ACS 110 Intercollegiate Basketball (2)
A minimum of 175 hours (lecture/laboratory) of student participation is required.
Note: May be taken 3 times
Transfer acceptability: CSU; UC - max credit combined with PE activity courses, 4 units
This course provides men and women with the opportunity to develop advanced skills and the strategies in intercollegiate basketball which will be applied to competitive situations.

ACS 115 Intercollegiate Golf (2)
A minimum of 175 hours (lecture/laboratory) of student participation is required.
Note: May be taken 3 times
Transfer acceptability: CSU; UC - max credit combined with PE activity courses, 4 units
This course provides men with the opportunity to develop advanced skills and the strategies in intercollegiate golf which will be applied to competitive situations

ACS 120 Intercollegiate Tennis (2)
A minimum of 175 hours (lecture/laboratory) of student participation is required.
Note: May be taken 3 times
Transfer acceptability: CSU; UC - max credit combined with PE activity courses, 4 units
This course provides men and women with the opportunity to develop advanced skills and the strategies in intercollegiate tennis which will be applied to competitive situations.

ACS 125 Intercollegiate Soccer (2)
A minimum of 175 hours (lecture/laboratory) of student participation is required.
Note: May be taken 3 times
Transfer acceptability: CSU; UC - max credit combined with PE activity courses, 4 units
This course provides men and women with the opportunity to develop advanced skills and the strategies in intercollegiate soccer which will be applied to competitive situations.

ACS 130 Intercollegiate Volleyball (2)
A minimum of 175 hours (lecture/laboratory) of student participation is required.
Note: May be taken 3 times
Transfer acceptability: CSU; UC - max credit combined with PE activity courses, 4 units
This course provides men and women with the opportunity to develop advanced skills and the strategies in intercollegiate volleyball which will be applied to competitive situations.

ACS 135 Intercollegiate Swimming and Diving (2)
A minimum of 175 hours (lecture/laboratory) of student participation is required.
Note: May be taken 3 times
Transfer acceptability: CSU; UC - max credit combined with PE activity courses, 4 units
This course provides men and women with the opportunity to develop advanced skills and the strategies in intercollegiate swim/diving which will be applied to competitive situations.

ACS 140 Intercollegiate Water Polo (2)
A minimum of 175 hours (lecture/laboratory) of student participation is required.
Note: May be taken 3 times
Transfer acceptability: CSU; UC - max credit combined with PE activity courses, 4 units
This course provides men and women with the opportunity to develop advanced skills and the strategies in intercollegiate water polo which will be applied to competitive situations.

ACS 145 Intercollegiate Football (2)
A minimum of 175 hours (lecture/laboratory) of student participation is required.
Note: May be taken 3 times
Transfer acceptability: CSU; UC - max credit combined with PE activity courses, 4 units
This course provides students with the opportunity to develop advanced skills and the strategies in intercollegiate football which will be applied to competitive situations.

ACS 150 Intercollegiate Wrestling (2)
A minimum of 175 hours (lecture/laboratory) of student participation is required.
Note: May be taken 3 times
Transfer acceptability: CSU; UC - max credit combined with PE activity courses, 4 units
This course provides students with the opportunity to develop advanced skills and the strategies in intercollegiate wrestling which will be applied to competitive situations.

ACS 155 Intercollegiate Baseball (2)
A minimum of 175 hours (lecture/laboratory) of student participation is required.
Note: May be taken 3 times
Transfer acceptability: CSU; UC - max credit combined with PE activity courses, 4 units
This course provides students with the opportunity to develop advanced skills and the strategies in intercollegiate baseball which will be applied to competitive situations.

ACS 160 Intercollegiate Cross Country (2)
A minimum of 175 hours (lecture/laboratory) of student participation is required.
Note: May be taken 3 times
Transfer acceptability: CSU; UC - max credit combined with PE activity courses, 4 units
This course provides men and women with the opportunity to develop advanced skills and the strategies in intercollegiate cross country which will be applied to competitive situations.

Automotive Technology (AT)

Contact the Trade and Industry Department for further information, (760) 744-1150, ext. 2545

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAMS OF STUDY

Auto Body Work

In order to earn a certificate, students must achieve a minimum grade of 'C' in each of the certificate program courses.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
R AT 50	Auto Body Repair I	4
R AT 51	Auto Body Repair II	4
R AT 55	Auto Refinishing I	4
R AT 56	Auto Refinishing II	4
Elective Courses (Select 6 Units)		
AT 100	Auto Maintenance and Minor Repair	3
AT 105	Automotive Electricity	2
CE 100	Cooperative Education	1,2,3,4
IT 100	Technical Mathematics	3
WELD 100	Welding I	2
TOTAL UNITS		**22**

Auto Body Work A.A. Degree or Certificate of Achievement is also listed under R.O.P. Automotive Technology.

To satisfy a prerequisite, the student must have earned a letter grade of A, B, C or CR in the prerequisite course, unless otherwise stated.

Auto Chassis and Drive Lines

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
IT 100	Technical Mathematics	3
R AT 50 or	Auto Body Repair I	
WELD 100	Welding I	3,4
AT 105	Automotive Electricity	2
AT 120	Automatic Transmissions and Drive Lines	3
AT 130	Automotive Brakes	3
AT 135	Front End Alignment and Wheel Service	3
AT 160	Associated Studies in Automotives	3
TOTAL UNITS		**20 - 21**

Electronic Tune Up and Computer Control Systems

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
IT 100	Technical Mathematics	3
AT 105	Automotive Electricity	2
AT 110	Automotive Tune up and Engine Analysis	3
AT 115	Automotive Carburetion and Fuel Systems	3
AT 160	Associated Studies in Automotives	3
AT 210	Specialized Automotive Electronics	3
AT 215	Automotive Emission Control	3
Electives (Select 6-7 units)		
AT 100	Auto Maintenance and Minor Repair	3
AT 145	Auto Emissions/Diagnosis	3
DMT 70/		
R DMT 70 or	Med-Duty Diesel Engine Tune up	
DMT 55/		
R DMT 55	Heavy-Duty Diesel Tune up/Analysis	3
WELD 100	Welding I	3
CE 100	Cooperative Education	2,3
TOTAL UNITS		**26 - 27**

Mechanics-General

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
IT 100	Technical Mathematics	3
AT 160	Associated Studies in Automotives	3
AT 105	Automotive Electricity	2
AT 110	Automotive Tune up and Engine Analysis	3
AT 120	Automatic Transmissions and Drive Lines	3
AT 125	Automotive Machining	3
AT 130	Automotive Brakes	3
AT 225	Automotive Engine Rebuilding	3
R AT 50 or	Auto Body Repair I	
WELD 100	Welding I	3,4
Electives (Select 2 courses)		
AT 100	Auto Maintenance and Minor Repair	3
AT 115	Automotive Carburetion and Fuel Systems	3
CE 100	Cooperative Education	2,3,4
TOTAL UNITS		**31 - 34**

COURSE OFFERINGS

AT 100 Auto Maintenance and Minor Repair (3)
2 hours lecture-3 hours laboratory
Transfer acceptability: CSU
Designed for the student with little or no background in the automotive field. The course covers many maintenance and minor repair items as well as basic theory of operation. The areas covered include batteries, cooling systems, drive belts, lubrication, brakes, tires, and consumer education.

AT 105 Automotive Electricity (2)
4 hours lecture/laboratory
Auto electrical systems including A.C. generators, batteries, solid state starters, wiring diagrams, and/or electrical troubleshooting that includes solid state and low voltage low amperage systems.

AT 110 Automotive Tune Up and Engine Analysis (3)
2 hours lecture-3 hours laboratory
The use of tune up testing and diagnostic equipment; the study of conventional and electronic ignition systems; compression, cylinder balance, and dynamometer testing.

AT 115 Automotive Carburetion and Fuel Systems (3)
2 hours lecture-3 hours laboratory
The principles, technical knowledge, and work experience in the field of carburetion. Specific topics include single, dual, and four barrel carburetors; fuel injection; fuel supply systems; and combustion evaluation instruments.

AT 120 Automatic Transmissions and Drive Lines (3)
2 hours lecture-3 hours laboratory
The hydraulic and mechanical function and repair of automatic transmissions. The disassembly, inspection, reassembly, and testing of three speed conventional transmissions, clutches, universal joints, and differentials.

AT 125 Automotive Machining (3)
6 hours lecture/laboratory
The various testing and machining operations involved in an automotive machine shop. Areas covered include cylinder head service and repair, pin fitting, cylinder boring, milling, align boring, and various other automotive machining and measuring techniques.

AT 130 Automotive Brakes (3)
2 hours lecture-4 hours laboratory
The hydraulic and mechanical function of automotive brake systems. Brake troubleshooting, complete system repair, and overhaul of power, drum, and disc brakes. Preparation for the State Brake License.

AT 135 Front End Alignment and Wheel Service (3)
2 hours lecture-4 hours laboratory
The repair and adjustment of the undercarriage of the automobile. Included are such areas as steering, geometry, turn radius, ball joints, toe track, camber, caster, suspension, bearing service, wheel balance, and tire wear identification. Preparation for the State Lamp License.

AT 145 Auto Emissions, Diagnosis, Drivability, and Repair (3)
6 hours lecture/laboratory
Auto emissions diagnosis and repair using an individual baseline approach and loaded-mode testing equipment to solve emission failures. Includes use of scan tools, digital storage oscilloscopes, and inflight analyzers to logically repair the vehicles.

AT 150 Chassis Restoration and Assembly (3)
6 hours lecture/laboratory
Prerequisite: A minimum grade of 'C' in AT 100
Course covers basic disassembly and documentation of antique automotive chassis and components. Lab activities will focus on correct detailing and reassembly of vintage automobile chassis and related undercarriage elements.

AT 155 Body Restoration and Assembly (3)
6 hours lecture/laboratory
Prerequisite: A minimum grade of 'C' in R AT 50
Note: May be taken 2 times
Course covers basic disassembly and documentation of antique automotive bodies and components. Lab activities will focus on correct detailing, restoration and reassembly of vintage automobiles and related elements, using historically authentic materials and techniques.

AT 160 Associated Studies in Automotives (3)
3 hours lecture
Note: May be taken 4 times
Applied science and technology as related to the automotive field. Areas covered include metrics, Ohms Law and electron theory, metal alloys and their properties and uses, thermal expansion, gas laws, limits and fits, and friction and torque.

AT 196 Special Problems in Automotives (1,2,3)
3, 6, or 9 hours laboratory
Recommended preparation: Completion of a minimum of 12 units in Automotive Technology (may include 6 concurrent Automotive Technology units)
Note: May be taken 4 times
Special study in an area of interest related to automotives; generally research in nature. The content to be determined by the need of the student under signed contract with the instructor.

AT 197 Topics in Automotive (.5-3)
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.
Note: May be taken 4 times
Topics in automotive technology. See Class Schedule for the specific topic offered. Course title will designate subject covered.

AT 210 Specialized Automotive Electronics (3)
2 hours lecture-3 hours laboratory
Recommended preparation: AT 105 or 110
Electronic principles as they pertain to the automobile. Identification, diagnosis, repair, and verification of malfunctioning electronic components is the major objective of the course. Computer controls fundamentals and diagnosis of GM systems, 1981-1990.

AT 215 Automotive Emission Control (3)
3 hours lecture-2 hours laboratory
Recommended preparation: AT 110 and 115
Auto emission controls as prescribed by Federal Law and California Air Resources Board. Analysis and testing of emission controls will be presented. Study of current laws for state exam preparation.

AT 225 Automotive Engine Rebuilding (3)
2 hours lecture-4 hours laboratory
The complete rebuilding of at least one automobile engine using the machine tools and techniques of industry.

Aviation Sciences (AVIA)

Contact the Earth, Space, and Aviation Sciences Department for further information, (760) 744-1150, ext. 2512. For transfer information, consult a Palomar College counselor.

Associate in Arts degree requirements, Certificate of Achievement requirements, and Certificate of Proficiency requirements are listed in Section 6 (green pages) of the catalog.

PROGRAMS OF STUDY

Aviation Operations and Management

For students interested in the business or piloting aspects of aviation. Transfers to some four year programs in this field.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
AVIA 100	Introduction to Aviation Sciences	3
AVIA 105	Basic Pilot Ground School	3
AVIA 115	Air Traffic Control	3
AVIA 120	Aviation Weather	3
BUS 205	Business Writing	3
ECON 101	Principles of Economics (Macro)	3
ECON 102	Principles of Economics (Micro)	3
Elective Courses (Select 15 units minimum)		
ACCT 103 and	Financial Accounting	4
ACCT 104	Accounting Spreadsheet Laboratory	1
AVIA 106	Commercial Pilot Ground School	3
AVIA 107	Instrument Pilot Ground School	3
AVIA 108	Flight Instructor Ground School	3
AVIA 125	Instrument Simulator Lab	1.5
AVIA 145	Glass Cockpits and GPS Navigation	1
AVIA 205	Principles of Aerodynamics	3
AVIA 210	Aviation Safety and Accident Investigation	3
AVIA 220	Regional Airline Aircraft Systems	3
BUS 115	Business Law	3
BUS 155	Marketing	3
BMGT 110	Human Resource Management	3
BMGT 115	Organizational Theory and Design	3
CSIS 105	Computer Concepts/Microcomputer Apps.	3
GEOG 110	Meteorology: Weather and Climate	3
MATH 115	Trigonometry	3
MATH 120	Elementary Statistics	3
PHYS 120	General Physics	4
PHYS 121	General Physics	4
CE 100	Cooperative Education	1,2,3,4
TOTAL UNITS		**36**

Flight training is the sole responsibility of each student and is contracted with an F.A.A. approved flight school at the student's own expense. The Palomar Community College District accepts no responsibility or liability for the student's flight training program.

Aircraft Commercial Pilot

Prepares students for employment as commercial pilots in air taxi and other field related flying operations. Transfers to some four year programs in this field.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
AVIA 75	Private Pilot Certification	2
AVIA 80	Instrument Rating Certification	2
AVIA 85	Commercial Pilot Certification	3
AVIA 100	Introduction to Aviation Sciences	3
AVIA 105	Basic Pilot Ground School	3
AVIA 106	Commercial Pilot Ground School	3
AVIA 107	Instrument Pilot Ground School	3
AVIA 110	Basic Pilot Flight Procedures	2
AVIA 115	Air Traffic Control	3
AVIA 120	Aviation Weather	3
AVIA 125	Instrument Simulator Laboratory	1.5
AVIA 140	Aviation Math/ Modern Navigation	3
AVIA 205	Principles of Aerodynamics	3
AVIA 210	Aviation Safety and Accident Investigation	3
AVIA 215	Complex Aircraft Systems and Propulsion	3
TOTAL UNITS		**40.5**

Recommended Electives: *AVIA 108, 145; BUS 205; GEOG 110*
Flight training is the sole responsibility of each student and is contracted with