

WESTERN MICHIGAN UNIVERSITY

COLLEGE OF AVIATION

ASSESSMENT PLAN •

Submitted for Review May 2013

Approval Signatures: Assessment Committee Chair _____ Date _____
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1.0 Introduction

The College of Aviation (COA) offers three baccalaureate programs; Aviation Science and Administration, Aviation Maintenance Technology, and Aviation Flight Science. Any additional programs added in the future will be subject to the assessment program that is in place for the other programs.

Western Michigan University requires each department/program to have an approved assessment plan. In the College of Aviation, the Assessment Committee reviews, modifies, and submits the college plan to the university.

The flight science program leads to Commercial Pilot licensure by the Federal Aviation Administration (FAA). The aviation maintenance program leads to FAA aviation maintenance technician licensure. As such, these programs are designed to include specific FAA requirements and are periodically audited by the FAA. The COA has historically been required to assess these programs to insure compliance with the requirements. The FAA also assesses program quality and compliance by tracking student performance on written examinations and comparing the results with the results of students in similar programs nationwide.

Aviation Science and Administration is a Bachelor of Science program which prepares students for a variety of careers in aerospace including airline administration and management, business and general aviation operations and management, airport operations, aviation support, and technical sales or service. The program includes areas of study such as aircraft systems, aerodynamics, aviation safety concepts, and business, management, and economic studies.

Aviation Maintenance Technology is a Bachelor of Science program which prepares students for a variety of positions in the field of aircraft maintenance and manufacturing. The program includes such areas as performance testing, product technical support, aircraft maintenance techniques, airworthiness and licensing standards and regulations, and systems reliability and maintainability concepts. Satisfactory completion of all program requirements prepares students to take FAA Airframe and Powerplant examinations to be licensed as an aircraft maintenance technician.

Aviation Flight Science is a Bachelor of Science program which emphasizes intellectual as well as technical competencies. Students study aviation sciences, aircraft systems, crew concepts and resource management, advanced aerodynamics, professional flight, airline operations and administration, global navigation and international flight and meteorology. The program emphasizes crew concept flight training using industry standard crew resource management techniques. It features state-of-the-art flight simulators coupled with line operational simulations, computer-based training, and the most advanced flight training aircraft with glass cockpit technology.

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2.0 College of Aviation Assessment Program

2.1 Uses of Assessment Information

The information gathered using the methods described in this plan will be used to assess the quality of the aviation programs as defined herein. Learning outcomes, and student and industry satisfaction with the programs will be evaluated against the stated desired outcomes. The evaluation will be a continuous process aimed at insuring that program objectives are being met and they are relevant and appropriate to the industry. Assessment data will be studied by the faculty who will determine and initiate the action required for program improvement. These actions may take varied forms depending on the assessment focus and results. They may be such things as changes to course content or delivery methods, learning objective revisions, curriculum changes, new course creation, or prerequisite changes. They may also take the form of new equipment acquisition, academic advising changes or facility improvements.

2.2 Method of Evaluation and Feedback

The College Assessment Committee is responsible for insuring that the assessment activity schedule is implemented. When data is available for faculty review, the assessment committee will prepare and disseminate the data to faculty. The data will be presented at regular faculty meetings for discussion and sub-committees may be formed if necessary to study the issues and follow up to the faculty. Other methods of dissemination include workshops, newsletters, and data posted on the college network server. The Assessment Committee will work with the Curriculum Committee as necessary to insure that curriculum issues are addressed following existing protocol for curriculum improvement. The Assessment Committee will prepare the periodic Assessment Impact Report using the TracDat computer program.

2.3 Evaluation of the Assessment Process

The assessment processes will be continuously evaluated to determine the validity and practicality of the assessment metrics and procedures. Processes for gathering and evaluating data will be continuously reviewed and refined to make the process meaningful and manageable. The goal will be to insure that the college does not become burdened by the process but rather that the assessment process becomes a tool that will help the college offer the best programs for our students and our industry. A complete review and update of the plan will be conducted at least every five years. Methodologies, schedules and processes may be altered at any time as dictated by usefulness, resource constraints or other issues.

2.4 Assessment Methodologies

The methodologies used for formal assessment are detailed in the following paragraphs. The college also considers informal assessment as relevant and valuable for program quality improvement. Informal assessment is also discussed in this paragraph.

2.4.1 Formal Assessment

The COA assessment program utilizes three direct and two indirect measurement techniques. The following paragraphs detail the methodologies used to assess student learning outcomes.

2.4.2. Senior Surveys

The purpose of the senior survey is to evaluate students' perceptions and opinions of the program from which they have or are about to graduate. It is developed by the faculty and is designed to determine students' perceptions about how well their education has prepared them for their career.

It also provides insight about the equipment, facilities, and operation of the college. Although an indirect measure, it provides useful data to allow for adjustments and corrections to remove impediments to student learning and thus improve program quality. This methodology also contributes to the assessment of the various learning outcomes of each program.

4.1.2 Alumni Surveys

Feedback from the alumni is provided by an alumni survey. The purpose of the survey is to ascertain how well the COA programs have prepared students for their desired careers based on their satisfaction with the education provided by the college. The survey asks if they feel they were well prepared by the college and about their experience getting a job, their employer, position, and years of service. Also included is an open request for suggestions. This indirect method provides a realistic program critique useful for assessing program content and relevancy to the industry. This methodology also contributes to the assessment of the various learning outcomes of each program.

4.1.3. Course Level Student Learning Outcomes Survey

Each semester certain courses will be selected to survey student achievement of the course learning outcomes. This methodology also contributes to the assessment of certain program learning outcomes as well. Student performance in mastering the course objectives will be determined using methods appropriate to the objectives. Each faculty will determine the method best suited to their course and the objectives for that course. Following are some examples of various methods that could be used.

- A. Multiple choice tests: You can select or develop certain key questions that get to the heart of a particular objective. Then tabulate the percent of students that got them correct. The assumption is that if they got the question (or questions) correct, they understand the objective.
- B. Skill based objective: You must observe the activity and judge the performance as to the satisfactory achievement of the skill.
- C. Papers: Papers that have assigned topics could have one or more objectives in the topic. The content is evaluated in direct relation to the course objective.
- D. Oral Examinations: Questions can be directly related to course objectives and responses evaluated for understanding of the objective topics.

Faculty will complete a summary report which indicates the success rate of the achievement of the learning objectives.

4.1.4 Industry Advisory Board Curriculum Review

The COA Industry Advisory Board will review each of the three programs and provide the faculty with feedback and suggestions regarding the content and relevancy of the programs. Since the advisory board is made up of members from many areas of the aviation community, each will bring a valuable perspective from their particular area of expertise. The feedback from the advisory board will be reviewed and evaluated by the faculty for appropriate action.

4.1.5 Licensure Examinations Performance Audit

WMU students in both the flight and maintenance programs take FAA written examinations to obtain federal licensure. The scores that these students achieve on the federal examinations are compared to the national averages for all persons taking the examinations. The private pilot, instrument rating, and commercial pilot written examinations are compared for the students in the Flight Science program and the aircraft maintenance technician powerplant, airframe, and general written examinations are compared for students in the Aviation Maintenance Technology program.

4.2 Informal Assessment

Informal assessment is defined herein to refer to program quality improvement actions that are not one of the formal assessment methodologies prescribed for the programs. Many informal activities result in program quality improvements that may not be directly measureable in the short term but intuitively improve the program. This is best explained by example. Suppose the faculty has determined that a piece of new state-of-the-art equipment is necessary to keep the program on the leading edge of the industry technology. The acquisition and integration of the equipment into the program may not be direct result of one of the formal assessment methodologies and indeed is not based on directly measureable learning outcomes. However, it is intuitive that the new equipment will modernize the

program and provide students with more relevant education. And if this is true, then the industry will consider our graduates more valuable and desirable than graduates from other programs and will therefore want to employ our graduates. It is important to consider this informal assessment activity in the overall scheme of program quality improvement. It recognizes forward thinking and actions on the part of the faculty to embrace the concept of program quality improvement.

Another informal method that is used is a survey of all students in the college. This differs from the formal senior survey in that it illicit perceptions that are broader than just academic considerations. It focuses on procedural and satisfaction types of data and provides evidence mainly about operational quality.

It is clear that program quality improvement comes about as a result of a mix of informal assessment activities as well as formal or planned activities. These informal activities are therefore considered program improvements through assessment and will be tracked and reported as informal assessment/ quality improvement activities.

4.3 General Learning Outcomes for All Programs

----- End of Section -----

3.0 College of Aviation Strategic Plan

3.1 Purpose of Strategic Plan

Strategic planning is designed to provide broad and specific direction for a period of time. The plan will be used for resource allocation, hiring qualifications of faculty, and to guide growth and development.

3.2 Strategic Planning Committee

The College of Aviation Strategic Planning Committee will consist of a broad representation of college constituents. Participants will be selected from, but are not limited to:

- Dean/Associate Dean
- Faculty Chair
- Faculty from each academic program
- Business Office
- Clerical Staff
- Facilities and maintenance
- Chief Flight Instructor and/or flight program manager
- COA Students (1 from each program)
- Aviation Student Council

3.3 Assessment of Strategic Plan

The College strategic plan will be fully reviewed every five years. Interim revisions may be requested as necessary.

The following reports will be submitted:

3.3.1 Annual Progress Report

An annual performance report will be made at the beginning of each new fall academic term. A written report will be provided to all college constituents and results loaded into TracDat. (responsible: associate dean).

3.3.2 Strategic Plan Revisions

The plan will undergo a complete review every five years. The strategic planning committee will review all annual reports, collect additional information, and submit a draft for review by the college, industry advisory board, and community at-large. The review process will begin in the fall and must be completed by June 30th.

Should interim changes to the plan be required, the strategic planning committee will be assembled and a timeline for interim revision established.

3.4 Responsibility

----- End of Section -----

Under Review

4.0 College of Aviation Mission, Vision, and Core Values

4.1 Mission Statement

The College of Aviation offers programs of study that prepare career-ready graduates for the aviation industry. We promote and maintain a broad-based, diverse learning environment.

Our programs of study emphasize the development and use of critical thinking, communication, leadership, global awareness, and technology. College of Aviation research initiatives provide opportunity for students to study and solve real-world problems while adding to the aviation knowledge base

4.2 Vision Statement

The College of Aviation will be the national and international leader in aviation education and applied research. We will provide high quality innovative undergraduate and graduate programs within a technologically advanced environment. We envision a community of scholars focused on applied research centered around Aviation Operational Performance. Through the development of mutually beneficial relationships, we will bring together industry, academia, and community. College of Aviation graduates will be highly sought after by employers world-wide.

4.3 Statement of Core Values

Aviation is an industry based on the confidence and trust of the public. The foundation of that trust lies in each person associated with the aviation industry, beginning with the educational process. In the College of Aviation, we begin building that foundation in our students by modeling and adhering to our set of core values:

- Equity: fair and equal treatment of everyone associated with the college.
- Respect: we strive to understand, value, appreciate and acknowledge skills and abilities of those around us.
- Diversity: we value differences in thought, culture, gender, and ethnicity.
- Safety: we live and work with a culture of proactive safe practices.
- Transparency: we strive to be open in our policies, procedures, and practices.
- Inclusion: we welcome participation from faculty, staff, students, alumni, industry, and community
- Accountability: we will do what we say to all stakeholders.
- Ethical: we will do the right thing when no one is watching.
- Motivated: we strive to stay current, be successful, and constantly look to improve.

4.4 Assessment

The college mission, vision, and core values are contained within the college strategic plan. Review and revision will occur as part of regular strategic plan review.

----- End of Section -----

Under Review

5.0 Program Educational Objectives

5.1 Aviation Management and Operations Program Educational Objectives

Within two years of graduation, Aviation Science and Administration (ASA) graduates will be employed in aerospace organizations in positions such as customer support and customer service, sales and marketing, dispatch, scheduling, fixed-base operations, pricing, training and planning, and entry-level airline and airport management positions. Graduates will be demonstrating their critical thinking, communication, team work, leadership, global awareness, and Situational Awareness skills on a daily basis.

Five to ten years after entering the industry, ASA graduates will advance into supervisory and senior position roles. Examples of these positions are project manager and team leader.

Ten to fifteen years after graduation, ASA graduates will hold middle management positions. Department manager, program manager, and supervisor of operations are examples of the positions that they may have.

As their careers progress, Aviation Science and Administration alumni will continue to move forward into high level management positions such as director and senior manager.

5.2 Aviation Maintenance Technology Program Educational Objectives

Within two years of graduation, Aviation Maintenance Technology (AMT) graduates will be employed in positions such as aircraft maintenance technician, product field service, manufacturer-customer technical liaison, technical publications and field test technician. Graduates will be demonstrating their critical thinking, communication, team work, leadership, global awareness, and technology abilities on a daily basis.

Five to ten years after entering the industry, AMT graduates will advance into supervisory and senior position roles. Examples of these positions are shift foreman, inspector, lead technician, and senior product support specialist.

Ten to fifteen years after graduation, AMT graduates will hold management positions. Department manager, project manager, and team leader are examples of the positions that they may have.

As their careers progress, Aviation Maintenance Technology alumni will continue to move forward into high level management positions such as director of maintenance and director of product support.

5.3 Aviation Flight Science Program Educational Objectives

Within five years of graduation, Aviation Flight Science (AFS) graduates will be employed as first officers with a regional carrier, copilots in a corporate aviation position, flight instructors or charter pilots. Graduates will be demonstrating their critical thinking, communication, team work and situational awareness skills in their current position.

Five to ten years after graduation, AFS graduates will hold a Captain Position at regional or corporate flight departments and may have attained First Officer positions at network carriers. Our graduates will demonstrate the leadership and character that is expected of a Professional Pilot.

As their careers progress, Aviation Flight Science alumni will possess the skills to move into senior flight management positions such as chief pilot, director of flight operations, director of pilot training, check airmen, and simulation. Aviation Flight Science (AFS) graduates will continue to demonstrating their critical thinking, communication, team work and leadership skills as well as increase their global and situational awareness.

5.4 Assessment of Program Educational Objectives

The program educational objectives will be completely assessed every five years. A cycle of individual assessments will take place over the five year period.

- Program placement rate (collected annually via survey or interview).
- Graduate industry placement, company, level, salary over time (annually for new graduates, every three years for alumni via survey or interview)
- Employer feedback (every three years via survey or interview)
- Graduate feedback (every three years via survey or interview)

5.5 Responsibility

Responsibility

----- End of Section -----

6.0 College Learning Outcomes

Aviation is team-based industry. Therefore we believe that all College of Aviation students should have some level of commonality in their learning outcomes.

6.1 General Learning Outcomes for All Programs in the College of Aviation

All graduates of the College of Aviation will:

- Gain an understanding of and appreciation for the seriousness of professional and ethical behavior in the aviation industry.
- Be sought after by the industry and be a successful and valued employee in the aviation industry.
- Demonstrate effective and correct written and verbal communication skills. Be computer literate and demonstrate ability to research information pertinent to their aviation discipline.
- Be able to apply knowledge of science and mathematics to their aviation discipline.
- Be able to research, analyze, interpret, and apply various data.
- Demonstrate the ability to function in multi-discipline teams
- Realize the need to continuously gain knowledge throughout life within and outside of aviation.

6.2 Assessment of College Learning Outcomes

College learning outcomes will be assessed every five years by measuring student outcome achievement against target metrics.

----- End of Section -----

7.0 Program Learning Outcomes

Assessment in the COA is a continuous process of reaffirming the college and program's goals and objectives and determining whether our students are achieving them. It includes systematic collection, analysis, and application of the results of learning outcome assessment activities to improve program quality. The faculty of the College of Aviation has established learning outcomes that are specific to each of the three programs and learning outcomes for each AVS course within each program.

Each program has overall student learning outcomes specific to that program. These outcomes are detailed in the following paragraphs.

7.1 Aviation Science and Administration Learning Outcomes

Students who graduate from the Aviation Science and Administration program will:

- Understand the fundamental technical aspects of flight and aircraft systems and operation.
- Demonstrate knowledge of business principles and practices and their application to the aviation industry.
- Understand and appreciate the financial, economic, and market aspects of the aviation industry.
- Have knowledge of regulatory and legal issues which impact the industry.
- Gain knowledge of the business structure, management and administrative aspects of airlines, corporate flight operations and airport operations.

7.2 Aviation Maintenance Technology Learning Outcomes

Students who graduate from the Aviation Maintenance Technology program will:

- Demonstrate an in depth technical knowledge of aircraft systems and operation.
- Demonstrate appropriate skills, techniques, and accepted practices necessary for aircraft maintenance and determination of airworthiness.
- Apply cognitive reasoning skills to aircraft systems analysis and troubleshooting.
- Obtain the F.A.A. aircraft maintenance technician license with airframe and powerplant ratings.
- Have knowledge of regulatory and legal issues which impact the industry.

7.3 Aviation Flight Science Learning Outcomes

Students who graduate from the Aviation Flight Science program will:

- Understand the technical aspects of flight and aircraft systems and operation and demonstrate application of this knowledge.
- Demonstrate knowledge of national and international air space systems and the ability to operate within those systems.
- Obtain an F.A.A. commercial pilot single engine license with multi-engine and instrument ratings.

- Have knowledge of regulatory and legal issues which impact the industry. Demonstrate application of and adherence to applicable aviation regulations.

7.4 Assessment of Program Learning Outcomes

Program learning outcomes will be assessed every five years by measuring student outcome achievement against target metrics.

----- End of Section -----

Under Review

8.0 Course Learning Outcomes

Each AVS course in the college has a set of course learning outcomes determined by the faculty. Course learning outcomes must support the program learning outcomes.

8.1 Assessment of Course Learning Outcomes

8.1.1 Assessing Performance Against Selected Course Learning Outcomes

Achievement of specific learning outcomes should be performed on a regular basis. One or two outcomes should be selected to assess each semester the course is offered. Appropriate data and evidence will be collected by the instructor(s) and analyzed. Changes to the course will be made and the specific outcome reassessed.

Once there is evidence that an outcome is being met, a different outcome will be selected for assessment during the subsequent offering.

8.1.2 Assessing Course Learning Outcomes

Each set of course learning outcomes will be assessed every two years on a staggered basis.

8.2 Tracking Outcome Data

Performance for each outcome being assessed will be entered into TracDat against the course learning outcomes and metrics.

----- End of Section -----

9.0 Program Quality Standards

The college of Aviation recognizes and embraces the quality standards of outside agencies and has established programs to comply with those standards. Internally, quantitative measures are set for student performance. These standard and measures are defined in this paragraph.

9.1 Federal Aviation Administration (FAA) Programs

The COA offers programs that lead to FAA certification in flight and maintenance. These programs are designed and monitored so as to insure continued compliance with pertinent federal aviation regulations which govern the content, delivery and performance of certified training programs. Thus the quality standard for the COA is to continuously meet or exceed these objectives so as to maintain our FAA certification as training providers. The college has programs that comply with the FAA requirements for training and examination for the following certificates and ratings.

- Private Pilot Airplane Single Engine Land
- Commercial Pilot Airplane Single Engine Land
- Instrument Airplane rating
- Commercial Pilot Multi-engine
- Flight Instructor Airplane Single Engine Land
- Flight Instructor Instrument Airplane
- Flight Instructor Airplane Multi-engine
- Aviation Maintenance Technician with Airframe and Powerplant ratings

9.2 Aviation Accreditation Board International (AABI)

All of the programs offered by the COA are AABI accredited and it is intended that they continue to be accredited. As a result, the programs are monitored to insure that they continue to meet accreditation standards. These standards thus become a driver for program quality in the College of Aviation.

9.3 Student Performance Standards

The following are standards that are expected for the student achievement

- The average score of our students on FAA examinations will be higher than the national average score for those examinations.
- All students achieve an 80% first time score on student learning outcomes as defined by the course syllabus or the overall objectives of the college.
- All students demonstrate satisfactory performance of all practical objectives for courses which require skill based learning outcomes.

9.4 Assessment of Student Performance Standards

A licensure examinations performance audit will be conducted once every three years, at a minimum, for each written examination and more frequently if the results achieved in previous analyses are not satisfactory.

----- End of Section -----

Under Review

----- End of Section -----

Under Review

10.0 Schedule of Formal Assessment Activities

Under Review

6.0 Schedule of Formal Assessment Activities

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Each of the formal assessment methodologies will be conducted periodically as indicated in this paragraph.

6.1 Senior Surveys

Surveys will be conducted every other year at the end of spring semester.

6.2 Alumni Surveys

Alumni surveys will be conducted on an ongoing basis. The data will be tabulated at least every other year for faculty review.

6.4 Industry Advisory Board Curriculum Review

The advisory board program review will be conducted at least once in a five year period but faculty may request more frequent review if it is felt that industry changes warrant it.

6.5 Licensure Examinations Performance Audit

This assessment method will be conducted once every three years, at a minimum, for each written examination and more frequently if the results achieved in previous analyses are not satisfactory.