Program Description

Practical and theoretical knowledge in basic maintenance techniques, plus the special requirements of either airframe or powerplant work. Upon satisfactory completion of the required courses, the student is eligible to take the Federal Aviation Administration written, oral and practical examination for airframe or powerplant license.

Certificate of Achievement and Associate in Science Degree

A Certificate of Achievement can be obtained upon completion of one of the 41-unit majors listed below. An Associate in Science Degree can be obtained upon completion of the units required for the major in either Airframe or Powerplant or Airframe and Powerplant and general education requirements.

The Federal Aviation Administration (FAA) requires 1900 hours (four full semesters and one four week summer session) of instruction to complete the combination airframe and powerplant curriculum.

Airframe Maintenance Technician

Required Courses

	Units
AERO 55— Aviation Maintenance Technician General I	10
AERO 102—Airframe Maintenance I	10
AERO 103—Aviation Maintenance Technician General II	10
AERO 105—Airframe Maintenance II	10
AERO 118—FAA Airframe Test Rev. & Qual.	1
	41

To obtain the combination Airframe & Powerplant Maintenance Technician certificate or degree, complete the three courses listed below:

	Units
AERO 106—Powerplant Maintenance I	10
AERO 107—Powerplant Maintenance II	10
AERO 119—FAA Powerplant Test Rev. & Qual.	1
	21

Recommended Electives:
AERO 110, 111, 112, 113, 150
OCCED 90, 91

Powerplant Maintenance Technician

Required Courses

	Units
AERO 55— Aviation Maintenance Technician General I	10
AERO 103—Aviation Maintenance Technician General II	10
AERO 106—Powerplant Maintenance I	10
AERO 107—Powerplant Maintenance II	10
AERO 119—FAA Powerplant Test Rev. and Qual.	1
	41

To obtain the combination Airframe & Powerplant Maintenance Technician certificate or degree, complete the three courses listed below:

	Units
AERO 102—Airframe Maintenance I	10
AERO 105—Airframe Maintenance II	10
AERO 118—FAA Airframe Test Rev. & Qual.	1
	21

Recommended Electives :
AERO 110, 111, 112, 113, 150
OCCED 90, 91

Aeronautics

Avionics Technician

Program Description

This program prepares students to work in the Avionics field as a technician skilled in the installation, troubleshooting, removal and repair of all cockpit instruments which includes: airborne communications, navigation, and identification systems; automatic flight control systems; head-up displays; airborne weapons and reconnaissance systems; air traffic control systems, including communications, displays and surveillance systems; ground radar systems, including those for early warning and missile/space tracking; electro-optic, infrared and laser systems; space satellite communications systems; telemetry systems and space vehicle avionics. They will be familiar with the government regulations associated with such equipment and be prepared, if the opportunity presents itself, to open their own business in the field.

Certificate of Achievement and Associate in Science Degree

A Certificate of Achievement can be obtained upon completion of the 28-unit major. The Associate in Science Degree can be obtained by completing a total of 60 units, including the major and the general education requirements.

Required Courses

	Units
AERO 110— Instrument Power Distribution & Flight Control Systems	7
AERO 111—Aircraft Communications Systems	7
AERO 112—Aircraft Navigation Systems	7
AERO 113—Aircraft Radar & Pulse Systems	7
	28

Aeronautics courses numbered 200 and above are intended as refresher courses and may be used to prepare for FAA licensing. They are not applicable toward the certificate or A.S. Degree in Airframe Maintenance or Powerplant Maintenance and are not covered under Part 147 FAR's or the school FAA certification.
Students with prior experience or schooling must have Solano instructor verification for substitution or waivering. "Proof of Proficiency Exam" may be required prior to enrollment in any class other than 55.

AERO 55 **10 Units**

Aviation Maintenance Technician General I
Course Advisory: SCC minimum English and math standards. Presents the fundamentals necessary for the advanced study in aeronautics. It will define the history of aviation and powerplant operation, and the study of flight; aircraft weight and balance, ground operation and servicing, mathematics, maintenance forms and records, basic physics, maintenance publication, and mechanic privileges and limitation. Safety is stressed throughout the course. In addition, this course is a study of the methods and processes used in the production of an aircraft, including shop safety, use of hand tools and power equipment, aircraft drawings, cleaning , corrosion control, and the processes used by the manufacturers for aircraft construction. *Five hours lecture, fifteen hours lab.*

AERO 102 **10 Units**

Airframe Maintenance I
Course Advisory: SCC minimum English standard; AERO 55. Presents the application of fundamental methods, techniques and practices used in aircraft inspection, maintenance and repair. Includes shop safety, wood structures, fabric covering, finishes, composite structures, plastics, sheet metal structures, welding, assembly and rigging, and airframe inspection. *Five hours lecture, fifteen hours lab.*

AERO 103 **10 Units**

Aviation Maintenance Technician General II
Course Advisory: SCC minimum English standard; AERO 55. A study of fluid control systems and components with emphasis on design, maintainability, testing and repair. Includes hydraulic fluids, lines and fittings, inspection, checking, servicing and testing of pneumatic and hydraulic systems. Presents theory and application of direct and alternating current as related to air electrical components and systems. *Five hours lecture, fifteen hours lab.*

AERO 105 **10 Units**

Airframe Maintenance II
Course Advisory: SCC minimum English standard. A detailed study of aircraft systems, their fabrication, maintenance, and repair. Includes landing gear, hydraulic, pneumatic, atmosphere control, instruments, communication, navigation, fuel, position, warning, rain and fire protection systems. *Five hours lecture, fifteen hours lab.*

AERO 106 **10 Units**

Powerplant Maintenance I
Course Advisory: SCC minimum English standard; AERO 55. Presents a study of the theory, operation, maintenance and repair of reciprocating engines and accessories. *Five hours lecture, fifteen hours lab.*

AERO 107 **10 Units**

Powerplant Maintenance II
Course Advisory: SCC minimum English standard; AERO 55. Presents a study of the theory, operation, maintenance and repair of the turbine engine and accessories. *Five hours lecture, fifteen hours lab.*

AERO 110 **7 Units**

Instrument Power Distribution & Flight Control Systems
Prerequisites: ECTRN 53 and ECTRN 126. A study of basic principles of the electronic systems used on modern aircraft including a review of the principles of flight, aircraft power distribution, basic flight control systems, an introduction to avionics equipment maintenance and repair and Federal Avionics Administration rules, documentation, aircraft drawings and various manufacturers support manuals. Mandatory field and laboratory experience will include typical installation and repair facilities, federal laws governing installation, repair and calibration of equipment used in conjunction with avionics maintenance. *Five hours lecture, six hours lab.*

AERO 111 **7 Units**

Aircraft Communication Systems
Prerequisites: ECTRN 53 and ECTRN 126. A study of the basic principles of communication systems used on modern aircraft including information on maintenance levels, FAA and FCC requirements, customer relations, basic RF systems, RF transmitters, antenna systems, related test equipment, documentation, aircraft drawing and various manufacturer's support manuals will be used. Mandatory field and laboratory experience will include typical installation and repair facilities, federal laws governing installation, repair and calibration of equipment used in conjunction with communication systems. *Five hours lecture, six hours lab.*

AERO 112 **7 Units**

Aircraft Navigation Systems
Prerequisites: ECTRN 53 and ECTRN 126. A study of basic principles of the navigation systems used on modern aircraft including the "glass cockpit" and the general theory of navigation systems will be addressed, along with specific investigation into ADF VOR/localizer, glide slope, marker beacon systems, aircraft drawings and various manufacturer's support manuals will be used. Mandatory field and laboratory experience will include typical installations and repairs of each system and the facilities necessary to accomplish the task. Also the student will study the Federal laws governing installation, repair and calibration of equipment used in conjunction with navigation systems. *Five hours lecture, six hours lab.*

AERO 113 **7 Units**

Aircraft Radar and Pulse Systems
Prerequisites: ECTRN 53 and ECTRN 126. A study of the basic principles of the radar and pulse systems used on modern aircraft including the theory of radar and pulse systems, analog MTI systems, analog signal processing FM-CW radar wave propagation targets, and DME and trans ponder principles. An introduction to radar procedures, aircraft drawings and various manufacturer's support manuals will be used. Mandatory field and laboratory experience will include typical installation and repair facilities, Federal laws governing installation, repair and calibration of equipment used in conjunction with radar and pulse systems. *Five hours lecture, six hours lab.*

AERO 118 **.5-1.5 Units**

FAA Airframe Test Review and Qualification
Course Advisories: SCC minimum English and math standards; AERO 55. To be taken during the final semester of a student's enrollment in the Aviation Program. Consists of a comprehensive oral, practical, and written examination of all material covered in the Airframe Program for the purpose of verifying the student's readiness to pass the Federal Aviation Administration Airframe Examinations. This is an open entry/open exit course. May be repeated to a maximum of 1.5 units, including initial enrollment. *Six to eighteen hours lab (4 week course).*

AERO 119 **.5-1.5 Units**

FAA Powerplant Test Review and Qualification
Course Advisories: SCC minimum English and math standards; AERO 55. To be taken during the final semester of a student's enrollment in the Aviation Program. Consists of a comprehensive oral, practical, and written examination of all material covered in the Powerplant Program for the purpose of verifying the student's readiness to pass the Federal Aviation Administration Powerplant Examinations. This is an open entry/open exit course. May be repeated to a maximum of 1.5 units, including initial enrollment. *Six to eighteen hours lab (4 week course).*

AERO 150 **1-3 Units**

FAA Special Projects and Course Enhancement
Course Advisories: SCC minimum English and math standards; Any Solano College AERO course (55-119); or previous training/experience in aeronautics. Designed to give aeronautic students a chance to make up time lost for FAA certificate and/or to work on special projects required by FAA to bring students in line with new FAA FAR Part 66 requirements. Also allows mechanics to take recurrent training. This is an open entry/open exit course. May be repeated to a maximum of 3 units, including initial enrollment. *One and one half to four and one half hours lecture.*

Special Topics
These courses, numbered 98, 148, or 248, depending upon their transferability, are courses of contemporary interest centered on changing knowledge and important issues in the field. Announcements of Special Topics courses appear in the Schedule of Classes.