

*Choose a minimum of 3 units in CISC. Students should consult with their counselor prior to choosing electives to ensure electives meet program and/or transfer goals.

Associate of Science Degree: Computer and Information Sciences

Courses Required for the Major:		Units
ACCT 116A	Financial Accounting	4
ACCT 116B	Managerial Accounting	4
BUSE 119	Business Communications	3
BUSE 140	Business Law & the Legal Environment	3
CISC 181	Principles of Information Systems	4
CISC 186	Visual Basic Programming	4
ECON 120	Principles of Macroeconomics	3
MATH 119	Elementary Statistics	3
CISC Elective(s)*		3

Total Units = 31

*Choose a minimum of 3 units in CISC. Students should consult with their counselor prior to choosing electives to ensure electives meet program and/or transfer goals.

For graduation requirements, see the **Requirements for the Associate Degree** on page 88.

Electives as needed to meet minimum of 60 units required for the degree.

Diesel Technology

Award Type	Units
Certificate of Performance:	
Diesel Fuel Injection Systems	7
Heavy Equipment Powertrains	13
Heavy Equipment Undercarriage Systems	7
Mobile Hydraulics Technician	7
Steering, Suspension, and Drivelines	7
Truck & Equipment Electrical Systems	8
Truck Air Brake Systems	7
Truck Drive Axles	7
Truck Transmissions and Clutches	13
Certificate of Achievement:	
Engine Overhaul, Caterpillar	18
Engine Overhaul, Cummins	18
Engine Overhaul, Detroit Diesel	18
Engine Repair, Caterpillar	19
Engine Repair, Cummins	19
Engine Repair, Detroit Diesel	19
Heavy Duty Diesel and Advanced Transportation Technology (HDDAT) (Evening Program)	32
Heavy Duty Transportation Technology (HDDT) —(Day Program)	48
Heavy Equipment Technology (HET)—(Day Program)	48
San Diego City Civil Service Equipment Mechanic Apprenticeship	27
San Diego Transit General Mechanic Apprenticeship	24
Associate of Science Degree:	
Heavy Duty Transportation Technology (HDDT)—(Day Program)	48*
Heavy Equipment Technology (HET)—(Day Program)	48*
Occupational/Technical Studies (see page 220)	18*
San Diego City Civil Service Equipment Mechanic Apprenticeship	27*
San Diego Transit General Mechanic Apprenticeship	24*

* and courses to meet graduation requirements, general education and electives as needed to meet the minimum of 60 units required for the degree.

Program Description

The Diesel Technology program provides the student with an opportunity to master the

manipulative and critical thinking skills required for success in servicing and maintaining Diesel, CNG, and LNG powered heavy duty commercial trucks, off-highway heavy equipment, stationary engines, and, marine craft.

The two-year curriculum has three tracks leading to a Certificate of Achievement, and two tracks leading to an Associate in Science degree. In addition, the diesel program offers Certificates of Performance in nine specialty areas. These certificates can be applied toward the Certificate of Achievement or the Associate in Science degree.

Program Learning Outcomes

Students who complete the Diesel Technology Program will be able to:

- Perform the manipulative and critical thinking skills when performing service work on heavy-duty vehicles, systems, and components using a variety of tools, equipment and instruments.
- Perform service procedures safely and implement workplace health and safety compliance using regulations published by the Occupational Safety and Health Administration, and the Environmental Protection Agency.
- Perform research, locate, and use heavy-duty service information, special instructions, and specifications with printed or web-based resources.

Career Options

Some of the many career options in the commercial truck industry include:

- Heavy-Duty Truck Technician
- CNG/ LNG Bus Technician
- Truck & Bus Fleet Service Technician
- Power Generation Technician
- Diesel Engine Overhaul Technician
- CNG/ LNG Engine Overhaul Technician

Some of the many career options in the heavy equipment industry include:

- Heavy-Equipment Technician
- Field Service Technician
- Field Service Lube Technician
- Marine Engine Technician

Some of the many career options in related industries include:

- Commercial Truck Inspector
- Service Writer/ Advisor
- Truck & Equipment Parts Sales Person

Some diesel-related career fields require area specific training in addition to the courses required in the HDTT, HET certificates.

Students intending to transfer to a university could consider the following related areas:

- Business Management
- Applied Engineering
- Engineering

Faculty	Office	Telephone/Email
Gene Choe	C3-103	619-388-7526 gchoe@sdccd.edu
Dan Willkie	C3-104	619-388-7527 dwillkie@sdccd.edu

Certificate of Performance: Diesel Fuel Injection Systems*

Courses:	Units
DIES 100 Introduction to Diesel Technology	2
DIES 137 Diesel Fuel Injection Systems	2
DIES 144 Electronics for Diesel Technology	3
Total Units = 7	

*A Certificate of Performance is a departmental award that does not appear on the student's transcript. All courses must be completed within the San Diego Community College District.

Note: This program is not eligible for federal financial aid in accordance with Federal regulations.

Certificate of Performance: Heavy Equipment Powertrains*

Courses:	Units
DIES 100 Introduction to Diesel Technology	2
DIES 105 Measuring Tools and Applied Mathematics	2
DIES 210 Brakes, Final Drives and Steering Systems	3
DIES 220 Undercarriage	3
DIES 230 Heavy Equipment Transmissions	3
Total Units = 13	

*A Certificate of Performance is a departmental award that does not appear on the student's transcript. All courses must be completed within the San Diego Community College District.

Note: This program is not eligible for federal financial aid in accordance with Federal regulations.

Certificate of Performance: Heavy Equipment Undercarriage Systems*

Courses:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 105	Measuring Tools and Applied Mathematics	2
DIES 220	Undercarriage	3
Total Units = 7		

*A Certificate of Performance is a departmental award that does not appear on the student's transcript. All courses must be completed within the San Diego Community College District.

Note: This program is not eligible for federal financial aid in accordance with Federal regulations.

Certificate of Performance: Mobile Hydraulics Technician*

Courses:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 105	Measuring Tools and Applied Mathematics	2
DIES 200	Mobile Hydraulic Systems	3
Total Units = 7		

*A Certificate of Performance is a departmental award that does not appear on the student's transcript. All courses must be completed within the San Diego Community College District.

Note: This program is not eligible for federal financial aid in accordance with Federal regulations.

Certificate of Performance: Steering, Suspension, and Drivelines*

Courses:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 105	Measuring Tools & Applied Mathematics	2

DIES 180	Steering, Suspension and Driveline Systems	3
Total Units = 7		

*A Certificate of Performance is a departmental award that does not appear on the student's transcript. All courses must be completed within the San Diego Community College District.

Note: This program is not eligible for federal financial aid in accordance with Federal regulations.

Certificate of Performance: Truck & Equipment Electrical Systems*

Courses:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 138	Electrical Systems	3
DIES 144	Electronics for Diesel Technology	3
Total Units = 8		

*A Certificate of Performance is a departmental award that does not appear on the student's transcript. All courses must be completed within the San Diego Community College District.

Note: This program is not eligible for federal financial aid in accordance with Federal regulations.

Certificate of Performance: Truck Air Brake Systems*

Courses:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 105	Measuring Tools & Applied Mathematics	2
DIES 155	Air Brake Systems	3
Total Units = 7		

*A Certificate of Performance is a departmental award that does not appear on the student's transcript. All courses must be completed within the San Diego Community College District.

Note: This program is not eligible for federal financial aid in accordance with Federal regulations.

Certificate of Performance: Truck Drive Axles*

Courses:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 105	Measuring Tools & Applied Mathematics	2

DIES 170	Truck Drive Axles and Specifications	3
		Total Units = 7

*A Certificate of Performance is a departmental award that does not appear on the student's transcript. All courses must be completed within the San Diego Community College District.

Note: This program is not eligible for federal financial aid in accordance with Federal regulations.

Certificate of Performance: Truck Transmissions and Clutches*

Courses:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 105	Measuring Tools & Applied Mathematics	2
DIES 160	Heavy Duty Manual Transmissions	3
DIES 165	Truck Automatic Transmissions	3
DIES 175	Truck Chassis R&R	3
		Total Units = 13

*A Certificate of Performance is a departmental award that does not appear on the student's transcript. All courses must be completed within the San Diego Community College District.

Note: This program is not eligible for federal financial aid in accordance with Federal regulations.

Certificate of Achievement: Diesel Technology Engine Overhaul, Caterpillar

Courses Required for the Major:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 105	Measuring Tools & Applied Mathematics	2
DIES 122	Diesel Engines B	7
DIES 123	Diesel Engines C	2
DIES 135	Applied Failure Analysis	3
DIES 137	Diesel Fuel Injection Systems	2
		Total Units = 18

Certificate of Achievement: Diesel Technology Engine Overhaul, Cummins

Courses Required for the Major:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 105	Measuring Tools & Applied Mathematics	2
DIES 123	Diesel Engines C	2
DIES 124	Diesel Engines D	7

DIES 135	Applied Failure Analysis	3
DIES 137	Diesel Fuel Injection Systems	2
		Total Units = 18

Certificate of Achievement: Diesel Technology Engine Overhaul, Detroit Diesel

Courses Required for the Major:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 105	Measuring Tools & Applied Mathematics	2
DIES 121	Diesel Engines A	7
DIES 123	Diesel Engines C	2
DIES 135	Applied Failure Analysis	3
DIES 137	Diesel Fuel Injection Systems	2
		Total Units = 18

Certificate of Achievement: Diesel Technology Engine Repair, Caterpillar

Courses Required for the Major:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 105	Measuring Tools & Applied Mathematics	2
DIES 126	Diesel Engines II	4
DIES 135	Applied Failure Analysis	3
DIES 137	Diesel Fuel Injection Systems	2
DIES 138	Electrical Systems	3
DIES 144	Electronics for Diesel Technology	3
		Total Units = 19

Certificate of Achievement: Diesel Technology Engine Repair, Cummins

Courses Required for the Major:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 105	Measuring Tools & Applied Mathematics	2
DIES 128	Diesel Engines III	4
DIES 135	Applied Failure Analysis	3
DIES 137	Diesel Fuel Injection Systems	2
DIES 138	Electrical Systems	3
DIES 144	Electronics for Diesel Technology	3
		Total Units = 19

Certificate of Achievement: Diesel Technology Engine Repair, Detroit Diesel

Courses Required for the Major:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 105	Measuring Tools & Applied Mathematics	2
DIES 125	Diesel Engines I	4
DIES 135	Applied Failure Analysis	3
DIES 137	Diesel Fuel Injection Systems	2
DIES 138	Electrical Systems	3
DIES 144	Electronics for Diesel Technology	3
Total Units = 19		

Certificate of Achievement: Diesel Technology Heavy Duty Diesel and Advanced Transportation Technology (HDDAT) (Evening Program)

Courses Required for the Major:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 105	Measuring Tools & Applied Mathematics	2
DIES 131	Alternative-Fueled Engine Overhaul	4
DIES 135	Applied Failure Analysis	3
DIES 137	Diesel Fuel Injection Systems	2
DIES 138	Electrical Systems	3
DIES 144	Electronics for Diesel Technology	3
DIES 155	Air Brake Systems	3
DIES 170	Truck Drive Axles and Specifications	3

Select one course from:

DIES 125	Diesel Engines I	4
or		
DIES 126	Diesel Engines II	4
or		
DIES 128	Diesel Engines III	4

Select one course from:

DIES 160	Heavy Duty Manual Transmissions	3
or		
DIES 165	Truck Automatic Transmissions	3

Total Units = 32

Certificate of Achievement: Diesel Technology Heavy Duty Transportation Technology (HDTT) (Day Program)

Courses Required for the Major:		Units
DIES 100	Introduction to Diesel Technology	2

DIES 101	Heavy Duty Truck, Advanced Transportation, Equipment Preventive Maintenance and Inspections	2
DIES 102	Heavy Duty Truck and Heavy Equipment Heating and Air Conditioning	2
DIES 105	Measuring Tools and Applied Mathematics	2
DIES 123	Diesel Engines C	2
DIES 138	Electrical Systems	3
DIES 144	Electronics for Diesel Technology	3
DIES 155	Air Brake Systems	3
DIES 175	Truck Chassis R&R	3
DIES 200	Mobile Hydraulic Systems	3
DIES 170	Truck Drive Axles and Specifications	3
DIES 180	Steering, Suspension, and Driveline Systems	3

Select two courses from:

DIES 121	Diesel Engines A	7
or		
DIES 122	Diesel Engines B	7
or		
DIES 124	Diesel Engines D	7

Select one course from:

DIES 160	Heavy Duty Manual Transmissions	3
or		
DIES 165	Truck Automatic Transmissions	3

Total Units = 48

Certificate of Achievement: Diesel Technology Heavy Equipment Technology (HET) (Day Program)

Courses Required for the Major:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 101	Heavy Duty Truck, Advanced Transportation, Equipment Preventive Maintenance and Inspections	2
DIES 102	Heavy Duty Truck and Heavy Equipment Heating and Air Conditioning	2
DIES 105	Measuring Tools and Applied Mathematics	2
DIES 123	Diesel Engines C	2
DIES 138	Electrical Systems	3
DIES 144	Electronics for Diesel Technology	3
DIES 160	Heavy Duty Manual Transmissions	3
DIES 200	Mobile Hydraulic Systems	3
DIES 210	Brakes, Final Drives and Steering Systems	3
DIES 220	Undercarriage	3

DIES 230	Heavy Equipment Transmissions	3
DIES 240	Equipment Chassis R&R	3

Select two courses from:

DIES 121	Diesel Engines A or	
DIES 122	Diesel Engines B or	
DIES 124	Diesel Engines D	7

Total Units = 48

Associate of Science Degree: Diesel Technology Heavy Duty Transportation Technology (HDTT) (Day Program)

Courses Required for the Major: Units

DIES 100	Introduction to Diesel Technology	2
DIES 101	Heavy Duty Truck, Advanced Transportation, Equipment Preventive Maintenance and Inspections	2
DIES 102	Heavy Duty Truck and Heavy Equipment Heating and Air Conditioning	2
DIES 105	Measuring Tools and Applied Mathematics	2
DIES 123	Diesel Engines C	2
DIES 138	Electrical Systems	3
DIES 144	Electronics for Diesel Technology	3
DIES 155	Air Brake Systems	3
DIES 170	Truck Drive Axles and Specifications	3
DIES 175	Truck Chassis R&R	3
DIES 180	Steering, Suspension, and Driveline Systems	3
DIES 200	Mobile Hydraulic Systems	3

Select two courses from:

DIES 121	Diesel Engines A or	
DIES 122	Diesel Engines B or	
DIES 124	Diesel Engines D	7

Select one course from:

DIES 160	Heavy Duty Manual Transmissions or	
DIES 165	Truck Automatic Transmissions	3

Total Units = 48

For graduation requirements, see the **Requirements for the Associate Degree** on page 88.

Electives as needed to meet minimum of 60 units required for the degree.

Recommended Electives: Diesel Technology 90, 125, 126, 128, 131, 135, 137, 137A, 160 or 165, 210, 220, 230, 240, 270.

Associate of Science Degree: Diesel Technology Heavy Equipment Technology (HET) (Day Program)

Courses Required for the Major: Units

DIES 100	Introduction to Diesel Technology	2
DIES 101	Heavy Duty Truck, Advanced Transportation, Equipment Preventive Maintenance and Inspections	2
DIES 102	Heavy Duty Truck and Heavy Equipment Heating and Air Conditioning	2
DIES 105	Measuring Tools and Applied Mathematics	2
DIES 123	Diesel Engines C	2
DIES 138	Electrical Systems	3
DIES 144	Electronics for Diesel Technology	3
DIES 160	Heavy Duty Manual Transmissions	3
DIES 200	Mobile Hydraulic Systems	3
DIES 210	Brakes, Final Drives and Steering Systems	3
DIES 220	Undercarriage	3
DIES 230	Heavy Equipment Transmissions	3
DIES 240	Equipment Chassis R&R	3

Select two courses from:

DIES 121	Diesel Engines A	7
	or	
DIES 122	Diesel Engines B	7
	or	
DIES 124	Diesel Engines D	7

Total Units = 48

For graduation requirements, see the **Requirements for the Associate Degree** on page 88.

Electives as needed to meet minimum of 60 units required for the degree.

Recommended Electives: Diesel Technology 90, 125, 126, 128, 131, 135, 137, 137A, 155, 165, 170, 175, 180, 270.

San Diego City Civil Service Equipment Mechanic Apprenticeship

A four-year apprenticeship program in equipment mechanic trades at the City of San Diego. Applications accepted at the City Administration Building, Community Concourse, 202 C Street, San Diego, CA 92101.

Certificate of Achievement: San Diego City Civil Service Equipment Mechanic Apprenticeship

Courses Required for the Major:		Units
AUTO 78	Suspension, Steering and Handling	4
AUTO 56	Engine and Related Systems	4
DIES 100	Introduction to Diesel Technology	2
DIES 135	Applied Failure Analysis	3
DIES 137	Diesel Fuel Injection Systems	2
DIES 138	Electrical Systems	3
DIES 155	Air Brake Systems	3
DIES 160	Heavy Duty Manual Transmissions	3
DIES 170	Truck Drive Axles and Specifications	3
Total Units = 27		

Associate of Science Degree: San Diego City Civil Service Equipment Mechanic Apprenticeship

Courses Required for the Major:		Units
AUTO 78	Suspension, Steering and Handling	4
AUTO 56	Engine and Related Systems	4
DIES 100	Introduction to Diesel Technology	2
DIES 135	Applied Failure Analysis	3
DIES 137	Diesel Fuel Injection Systems	2
DIES 138	Electrical Systems	3
DIES 155	Air Brake Systems	3
DIES 160	Heavy Duty Manual Transmissions	3
DIES 170	Truck Drive Axles and Specifications	3
Total Units = 27		

Recommended Electives: Diesel Technology 105, 144; Automotive Technology 65, 76.

Additional general education and graduation requirements for the associate degree are listed in the Academic Requirements section of catalog. **The associate degree requires a minimum of 60 units.**

San Diego Transit General Mechanic Apprenticeship

San Diego Transit apprenticeship programs are designed to prepare the student for a career as a bus mechanic or bus body repair technician. For application to the programs, please contact San Diego Transit Corporation, 100 16th Street, San Diego, CA 92101. More information is available at: www.sdcommute.com/Jobs/sdtdc/.

Certificate of Achievement: San Diego Transit General Mechanic Apprenticeship

Courses Required for the Major:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 101	Heavy Duty Truck, Advanced Transportation, Equipment Preventive Maintenance and Inspections	2
DIES 102	Heavy Duty Truck and Heavy Equipment Heating and Air Conditioning	2
DIES 105	Measuring Tools and Applied Mathematics	2
DIES 131	Alternative-Fueled Engine Overhaul	4
DIES 135	Applied Failure Analysis	3
DIES 138	Electrical Systems	3
DIES 144	Electronics for Diesel Technology	3
DIES 155	Air Brake Systems	3
Total Units = 24		

Associate of Science Degree: San Diego Transit General Mechanic Apprenticeship

Courses Required for the Major:		Units
DIES 100	Introduction to Diesel Technology	2
DIES 101	Heavy Duty Truck, Advanced Transportation, Equipment Preventive Maintenance and Inspections	2
DIES 102	Heavy Duty Truck and Heavy Equipment Heating and Air Conditioning	2
DIES 105	Measuring Tools and Applied Mathematics	2
DIES 131	Alternative-Fueled Engine Overhaul	4
DIES 135	Applied Failure Analysis	3
DIES 138	Electrical Systems	3
DIES 144	Electronics for Diesel Technology	3
DIES 155	Air Brake Systems	3
Total Units = 24		

Additional general education and graduation requirements for the associate degree are listed in the Academic Requirements section of catalog.

The associate degree requires a minimum of 60 units.

Earth Science

(See "Physical Science" on page 231)