for the purpose of recommending changes to the LUA SMS.
- Provide annual SMS training, evaluate available training resources and advise management concerning training requirements, methods, and sources.
- Process and investigate Aviation Safety Action Program (ASAP) for the purpose of identifying and eliminating or mitigating hazards.
- Complete "Aviation Safety Action Program Event Worksheet" to facilitate and document incidents deemed significant, warranting such follow-up (*see Appendix E*).
- Completing "Lewis University Aviation Department First Report of Injury" to facilitate and document related incidents of injury (*see Appendix F*).
- Develop and maintain a Quick Response Handbook (QRH) and facilitate practice drills in response to hypothetical emergencies to test responsiveness.
- Other duties as determined by the Department Chair(s).

LUA Flight Safety Committee

The committee may be designated among Lewis University personnel to perform supplemental duties in support of the Lewis SMS. Specific responsibilities include:

- Address operational concerns and amend departmental procedures as necessary.
- Review reported incident and accidents involving university aircraft.
- Advise stakeholders on safety-related issues.
- Disseminate urgent and routine safety information to personnel.
- Respond to the safety concerns of personnel and forward concerns to the CAS.
- Assist the CAS in conducting periodic Safety Assessments and inspections.
- Analyze identified hazards for the purpose of eliminating or mitigating risk.
- Maintain a communication base for pertinent safety topics.

Flight Safety Committee List

The Flight Safety committee will consist of the following individuals:

Position	Name	Office	Phone	Email
Department Chair(s)	Ryan Phillips	HW 152A	Ext. 5089	philliry@lewisu.edu
Coordinator of Aviation Safety	Anthony Mannino	HW 101	Ext. 5224	amannino@lewisu.edu
Exec Dir of Flight Operations	Lou Freeman	HW 100C	Ext. 5055	lfreeman4@lewisu.edu
Chief Pilot	Dan Magner	HW 100F	Ext. 5055	magnerda@lewisu.edu
Director of Aviation Services	Marilina Angarone	Aviation Services	815-836-5309	mangarone@lewisu.edu
Director of the Master's Program	Dr. Erik Baker	HW 158	Ext. 5936	bakerer@lewisu.edu
Assistant Chief Pilot	Matt Massey	HW 100B	Ext. 5070	masseyma@lewisu.edu
Assistant Chief Pilot	Dave Zurek	HW 100D	Ext. 5899	zurekda@lewisu.edu
Assistant Chief Pilot	Calvin Warren	HW 100E	Ext. 5059	cwarren3@lewisu.edu
Training Coordinator	Matt Berger	HW 101	815-836-5658	bergerma@lewisu.edu
Flight Operations Mgr.	Stacy Majchrowski	HW	815-836-5484	smajchrowski@lewisu.edu

LUA Technical Training Safety Committee

The committee may be designated among Lewis University personnel to perform supplemental duties in support of the Lewis SMS. Specific responsibilities include:

- Address operational concerns and amend departmental procedures as necessary.
- Review reported incident and accidents involving university aircraft.
- Advise stakeholders on safety-related issues.
- Disseminate urgent and routine safety information to personnel.
- Respond to the safety concerns of personnel and forward concerns to the CAS.
- Assist the CAS in conducting periodic Safety Assessments and inspections.
- Analyze identified hazards for the purpose of eliminating or mitigating risk.
- Maintain a communication base for pertinent safety topics.

Technical Training Safety Committee List

The Technical Training Safety committee will consist of the following individuals:

Position	Name	Office	Phone	Email
Department Chair(s)	Ryan Phillips	HW 152C	Ext. 5089	philliry@lewisu.edu
Coordinator of Aviation Safety	Anthony Mannino	HW 101	Ext. 5224	amannino@lewisu.edu
Assoc Dean	Eric Jones	HW 152	Ext. 4308	rjones20@lewisu.edu
Pgm Leader – Aviation Maint.	Chris Stevens	HW 139E	Ext. 5424	stevench@lewisu.edu
Pgm Leader – UAS	Jacob Reed	HW 156	Ext. 5508	Jreed5@lewisu.edu
Director of the Master's Program	Dr. Erik Baker	HW 158	Ext. 5936	bakerer@lewisu.edu
Assistant Professor	Matt Franklin	HW 157	Ext. 5435	franklma@lewisu.edu
Assistant Professor	Craig Neville	HW 139D	Ext. 6016	nevillcr@lewisu.edu
Assistant Professor	Raul Armenta	HW 139E	Ext. 5902	rarmenta@lewisu.edu
Pgm Leader - Admin	Paul Dybinski	HW 159	Ext. 5422	pdybinski@lewisu.edu

Assistant Professor	Bryan Doughty	HW 139C	Ext. 6027	bdoughty@lewisu.edu
Assistant Professor	Brian Kozak	HW 139B	EXT. 5440	bkozak@lewisu.edu
Assistant Professor	Louis Perillo	HW 101D	Ext. 5476	lperillo@lewisu.edu

Safety Committee Responsibilities

Each Safety Committee will meet once per month on a date and time TBD.

Promotion, Marketing and Communications:

The Safety Committee will be responsible for the promotion of the SMS program. This group will be tasked with developing a communication schedule to better inform students and staff about SMS. This may include, but is not limited to: monthly safety advisors, weekly blackboard posts, and management of the safety quizzes.

Education and Training:

The Safety Committee will be responsible for assisting with the onboarding of new employees. Additionally, this group will be tasked with developing a training schedule to ensure that students and staff are trained on current and new policies and procedures. This may include, but is not limited to: providing safety training to all students on selected topics once each semester, training students and staff on any additions to the SMS, and developing a process to ensure that everyone has read and/or received training on new policies.

Compliance and Operations:

The Safety Committee will be responsible for the enforcement of SMS policy. This group will review safety reports, assess risk using the risk assessment matrix, and develop a process to address deviations of SMS policy.

Quick Response Handbook

The LUA Quick Response Handbook (QRH) is developed to provide personnel with a prepared response to incidents, accidents, or occurrences. The QRH will be aligned with the following priorities:

- Establish direction and control for the response through the use of the LUA QRH.
- Notify Lewis Incident Commander (IC) and Deputy Incident Commander (DIC) to determine level of response in alignment with the Lewis University Campus Emergency Operations Plan (CEOP).
- Assist CEOP personnel, first responders and emergency personnel members to the vicinity of the accident and jointly assist with the on-site response.
- Designate a communications network to ensure appropriate notification of the Department Chair(s), CAS, LUA SC, Lewis University Administration, and other required persons.
- Coordinate with appropriate agencies in response to an accident or incident including: Federal Aviation Administration (FAA), National Transportation Safety Board (NTSB), Lewis Marketing and Communications, Student Services, and support for personnel and family.
- Review of the QRH will occur by the LUA SC annually or when changes are required.

Section 3

SMS PILLAR 2 – Risk Management

Safety Risk Management

Safety Risk Management (SRM) determines the need for, and adequacy of, new or revised risk controls based on the assessment of acceptable risk. LUA SMS will identify hazards, assess and analyze potential risk and attempt to proactively control risk by evaluating operations on a continual basis. LUA SMS will incorporate SRM through the following:

- Confidential Aviation Safety Action Program and investigation to ensure that risk is identified, documented and that steps are taken to mitigate risk.
- Safety culture analysis through surveys to assess the effectiveness of risk mitigation strategies and ensure that the safety ethos continues to evolve.
- LUA SC meetings to assess reported risks and communicate policy changes

Aviation Safety Action Program (ASAP)

LUA is committed to providing its personnel with an SMS to support the safest operation possible. In pursuit of this goal, it is imperative to have uninhibited reporting of all safety hazards, concerns, and suggestions that in any way may affect the safety department operations. Sharing of timely information is a key enabler for LUA to make quality decisions in the proactive management of risk and reducing harm to our personnel and property.

All personnel at LUA have the responsibility and right to report safety hazards, concerns, and suggestions that may affect the integrity of our flight operations or workplace safety issues to CAS. Senior management has the responsibility to provide all personnel the opportunity to report hazards and concerns in a confidential or direct format.

Aviation Safety Action Program Process

Any individual involved directly or indirectly in departmental activities of LUA must report any observed hazard. Personnel are encouraged to use an ASAP form for all reporting.

Access to the form to file a report may be gained from any of the following:

- Lewis University home page, quick links, ASAP report
- Lewis University app, links tile, ASAP report
- Scanning the QR code in the aircraft flight can

After accessing the form the reporter simply follows the prompts (see Appendix C).

The following provides a guideline for the purpose of determining whether a situation warrants the submission of an ASAP. This description is not all-inclusive and the originator should exercise sound judgment and discretion when determining if a report should be submitted. An ASAP shall be submitted when any situation, practice, procedure, or process is observed which is either:

1. A recognized safety concern.
2. Considered unusual from an operational or procedural standpoint.
3. Considered deficient from a safety standpoint and possesses a potential hazard to persons or property if not addressed in a timely manner.

Reports should be concise and should accurately and thoroughly describe the hazard, incident, or accident. In circumstances where the perceived hazard possesses the immediate potential for injury or illness to persons or damage or loss of property, management shall be notified immediately by the most expeditious means possible for the purpose of determining appropriate action to prevent such injury, illness, damage or loss.

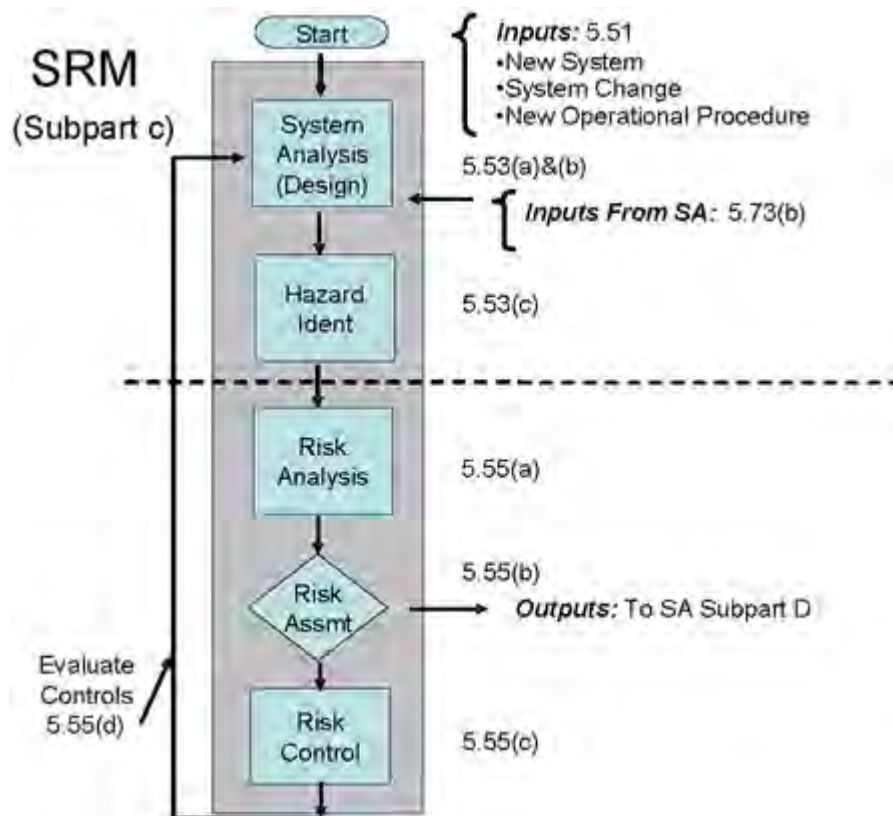
Upon receipt of an ASAP the CAS will investigate to determine the validity of the report in order to gain additional information concerning the report's subject matter. The CAS will then conduct a risk assessment of the report. Any hazardous equipment shall be either placarded or removed from service until the hazardous situation is corrected. The submitter, if identified, will be advised of the result of the investigation. If an ASAP identifies a problem that is outside the scope or authority of the SMS, the CAS will pass the information to the appropriate person responsible.

Upon validation of an ASAP, the CAS shall notify the LUA SC and facilitate committee recommendations. Once a recommendation is made, the CAS shall notify the individual's assigned responsibility for the affected areas to implement change. The contents of the ASAP and the investigation results will be provided along with recommendations for corrective or preventive action. Appropriate action and a target date for elimination or reduction of the hazardous situation will then be determined. Final corrective action shall be documented on the ASAP form and the completed form returned to the CAS. The ASAP report originator will then be notified of the final disposition of the matter.

In the event of immediate action being required, the CAS or Department Chair(s) may make an immediate informed decision and notify the LUA SC as soon as practical.

The Safety Risk Management Process

In addition to accessing risk through the use of the Aviation Safety Action Program, the LUA SC shall be proactive in independently assessing the risk of the operation. They shall accomplish this by evaluating changes in policy, procedure, equipment, or operations using the following SRM process to mitigate risk.



Step 1: System Analysis

Potential problems must be identified before any new procedure or system is put into action. Potential interactions among personnel, hardware, software, and the environment across multiple elements must be considered. The SMS at LUA consists of the following key elements:

- Flight Operations
- Maintenance Training
- Unmanned Aircraft Systems
- Aviation Services
- Joliet Regional Port District
- Operational Facilities
- Other Elements

Step 2: Identify the Hazards

In this step, the LUA SC shall attempt to identify hazards by asking “What could go wrong with our process under normal and abnormal conditions which may lead to an accident or incident?” For example, if LUA were to transition to aircraft with an ADS-B compatible display, it would be necessary to analyze risk associated with the transition. Associated risks could involve operational errors, distractions created by the technology, or improper resolution of traffic conflicts.

Step 3: Analyze Safety Risk

Once hazards are identified, the LUA SC will analyze the risk level of the hazard. This is a two-step process. First, the level of severity of the hazard must be determined. The LUA SC will utilize the following FAA standards to determine frequency.

Severity Scale Definitions	
Catastrophic	Results in fatalities and/or loss of the system.
Critical	Severe injury and/or major system damage.
Marginal	Minor injury and/or minor system damage.
Negligible	Less than minor injury and/or less than minor system damage.

Once the level of severity is assigned, the likelihood of such an event occurring is determined.

Likelihood Scale Definitions		
Frequent	Individual	Likely to occur often.
	Fleet	Continuously experienced.
Probable	Individual	Will occur several times.
	Fleet	Will occur often.
Occasional	Individual	Likely to occur some time.
	Fleet	Will occur several times.
Remote	Individual	Unlikely to occur, but possible.
	Fleet	Unlikely but can reasonably be expected to occur.
Improbable	Individual	So unlikely, it can be assumed it will not occur.
	Fleet	Unlikely to occur, but possible.

Step 4: Assessing the Safety Risk

Once the level of severity and frequency of the hazard is determined, the LUA SC must determine if the risk is acceptable utilizing the following risk matrix table. According to the FAA, the matrix has four classifications of risk (low, medium, serious, and high). Low and medium risks are pertinent, but may require less aggressive safety intervention. Serious and high risks require swift and decisive action.

RISK ASSESSMENT MATRIX				
	Severity			
Likelihood	Negligible	Marginal	Critical	Catastrophic
Frequent				
Probable				<i>High</i>
Occasional			<i>Serious</i>	
Remote		<i>Medium</i>		
Improbable	<i>Low</i>			

Step 5: Control the Risk:

Finally, the LUA SC will develop a strategy to mitigate or eliminate the risk. For LUA, items classified as serious or high risk, must be dealt with expeditiously through a possible Safety Stand-Down (defined in chapter 6, section 19) or immediate meeting of the LUA SC with their developing an immediate policy or solution to the issue. Medium risk items and low risk items may be dealt with during regular meeting times. No matter the risk level, risk and hazards will be minimized when possible.

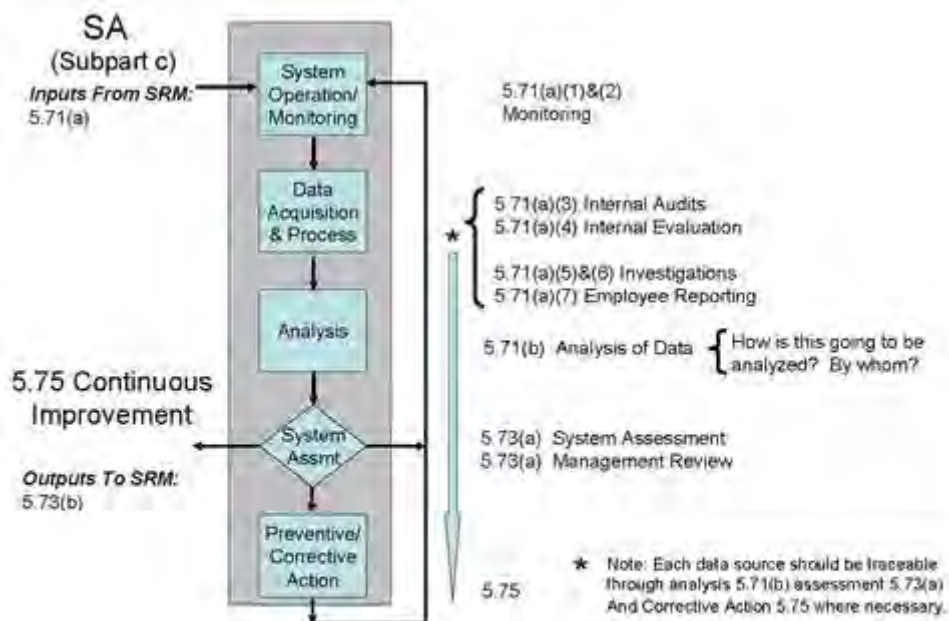
Section 4

SMS PILLAR 3 – Safety Assurance

Safety Assurance (SA) evaluates the continued effectiveness of implemented risk control strategies and supports the identification of new hazards. Furthermore, SA will:

- Ensure that LUA SMS outputs meet the safety objectives.
- Provide insight and analysis regarding methods for improving safety and mitigating risk.
- Ensure LUA SMS compliance with FAA orders, standards, and directives.

SA consists of the following steps:



Step 1: System Operation Monitoring and Data Acquisition

The continuous monitoring of the SA process is essential to its success in reducing and eliminating unsafe practices, accidents, and incidents. The CAS is responsible for the monitoring and acquiring data on operational processes on a day-to-day basis through the use of maintenance discrepancies, personnel records, weather reports, environmental factors, and ASAPs. To monitor safety, performance data will be collected from the following sources:

- **Annual Safety Assessment:** This report will be prepared by the LUA SC and will provide an annual overview of aviation program safety at Lewis University. It will serve as a baseline for safety and will be shared with all aviation personnel.
- **Monthly LUA SC minutes:** The LUA SC will meet monthly with additional meetings being held as circumstances dictate. Additional hazards and protocols will be discussed along with data from ASAPs, audits, and assessment documents.
- **Safety Surveys:** This survey will be submitted annually to aviation personnel. Its purpose is to track changes in the safety culture. The survey will be anonymous in nature and will serve as an annual benchmark for the LUA SC to determine corrective action and assess safety culture.
- **Safety Audits:** These audits will be organized by the CAS or an outside entity like the University Aviation Association (UAA). These audits may be announced or spontaneous. The results of the audit will be shared with the LUA SC.
- **Aviation Safety Action Program:** This program will be confidential in nature and computer-based. Aviation personnel will be able to access the program on their electronic devices allowing for ease of use. Information will be nonpunitive unless regulations were blatantly or recklessly violated.

Conditions that require the use of the Aviation Safety Action Program include but are not limited to:

- Any accident or incident resulting in the injury of personnel or damage to the aircraft, surrounding property, or facilities.
- An unscheduled departure of the aircraft from taxiway, runway, or ramp during ground operations, takeoff, or landing.
- Engine failure or power plant anomalies.
- Failure or improper operation of an aircraft component that impacts safety of flight.
- Anytime an emergency is declared.
- Propeller contact with foreign object
- Indications of smoke or fire in the cockpit
- Electrical system or radio failure.
- Wildlife or foreign object strike.
- Unforecast or significant weather issues.
- Any other issues that adversely impact aviation safety.
- Breach of Departmental protocols.
- Improper safety equipment (or lack thereof) or improper tool or equipment use.
- Near collision where evasive action was taken.
- Notification from ATC regarding incident.
- Fuel levels below LUA minimum fuel requirements.
- Aircraft overdue.

Step 2: Data Analysis

The CAS or designated LUA SC personnel will analyze all sources of data and prepare a report for the monthly LUA SC meeting. If a situation dictates, a meeting will be held immediately. Differing means of analysis will be utilized (qualitative reports, quantitative reports, etc.) to determine SMS functionality. The committee will compare the data with safety objectives and determine if the parameters are being effective in improving safety.

Step 3: Safety Performance Assessment

Safety culture, along with relevant safety data, will be assessed and reported to all aviation personnel and the administration annually. This document will serve as an annual benchmark to further gauge safety in Lewis University Aviation.

Step 4: Preventative Action and Continuous Improvement

The LUA SC will utilize findings from data to make recommendations and implement safety policy on an annual basis at minimum. It is essential that the process be continuous and ever-improving.

Section 5

SMS PILLAR 4 – Safety Promotion

Safety promotion at Lewis will consist of training, education, and communication. It is essential to provide personnel with effective SMS training at levels appropriate to their position and responsibilities in the program. The LUA SC is responsible for providing training and education to aviation personnel. In addition to training, all LUA personnel must be notified through appropriate channels of any changes. As aforementioned, SMS is a continuous and ever-evolving process which will require continuous communication across the entire program.

Step 1: Training and Competency

The LUA SC will be responsible for providing initial and annual training to LUA personnel. Participants must understand their role in safety and must be proactive in safety initiatives set in place by the LUA SC. The committee will determine which levels of training are appropriate for the differing responsibilities of personnel (e.g. students may require less training than CFIs regarding certain procedures). Furthermore, competency must be shown by personnel as initiatives are put in place. Assessing levels of competency will be through written assessment. All personnel will be required to reconcile assessments to 100%. These records will be kept by the CAS for all personnel.

Step 2: Safety Communication

The CAS is responsible for obtaining and distributing pertinent safety information. Instructors are tasked with communicating all safety related information to students. Information will be updated on a regular basis and contain information aimed at raising instructor/student safety awareness. The following means of distributing aviation safety will be utilized.

- Social Media
- Blackboard
- Safety Bulletin Board
- Newsletter
- Email
- Safety Personnel Meetings

SMS Documentation and Records

The CAS will be responsible for maintaining a filing system related to procedures, policies, data collection, and record keeping. The system maybe either paper or electronic, but must be secure. Records will be shared with the FAA during site inspections.

Safety Quizzes

The Director of Flight Safety will be responsible for creating, distributing and collecting safety quizzes three times each semester. Safety quizzes will be due on Oct. 1st, Nov. 1st, Dec 1st, March 1st, April 1st and May 1st each semester. Student operations of any kind will be prohibited until the safety quiz is passed with a score of 100%.

Section 6

Flight and Training Program

The Lewis University Flight Training Program is a FAR Part 141 Certified Flight School. It is part of the Aviation and Transportation Technology Department within the College of Aviation, Science and Technology (CoAST) at Lewis University. It provides flight training to students enrolled in one of the Flight Training programs offered by Lewis. It does not provide training to anyone outside of the university. The following Operational Limitations apply to anyone operating an aircraft that is part of the Lewis fleet while under the supervision of a Lewis University CFI, Chief Pilot or Assistant Chief Pilot. This includes solo operations for basic or advanced ratings.

Flight Training – Operational Limitations

Flight Training Operational Limitations may be found in the Lewis University Aviation Department handbook and may be accessed using the following link.

https://lewisuniversity.blackboard.com/webapps/blackboard/execute/content/file?cmd=view&mode=designer&content_id=5962674_1&course_id=182581_1

Section 7

Maintenance Training Operations

The Lewis University Maintenance Training Program is a FAR Part 147 Certified Maintenance School. It is part of the Aviation and Transportation Technology Department within the College of Aviation, Science and Technology (CoAST) at Lewis University. It provides technical training to students enrolled in one of the Maintenance Training programs offered by Lewis. It does not provide training to anyone outside of the university. The following safety procedures will be followed by all students, faculty and staff during the performance of training.

7.1 Personal Protection Equipment (PPE)

- a. Personal Protection Equipment will be worn I/A/W specific requirements for each lab. The type of PPE required will be determined by and monitored by the instructor assigned to the lab.

7.2 Shop Equipment

All shop/hangar equipment such as, but not limited to, drill presses, brakes and hoists have hazard areas. Aircraft and aircraft engines will also be in operation and each have unique safety precautions. All faculty/staff and students must be mindful of the hazards present in the various working areas when the equipment is in use.

- a. All work will be secured properly when using a drill press, rivet gun, hand drill, hand grinder or any tool when the work could cause damage/injury if it were loose.
- b. Proper engine checklists will be used when starting and running any engine test cell or aircraft.

7.3 Flammable Fluids

- a. All flammable/combustible materials will be kept in appropriately rated storage cabinets within the respective shop area.

7.4 Tool Accountability

- a. All hand tools considered property of Lewis University will be inventoried prior to use by the students. At the end of each lab session the instructor assigned to the lab will confirm the return of all Lewis University tools used by the student(s). Any discrepancies will be noted.
- b. Students will be responsible for maintaining an inventory of their personal tools.

7.5 Chemicals

- a. All chemicals used for labs will be in properly labeled containers
- b. MSDS for chemicals used for labs will be kept in an appropriately labeled binder and available to faculty/staff and students. The binder will be located in hangar at the south entrance from the main building to the hangar.

7.6 Walkways

- a. Marked walkways are located at the north and south entrances to the hangar.
- b. Tools, equipment and aircraft should be positioned where it does not block any marked walkway.
- c. All unauthorized personnel should remain in the marked walkway without an escort.

7.7 Engine Runs

- a. All engine runs will be done I/A/W the appropriate checklist and in an assigned location.

Hangar Operations:

These general rules should be followed for all hangar, ramp and interior lab operations.

1. Safety first in all operations. The use and wear of safety garments such as coveralls, closed toe shoes, safety glasses and hearing protection when required.
2. Mindfulness of equipment in operation. Shop/Hangar equipment such as, but not limited to, drill presses, brakes and hoists have hazard areas. Aircraft and aircraft engines will also be in operation as well and each have unique safety precautions. Understand hazards and protect yourself and your classmates from them.
3. Cleanliness. Your work area should be kept as tidy as possible during a maintenance/learning event. When the task is complete, your work/learning area will be cleaned.
4. Tool accountability and security. Be accountable for the tools you are utilizing for the task at hand and ensure they are secured when not in use.
5. Respect your environment. Utilize the proper receptacles and storage cabinets for trash, waste oil, recyclables, hazardous and combustible materials.
6. Professionalism starts here. If you see something that is not right, inform your instructor. Take responsibility and pride in your hangar.
7. If an item is not covered by the guidance provided, see the instructor for your course.

Section 8

Aviation Services

Aviation Services is the aircraft maintenance department for Lewis University. The department is responsible for the maintenance of the fleet of aircraft used for flight training at Lewis. It is part of the Aviation and Transportation Technology Department within the College of Aviation, Science and Technology (CoAST). Aviation Services does not provide maintenance services to any aircraft that are not part of the Lewis University fleet. It is separate from the Maintenance Training (FAR Part 147) department in both physical location and operations.

8.1 Personnel Safety and Appearance Requirements

- A. Approved Aviation Services uniforms will be worn at all times while on duty.
- B. No shorts or cutoffs are allowed.

- C. Loose articles of clothing, jewelry and other items capable of getting caught in shop equipment must be avoided.
- D. Hearing, Eye and/or other safety protection measures are required in designated areas.
- E. No Smoking allowed in Aviation Services buildings or ramp areas.
- F. No unsupervised persons allowed in the hangar maintenance area.
- G. No headphones/earbuds allowed in hangar or ramp areas.

8.2 Shop Safety Requirements

- A. Each Technician is responsible to maintain and operate all shop equipment in a safe working manner or notify supervisor of any discrepancies.
- B. All equipment will be returned to its proper location at the end of each shift.
- C. Shop towels once used will be immediately returned to the designated safety cans.
- D. A cleanup period of fifteen minutes before each shift termination will be allowed at which time the work area will be cleaned and inspected for F.O.D. (Foreign objects that can cause Damage).
- E. An appropriate catch basin must be used for cleaning of all Aircraft engines/components while in the hangar. All used cleaners will be disposed of in designated containers.
- F. All aircraft, shop equipment and ground support equipment must be properly chocked or tied down and grounded as appropriate.
- G. Adhere to all shop/equipment warnings and safety markings. Do not block or obscure any such markings.

8.3 Safety Equipment and Expendables

- A. Aviation Services will provide the following Safety Equipment for each Technician.
- B. Safety glasses, Hearing protection, Cold weather apparel.
- C. Aviation Services will provide the following expendables for each Technician at the discretion of the Director. Drill bits, Screwdriver bits, Saw blades, Bulbs, Batteries.
- D. Each Technician is responsible for presenting broken or worn items for replacement.

8.4 Aircraft Defueling

- A. All defueling must be done outside.
- B. Manufacturers' maintenance manuals will be read and understood regarding defueling operations.
- C. Aircraft, storage tanks and pump unit must be statically grounded before defuel operation.
- D. No electric or cordless tools (battery operated) will be used within the vicinity of an aircraft or ground support vehicle while defueling.
- E. Stored flammables will be secured in properly marked areas.

- F. Fuel in storage tanks to be reused, must be filtered before refueling.
- G. Fuel to be disposed, must be placed in container outside of the hangar.

8.5 Aircraft Fueling

- A. All fueling must be done outside.
- B. Manufacturers' maintenance manuals will be read and understood regarding fueling operations.
- C. Aircraft, storage tanks and pump unit must be statically grounded before fuel operation.
- D. No electric or cordless tools (battery operated) will be used within the vicinity of an aircraft or ground support vehicle while fueling.

8.6 Flammable Fluid Storage and Disposal

- A. Stored flammables will be secured in properly marked areas.
- B. Waste fuel and oil are to be put in containers outside of the hangar.
- C. Waste Hazmat fluids will be picked up when containers are full or a necessary by an authorized company.

8.7 Painting

- A. Use of respirator equipment is recommended during painting.
- B. Paint in designated areas only.
- C. Painters will be responsible for over spray damage.

8.8 Aircraft Towing and Taxi Procedures

- A. A vehicle that is rated for the aircraft weight and type will be used for towing. Serious damage can occur. Use of a proper tow bar is required.
- B. When towing into or out of a hangar, wing and tail walkers are required.
- C. Never push or pull an aircraft in and out of the hangars without assistance. It is all employees' responsibility to help move the aircraft.
- D. Horizontal sliding doors will be sufficiently opened to permit a minimum of 10-foot clearance at each wingtip.
- E. Keep all aircraft as mobile as possible while in the maintenance hangar, due to unforeseen emergency removal of contents.
- F. Tow or taxi operations are not permitted during a thunderstorm or severe weather.
- G. Tow and taxi aircraft at a brisk walk pace. (5-10mph)
- H. When taxiing up to the hangar, always pull up to the door at a 90 degree angle.
- I. NEVER taxi into the hangar.

8.9 Aircraft Jacking

- A. Manufacturers' maintenance manuals shall be read and understood before jacking any aircraft.
- B. Select properly rated jacks for weight being lifted.
- C. Before lowering aircraft, area underneath aircraft must be checked for objects that could damage the aircraft.

8.10 Single Point Jacking

- A. Single point jacking can be done by one person.
- B. Aircraft should normally be jacked up inside a hangar.
- C. Jacking outside is permitted for recovering aircraft from runway and taxiways. Maintenance personnel will accept a velocity of 15 miles per hour as a safe maximum for outside jacking to install a spare tire. Position aircraft nose into wind and jacking surface is level and strong to support the weight. If max wind conditions exist, use the "Jimmy Jack" for recovery.
- D. Safety blocks (under axles) are required when single point jacking is done.

8.11 Three Point Jacking

- A. Three-point jacking must be done with a minimum of 2 personnel.
- B. Aircraft should normally be jacked up inside a hangar.
- C. Jacking outside is permitted for recovering aircraft from runway and taxiways. Maintenance personnel will accept a velocity of 15 miles per hour as a safe maximum for outside jacking to install a spare tire. Position aircraft nose into wind and jacking surface is level and strong to support the weight. If max wind conditions exist, use the "Jimmy Jack" for recovery.
- D. Tail safety stands must be used when three-point jacking is done.
- E. Aircraft jack safety pins and locks are mandatory when the aircraft is in the raised position.

8.12 Jimmy Jack

- A. This is to be used when an aircraft needs to be recovered from the Runway and Taxiways.
- B. Follow the Jimmy Jack Instructions.

8.13 Ladders

- A. Step ladders, all of which are self-supporting, will be used on flat surfaces to insure solid footing. When open, the steps will be horizontal, and all ladders will be equipped with an automatic spreader or locking device to keep them open.
- B. Metal ladders will not be used around electrical equipment and facilities.
- C. Mobile ladders are designed for 1 employee at a time.
- D. Mobile ladders meet OSHA standards but must always be used when another employee is on duty.

8.14 Battery Charging and Servicing

- A. Lead-acid battery charging table is located away from other equipment and in a well-ventilated area.
- B. Aircraft Batteries must be removed from the aircraft, serviced, and charged at the designated location.

8.15 Engine Run-up Procedures

- A. Engine Run up is required after oil change, annual/100-hour, engine change, or any other engine accessory replacements.
- B. A minimum of one person qualified to operate aircraft engines must be seated in a pilot seat when an aircraft engine is started, or running.
- C. Engine will be started utilizing the proper checklist procedures.
- D. Before starting the engine, the immediate area around the aircraft must be visually checked for potential hazards to ensure a safe start.
- E. After engine replacement, a technician with a fire extinguisher shall remain near the aircraft until engine start up.
- F. Run up engine in accordance with checklist for the aircraft or engine.

8.16 Test Flight

- A. Test flight is required when any significant work has been done to the landing gear.
- B. Test flight is required after an engine replacement.
- C. Test flight is to be done by a Chief Pilot when possible or a Senior CFI.

Section 9. Suggested Forms to Facilitate Incident Documentation

(See Appendix G)

- The aforementioned forms are not mandatory;
- These forms can be a templated guide in effective response and collaborative efforts with outside agencies;
- They may be used to assist during a critical incident response;
- These forms and related instructional page(s) are taken from the Incident Command System (ICS) and may prove worthy in documentation, incident review, policy recommendations moving forward, etc.

Appendix A: Lewis Aviation Safety Committee By-Laws

Purpose

The Lewis University Aviation Safety Committee (LUA SC) is charged with collecting data, implementing and adjusting safety policy, and investigating accidents and incidents relating to aviation operations. They are responsible for implementing all four levels of SMS policy into the entire Lewis University Aviation Program.

Membership and Length of Service

Members are reviewed and recommended by LARC members, aviation faculty and staff, and/or the Department Chair(s). There is no minimum or maximum length of appointment, but members will be responsible for fulfilling the duties as outlined in this document. The implementation of SMS into the culture of Lewis University Aviation is essential to the operation of the department and its programs.

Amendment Procedures

Ratifying this document will require a majority vote of the LUA SC by either verbal or secret ballot with approval by the Department Chair(s). In the event of a tie the Department Chair(s) will cast the deciding vote(s).

Appendix B: Lewis University Aviation Safety Culture Survey

The Lewis University Aviation Department is implementing a comprehensive Safety Management System (SMS) designed to mitigate risk and improve safety. A part of this process is to evaluate the current safety culture in the department through the use of a safety culture survey. Results collected will be used as an assessment tool for improving safety.

Please select the choice that you believe well reflects the answer to each question. This survey is voluntary and anonymous.

1. Lewis University Aviation has a strong safety culture.
 Strongly agree Agree Neutral Disagree Strongly disagree
2. Lewis University Aviation fosters an environment in which you feel comfortable bringing up safety concerns.
 Strongly agree Agree Neutral Disagree Strongly disagree
3. You are comfortable addressing safety concerns with your instructors.
 Strongly agree Agree Neutral Disagree Strongly disagree
4. You are comfortable addressing safety concerns with leadership.
 Strongly agree Agree Neutral Disagree Strongly disagree
5. You are confident that your safety concerns were resolved effectively in the past.
 Strongly agree Agree Neutral Disagree Strongly disagree
6. You feel that Lewis University Aviation takes a proactive approach to safety rather than a reactive approach to safety.
 Strongly agree Agree Neutral Disagree Strongly disagree
7. Lewis University Aviation focuses on safety mistakes as an opportunity for change rather than an opportunity to assign blame.
 Strongly agree Agree Neutral Disagree Strongly disagree
8. Safety information is updated and changes are disseminated regularly.
 Strongly agree Agree Neutral Disagree Strongly disagree
9. You feel confident that you know and understand Lewis University Aviation's current safety policies.
 Strongly agree Agree Neutral Disagree Strongly disagree
10. The Lewis University Aviation Department faculty and staff set the example in safety.
 Strongly agree Agree Neutral Disagree Strongly disagree
11. What do you think is the most effective way to disseminate safety information?
 Safety website
 Safety app

- Safety news letter
- Safety meetings
- Other _____

12. What is your role at Lewis University?

- Faculty/Staff
- Aviation Services
- Student
- Airport personnel

13. If you are a student, what year are you in school?

- Freshman
- Sophomore
- Junior
- Senior
- Not Applicable

14. What are your top three safety concerns at Lewis University? (optional)

Appendix C: Aviation Safety Action Program (ASAP)

<h1 style="margin: 0;">Aviation Safety Action Program</h1>		
Date	Time	Location
Click here to enter a date.		
Course	Activity Type	Mode of Flight
Choose an item.	Choose an item.	Choose an item.
Type of Incident	Weather Conditions	Action Taken
Choose an item.	Choose an item.	Choose an item.
Description of incident or observed hazard:		
Recommendations to eliminate, correct, or minimize the hazard:		