Advanced Technology Division

Diesel Technology Unit Plan

Lane Community College

Revised 3/16/05

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Diesel Technology Unit Plan

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Alignment with the College

Diesel Technology is a credit instructional program and has been offered at Lane Community College since 1965. The program is administered under the Office of Instruction and Student Services through the Advanced Technology Division.

The Diesel Technology program is centrally aligned with the College's strategic directions, core values, and learning centered principles.

Strategic Directions

Achieve Financial Stability: This program demonstrated a reduction in cost per student for FY03. This means more students were served with less funds while maintaining the excellent quality of the program.

Enhance the College Climate: This program actively recruited students from under-represented populations.

Core Values

Learning: Student learning is both theoretical and applied. Students progresses from basic to advanced technical, academic and employability skills.

Diversity and Accessibility: The program faculty welcome students from diverse backgrounds. Students with special needs are accommodated with appropriate supplemental learning technologies and experiences.

Innovation: Faculty maintain their expertise in the field and incorporate advanced technologies in the curriculum. The faculty have made a commitment to maximize the use of innovative instructional technologies to transform the curriculum. Some examples of this include transferring lecture notes to PowerPoint and assisting the division in developing a technical common core curriculum.

Collaboration and Partnership: The faculty work very closely with their program advisory committee. This committee is a representation of active community business partners who provide advice and program support. The Diesel Technology faculty also work very closely with other divisional programs, especially Automotive Technology

Integrity: The program faculty has demonstrated a high degree of integrity. They are openly accountable to perform according to the policies, procedures and expectations of the College, the division, the advisory committee, and most importantly, the students.

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Learning Centered Principles

Substantive Change in Individual Learners: The Diesel Technology program excels in transforming student lives. This transformation is demonstrated when a new student enters the program without entry level skills and can complete the two-year program to obtain a high-wage career in the Diesel industry.

Document Learning Success:

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Unit Description

The Diesel Technology program is an occupational, preparatory, two-year Associate of Applied Science degree with a Lift Truck/Material Handling equipment Technician option and/or a two-year certificate of completion program.

The Diesel Technology program features state-of-the-art laboratories where students learn how to diagnose and repair on- and off-highway vehicles using advanced diagnostic tools and equipment. The advanced equipment and expertise of the faculty make Lane's Diesel Technology program the best way to enter the field.

Faculty in the program bring considerable field experience to the classroom and regularly attend workshops at manufacturer training centers to help them keep up with technological changes in the industry.

The program provides classroom instruction, considerable on-car training in the laboratories, and technical field experience that prepares you for employment in the diesel/heavy equipment service field. Program course work includes: Heavy Equipment Hydraulics; Heavy Duty Braking Systems; Heavy equipment Chassis & Power Trains; Diesel & Auxiliary Fuel Systems; Diesel Electrical Systems and Diesel Engines & Engine Overhaul.

Graduates of this program begin careers as heavy-duty equipment technicians; truck, tractor or fuel injection technicians; or diesel tune-up technicians.

This training can lead to employment in entry occupations with truck fleets, logging fleets, heavy construction companies, OEM dealerships road construction contractors, parts sales and service, general heavy equipments repair shops and automotive diesel service and repair. The median salary averages $36,600 annually. The growth in this industry is expected to be about as fast as average. Annual new openings are expected to be much higher than average. Those with an associate’s degree would have a competitive advantage in this labor market.

New students can enter the program at the beginning of fall, winter, or spring terms. For consent to enroll in major courses, students must attend a program orientation in fall terms (dates available in Counseling of the Student’s First! Center) or contact the department advisor/counselor in winter and spring terms. All interested applicants should complete placement testing (Assessment & Testing Office, Building 1) in reading, writing and math. Take testing results to the program orientation and/or advisor/counselor for assistance with course selections. Restricted facilities limit the number of students admitted to this program. Students are selected on a first-come, first-served basis by or date of application to this program.

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Degrees and Certificates

Two-Year Associate of Applied Science Degree	**Credits**
AAS Program Total	**107-109**
First Year	
Fall	
Heavy Equipment Hydraulics DS 155	12
Workplace Safety HE 125 or First Aid HE 252 or PE/Health requirement	3
Total Credits	**15**
Winter	
Heavy Duty Braking Systems DS 154	12
Wire Drive Welding WLD 143	4
Applied Geometry for Technicians MTH 076 or higher	4
Total Credits	**20**
Spring	
Heavy Equipment Chassis & Power Trains DS 158	12
Shielded Metal Arc Welding 1 WLD 121	4
Introduction to College Writing: Workplace Emphasis WR115W	3
Total Credits	**19**
Second Year	
Fall	
Diesel & Auxiliary Fuel Systems DS 256	12
Manufacturing technology MFG 197 or Shielded Metal Arc Welding 2 WLD 122	3-4
Concepts of Computing: Information Processing CS 120	4
Total Credits	**19-20**
Winter	
Diesel Electrical Systems DS 257	12
Human Relations requirement	3
Arts & Letters requirement	3
Total Credits	**18**
Spring	
Diesel Engines & Engine Overhaul DS 259	12
Applied Algebra for Technicians MTH 086 or higher	4
Cooperative Education: Diesel DS 280 (optional)	3
Total Credits	**16-19**

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Two-Year Certificate of Completion	**Credits**
Two-year Certificate of Completion total	**82-85**
First Year	
Fall	
Heavy Equipment Hydraulics DS 155	12
Workplace Safety HE 125 or First Aid HE 252 or PE/Health requirement	3
Total Credits	**15**
Winter	
Heavy Duty Braking Systems DS 154	12
Wire Drive Welding WLD 143	4
Applied Geometry for Technicians MTH 076 or higher	4
Total Credits	**20**
Spring	
Heavy Equipment Chassis & Power Trains DS 158	12
Shielded Metal Arc Welding 1 WLD 121	4
Introduction to College Writing: Workplace Emphasis WR115W	3
Total Credits	**19**
Second Year	
Fall	
Diesel & Auxiliary Fuel Systems DS 256	12
Manufacturing technology MFG 197 or Shielded Metal Arc Welding 2 WLD 122	3-4
Total Credits	**15-16**
Winter	
Diesel Electrical Systems DS 257	12
Human Relations requirement	3
Total Credits	**15**
Spring	
Diesel Engines & Engine Overhaul DS 259	12
Cooperative Education: Diesel DS 280 (optional)	3
Total Credits	**12-15**

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Two-Year Lift Truck/Material Handling Equipment Technician Option	**Credits**
Two-Year Lift Truck/Material Handling Equipment Technician Option totals	**107-111**
First Year	
Fall	
Heavy Equipment Hydraulics DS 155	12
Workplace Safety HE 125 or First Aid HE 252 or PE/Health requirement	3
Total Credits	**15**
Winter	
Diesel Electrical Systems DS 257	12
Wire Drive Welding WLD 143	4
Applied Geometry for Technicians MTH 076 or higher	4
Total Credits	**20**
Spring	
Diesel Engines & Engine Overhaul DS 259	8
Engine Performance AM 244	4
Shielded Metal Arc Welding 1 WLD 121	4
Introduction to College Writing: Workplace Emphasis WR115W	3
Total Credits	**19**
Second Year	
Fall	
Lift Truck/Material Handling Equipment (Mast/Upright) DS 260	6
Diesel & Auxiliary Fuel Systems DS 256	6
Manufacturing technology MFG 197 or Shielded Metal Arc Welding 2 WLD 122	3-4
Concepts of Computing: Information Processing CS 120	4
Total Credits	**19-20**
Winter	
Lift Truck/Material Handling Equipment (Electric) DS 260	9
Heavy Duty Braking Systems DS 154	3
Arts & Letters requirement	3
Human Relations requirement	3
Total Credits	**18**
Spring	
Lift Truck/Material Handling Equipment (Electric/Maintenance/Schematics) DS 260	9
Heavy Equipment Chassis & Power Trains DS 158	3
Applied Algebra for Technicians MTH 086 or higher	4
Cooperative Education: Diessel DS 280 (optional)	3
Total Credits	**16-19**

Cooperative Education

Cooperative Education (Co-op) offers students college credit and a grade for on-the-job work experience related to their educational and career goals. Through Co-op a student can integrate theory and practice, develop skills, expand career knowledge, and make contacts for the future. Work schedules and work sites vary. Under the supervision of the Diesel Technology Co-op Coordinator and with instructor consent, a maximum of 18 Co-op credits in DSL 280 man be earned in lieu of required Diesel Technology course credits.

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Organizational Structure

Board of Education
President
Vice President of Instruction
Associate Vice President of Instruction
Division Chair Advanced Technology
Faculty Diesel Technology Program

Faculty/Staff

Name	***Al Clark***
Classification	Full-Time Faculty
Year Hired	1989
Degrees/Credentials	

Name	***Steven Webb***
Classification	Full-Time Faculty
Year Hired	2001
Degrees/Credentials	

Program Outcomes

Program outcomes
Primary outcome is student employability upon completion of the program in at least an entry-level capacity, with expectation of prompt advancement. Ideal outcome would be 100% employment upon completion of program. All students completing the program should be able to diagnose and repair on- and off-highway heavy trucks and equipment. Some students taking courses do not seek a degree or certification. Primary outcome for these students is that they receive the skills they seek from the program.

Idealistic program outcomes: All students admitted to the program would be pursuing a career in the diesel/heavy equipment repair industry. All students would combine actual work experience in the repair industry with classroom and lab instruction. All students admitted to the program would meet basic mechanical knowledge criteria and be able to show basic aptitude skills..

Benchmarks

Efficiency Benchmarks	Description
Student/Instructor Efficiency Ratio = 100%	Student/Instructor Ratio = 18:1 Efficiency Ratio = Reimbursable Student FTE / Instructor FTE / 18
Classroom Capacity Efficiency Ratio =100%	Ratio = Students / Average Classroom Capacity Efficiency Ratio = Ratio / 80%
Cost per Student FTE Efficiency Ratio = 100%	The division has developed a normalized business model based on operating benchmarks. This model predicts an expected cost per Student FTE. FY03 Predicted Cost per SFTE = $4,826 FY03 Actual Cost per SFTE = $4,142 Efficiency Ratio = Predicted Cost / Actual Cost
Local Employment Demand / Student Completers Efficiency Ratio = 100%	Lane county new positions are projected by the Oregon Labor Management Information System (OLMIS). Efficiency Ratio = New Positions / Student Completers
Student Persistence Ratio = 80%	Persistence is the measure of the percent of students who finish a sequential course and continue to the next sequential course in the next term. Ratio = Continuing Students / Prior Term Completing Students
Student Retention Ratio = 80%	Student retention is the percentage of students who were enrolled in the second week of the term and were enrolled at the end of the term. Ratio = End of Term 2nd Week Students / 2nd Week Students
Starting Wage Ratio Efficiency Ratio = 100%	Student Completers' Average Starting Wage / OLMIS Average Starting Wage. For FY03 OLMIS average starting wage was $10.99.

Effectiveness Benchmarks	Description
Upon completion of the Diesel Technology program 90% of the students will pass the eight ASE examination areas.	1. Diesel Engine and Engine overhaul 2. Power trains 3. Brakes 4. Electrical & Electronic Systems 5. Fuel Systems 6. Heavy Equipment & Hydraulics
90% of the students who complete the two-year automotive program will have completed within nine terms.	
95% of the students who complete the diesel technology program will express satisfaction with the level of training provided.	Student completers will be asked to evaluate their overall satisfaction with the program training.
90% of employers will express job performance satisfaction with the program's student completers.	Employers of the will be asked to evaluate their overall satisfaction with the job performance of the prior year's program completers. On a five point Likert scale, satisfaction is greater than or equal to the midpoint.

Courses

Course outcomes: Individual course outcomes are listed in course syllabi.

Idealistic course outcomes: Each student would demonstrate skills required by Industry employers and advisory committee members.

Instructional methods: Required textbooks, lecture, video presentations, lab worksheets and assignments, demonstrations, and vehicles and components provided by the school or the student are presently used.

Idealistic instructional methods: Student to instructor ratio of 18 to 1 or less would allow more complete understanding of material and better pacing to assure complete comprehension by all students. Use of mock-ups or training stations would improve student understanding. A standardized vehicle fleet would assure the accuracy of lab work and allow more problems to be built in to provide real world diagnostic experiences [vehicle bugging]. A standardized vehicle fleet would allow stocking of parts for these specific vehicles and the possibility of a program to train students for the auto parts industry. The modularization of program courses could allow for self paced study and reduce instructor lecture time

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Instructional environment

Advisory Committee

Program Operating Information – Trends

Performance Analysis

Unit Initiatives

Unit initiatives are separated into two categories: Maintenance Initiatives and Enhancement Initiatives.

Maintenance initiatives are requests for resources to maintain the existing levels of program efficiency and effectiveness. Maintenance initiatives respond to:

1) any mandatory changes in the program (recurring contracts, change in credits, implementing accreditation or other curriculum standards), and,
2) costs to maintain the existing curriculum and program equipment.

Enhancement initiatives are requests for new resources to implement substantive changes in the program, usually in response to student growth or new curriculua.

Maintenance Initiatives

Initiative ID	Need	Request
M01	Special training components (50)	1,000
M02	Tool sets (25)	50000
M03	Computers (8)	12000
M04	Vehicles (6)	150000
M05	Engines (25)	125000

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Enhancement Initiatives

Initiative ID	Need	Request
E01	Diagnostic Software (6 stations)	New diagnostic software for 6 stations needed to properly instruct students in the methods of computer diagnosis. $5000
E02	Recruiting	5,000
E03	Curriculum development	6,000
E04	Training aids (6)	60,000
E05	Shop exhaust system	70,000
E06	Power shift transmissions (6)	90,000
E07		

Division Priority	Date of Initiative	Expected completion date	Initiative Description	Resource Description	$$	Recurring / Nonrecurring	Resource Type (mark with an "X")				Funding Sources (mark with an "X")					
							Payroll (w/OPE)	Equipment	Space	Other	Existing	New G-F	CP	TACT	CD	Other
1	1/9/04	6/30/05	New Equipment	Diagnostic Software 6 stations	5,000	R		x						1		
2	1/9/04	6/30/05	New Equipment	Recruiting	5,000	R				x						1
3	1/9/04	6/30/05	New Equipment	Curriculum development	6,000	R				x					1	
4	1/9/04	6/30/05	New Equipment	Training aids (6)	60,000	R	x					1	1			
5	1/9/04	6/30/05	New Equipment	Shop exhaust system	70,000	NR		x				2	2			
6	1/9/04	6/30/05	New Equipment	Power shift transmissions (6)	90,000	NR		x				3	3			
7	1/9/04	6/30/05	Replacement Equipment	Special training components (50)	1,000	R		x			1		4			
8	1/9/04	6/30/05	Replacement Equipment	Tool sets (25)	50,000	R		x			2		5			
9	1/9/04	6/30/05	Replacement Equipment	Computers (8)	12,000	R		x			3			2		
10	1/9/04	6/30/05	Replacement Equipment	Vehicles (6)	150,000	R		x			4		6			
11	1/9/04	6/30/05	Replacement Equipment	Engines (25)	125,000	R		x			5		7			