

DIESEL TECHNOLOGY

Associate of Applied Science Degree Program Description

Division of Transportation Technology

Scott Community College

Bettendorf, IA 52722

(563) 441-4204

Darrell Hanan

Department Coordinator

(563) 441-4228

Program Description

Students graduating from the Diesel Technology Program are among the most sought after of all of Scott Community College technology graduates. Diesel Technology is a two-year program admitting students in the Fall and Spring semester every year.

Program Accreditation

Scott Community College is accredited by the North Central Association. In 1995 our program gained certification from National Automotive Technicians Education Foundation (NATEF). Our curriculum is written to Automotive Service Excellence (ASE) standards and our graduates are prepared to pass ASE certification exams in the following eight areas:

- Brakes
- Diesel Engines
- Gas Engines
- Suspension & Steering
- Drive Train
- Electrical System
- Preventive Maintenance
- Air Conditioning and Heating

Full-Time vs. Part-Time Students

Diesel Technology is designed for students who are enrolled full-time and are interested in a career in the repair of heavy-duty trucks. Students who are interested in enrolling part-time will be admitted as space permits and with the permission of the department coordinator.

Description of the Profession

The Diesel Technician of today must be able to perform a wide variety of tasks. The diesel technician must be schooled and able to work on all systems of the over-the-road truck. The technician should have a working knowledge of hydraulic systems, and computers. He or she must have good electrical troubleshooting skills.

Graduates of this program can be found in a diverse number of employment areas such as:

- Fleet Technicians
- Fuel Pump Repair Shops
- Dealership Technicians
- Drive Train Shops
- Farm Agricultural Repair Shop
- Construction Companies
- Federal, State & County Vehicle Repair Shops
- Truck Rental Fleets

Graduates of this program may be employed in related areas such as parts distribution, fleet supervision or management.

Typical Duties

- Perform preventive maintenance
- Repair electrical malfunctions
- Perform brake service
- Replace Clutches and Adjust clutches
- Perform drive line service
- Maintain shop equipment
- Perform engine repair
- Service cooling & heating systems
- Perform fuel system service
- Diagnose Computers and Reprogram Computers

Performance Standards

A Diesel Technician must have sufficient strength, motor coordination and manual dexterity to:

- Lift and move the various components of the truck.
- Move tool boxes, floor jacks and other portable devices freely about the shop area.
- Be able to operate the truck.

The Diesel Technician must be capable of:

- Reading and interpreting various shop manuals and technical bulletins associated with the Truck.
- Reading and interpreting as well as writing repair orders.
- Communicating verbally with customers, parts personnel and management.
- Interpreting electrical wiring schematics and diagrams.

The Diesel Technician must have the mental and intellectual capacity to:

- Logically solve mechanical problems.
- Absorb and understand the new technology as it evolves.

Employment Opportunities

Graduates are employed by a wide variety of repair facilities. Over ninety-five percent of our graduates in recent years reported an average starting salary of \$23,000 annually. The top 10% of diesel technicians in Iowa report an average salary of over \$42,000 annually.

Job Outlook

Diesel technology technician jobs are projected to increase from 285,200 to 325,600 between 2000 and 2010 in the U.S.

Program Faculty

The Diesel Technology Program classes are taught by three instructors.

Ken Hunter, A.A.S., Master ASE Certified Heavy-Duty Truck Technician

Alan Shaw, B.A., Master ASE Automotive Technician Certified

John Wingert, A.A.S., Master ASE Automotive and Heavy-Duty Truck Certified Technician

How to Enroll

A candidate for admission to the Diesel Technology Program must:

- Submit the Scott Community College admission application online, in person or by mail.
- Send all High School, College or GED scores to:

Student Services

Scott Community College

500 Belmont Road,

Bettendorf, IA 52722

- Complete the college assessment by making an appointment with the Testing Center, 441-4088.

Illinois residents may register through Blackhawk Community College at their current tuition rate.

Contact Coleman Harris at (309) 796-5179.

Estimated Program Costs

Approximate costs for the entire program are:

In-State Tuition & Fees: \$7728.00 Fall 2009

Out-of-State Tuition & Fees: \$11,592.00 Fall 2009

Books and Supplies: \$800.00

Tools: \$2,500.00**

***Tuition does not include the cost of developmental course-work (if necessary.)**

****Tools from the following list will cost from \$2,000 to \$2,500 depending on the vendor you choose. Toolboxes also vary in price from \$700 to \$1,400.**

Tools

Students are responsible for having their own tools. The minimum tools needed for completion of this program are listed below.

Scott Community College - Diesel Technology Tool List

Center punch ½ x 5 5/8	Welding goggles (no. 5 lens)
Pin punch 1/8 x 5 1/4	Pocket thermometer
Pin punch 3/16 x 6 1/8	Ball peen hammer 12 oz.
Pin punch 1/4 x 6 3/4	Ball peen hammer 2 1/2#
Starting punch 3/16 x 5 2/32	Plastic tip hammer 24 oz.
Starting punch 1/8 x 5 5/32	Carbon scraper
Starting punch 1/4 x 6 ½	3/8" drive socket
Cold chisel ½ x 6 3/16	3/8-15/16 12 pt.
Cold chisel 3/4 x 7 3/16	Spark plug socket 5/8 & 13/16
Diagonal cutting plier 7"	3/8 drive ratchet
0-6" Dial caliper	3/8 drive extension 3 1/2"
Slip joint plier 8"	3/8 drive extension 7 1/2"
Dial indicator set with gauge-magnetic base	3/8 drive extension 12"
Combination Wrench Set 5/16 - 1 1/4"	3/8 drive to 3/8 universal
Safety glasses with side shields	Box wrench 3/8" x 7/16" 12 pt.
Wire brush	Box wrench 1/2" x 9/16" 12 pt.
Welding gloves	Box wrench 5/8" x 11/16" 12 pt.
Tip cleaner	Box wrench 3/4" x 13/16" 12 pt.
Screwdriver 1/4" x 4"	Blow gun (tapered rubber tip)
Screwdriver 3/8" x 8"	1 vise grip straight jaw 7"
Screwdriver 1/4" x 1 1/2"	Feeler gauge set (.0015 to .040)
Hacksaw	Swivel head magnet
1 battery post cleaner	Swivel head mirror
1 pinch bar 24"	250 ft-lb torque wrench 1/2" drive
1 15" long tapered punch	Double pointed scribe
1 18" long tapered punch	

1 soft face dead blow 32 ounce

1 vise grip pliers long nose 4"

½ drive 6pt. Sockets 7/16,3/8-1 1/4

½ drive ratchet

½ drive extension 2 1/2"

½ drive extension 5"

½ drive extension 10"

Phillips screwdriver #1

Phillips screwdriver #2

Phillips screwdriver #3

Phillips screwdriver #4

1 needle nose plier

2 1/4" jaw length 7 1/8"

1 - wire stripper cutter crimper for 10-22 AWG insulated & non-insulated terminals

1-multimeter; volt, ohm's, amp, temp sensor

½" Deep well metric impact sockets 12-24 mm

REV 6/05

Snap ring plier set connectable type

Length	shaft/bore	angle degrees	Tip Size
5 3/4"	1/8"-1"	18	.038"
6"	5/16-13/8"	18	.047
7 1/8"	7/16-2"	18	.070
5 3/4"	1/8-1"	90	.038
5 7/8"	5/16-13/8"	90	.047
7 1/2"	7/16-2"	90	.070

Circuit tester (test light)

Flashlight

Combination metric wrenches 7-19 MM

Metric sockets 12-23 MM 3/8 drive

Torque wrench 3/8" drive

30 inch pounds to 200 in. Lbs.

1/2" deep well impact sockets

6 pt. 1/2" to 1 ½

Uniforms

Uniforms are not required but each student must have safety glasses and leather work shoes. Sneakers and shorts are not allowed in laboratory areas.

Financial Aid/Scholarships

Many types of Financial Aid are available for Auto Technology students. If you need financial assistance please make an appointment with the Financial Aid Office. Financial aid forms for fall semester are due to the financial aid office April 1st.

Student Organizations

The Diesel Club has several worthwhile activities each year including a field trip to the Chicago Car show. One of the highlights of the year is the SkillsUSA state skills competition. State winners compete in the national competition.

Articulation

The Scott Community College Diesel Tech program does not have articulation agreements with any local high schools at this time.

Program/Course Descriptions

Diesel Technology

Scott Community College (AAS)

Diesel Technology Program Course Sequence; Fall Start

REV 9-09

	Course Title	Cr. Hours
First Semester - Fall		
AUT 115	Automotive Shop Safety	1
AUT 164	Automotive Engine Repair	4
DSL 505	Heavy Duty Drive Train I	3
DSL 507	Heavy Duty Drive Train II	3
DSL 603	Hydraulics	2
COM 102	Communication Skills OR	3
ENG 105	Composition I	
MAT 104	Applied Math Topics OR	3
MAT 110	Math for Liberal Arts	
	Semester Total	19
Second Semester - Spring		
AUT 606	Basic Automotive Electricity/Electronics	3
AUT 614	Automotive Electrical I	3
DSL 435	Diesel Fuel Systems I	3
DSL 437	Diesel Fuel Systems II	4
DSL 150	Truck Electrical	3
	Semester Total	16
Summer Session		
DSL 340	Diesel Engine Repair	5
DSL 625	Heavy Duty Alignment	3
	Session Total	8
Third Semester - Fall		
DSL 629	Heavy Duty Brakes and Service	3
DSL 201	Basic Gas Engine Performance	2
WEL 331	Welding Fundamentals	2
DSL 905	Cooperative/Internship	2
PSY 213	Industrial & Organizational Psychology OR	3
HUM 105	Working in America	
	Semester Total	12

Fourth Semester - Spring

DSL	520	Automatic Drive Train		5
DSL	710	Heating, A/C and Refrigeration		4
DSL	905	Cooperative/Internship		2
BCA	188	Business Computer Apps	OR	3
BUS	102	Intro to Business		
Semester Total				14

Associate in Applied Science Awarded 69

Diesel Technology Program Course Sequence; Spring Start

				Cr. Hours
Course Title				
First Semester - Spring				
AUT	115	Automotive Shop Safety**		1
AUT	606	Basic Automotive Electricity/Electronics		3
AUT	614	Automotive Electrical I		3
DSL	435	Diesel Fuel Systems I		3
DSL	437	Diesel Fuel Systems II		4
DSL	150	Truck Electrical		3
Semester Total				17
Summer Session				
DSL	340	Diesel Engine Repair		5
DSL	625	Heavy Duty Alignment		3
Session Total				8
Second Semester - Fall				
AUT	116	Automotive Shop Safety**		1
AUT	164	Automotive Engine Repair		4
DSL	505	Heavy Duty Drive Train I		3
DSL	507	Heavy Duty Drive Train II		3
DSL	603	Hydraulics		2
COM	102	Communication Skills	OR	3
ENG	105	Composition I		
MAT	104	Applied Math Topics	OR	3
MAT	110	Math for Liberal Arts		
Semester Total				19
Third Semester - Spring				
DSL	520	Automatic Drive Train		5
DSL	710	Heating, A/C and Refrigeration		4
DSL	905	Cooperative/Internship		2
BCA	188	Business Computer Apps	OR	3
BUS	102	Intro to Business		
Semester Total				14

Fourth Semester - Fall

DSL	629	Heavy Duty Brakes and Service	3
DSL	201	Basic Gas Engine Performance	2
WEL	331	Welding Fundamentals	2
DSL	905	Cooperative/Internship	2
PSY	213	Industrial & Organizational Psychology OR	3
HUM	105	Working in America	
Semester Total			12

Associate in Applied Science Awarded 69

**Spring start students may take AUT116 in the spring or fall semester of the first year.

Diesel Technology Courses

AUT606 Basic Electricity/Electronics 3 cr.

In this course, the student is introduced to basic electrical and electronics principles. The basics are applied to automotive electrical circuits. What electricity is and how it does its work is covered in detail. Lab sessions are spent turning theory into hands-on practice with meters and basic circuits. (39.6 Lec. Hrs./59.4 Lab Hrs.)

AUT614 Automotive Electrical I 3 cr.

In this course the student is introduced to basic automotive battery, charging and starting systems. The operating principles will be discussed during the lecture/discussion sessions. Lab sessions are spent practicing testing, diagnosis and repair. (39.6 Lec. Hrs./59.4 Lab Hrs.)

Prerequisite or Co-requisite: AUT115

AUT115 Automotive Shop Safety and Orientation 1 cr.

This course is designed to acquaint the student with the proper personnel and shop safety procedures needed to function in an automotive shop. Tool identification, tool care and maintenance will be covered. Policy, procedures and orientation will also be included in this course. (19.8 Lec. Hrs.)

AUT164 Engine Repair 4 cr.

Basic theory of two-cycle and four-cycle gasoline engines and their application will be introduced. Disassembly, inspection and reassembly competencies will be experienced as well as cooling, lubrication, induction, exhaust, compression and valve systems. Students will develop competencies in precision measuring and services procedures. (39.6 Lec. Hrs./118.8 Lab Hrs.)

Co-requisite: AUT115

DSL 201 Basic Gas Engine Performance 2 cr.

This course is designed as a basic gasoline engine systems course for diesel technology students. Theory and operation of ignition, fuel injection and emission control systems will be taught. Lab time will be used to learn troubleshooting and repair of ignition, fuel and emission control systems. (19.8 Lec. Hrs./59.4 Lab Hrs.)

Prerequisite or Co-requisite: AUT606 and AUT115

DSL340 Diesel Engine Repair 5 cr.

This course acquaints students with the modern diesel engine used in transportation and automotive industries. The course is divided into five sections. In each section, operation, overhaul and adjustments will be thoroughly covered for the diesel engine used in the transportation and the automotive diesel engine industry. Labs correlate with lectures to provide the student with practical hands-on experiences. (59.4 Lec. Hrs./118.8 Lab Hrs.)

Prerequisites: AUT115 and AUT164

DSL710 Heating, Air Conditioning and Refrigeration 4 cr.

This course is designed for the student to gain a basic understanding and working knowledge of truck and automobile heating and air conditioning systems as well as trailer refrigeration units. Students will gain entry-level competencies in the diagnosis and repair of common problems in these systems. (59.4 Lec. Hrs./59.4 Lab Hrs.)

Prerequisite or Co-requisite: AUT115

DSL150 Truck Electrical Systems 3 cr.

This course deals specifically with truck electrical systems. Students will gain the knowledge and competencies needed to diagnose, troubleshoot and repair electrical systems and accessory circuits on today's trucks. (39.6 Lec. Hrs./59.4 Lab Hrs.)

Prerequisites: AUT614 and AUT115

DSL603 Hydraulics 2 cr.

This course will acquaint the student with basic hydraulic operation, pumps, cylinder controls and other hydraulic accessories including troubleshooting techniques. (39.6 Lec. Hrs.)

DSL435 Diesel Fuel Systems I 3 cr.

This course acquaints the student with the Cummins and Bosch fuel pumps. It covers the operation, testing and adjustments required to troubleshoot and repair these systems. (59.4 Lec. Hrs.)

Prerequisites: none

DSL629 Heavy Duty Brakes and Service 3 cr.

This course acquaints the student with the principles of diagnosing and repairing truck brake systems. Included will be a study of hydraulic brake systems, air brake systems, brake components and brake adjustments as they pertain to heavy duty brake systems. Labs correlate with lectures to provide the student with practical hands-on experiences. (39.6 Lec. Hrs./59.4 Lab Hrs.)

Prerequisite: AUT115

DSL625 Heavy-Duty Alignment 3 cr.

This course goes into the theory and procedures of front and rear alignment. It will include automotive through heavy duty applications. Lab time will be on testing and setting according to service procedures. Also included will be basic truck driving to provide students experience in moving trucks and trailers into the shop area. (39.6 Lec. Hrs./59.4 Lab Hrs.)

Prerequisite: AUT115

DSL437 Diesel Fuel Systems II 4 cr.

This course acquaints the student with the operation, testing and adjustments required to troubleshoot and repair diesel fuel systems. The course is broken down into three different modules: (A) includes Caterpillar pumps; (B) Detroit electronic engines; and (C) Roosa Master fuel systems. Labs correlate with lectures to provide the student with practical hands-on experiences. (59.4 Lec. Hrs./59.4 Lab Hrs.)

Prerequisite: DSL435

DSL505 Heavy-Duty Drive Train I 3 cr.

This course covers the theory and operation of heavy-duty drive trains. Students will gain competencies in removal, installation and repair of clutches, heavy-duty manual transmissions, power dividers, drive shafts and differentials. Safety procedures will be stressed as well as basic maintenance and adjustment procedures. (39.6 Lec. Hrs./59.4 Lab Hrs.)

Prerequisites: AUT115

DSL507 Heavy Duty Drive Train II 3 cr.

This course covers the theory of drive trains and axles. Students will gain competencies in removal, installation, repair and adjustment of drive shafts, power dividers, differentials and axles. Safety procedures will be stressed as well as basic maintenance and adjustment procedures. (39.6 Lec. Hrs./59.4 Lab Hrs.)

Prerequisites: AUT115 and DSL505

DSL520 Automatic Drive Train 4 cr.

This course acquaints the student with the major components and operation of automatic transmissions. It includes the functions and operation of truck transmissions, the functions and operations of the hydraulic system, lock-up type torque converter, and disassemble, rebuild and assembly procedures. Labs correlate with lectures to provide the student with practical hands-on experiences. (59.4 Lec. Hrs./59.4 Lab Hrs.)

Prerequisite: AUT115

DSL836 Basic Driving Techniques 3 cr.

This course is designed for Diesel students who want to learn the basic elements of tractor-trailer driving. Students who successfully complete this course will earn a CDL license. This course is not required for an A.A.S. degree. (19.8 Lec. Hrs./118.8 Lab Hrs.)

Prerequisite: DOT physical exam, drug test and instructor approval. Must have current valid driver's license. This course is for graduated Diesel Tech students only. Instructor's signature required for registration.

DSL905 COOPERATIVE WORK EXPERIENCE 1-4 cr.

Cooperative Education Experience will integrate classroom theory with on-the-job training. The College will assist the student in securing employment which will be related to the student's major field of study and/or career interests. Under the supervision of the College and the employer, the student participates in job training experiences. In addition to employment, attendance at scheduled on-campus seminars is required. Seminars may include job searching skills as well as professional development. Student eligibility consists of the successful completion of 12 credit hours with EICCD with at least two courses in the chosen major and maintenance of a grade point average of 2.25 or higher. (Variable Coop Hrs.)

Prerequisite: Consent of instructor.

WEL331 WELDING 2 cr.

This course is designed especially for Auto Technology and Diesel Technology students. The weld processes that will be studied are those that are currently being used in auto and truck repair centers. Competencies that will be developed are intended to provide entry-level skills. This course is not designed to provide the skills required for weld certification. (19.8 Lec. Hrs./59.4 Lab Hrs.)