

DIESEL POWER TECHNOLOGY (DSL)

Program Description

The Diesel Power Technology (DSL) program is designed to prepare students for employment in an exciting and growing field. Diagnosis and repair of heavy trucks, industrial and agricultural machinery, transit, marine, and generator power sets are but a few of the career pathways graduates can take upon concluding the program. This efficient energy source is widely used, and provides jobs for those who enjoy working on heavy-duty equipment and the challenges of troubleshooting and diagnosing the ever-increasing use of electronic controls in the diesel industry.

Since many of today's systems are electronically controlled, the demand for trained technicians is greater than ever. Employers want employees who can understand a system and troubleshoot a problem logically. The Diesel Power Technology program provides training to fill that critical void.

The six-quarter Diesel Power Technology program combines classroom theory with hands-on experience in a well-equipped diesel shop, where students have the opportunity to work on modern diesel engines as well as a variety of drive train components. Electronic diagnostics are emphasized throughout the course, not only with engines but also components such as transmissions and ABS brakes. A modern computer lab will also help prepare students to retrieve repair information electronically, a skill which is becoming mandatory in today's workforce.

Students will be required to provide their own basic set of hand tools during their first quarter of the program and keep them at the diesel shop for the duration of their training.

Entry into the Program

Please apply to the Admissions Office. Students may enter the Diesel Power Technology program at the beginning of Fall quarter. To enter the program Winter quarter, advanced standing may be requested for prior education or experience with Department Chair approval. For more information, contact the Department Chair, Admissions Office, or visit the diesel shop.

Work-Based Learning

Students will integrate classroom learning with work-based learning experience in

Cooperative Education (DSL 199) at a supervised work site. Department Chair approval is required. Credits and grades are based on job-hours worked, work performance and completion of the learning objectives specified in the learning contract. Concurrent enrollment in a Cooperative Education Seminar or equivalent is required.

Associate in Technical Arts Degree

An Associate in Technical Arts degree (ATA) is awarded upon completion of a minimum of 90 credits of specified technical and related education coursework above 100 level with both an overall 2.0 grade point average and a 2.0 grade point average in the technical major.

SUGGESTED SCHEDULE

ATA DIESEL POWER TECHNOLOGY

Includes required ATA courses. Student schedule may vary based on entry point, credit load, and prerequisites. Consult with department chair or SVC counselor for scheduling options.

FIRST YEAR

Fall.....Cr	Winter.....Cr	Spring.....Cr
DSL 1017	DSL 10316	DSL 104.....16
DSL 1029	PE 200 or 205..1	CMST 125.....3
†MATH 1005	SOSC 125.....2	WT 133.....2
	WT 1312	WT 231.....2
Total 21	Total21	Total23

SECOND YEAR

Fall.....Cr	Winter.....Cr	Spring.....Cr
DSL 2017	DSL 203.....16	DSL 20416
DSL 2029	*LC/GE.....5-10	‡DSL 199.....3
†ENGL 170.....3		SOSC 1131
Total 19	Total 21+	Total20

* Learning Community (5-10) or 5 credits of General Education (culture, natural world or arts). Please see the Index regarding Learning Communities.

† Students who do not receive an appropriate test score will require additional coursework to develop necessary skills for entry into class.

‡ DSL 199 may be taken at any time during the two-year program with Department Chair approval.

NOTE: First year students start Fall quarter and should enroll in DSL 101 and DSL 102 or 201. Second year students should enroll in DSL 201 and DSL 102 or 201. No DSL courses are offered more than one quarter.

Program Certificate

A Certificate in Diesel Power Technology is awarded to those who complete the technical major, including DSL 199, PE 200 or 205, and ENGL 99 or 170.

INDIVIDUAL TECHNICAL CERTIFICATE

An Individual Technical Certificate may be developed in conjunction with other programs to meet marketable objectives and goals with Department Chair approval.

Course Descriptions

DSL 101 Diesel Electrical Theory (7)

Introduction to basic electrical concepts of voltage, amperage, and resistance and their relationship to each other in a circuit (Ohm's Law) as applied primarily to heavy-duty equipment. Includes digital multi-meter familiarization, working with simulation boards, and building basic electrical circuits.

DSL 102 Diesel Drivetrains I (9)

Introduction to the diesel industry with an emphasis on safety. Introduction to heavy-duty vehicle drivetrain systems. Theory of bearings and seals. Wheel bearing theory and adjustment. Theory, diagnosis, and repair of vehicle foundation brake and air system components. Prerequisite: Concurrent enrollment in DSL 101 or 201.

DSL 103 Diesel Drivetrains II (16)

Continuation of DSL 102. Theory and shop application of wheels and tires, front (non-drive) axles, steering, suspensions and alignments; adjustment of clutches, both push and pull type, and manual and self-adjusting; basic hydraulic systems. Vehicle inspection and out-of-service criteria. Prerequisite: DSL 102.

DSL 104 Diesel Drivetrains III (16)

Continuation of DSL 103. Theory and repair of manual transmissions, drive axles, differentials, and drivelines. Introduction to automatic transmissions and their electronic control systems, and auto-shift manual transmissions. Theory and service diagnostics of ABS brakes. Preventative maintenance summary. Develop skills regarding teamwork and customer service with a diverse and multicultural population. Prerequisite: DSL 103.

DSL 199 Diesel Cooperative Education (1-15)

Supervised work experience in the field. Includes a weekly seminar. Instructor permission required.

DSL 201 Diesel Applied Electrical (7)

Focuses on practical applications of electrical circuits in heavy-duty equipment. Emphasis on the operation and testing of battery, starting and charging systems, wiring, connectors, circuit protection devices, gauges and warning systems, as well as wiring diagrams and symbols. Prerequisite: DSL 101.

DSL 202 Diesel Engines I (9)

Introduction to the diesel engine and its importance to the economy. Covers shop

safety, hand and power tools, precision measuring tools, threaded fasteners, torque and tension. Basics of diesel engine operating theory and design, including all internal engine mechanical components. Introduction to preventative maintenance. Mathematics as it relates to the diesel industry will be incorporated. Shop projects include removal, tear down, and inspection of a modern diesel engine. Prerequisite: Concurrent enrollment in DSL 101 or 201.

DSL 203 Diesel Engines II (16)

Continuation of DSL 202. Covers theory and servicing of engine support systems, including cooling, lubrication, and breathing systems. Introduction to diesel fuels and hydro-mechanical fuel systems, including pump-line-nozzle and various unit injector systems, governors and proper adjustments. Covers failure analysis and troubleshooting as applied to mechanical engines and fuel systems. Use of engine dyno to demonstrate engine break-in and performance characteristics. Shop work to include reassembly of engine projects started fall quarter, with the intent to run them. Prerequisite: DSL 202.

DSL 204 Diesel Engines III (16)

Continuation of DSL 203. Introduction to vehicle computer systems. Emphasis on electronically controlled fuel systems on Caterpillar, Cummins, Detroit Diesel, and International-Navistar engines. Covers tune-ups and diagnostics using PC based troubleshooting software. Theory and servicing of vehicle air-conditioning systems. Preventative maintenance summary. Prerequisite: DSL 203.