Athletics and Competitive Sports-Auto Body-Automotive Technology

ACS 150  Intercollegiate Wrestling  
175 instructional hours.  
Transfer acceptability: CSU; UC - max credit combined with KINE activity courses, 4 units  
Provides students with the opportunity to develop advanced skills and strategies in intercollegiate wrestling which will be applied to competitive situations.

ACS 155  Intercollegiate Baseball  
175 instructional hours.  
Transfer acceptability: CSU; UC - max credit combined with KINE activity courses, 4 units  
Provides students with the opportunity to develop advanced skills and strategies in intercollegiate baseball which will be applied to competitive situations.

ACS 160  Intercollegiate Cross Country  
175 instructional hours.  
Transfer acceptability: CSU; UC - max credit combined with KINE activity courses, 4 units  
Provides men and women with the opportunity to develop advanced skills and strategies in intercollegiate cross country which will be applied to competitive situations.

ACS 165  Intercollegiate Track and Field  
175 instructional hours.  
Transfer acceptability: CSU; UC - max credit combined with KINE activity courses, 4 units  
This course provides students with the opportunity to develop advanced skills and the strategies in intercollegiate track and field which will be applied to competitive situations.

ACS 180  Intercollegiate Sand Volleyball  
9 hours laboratory  
Transfer acceptability: CSU; UC  
Provides women with the opportunity to develop advanced skills and strategies in intercollegiate sand volleyball which will be applied to competitive situations.

ACS 197  Topics in Athletics and Competitive Sports  
0.5 - 4 units  
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture and/or laboratory may be scheduled by the department. Refer to Class Schedule.  
Topics in Athletics and Competitive Sports. See Class Schedule for specific topic offered. Course title will designate subject covered.

Auto Body (AB)

Contact the Trade and Industry Department for further information.  
(760) 744-1150, ext. 2545  
Office: T-102A

AB 50  Auto Body Repair I  
(Formerly AT 30)  
1½ hours lecture - 4½ hours laboratory  
Automotive body work with emphasis on repair. Includes welding; working with small damage points; restoring contour of body panels and sections; and realigning bumpers, fenders, doors, and hoods.

AB 55  Auto Refinishing I  
(Formerly AT 55)  
1½ hours lecture - 4½ hours laboratory  

AB 56  Auto Refinishing II  
(Formerly AT 56)  
1½ hours lecture - 4½ hours laboratory  
Recommended preparation: AB 55  
Skill development in automotive refinishing techniques, including base-coat, clearcoat application; color matching concepts; and identification, prevention and correction of painting problems. New products, techniques, and trends will be covered.

AB 97  Auto Body Repair/Auto Refinishing Topics  
0.5 - 4 units  
Formerly AT 97  
Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture and/or laboratory may be scheduled by the department. Refer to Class Schedule.  
Topics in auto body repair and auto refinishing. See Class Schedule for specific topic offered. Course title will designate subject covered.

AB 105  Chassis Restoration and Assembly  
(Formerly AT 150)  
1½ hours lecture - 4½ hours laboratory  
Prerequisite: A minimum grade of 'C' in  AT 100  
Transfer acceptability: CSU  
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.

AB 110  Body Restoration and Assembly  
(Formerly AT 155)  
1½ hours lecture - 4½ hours laboratory  
Prerequisite: A minimum grade of 'C' in AB 50  
Transfer acceptability: CSU  
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.

Automotive Technology (AT)

Contact the Trade and Industry Department for further information.  
(760) 744-1150, ext. 2545  
Office: T-102A

Associate in Science Degrees -  
AS Degree requirements are listed in Section 6 (green pages).  
- Auto Chassis and Drive Lines  
- Auto Collision Repair  
- Electronic Tune Up and Computer Control Systems  
- Mechanics - General

Certificates of Achievement -  
Certificate of Achievement requirements are listed in Section 6 (green pages).  
- Auto Chassis and Drive Lines  
- Auto Collision Repair  
- Electronic Tune Up and Computer Control Systems  
- Mechanics - General

See Catalog addendum at http://www.palomar.edu/catalog
PROGRAMS OF STUDY

Auto Chassis and Drive Lines
This program will prepare students for entry level positions in all aspects of the Automotive Industry with an emphasis in drive-line repair.

A.S. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements
AT 105 Automotive Electricity 3
AT 105L Automotive Electricity Computer Training Lab 1
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
AT 170 Auto Repair Shop Experience 2
AT 220 Advanced Automotive Transmissions 3
IT/WELD 108 Technical Mathematics 3
AB 50 Auto Body Repair I 3
or
WELD 100 Welding I 3
TOTAL UNITS 27

Auto Collision Repair
This program will prepare students for an entry level position in the automotive collision repair industry.

A.S. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements
AB 50 Auto Body Repair I 3
AB 51 Auto Body Repair II 3
AB 55 Auto Refinishing I 3
AB 56 Auto Refinishing II 3
IT/WELD 108 Technical Mathematics 3
Elective Courses (Select 6 units)
AT 100 Auto Maintenance and Minor Repair 3
AT 105 Automotive Electricity 3
AT 105L Automotive Electricity Computer Training Lab 1
AT 110 Automatic Tune Up and Engine Analysis 3
AT 110L Automotive Tune Up and Computer Training Lab 1
AT 120 Automatic Transmissions and Drive Lines 3
AT 125 Automotive Machining 3
AT 130 Automotive Brakes 3
AT 160 Associated Studies in Automotives 3
AT 220 Advanced Automotive Transmissions 3
AT 225 Automotive Engine Rebuilding 3
IT/WELD 108 Technical Mathematics 3
Electives (Select 4 units)
AB 50 Auto Body Repair I 3
AT 100 Auto Maintenance and Minor Repair 3
AB 105 and Automotive Fuel Injection and Fuel Systems 3
AT 115L Automotive Fuel Systems Computer Training Lab 1
AT 165 Automotive Air Conditioning 2
AT 170 Auto Repair Shop Experience 2
WELD 100 Welding I 3
CE 100 Cooperative Education 2, 3, 4
TOTAL UNITS 33

Electronic Tune Up and Computer Control Systems
This program will prepare students for entry level positions in all aspects of the Automotive Industry with an emphasis in drive-ability concerns.

A.S. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements
AT 105 Automotive Electricity 3
AT 105L Automotive Electricity Computer Training Lab 1
AT 110 Automatic Tune up and Engine Analysis 3
AT 110L Automotive Tune up and Computer Training Lab 1
AT 115 Automotive Fuel Injection and Fuel Systems 3
AT 115L Automotive Fuel Systems Computer Training Lab 1
AT 160 Associated Studies in Automotives 3
AT 210 Specialized Automotive Electronics 3
AT 215 Automotive Emission Control 3
IT/WELD 108 Technical Mathematics 3
Electives (Select 6-7 units)
AT 100 Auto Maintenance and Minor Repair 3
AT 165 Automotive Air Conditioning 2
AT 170 Auto Repair Shop Experience 2
DMT 130 Medium-Duty Diesel Engine Tune-Up 4
or
DMT 105 Heavy-Duty Diesel Tune-Up and Engine Analysis 4
WELD 100 Welding I 3
CE 100 Cooperative Education 2 - 3
TOTAL UNITS 30 - 31

Mechanics-General
This program will prepare students for entry level positions in all aspects of the Automotive Industry.

A.S. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements
AT 105 Automotive Electricity 3
AT 105L Automotive Electricity Computer Training Lab 1
AT 110 Automatic Tune up and Engine Analysis 3
AT 110L Automotive Tune up and Computer Training Lab 1
AT 120 Automatic Transmissions and Drive Lines 3
AT 125 Automotive Machining 3
AT 130 Automotive Brakes 3
AT 160 Associated Studies in Automotives 3
AT 220 Advanced Automotive Transmissions 3
AT 225 Automotive Engine Rebuilding 3
IT/WELD 108 Technical Mathematics 3
Electives (Select 4 units)
AT 100 Auto Maintenance and Minor Repair 3
AT 105 Automotive Electricity 3
AT 115 and Automotive Fuel Injection and Fuel Systems 3
AT 115L Automotive Fuel Systems Computer Training Lab 1
AT 165 Automotive Air Conditioning 2
AT 170 Auto Repair Shop Experience 2
WELD 100 Welding I 3
CE 100 Cooperative Education 2, 3, 4
TOTAL UNITS 33

COURSE OFFERINGS

Courses numbered under 100 are not intended for transfer credit.

AT 100 Auto Maintenance and Minor Repair 3
Transfer acceptability: CSU
2 hour lecture - 3 hours laboratory
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 3
Transfer acceptability: CSU
2 hour lecture - 3 hours laboratory
Corequisite: AT 105L
Auto electrical systems including A.C. generators, batteries, solid state starters, wiring diagrams, and/or electrical troubleshooting and repair that includes solid state and low voltage low amperage systems.
AT 105L Automotive Electricity Computer Training Lab (1)
3 hours laboratory
Corequisite: AT 105
Transfer acceptability: CSU
Students will use training computers to complete assignments in automotive electricity. Hi-tech automotive simulators and trainers will be used to enhance student learning. Software will also be used for Automotive Service Excellence (ASE) certification preparation.

AT 110 Automotive Tune Up and Engine Analysis (3)
2 hours lecture - 3 hours laboratory
Corequisite: AT 110L
Transfer acceptability: CSU
The use of tune up testing and diagnostic equipment; the study of conventional fuel injection systems; compression, cylinder balance, and dynamometer testing.

AT 110L Automotive Tune Up Computer Training Lab (1)
3 hours laboratory
Corequisite: AT 110
Transfer acceptability: CSU
Students will use training computers to complete assignments in automotive engine performance. Hi-tech automotive simulators and trainers will be used to enhance student learning. Software will also be used for Automotive Service Excellence (ASE) certification preparation.

AT 115 Automotive Fuel Injection and Fuel Systems (3)
2 hours lecture - 3 hours laboratory
Corequisite: AT 115L
Transfer acceptability: CSU
The principles, technical knowledge, and work experience in the field of retion and fuel injection. Specific topics include four barrel carburetors; fuel injection; fuel supply systems; and combustion evaluation instruments.

AT 115L Automotive Fuel Systems Computer Training Lab (1)
3 hours laboratory
Corequisite: AT 115
Transfer acceptability: CSU
Students will use training computers to complete assignments in automotive fuel systems. Hi-tech automotive simulators and trainers will be used to enhance student learning. Software will also be used for Automotive Service Excellence (ASE) certification preparation.

AT 120 Automatic Transmissions and Drive Lines (3)
2 hours lecture - 3 hours laboratory
Transfer acceptability: CSU
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)
1 1/2 hours lecture - 4 1/2 hours laboratory
Transfer acceptability: CSU
The various testing and machining operations involved in an automotive machine shop. Areas covered include cylinder head service and repair, connecting rod service, cylinder boring and honing, crankshaft service, and various other automotive machining and measuring techniques.

AT 130 Automotive Brakes (3)
2 hours lecture - 3 hours laboratory
Transfer acceptability: CSU
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
Transfer acceptability: CSU
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 140 Specialized Automotive Electronics (3)
2 hours lecture - 3 hours laboratory
Transfer acceptability: CSU
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 150 Automotive Air Conditioning (2)
1 1/2 hours lecture - 1 1/2 hours laboratory
Transfer acceptability: CSU
The principles of operation and servicing of modern automotive air conditioning systems. Both lecture and lab time will be devoted to studying the refrigeration and heating system, ventilation and ducting, and the electrical system. Students will complete and receive their refrigerant license as well as be prepared for ASE certification.

AT 155 Automotive Emission Control (3)
3 hours lecture - 2 hours laboratory
Transfer acceptability: CSU
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 220  Advanced Automotive Transmissions  (3)
2 hours lecture - 3 hours laboratory
Prerequisite: A minimum grade of ‘C’ in AT 120
Transfer acceptability: CSU
Advanced specialized training in automatic transmissions currently in use in General Motors vehicles with an emphasis on the 3T40 transaxle.

AT 225  Automotive Engine Rebuilding  (3)
2 hours lecture - 4 hours laboratory
Transfer acceptability: CSU
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
Office: NS-110G
For transfer information, consult a Palomar College Counselor.

Associate in Science Degrees -
AS Degree requirements are listed in Section 6 (green pages).
• Aviation Operations and Management
• Aircraft Commercial Pilot

Certificates of Achievement -
Certificate of Achievement requirements are listed in Section 6 (green pages).
• Aviation Operations and Management
• Aircraft Commercial Pilot

Program Requirements Units

A.S. DEGREE MAJOR OR
CERTIFICATE OF ACHIEVEMENT

Program Offerings (Select 15 units minimum)
ACCT 201  and  Financial Accounting  4
ACCT 104  Accounting Spreadsheet Concepts  2
AVIA 100  Introduction to Aviation Sciences  3
AVIA 105  Basic Pilot Ground School  3
AVIA 120  Aviation Weather  3
BUS 205  Business Communication  3
ECON 101  Principles of Economics (Macro)  3
ECON 102  Principles of Economics (Micro)  3

Elective Courses (Select 15 units minimum)
ACCT 201 and  Financial Accounting  4
ACCT 104  Accounting Spreadsheet Concepts  2
AVIA 100  Introduction to Aviation Sciences  3
AVIA 105  Basic Pilot Ground School  3
AVIA 120  Aviation Weather  3
BUS 205  Business Communication  3
BUS 155  Marketing  3
BMGT 110  Human Resources Management  3
BMGT 115  Organizational Theory and Design  3
CSIT 105  Computer Concepts and Applications  3
GEOG 110  Meteorology; Weather and Climate  3
MATH 115  Trigonometry  3
MATH 120  Elementary Statistics  4
PHYS 120  General Physics  4
PHYS 121  General Physics  4
CE 100  Cooperative Education  1, 2, 3, 4

TOTAL UNITS  33

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.S. 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 120  Aviation Weather  3
AVIA 145  Glass Cockpits and GPS Navigation  1

TOTAL UNITS  23

*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.

COURSE OFFERINGS
Courses numbered under 100 are not intended for transfer credit.

AVIA 75  Private Pilot Certification  (2)
1 hour lecture - 3 hours laboratory
Note: Pass/No Pass grading only
Upon presentation of a Private Pilot Certificate, the student will be given credit (no grade). Flight training is to be completed off campus with an F.A.A. certified flight instructor of the student’s choice and at the student’s own expense. The Palomar Community College District accepts no responsibility or liability for the flight training obtained from private instructors. The student should register for this course in the semester during which the training is to be completed.

AVIA 80  Instrument Rating Certification  (2)
1 hour lecture - 3 hours laboratory
Note: Pass/No Pass grading only
Upon presentation of an Instrument Rating, the student will be given credit (no grade). Flight training is to be completed off campus with an F.A.A. certified flight instructor of the student’s choice and at the student’s own expense. The Palomar Community College District accepts no responsibility or liability for the flight training obtained from private instructors. The student should register for this course in the semester during which the training is to be completed.

AVIA 85  Commercial Pilot Certification  (3)
1 hour lecture - 6 hours laboratory
Note: Pass/No Pass grading only
Upon presentation of a Commercial Pilot Certificate, the student will be given credit (no grade). Flight training is to be completed off campus with an F.A.A. certified flight instructor of the student’s choice and at the student’s own expense. The Palomar Community College District accepts no responsibility or liability for the flight training obtained from private instructors. The student should register for this course in the semester during which the training is to be completed.

AVIA 100  Introduction to Aviation Sciences  (3)
3 hours lecture
Transfer acceptability: CSU
A survey of the aerospace field including the functions and operations of various federal and state regulating aviation agencies and airport based companies such as air carrier, general aviation, aviation maintenance, flight schools, and other major occupational and supportive areas.