DEPARTMENT REPORT
OF
PROGRAM LEARNING OUTCOMES ASSESSMENT

Department: Aviation Technology

Program (Degree): Aviation Technology and Aviation Technology with Professional Pilot Option

Type of Degree: X AAS ____ AA ____ AS ____ ATS ____ AIS

Chairperson: Walt Davis Date: April 19, 2005

Person(s) Interviewed: Walt Davis

I. Program Curriculum: A description of the basis for the program curriculum (i.e., how it is derived and validated). Include accreditation organizations, advisory committees or external groups that influence curriculum. Describe curriculum review activities including the review of course master syllabi.*

The central focus of department curriculum is the Aviation Technology Professional Pilot & Airway Science Option associate degree program. Half of the curriculum in this program is based upon Federal Aviation Administration (FAA) standards for professional airline pilot training. The remainder of the curriculum is based upon Sinclair's enhancements of aviation technologies with input from faculty, administration, industry, and regulatory agencies. Beginning in the fall of 2004, pilot training is now provided exclusively for Sinclair by the Delta Connection Academy with an operating location at the Dayton International Airport. This has expanded Sinclair's market appeal for pilot training and the program is enrolling students from out-of state as well as international students. The department has instituted an Early Take-off program for high school students to begin their pilot training while they are juniors and seniors. Courses in the Early Take-off program are offered for college credit.

The Federal Aviation Administration (FAA) granted certification for the Airframe and Powerplant curriculum in May 2002. This program provides the training necessary for the FAA Airframe and Powerplant certificate. A three-certificate program has been developed by the Sinclair Aviation Technology Department for Aviation Maintenance Technicians. This program includes a General, Airframe, and

Powerplant certificate. Forty new courses were written for these three new certificates. There are now two operating locations for the program: Miami Valley Career Technical Center and the Great Oaks Academy at Laurel Oaks in Wilmington, Ohio.

One of the most recent developments has been the acquisition of a GAT-II full motion spatial disorientation trainer. Sinclair is the only college in the state that offers this type of training. The new GAT-II lets both aviation students and aviation enthusiasts in the community experience physiological flight hazards through the safety of simulation. In addition, the GAT II lets pilots experience the conflicting information received from the pilot's physiological senses and the visual data from the aircraft instruments. This knowledge is essential given the high accident rate for pilots inadvertently flying into instrument meteorological conditions. This trainer was certified for flight instrument training by the FAA in 2005.

The local advisory committee has many representatives from the community. Wright Patterson Air Force Base, local airports, the Dayton Chamber of Commerce, representatives of a number of airline companies and other aviation professionals participate. Advisory committee members help faculty identify current requirements for employee training by defining skills needed by employees in the field. Curriculum is then revised or developed to meet those needs. For example, recently several airlines came with a new and urgent need for flight dispatchers. The department is developing a curriculum to develop that training by Fall, 2005.

The department has reached beyond the local region to Warren County where they have developed an articulation agreement to grant some college credit to their high school students who take the aviation program at Warren County Career Center. The Aviation Technology program has joined the Ohio Council on Aviation Education. Through this important organization of Ohio colleges, the birthplace of aviation is being promoted as the one of the premiere providers of aviation education in the state.

Master syllabi were last reviewed in 2005.

II. <u>Program Learning Outcomes</u>: A description of what you intend for students to know (cognitive), think/feel (affective), or do (psychomotor), when they have completed your degree program. A suggested manageable number of outcomes should be in the range of five to ten. Describe Program Learning Outcomes review activities.*

Program outcomes were last reviewed 2003.

An entry-level graduate with an Associate of Applied Science Degree in Aviation Technology from Sinclair Community College will be able to:

Learning Outcomes	Related Courses
1. Use analytical and scientific problem solving skills to model the physical environment and predict results using variable input data.	AVT 105, 111, 119, 206, 247, 270
2. Apply aeronautical knowledge to analyze aviation technology issues, determine solutions, and assess feasibility.	AVT 125, 205, 206, 211, 238, 240, 242, 245, 247
3. Present technical findings and results using industry approved publication guidelines and presentation methods.	AVT 205, 206, 211, 240, 242, 245, 247
4. Explain the functional requirements and the duties of the occupational specialties employed by the aviation industry.	AVT 125, 211, 240, 242, 245

An entry-level graduate with an Associate of Applied Science Degree in Aviation Technology with the Professional Pilot Option from Sinclair Community College will be able to:

Learning Outcomes	**Related Courses**
1. Private pilots will apply basic aeronautical knowledge to solve navigation problems, determine weight and balance parameters, and interpret meteorological conditions in order to operate an aircraft in accordance with the regulations specified by the FAA.	AVT 110, 120, 124, 257
2. Instrument pilots will master attitude instrument flying techniques, precisely control the aircraft solely by reference to the aircraft's instruments, and plan flight scenarios including the evaluation of weather phenomena.	AVT 160, 220, 224, 257
3. Commercial pilots will analyze aircraft performance capabilities, assess take-off and landing requirements, and operate complex aircraft with advanced avionics, constant speed propellers, and retractable landing gear.	AVT 125, 211, 205, 206, 238, 240, 242, 247, 250, 253, 263
4. Multi-engine pilots will master the complexities of multi-engine flight including the ability to respond appropriately to the loss of one engine. They will assess take-off, climb, and landing performance parameters for diverse runway and atmospheric conditions using aircraft performance tables.	AVT 211, 255, 256, 266

Learning Outcomes	Related Courses
5. Certificated flight instructors will demonstrate the ability to teach aviation concepts and basic flight techniques to student pilots.	AVT 205, 211, 240, 242, 258, 259, 269
6. Certificated instrument flight instructors will demonstrate the ability to teach instrument flight techniques to student pilots.	AVT 275, 276, 277
7. Multi-engine instructors will demonstrate the ability to teach the complexities of multi-engine flight, including the skills required to take-off, fly, and land safely with the loss of one engine, and critical performance and weight & balance issues critical to multi-engine aircraft	AVT 285, 286

An entry-level graduate with an Associate of Applied Science Degree in Aviation Technology with the Maintenance Option from Sinclair Community College will be able to:

Learning Outcomes	Related Courses
1. Mechanics will apply aeronautical knowledge to analyze aviation technology issues, determine solutions, and assess feasibility.	AVT 105, 119, 205, 206, 240, 245, 270
2. Mechanics will present technical findings and results using industry approved publication guidelines and presentation methods.	AVT 111, 112, 125, 242
3. Mechanics will interpret and apply the FAA regulation and manufacturers' maintenance procedures to assure aircraft airworthiness.	AVT 115, 237
4. Mechanics will derive required airframe inspection criteria from manufacturers' publications, and acquire the skills to perform aircraft airframe maintenance and repair operations.	AVT 117, 217, 218, 229, 238, 247

Learning Outcomes	Related Courses
5. Mechanics will acquire the skills to inspect, maintain and repair aircraft power plants.	AVT 129, 138, 219, 234

III. **Assessment Method(s):** A measurable indicator of success in attaining the stated learning outcome(s). The methodology should be both reliable and valid. Please describe in detail.

a. Formative Assessment Method(s) and Description: a measurable indicator of student in-progress success in attaining the stated learning outcome(s).

Formative assessment is completed on a course-by-course basis as the student's progress through the FAA hierarchy of pilot ratings and certifications. Students are checked in detail using FAA specified stage checks through each of the processes. Courses also use tests and simulations to assess student learning. The AVT classes are limited in size to allow for hands-on coursework. Each course uses teamwork and simulation exercises to create a learning environment within the context of aviation. Students work in teams to solve problems like analysis of weather scenarios for flight operations.

b. Summative Assessment Method(s) and Description: a measurable indicator of end-of-program success in attaining the stated program learning outcomes(s).

The Professional Pilots and aircraft mechanic students demonstrate achievement of course objectives by meeting strict FAA rules, Part 141, which include a sequence of stage checks and practical examinations. The FAA accepts the Delta Connection Academy Evaluation in lieu of assessments performed by FAA Designated Flight Examiners. Delta Connection Academy is FAA certified to self inspect.

IV. **Results:** A description of the actual results of overall student performance gathered from the summative assessment(s). (see III.b.)

With the Delta Connection Academy, the retention rate is very high. Students make steady progress through the program.

V. **Analysis/Actions:** From analysis of your summative assessment results, do you plan to or have you made any adjustments to your program learning outcomes, methodologies, curriculum, etc.? If yes, describe. If no, explain.

The major change has been the move from FAA Part 61 to FAA Part 141 rules. This has changed the program from semi-professional to professional pilot training.

VI. General Education: Are you using any tool(s) to assess any of the three primary general education outcomes* (communication, thinking, values/citizenship)? If so, describe.

a. Where within the major do you assess written communication? Describe the assessment method(s) used. Describe assessment results if available.

Written communication skills are essential skills for Aviation Technology students as well as professional pilots. Written communication skills are emphasized and assessed in all non-technical courses.

b. Where within the major do you assess oral communication? Describe the assessment method(s) used. Describe assessment results if available.

Oral communication skills are essential skills for Aviation Technology students as well as professional pilots. Oral communication skills are emphasized and assessed in all non-technical courses. For example in the Aviation Management course, student teams develop a business plan for an aviation business concept. Students must successfully provide both a written business plan as well as an oral presentation of the plan at the end of the class.

c. Where within the major do you assess thinking? Thinking might include inventing new problems, seeing relationships and/or implications, respecting other approaches, demonstrating clarity and/or integrity, or recognizing assumptions. Describe the assessment method(s) used. Describe assessment results if available.

Students must demonstrate judgment and critical thinking skills in every course in the program.

d. Where within the major do you assess values/citizenship/community? These activities might include behaviors, perspective, awareness, responsibility, teamwork, ethical/professional standards, service learning or community participation. Describe the assessment method(s) used. Describe assessment results if available.

With the Delta Connection Academy comes a corporate culture within a professional training school that is completely based upon values, public trust, citizenship and community, which governs the entire flight program. This corporate culture overlays the values already installed in our academic base, and permeates all ancillary and related programs.