

## Regional Occupational Program (ROP)

Palomar College, under contract with the San Diego County Office of Education, offers vocational and technical training through the Regional Occupational Program.

Courses provided through ROP are available to college and high school students, out-of-school youths, and adults residing in San Diego County. Courses can be used for basic job skills, upgrading of existing skills, or changing occupations. Units earned may be used for high school or college credit. ROP courses taken for college credit may be applied toward Palomar College Certificates/Degrees.

Contact the ROP Office for further information.  
(760) 744-1150, ext. 2293  
Office: AA-136

## Air Conditioning, Heating and Refrigeration (RACR)

### Certificates of Proficiency -

Certificate of Proficiency requirements are listed in Section 6 (green pages).

- Air Conditioning, Heating and Refrigeration

### PROGRAM OF STUDY

### Air Conditioning, Heating and Refrigeration

Prepares students for entry-level positions as air conditioning, heating, and refrigeration technicians. Also provides retraining and upgrading of skills for maintenance technicians, including EPA certification.

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

### CERTIFICATE OF PROFICIENCY

Program Requirements	Units
RARC 50 AC, Heating, and Refrigeration: Electrical	4
RACR 55 AC, Heating, and Refrigeration: Mechanical	4
RACR 56 Adv AC/Heating/Refrigeration	4
RARC 58 Refrigerant Recovery	1
<b>TOTAL UNITS</b>	<b>13</b>

### COURSE OFFERINGS

Courses taken for college credit may be applied toward a certificate or an Associate in Arts degree.

Courses numbered under 100 are not intended for transfer credit.

<b>RACR 50</b>	<b>Air Conditioning, Heating and Refrigeration: Electrical</b>	<b>(4)</b>
8 hours lecture/laboratory		
<b>Note:</b> Graded only; may be taken 2 times		
Introduction to the fundamentals and application of electrical theory as related to air conditioning, heating and refrigeration. Study of basic electrical theory, alternating current, electrical controls, motors, schematics, and electrical meters.		

<b>RACR 55</b>	<b>Air Conditioning, Heating and Refrigeration: Mechanical</b>	<b>(4)</b>
8 hours lecture/laboratory		
<b>Note:</b> Graded only; may be taken 2 times		
Introduction to basic mechanical theory of air conditioning, heating and refrigeration. Application of principles and techniques to include system components and their interrelated functions, safety procedures, tools, and equipment.		

<b>RACR 56</b>	<b>Advanced Air Conditioning, Heating and Refrigeration</b>	<b>(4)</b>
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8 hours lecture/laboratory

**Prerequisite:** RACR 50 and 55

**Note:** Graded only; may be taken 2 times

Advanced principles and techniques of air conditioning, heating and refrigeration. EPA regulations and safety requirements; complex control systems; gas furnace combustion and air requirements; and the installation, troubleshooting, repair, and maintenance of residential and small commercial units.

<b>RACR 58</b>	<b>Refrigerant Recovery</b>	<b>(1)</b>
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2 hours lecture/laboratory

**Note:** Graded only; may be taken 2 times

Basic understanding of the United States Environmental Protection Agency regulations as set forth under Section 608 of the Clean Air Act of 1990, which described requirements for recycling ozone-depleting refrigerants. Preparation to take the EPA certification exam, which is administered at the conclusion of the course.

<b>RACR 97</b>	<b>Air Conditioning, Heating, and Refrigeration Topics</b>	<b>(.5-4)</b>
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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:** Graded only; may be taken 4 times

Topics in Air Conditioning, Heating, and Refrigeration. See Class Schedule for specific topic offered. Course title will designate subject covered.

## Automotive Technology (RAT)

### Associate in Arts Degrees -

AA Degree requirements are listed in Section 6 (green pages).

- Auto Body Work

### Certificates of Achievement -

Certificate of Achievement requirements are listed in Section 6 (green pages).

- Auto Body Work

### PROGRAM 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
RAT 50 Auto Body Repair I	4
RAT 51 Auto Body Repair II	4
RAT 55 Auto Refinishing I	4
RAT 56 Auto Refinishing II	4
<b>Elective Courses (Select 6 Units)</b>	
AT 100 Auto Maintenance and Minor Repair	3
AT 105 Automotive Electricity	2
IT 100 Technical Mathematics	3
WELD 100 Welding I	2
CE 100 Cooperative Education	1,2,3,4
<b>TOTAL UNITS</b>	<b>22</b>

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

### COURSE OFFERINGS

Courses taken for college credit may be applied toward a certificate or an Associate in Arts degree.

Courses numbered under 100 are not intended for transfer credit.

**RAT 50 Auto Body Repair I (4)**

8 hours lecture/laboratory

**Note:** Graded only; may be taken 3 times

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.

**RAT 51 Auto Body Repair II (4)**

8 hours lecture/laboratory

**Recommended preparation:** RAT 50

**Note:** Graded only; may be taken 3 times

Automotive body work with emphasis on increasing diagnostic, estimating and repair skills and updating techniques and related technologies. Introduction to collision industry standards including I-CAR and ASE.

**RAT 55 Auto Refinishing I (4)**

8 hours lecture/laboratory

**Note:** Graded only; may be taken 3 times

Introduction to auto refinishing. Preparation of auto surfaces for refinishing: tapping, cleaning, and sanding. Refinishing auto surfaces: sanding, application of primers and paint.

**RAT 56 Auto Refinishing II (4)**

8 hours lecture/laboratory

**Recommended preparation:** RAT 55

**Note:** Graded only; may be taken 3 times

Skills development in automotive refinishing techniques including base-coat clear-coat application. Color matching concepts. Identification, prevention and correction of painting problems. Update on new products, techniques, and trends.

**RAT 90 Automotive Upholstery (4)**

8 hours lecture/laboratory

**Note:** Cross listed as R UP 90; graded only; may be taken 2 times

Skills and techniques required to replace, repair or customize automotive and related upholstery. Fabrication of interiors and accessories for automobile interiors, watercraft and other recreational vehicles. Techniques and considerations related to auto alarm or sound system installation. Students will complete individual or group projects.

**RAT 97 Auto Body Repair/Auto Refinishing Topics (.5-4)**

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:** Graded only; may be taken 4 times

Topics in auto body repair and auto refinishing. See Class Schedule for specific topic offered. Course title will designate subject covered.

**Computer Science and Information Systems (R CSIS)**

**Associate in Arts Degrees -**

AA Degree requirements are listed in Section 6 (green pages).

- Computer Technology

**Certificates of Achievement -**

Certificate of Achievement requirements are listed in Section 6 (green pages).

- Computer Technology

**Certificates of Proficiency -**

Certificate of Proficiency requirements are listed in Section 6 (green pages).

- Applications Support Specialist
- Microcomputer Operating Systems
- Microcomputer Technology
- PC Repair Technician
- PC Support Technician
- Software Applications Specialist

**PROGRAMS OF STUDY**

**Applications Support Specialist**

This program prepares students for employment as technicians supporting software applications such as Microsoft Office Suite in a help desk environment. Building on applications proficiency, it includes supporting coursework in computer hardware, operating systems, web site development and customer support fundamentals.

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

**CERTIFICATE OF PROFICIENCY**

Program Requirements		Units
R CSIS 65	Held Desk Fundamentals	2
R CSIS 120/ CSIT 120	Computer Applications	3
R CSIS 110/ CSWB 110	Web Site Development with XHTML	2
R CSIS 157 or R CSIS 158	Windows XP: Professional and Server Windows 2000	3
R CSIS 170 or CSIT 130	Windows Windows Vista	1
R CSIS 172	Windows for Technicians	2

**TOTAL UNITS 13**

**Computer Technology**

This program prepares students for employment in various areas of business and industry requiring technical support for stand-alone and networked computer systems. It is designed to provide the basics of computer hardware and software theory and application, familiarity with a variety of operating systems and the fundamentals of networking. Hands-on labs with an emphasis on problem-solving and troubleshooting provide opportunities for the application of theoretical knowledge to real and simulated system malfunctions.

**A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT**

Program Requirements		Units
R CSIS 140	Command Line Operations	3
R CSIS 145	Introduction to Linux	3
R CSIS 155	Computer Technology – Hardware	3
R CSIS 156 or CSNT 110	Computer Technology – Software Hardware and O.S. Fundamentals	3
R CSIS 157	Windows XP: Professional and Server	3
R CSIS 158 or CSNT 120 and CSNT 121	Windows 2000 Windows Client Windows Server	6
R CSIS 160 or CSNT 111	Introduction to Local Area Networking Networking Fundamentals	3
R CSIS 120/ CSIT 120	Computer Applications	3
R CSIS 172	Windows for Technicians	2

**Electives (Select a minimum of 6 units)**

R CSIS 65	Help Desk Fundamentals	2
R CSIS 110*/ CSWB 110	Web Site Development with XHTML	2
R CSIS 159	Industry Certification: Review and Preparation	1
R CSIS 161	PC/Network Security	3
R CSIS 169	Overview of Computer Forensics	3
CSCI 105	Survey of Computer Science	4
ECHT 100	Electronic Components and Circuits	4.5
ECHT 203	Digital/Computer Electronics	4.5
R CSIS 195	Vista Security	3
R CSIS 196	Vista Basic	3

**TOTAL UNITS 32 - 35**

\*Note: Formerly CSIS 137/R CSIS 137