Advanced Technology Division

Avionics Technician Unit Plan

Lane Community College

Advanced Technology Division

Avionics Technician Unit Plan

Alignment with the College

Avionics Technology is a credit instructional program and has been offered at Lane Community College since 1976. The program is administered under the Office of Instruction and Student Services through the Advanced Technology Division.

Avionics Technology program is centrally aligned with the College's strategic directions, core values, and learning centered principles.

Strategic Directions

Achieve Financial Stability: This program demonstrated a reduction in cost per student for FY03. This means more students were served with less funds while maintaining the excellent quality of the program.

Enhance the College Climate: This program actively recruited students from under-represented populations.

Core Values

Learning: Learning is both theoretical and applied. Student learning progresses from basic to advanced technical, academic and employability skills.

Diversity and Accessibility: The program faculty welcome students from diverse backgrounds. Students with special needs are accommodated with appropriate supplemental learning technologies and experiences.

Innovation: Faculty maintain their expertise in the field and incorporate advanced technologies in the curriculum. The faculty has made a commitment to maximize the use of innovative instructional technologies to transform the curriculum. Some examples of this include transferring lecture notes to PowerPoint and assisting the division in developing a technical common core curriculum.

Collaboration and Partnership: The faculty work very closely with their program advisory committee. This committee is a representation of active community business partners who provide advice and program support. The Avionics Technology faculty also work very closely with other divisional programs, especially Aviation Maintenance, as well as local Industry and major airlines.

Integrity: The program faculty have demonstrated a high degree of integrity. They are openly accountable to perform according to the policies, procedures and expectations of the College, the division, the advisory committee, and most importantly, the students.

Learning Centered Principles

Substantive Change in Individual Learners: The Avionics Technician program excels in transforming student lives. This transformation is demonstrated when a new student enters the program without entry level skills and can complete the two-year program to obtain a high-wage career in the Aviation industry.
Document Learning Success: As students progress through the program, they obtain the required training to pass one of the FAA and industry requirements.

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Unit Description

The Avionics Technician program is an occupational, preparatory, two-year Associate of Applied Science degree and/or a two-year certificate of completion program or a one-year certificate of completion program.

The Avionics Technician program is approved by the Federal Aviation Administration. The FAA provides all testing and certificate issuance. The program features state-of-the-art laboratories where students learn how to troubleshoot and repair avionics systems in aircraft using advanced diagnostic tools and equipment. The advanced equipment and expertise of the faculty make Lane's Avionics Technician program the best way to enter the field.

Faculty in the program bring considerable field experience to the classroom and regularly attend workshops at manufacturer training centers to help them keep up with technological changes in the industry.

The program provides classroom instruction, considerable hands-on training on aircraft in the laboratories, and technical field experience that prepares you for employment in the aviation maintenance field. Program course work includes: General Aviation; Avionics installation; AC components and Circuits; Analog electronics; Airframe; Avionics Line and Bench Maintenance, Digital circuits and Microprocessor Fundamentals.

Graduates of this program are qualified to do new equipment installations in aircraft and ground-based facilities, and to provide technical support services for agencies using aviation oriented navigation/communication systems.

This training can lead to employment in entry occupations in the avionics field earning approximately $ 27,000 - $41,000 annually. Employment opportunities are favorable for trained avionics technicians and annual new openings are projected to be above average.

New students can enter the program at the beginning of fall, winter or spring terms. A high school diploma or equivalent is advised. All interested applicants should complete placement testing (Assessment & Testing Office, Building 1) in reading, writing and math. Minimum scores of 68 in reading and 64 in writing are required. Take testing results to the program orientation and/or advisor/counselor for assistance with course selections. Restricted facilities limit the number of students admitted to this program. Students are selected on a first-come, first-served basis by or date of application to this program.

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Degrees and Certificates

Two-Year Associate of Applied Science Degree	**Credits**
AAS Program Total	**106-109**
Required PRIOR to first year	
Applied Geometry for Technicians MTH 076 or equivalent	
First Year	
Fall	
General 102 AV 193	6
Introduction to College Writing: Workplace Emphasis WR 115W or higher	3
Human relations requirement	3
Workplace Safety HE 125 or First Aid HE 252 or PE/Health requirement	3
Total Credits	**15**
Winter	
General 103 AV 194	6
Airframe (Section 3) AV 279	6
Science /Math/Computer Science requirement	3
Avionics Installation AVN 101	6
Total Credits	**21**
Spring	
General 104 AV 195	6
AC Components and Circuits AVN 110	6
Analog Electronics 1 AVN 120	6
Total Credits	**18**
Second Year	
Fall	
Avionics Line Maintenance 1 AVN 201	6
Avionics Line Maintenance 2 AVN 202	6
Analog Electronics 2 AVN 225	6
Science /Math/Computer Science requirement	3
Total Credits	**21**
Winter	
Digital Circuits AVN 235	6
Avionics Bench 1 AVN 210	6
Microprocessor Fundamentals EET 239	4
Total Credits	**16**
Spring	
Avionics Bench 2 AVN 220	6
Avionics Bench 3 AVN 230	6
Arts/Letters requirement	3
Cooperative Education: Avionics AVN 280 (optional)	3
Total Credits	**15-18**

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Two-Year Certificate of Completion	Credits
AAS Program Total	**97**
First Year	
Fall	
General 102 AV 193	6
Introduction to College Writing: Workplace Emphasis WR 115W or higher	3
Human relations requirement	3
Workplace Safety HE 125 or First Aid HE 252 or PE/Health requirement	3
Total Credits	**15**
Winter	
General 103 AV 194	6
Airframe (Section 3) AV 279	6
Avionics Installation AVN 101	6
Total Credits	**18**
Spring	
General 104 AV 195	6
AC Components and Circuits AVN 110	6
Analog Electronics 1 AVN 120	6
Total Credits	**18**
Second Year	
Fall	
Avionics Line Maintenance 1 AVN 201	6
Avionics Line Maintenance 2 AVN 202	6
Analog Electronics 2 AVN 225	6
Total Credits	**18**
Winter	
Digital Circuits AVN 235	6
Avionics Bench 1 AVN 210	6
Microprocessor Fundamentals EET 239	4
Total Credits	**16**
Spring	
Avionics Bench 2 AVN 220	6
Avionics Bench 3 AVN 230	6
Total Credits	**12**

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One-Year Certificate of Completion	Credits
One-year Certificate of Completion total	**51**
First Year	
Fall	
General 102 AV 193	6
Introduction to College Writing: Workplace Emphasis WR 115W or higher	3
Human relations requirement	3
Workplace Safety HE 125 or First Aid HE 252 or PE/Health requirement	3
Total Credits	**15**
Winter	
General 103 AV 194	6
Airframe (Section 3) AV 279	6
Avionics Installation AVN 101	6
Total Credits	**18**
Spring	
General 104 AV 195	6
AC Components and Circuits AVN 110	6
Analog Electronics 1 AVN 120	6
Total Credits	**18**

Cooperative Education

Cooperative Education (Co-op) offers students college credit and a grade for on-the-job work experience related to their educational and career goals. Through Co-op a student can integrate theory and practice, develop skills, expand career knowledge, and make contacts for the future. Work schedules and work sites vary.

Organizational Structure

Board of Education
President
Vice President of Instruction
Associate Vice President of Instruction
Division Chair Advanced Technology
Faculty Avionics Technology Program

Faculty/Staff

Name	
Classification	Full-Time Faculty
Year Hired	
Degrees/Credentials	

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Name	
Classification	Full-Time Faculty
Year Hired	
Degrees/Credentials	

Name	
Classification	Full-Time Faculty
Year Hired	
Degrees/Credentials	

Program Outcomes

Program Outcomes:
With the advent of the creation of the Lane Aviation Academy, a variation of the traditional AAOT degree option has been devised to compliment the overall goals of the Lane Aviation Academy. Candidates in any of the aviation technology programs may elect a course sequence that meets the requirements of an Oregon University transfer program as an alternative to the AAS degree option. In consideration of the rapid trend toward technical fields requiring four-year degrees, students are being advised to consider the AAOT option verses the more traditional AAS. The AAOT with the Aviation Option is intended for people who elect to be prepared for professional degrees that are applicable as support staff in the air transportation industry.

Evidence of successful outcomes is our graduates will successfully transfer general education and technology credits to universities, complete professional degrees and successfully compete for responsible positions in the air transportation industry.

Program Accreditation:
All university transfer courses included as suggested courses for an AAOT with an Aviation Emphasis are accredited in a manner consistent with Lane Community College policy and in conformance with State of Oregon standards. All recommended general education transfer courses may be expected to satisfy university lower division course requirements. All aviation related courses are accredited in conformance to State of Oregon standards. Students enrolled in FAA certification courses will meet the standards required by the FAA and the standards required for accreditation by the State of Oregon.

Course Outcomes / Instructional Methods:
All general education courses on the suggested list are offered in a manner consistent with department and college policy and course outcomes are consistent with outcomes as stated.

Performance Analysis

Performance Assessment Methods:
Since most courses students complete are considered "general education," accepted completion standards will be consistent with the requirements as specified by the department. Aviation related courses, taken as electives will be assessed in a manner consistent for each individual course.

Academic Assessment, General Education:
All General Education courses required to complete the AAOT degree, or the receiving university department requirements, will be consistent with the individual department's requirements. All aviation related courses, not leading to an FAA issued certificate will be assessed in a manner consistent with the department's policies and accepted practices. Should the student elect to complete a course of study that leads to the issuance of an FAA certificate, then all FAA prescribed requirements for certification will be met.

Post transfer tracking:
A system for tracking the progress of transfer students needs to be established. Since the career objectives are oriented toward a professional position in an air transportation industry company, career tracking is important as a source of data to determine the viability of the course work offered by Lane and the university.

Operating Improvement (Enrollment Management):
The AAOT (with the aviation option) is a new program with no operational history. There are no new course in the program – all suggested courses are from the existing set of courses / programs offered by Lane.

For the AAOT (Aviation Option) Lane is positioned between the high schools and the universities. In order this program to be successful a significant effort must be expended to develop a close working relationship with area high schools. This is primarily a task of informing career counselors and establishing a working support network for high schools and their students. Very few high school counselors understand the vast number of career options in the industry, apart from the obvious jobs, such as pilots and mechanics.

Second level responsibility is to continue developing a working rapport with the universities, mainly for the purpose of assuring a smooth transfer of credit. Second level responsibility is to continue working to develop viable aviation related training, internships and work-study opportunities for the aviation specific component added to the "professional degree."

Continued development of the Oregon Aviation Education Initiative and culturing a working relationship with industry partners is essential for the purpose of assuring an adequate number of "experience" opportunities for our students.

Marketing**:**
Marketing opportunities may be developed via the following options:

a) high school population (there is reason to move toward developing a vital "College Now" program with an aviation orientation,
b) cooperative programs working jointly with other community college in the state system,
c) market via VA programs and military education programs,
d) WEB – page: expand the use of the WEB to develop an expanded concept of career options in the aviation industry.

Unit Initiatives

Program Initiatives

Initiative 1: Re-establish the Avionics Technician Program
Avionics Technician, FY 2005, Enhancement, 02 = **DV05E01**

2. Linkage to Program Analysis Findings
New resources are required to re-establish the avionics technician program

3. Describe the Initiative
Overview
Historically, the college has offered aviation related course in the technologies such as Aviation Maintenance, Avionics and Pilot training. These technical positions represent about 20 percent of the total employee base. The primary objective to be realized is an opportunity to prepare people for jobs in the 80 percent pool of airline industry jobs. Many of these jobs are "professional" positions such as management, legal, marketing and finance. The aviation industry has unique business practices: typically university preparation is generic.

Our objective is to add aviation specific technical training and specialized aviation industry oriented components to a traditional degree so the individual is better qualified for positions in the air transportation industry. A key component of this option is the 2+2+2 design where high school students have an opportunity to do college course work while still in high school. A well designed career path should begin at the high school level, transfer to the local college for two years of technical and transfer course work – always with the intent of transferring to a university: ultimately, the student will qualify for a career position in the air transportation industry.

Students originally intending to pursue an AAS degree in a technology program may elect to take the more rigorous academic program and plan for a four-year degree option that augments specialized certificates, such as pilot certificates and aviation maintenance technician certificates. A variation of the AAOT option is people enrolled at a four-year university concurrently enroll in an aviation specific technical program at the community college.

The college currently has approved programs, labs and equipment for practical training and a well qualified instructional staff. The university system is well established and the articulation between the college and the universities is established and improving. The relationships with the local business community, city of Eugene administration and airport administration are good with considerable interest in supporting aviation related education. The working relationship with Evergreen International Airlines is becoming stronger. Evergreen is increasingly interested in supporting several programs in the college.

Oregon Aviation Education Initiative has been established: this program is developing as an integrated network of educational institutions, airline industry partners and aviation manufacturers. It is expected that as the initiative develops there will be greater participation from both state and federal agencies.

The first order constraint is available time resources for the people providing leadership in this program. It takes time to "culture" working partnerships with the high schools and the universities. A major limitation to developing partnerships with the high schools is having a "champion" within the high schools that will carry forward the work. As the program develops there will be an increased need to more current technology teaching aids and instructional programs provide training which is consistent with industry needs.

4. Requested Resources

1) CBT Computer Lab (4 computers + 1 printer)= $7,000
CBT and real-time recording of student training hours and certification by skill as well as testing will influence all elements within the unit. Students will be working as a part of the total team including faculty, administrative staff and maintenance personnel. The FAA has very strict rules related to records showing hours of lecture instruction and lab instruction and the FAA requires a clear instructional track to final certifiable skills on a task by task basis. The on-line capacity provides for maintaining a complete record of the student's total training and demonstration of skills and practical experience. The objective is to provide the graduate with a complete portfolio as a record of training, skills certification and experience.

2) = Avionics VR software = $7,500
This technology is also used to manage all major systems on the aircraft including flight control systems, fuel management status of systems operations including engine control. All conventional flight control and systems control data is now displayed in CRT-type displays that function much like a conventional "Windows environment. Displays may be used in multiple modes and for multiple applications.

3) Avionics lab test equipment = $10,000
We will have a need for avionics equipment test equipment. We have a need for line check equipment and diagnostics. We have a need for cable building tools and harness jigs. Shop supplies: spare parts, cable building materials etc.

4) PT faculty = $7,500
To start the program, at least one 1/4 time avionics faculty position to be funded.

5. Funding Sources
General Fund
Technology Fees
Carl Perkins

5.1 Alignment to Carl Perkins Act goals?
Student Skills Goal
Students will have access to a revised program to acquire current avionics skills.

Work-based Learning Goal
The program is based on FAA standards. These are the skills that the employers have identified as necessary for entry and advanced employment.

Effect on Profession Technical Education student success?
Students will gain industry specified skills which will lead to higher paying employment. High school students will become motivated to pursue and complete a technical degree.

Brief Carl Perkins funding history
The advanced technology division has utilized CP funding over the last 20 years to enhance its capability to offer effective, efficient training through purchase of equipment. In that time CP money has allowed the program to align its capabilities with the needs of the industry for which it trains students. The result is better qualified students, a better and broader relationship with industry and more efficient use of educational time.

5.2 Alignment to Student Technology Fees.

5.3 Curriculum Development

6. Organization and Program Codes

611001 112000

7. Alignment to the College's goals

This initiative aligns with the following college goals:

- Transforming Students' Lives
- Transforming the Learning Environment

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Initiatives Spreadsheet

Unit Priority	Initiative ID	Expected completion date	Initiative Title	Resource Description	$$	Recurring / Nonrecurring	(mark with an "X")				Funding Sources (mark with an "X")					
							Payroll (w/OPE)	Equipment	Space	Other	Existing	New Gen Fund	Carl Perkins	Stud Tech Fee	Curr Dev	Other
1	AN05E01	09/01/05	Acquire New Equipment, Software or Curriculum	CBT Computer Lab (4 computers + 1 printer)	7,000	N		X						X		
2	AN05E01	09/01/05	Acquire New Equipment, Software or Curriculum	Avionics VR software	7,500	N		X					X	X		
3	AN05E01	09/01/05	Acquire New Equipment, Software or Curriculum	Avionics lab test equipment	10,000	N		X					X			
4	AN05E01	09/01/05	Acquire New Equipment, Software or Curriculum	PT faculty	7,500	R	X					X				X

Projected FY06 Program Outcomes

1. What program level outcomes do you expect to achieve?
The program has developed a set of learning outcomes and operational goals. Assessment of these program outcomes will be based on the measurement of the actual performance to the performance indicators..

2. How will your program enhance your students' abilities to meet Core Abilities outcomes?
The program will develop a Outcomes Assessment Matrix that will map the program and general education courses required to complete an associates degree against the program's learning outcomes, core abilities and learning college principles. The primary and secondary assessment methods are also identified

3. What course level outcomes do you expect to achieve?
What goals do you wish to set for 2004-2005?
Students would receive competent instruction in an effective and efficient learning environment that will lead to the acquisition of avionics entry-level skills. To accomplish this on-going goal the program will continue to prioritize equipment replacement needs and review its curriculum.

How will your courses grow, change or adapt?
We will update the older courses to meet current skill standards.

How will your instructional methods change or adapt?
If the initiatives are funded, the students will have better access to the instructors in a better learning environment .

What goals do you have for your instructional environment (classrooms and/or technologies and equipment)?
We are seeking to maintain and enhance our instructional equipment.

4. What plans do you have for enhancing your use of current technologies?
The program is requesting new resources.

5. What plans do you have for working more effectively with your Advisory Committee?
An advisory committee will need to be convened.

6. How will you set faculty and staff goals?
The faculty and staff in this program will use this unit plan to help set goals. The inclusion of learning outcomes and operating goals provide the basis for assessment. The faculty and staff must continuously maintain and improve the program.

7. Enrollment Projections
We are seeking to restart an existing program that has not been offered recently..

8. Student Success Projections
The student success projections are part of the Program Learning Outcomes, Goals and Performance Indicators. Additional measures of student success will be developed during the year and added to the chart.

9. Facilities and Equipment Need Projection
We will continuously need to maintain and upgrade our existing equipment.

10. Budget Projections
Carl Perkins and Technology Fee dollars will be required to maintain and enhance the equipment.

_____ _____
Advisory Committee Chair Date

_____ _____
Division Chair Date