NORTH DAKOTA STATE COLLEGE OF SCIENCE

Diesel Technology

John Deere Construction & Forestry Student Information

NDSCS

NDSCS.edu/Diesel

CONTENTS

Diesel Technology is a two-year program designed to prepare students for the many employment opportunities in the diesel industry leading to an Associate of Applied Science Degree.

The John Deere Construction and Forestry Division and their dealers have partnered with NDSCS to provide an educational opportunity for students who are sponsored by a John Deere Construction and Forestry (C&F) dealer. This initiative is designed to prepare Diesel Technology students to diagnose, service, repair and rebuild John Deere construction equipment used by customers nationwide.

During their first year, students are given extensive training and practical experiences in servicing all types of engines, drive trains, hydraulic systems and electrical systems found on trucks, agricultural and industrial equipment. Students enrolled will also learn the theory of operation along with the latest repair and diagnostic procedures available in the diesel industry. Their second year work will primarily focus on John Deere construction equipment. To qualify, students must secure a sponsorship with a participating John Deere C&F dealer. An internship or cooperative educational experience will also be required.

The Diesel Technology program is accredited by the AED Foundation.

NDSCS Program Coordinator/Instructor
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JOHN DEERE

The material in this packet is intended solely for information purposes. The North Dakota State College of Science reserves the right to make changes in curricula, rules and fees whenever such changes are deemed necessary. The announcements in this material are subject to change without notice and may not be regarded as binding obligations on the institution or the state of North Dakota

The North Dakota State College of Science is accredited by The Higher Learning Commission, 230 South LaSalle Street, Suite 7-500, Chicago, IL 60604, 800-621-7440.

INTRODUCTION

The Diesel Technology program is an Associate of Applied Science degree (A.A.S.) that is designed to develop technically competent, professional service technicians.

Students receive state-of-the-art technical training on construction, over the road truck, agricultural equipment and related products through a combination of classroom instruction, hands-on laboratory instruction, and cooperative educational work experience at a participating OEM dealership.

The Diesel Tech program takes four semesters or approximately 18 months to complete. The four semesters are divided into eight terms, each approximately eight weeks in length.

Classroom and laboratory instruction at NDSCS covers the basics of each subject plus the latest developments in equipment. Work experience at an OEM dealership is structured to relate to the most recent classroom subjects covered at NDSCS and includes projects to improve the student's skill level.

Students are responsible for tuition, fees, textbook, uniform and tool costs.

DIESEL TECHNOLOGY PROGRAM

(AAS Degree)

CURRICULA		AAS Credits
DTEC 109	Air Conditioning for Diesel Technology	2
DTEC 110	Diesel Equipment Maintenance	3
DTEC 115	Introduction to Light and Medium Duty Engines	4
DTEC 125	Introduction to Heavy Duty Drive Systems	4
DTEC 135	Medium/Heavy Duty Brake Systems	2
DTEC 155	Electricity for Diesel Technology	4
DTEC 164	Introduction to Mobile Hydraulics	4
DTEC 215	Heavy Duty Diesel Engines	7
DTEC 225	Heavy Duty Drive Systems	7
DTEC 255	Heavy Duty Chassis Electrical Systems	7
DTEC 265	Mobile Hydraulic Systems Diagnostics and Repair	7
DTEC 297	Cooperative Education	2

Related/General Education Courses		AAS Credits
MFGT 110	Industrial Shop Practices	2
CIS 101	Computer Literacy	2
ENGL 110	College Composition I	3
English/Communication elective (choose one)		3
ENGL 105	Technical Communications	
ENGL 120	College Composition II	
ENGL 125	Introduction to Professional Writing	
COMM 110	Fundamentals of Public Speaking	
HPER	Wellness Electives	2
MATH 120	Basic Mathematics I	2
MATH 123	Basic Mathematics II	2
MATH 125	Basic Mathematics III	2
PSYC 100	Human Relations in Organizations	2
FYE 101	Science of Success	1

Class schedule may change without notice.

COURSE DESCRIPTIONS

DTEC 109 Air Conditioning for Diesel Technology (2)
A lecture, discussion and lab-type course covering the design and principles of operations of various air conditioning systems, including agriculture, construction and trucking equipment. Work in lab consists of leak detecting, evacuation, reclaiming, charging, component comprehension, electrical systems and troubleshooting for various units. (F, S)

DTEC 110 Diesel Equipment Maintenance (3)
A theory and lab course covering general maintenance and service procedures performed on diesel powered equipment. This course includes instructions for safe operation of various types of diesel-powered equipment for the technician to perform general service procedures required by the manufacturer. Proper use of shop tools, equipment, safety techniques and industry standards will be covered. This is an 8-week course. (F,S)

DTEC 115 Introduction to Light and Medium Duty Engines (4)
A theory and lab course covering rebuilding of heavy duty gas and light- and medium-duty diesel engines. Students will troubleshoot, disassemble, rebuild and assemble an engine during this class. Learning modules include: measurement fundamentals, basic engine operating principals, cylinder and piston service, cylinder head rebuilding and valve reconditioning, crankshaft and bearing service, and lubrication and cooling systems. Engines designed for the use of alternative fuels such as LPG and CNG are also covered. This class is a prerequisite for DTEC 215, CIH 215 and JDAT 215.

DTEC 125 Introduction to Heavy Duty Drive Systems (4)
A lecture and lab type course which provides the student with theory and hands-on operation and repair of shop safety, operation, bearings-seals, heavy duty steer axles, drive axles, medium and heavy duty truck suspension, wheel end assemblies, and braking systems. Heavy duty vehicle inspection is also covered in this course.

DTEC 135 Medium/Heavy Duty Brake Systems (2)
A theory and lab course covering the operation and repair of air and hydraulic brake systems used in light, medium, heavy duty trucks and diesel powered equipment. This course covers all brake systems, diagnosis and repair of power, manual, anti-lock brakes and parking brakes. DOT inspection procedures are also covered in this class. This is an 8-week course and a 64-hour class.

DTEC 155 Electricity for Diesel Technology (4)
An introductory lab/theory class in electrical fundamentals. A practical approach to the study of electricity including Ohm's Law, power, series and parallel circuits, direct and alternating current, with strong emphasis on diagrams and troubleshooting. This class is designed for technicians in the Diesel Technology field. (F, S)

DTEC 164 Introduction to Mobile Hydraulics (4)
This course is a study of hydraulic system fundamentals and various components used in a typical mobile hydraulic system. Component disassembly and reassembly will take place to aid in the understanding of component and system operation. Various components will be tested on a test bench to help the student understand how the components contribute to the overall operation of the system and will be used to evaluate the students' performance. Experiments will be performed on lab equipment to aid in the understanding of mobile hydraulic principles.

DTEC 215 Heavy Duty Diesel Engines (7)
A lecture and lab type course of current heavy-duty diesel engines. Students gain knowledge in operation, troubleshooting, rebuilding and tuning all types of diesel engines. Work includes disassembly, assembly, injection timing and adjustment common to diesel engines used in the agricultural, transportation and industrial industries.

DTEC 225 Heavy Duty Drive Systems (7)
A lecture and lab type course which provides the student with theory and hands-on operation and repair of the latest types of heavy-duty drive systems that the agricultural, transportation and industrial industries use on their equipment. (F, S)

DTEC 255 Heavy Duty Chassis Electrical Systems (7)
A lecture and lab type course covering the theory of operation, repair and diagnostic procedures used on heavy-duty truck and tractor electrical systems, electronic engines and transmissions. This is a half-semester course. (F, S)

DTEC 265 Mobile Hydraulic Systems Diagnostics and Repair (7)
DTEC 265 is a lab/lecture course covering the service diagnostics and repair of the hydraulic functions on agricultural and industrial equipment. Open center, closed center, and closed center load sensing systems are covered as well as steering, hydrostatic drives, 3 point hitches, and hydraulic functions of today's equipment. Prerequisite: DTEC 164.

DTEC 297 Cooperative Education for Diesel Technology (1-5)
The Cooperative Education program for Diesel Technology allows the students to apply classroom study with a paid work experience related to their fields of study at a department approved work site. It is recommended that the student has completed one year of Diesel Technology. (Su)

MFGT 110 Industrial Shop Practices (2)
An introduction to the procedures and practices used to develop fundamental industrial shop skills. Students enrolled in this class will learn and apply a variety of practical skills used to aid in any entry level industrial mechanical service occupation. The topics covered in this course are: general shop safety; Oxy-fuel torch and MIG welding set-up and operation; basic metallurgy and material identification; identification of SAE and ISO metric measuring systems; fastener types/grades identification/applications; identification of twist drills and 4 systems of sizes; identification/application of hand taps; hack saw blade identification/installation; metal working file identification/operation; drill press/hand drill safety/identification/operation; drill grinding gage application; practical use of micrometers/dial caliper/dial indicator/depth micrometer; Heli-coil insert identification/installation; broken bolt removal practices; soldering application; and mechanical/hydraulic arbor press safety and operation.

CIS 101 Computer Literacy (2)
This course is designed to provide non-Computer Science majors with an introductory-level course in computer usage that prepares them for contemporary work environments. It is a hands-on lab-based course intended to introduce the student to the Windows operating system, word processing, spreadsheet processing, PowerPoint presentations and Cloud Computing. (Credit awarded for CIS 101 or CSCI 116, not both.)
(F, S, Su, O) *ND:COMPSC*

ENGL 105 Technical Communications (3)
This course concentrates on business correspondence, informal report writing, technical communication, job preparation, and oral presentation. Prerequisite: Placement test. (F, S, Su-Online)

ENGL 110 College Composition I (3)
An introduction to college-level writing as a process of drafting, revising and editing. This course emphasizes critical reading, writing, thinking and research skills as students write for a variety of audiences and purposes. Students will receive guided instruction in the writing process as they begin writing based on personal experiences. An introduction to proper crediting of source material and research will occur toward the end of the course. Prerequisite: Placement test. (F, S, Su, O) *ND:ENGL*

ENGL 120 College Composition II (3)
Continued practice of college-level writing process and strategies, building on skills learned in English 110. This course refines critical reading, writing, thinking and research skills. Students will practice summary and analysis of texts, as well as synthesizing information from primary and secondary sources. Writing assignments will emphasize logical argument, persuasion and collaboration. Major assignments will require proper crediting of source material and research. Prerequisite: English 110. (F, S, Su, O) *ND:ENGL*

ENGL 125 Introduction to Professional Writing (3)
Advanced practice in college-level writing which emphasizes writing and research in professional settings. Prerequisite: English 110.
(F, S-Online, Su-Online) *ND:ENGL*

COMM 110 Fundamentals of Public Speaking (3)
The theory and practice of public speaking with emphasis on content, organization, language, delivery and critical evaluation of messages.
(F, S, Su, O) *ND:COMM*

FYE 101 Science of Success (1)
This is a practical one-credit course that provides the tools and skills necessary to get a strong start with the transition for new students at NDSCS. This course will introduce students to campus resources, policies and procedures and cover topics such as time management, study skills, goal setting, wellness, financial literacy and professional development. (F, S, O)

HPER Electives
(See *NDSCS Catalog* for details)

MATH 120 Basic Mathematics I (2)
A review of whole numbers, fractions and decimal numbers in conjunction with the fundamental application of ratios, rates, unit rates, proportions and percents in solving everyday problems. The application of business and consumer mathematics such as simple and compound interest and purchasing. (F, S)

MATH 123 Basic Mathematics II (2)
This course introduces statistical data reading and calculating. Problem solving applications involving U.S. and Metric measurements. Application of direct measurement, perimeter, area, and volumes and fundamental geometry. (F, S)

MATH 125 Basic Mathematics III (2)
Basic concepts and features of beginning algebra with emphasis on critical thinking and problem solving. Topics include properties of real and rational numbers, arithmetic operations of numbers and expressions, translating verbal expressions to variable expressions, formula manipulations and application of word problems. (F, S)

PSYC 100 Human Relations in Organizations (2)
An examination of human relations in business and industry with emphasis on how people can work effectively in groups to satisfy both organizational and personal goals. Motivation, emotional and mental health, communication techniques and coping with stress are explored. Activities are used to encourage the application of concepts to enhance personal growth and insight and to increase social skills. (F, S, Su-upon demand, O) *ND:SS*

STUDENT ADMISSION AND SELECTION PROCEDURE

Students enroll in the Diesel Technology program at the beginning of any eight week period, providing enrollment space is available. Students are accepted into the program upon completion of admission into NDSCS. Students should do the following:

Apply for admission to NDSCS through the Enrollment Services office. Enrollment Services will not accept faxed applications for any program.

- Submit high school transcripts or GED to Enrollment Services.

ADMISSIONS

Students should contact the NDCS Enrollment Services office (701-671-2173) to receive information on the college, financial aid and housing. Students should complete the applications and return them to NDSCS promptly. Assessment tests will be required prior to admission into the Diesel Technology program.

HIGH SCHOOL OR GED TRANSCRIPTS

Applicants must demonstrate completion of high school or GED equivalency. Students should contact their high school guidance office and request that their transcript be submitted to NDSCS Enrollment Services.

ORIENTATION

All freshmen must complete an orientation. Once a student is admitted to NDSCS, Enrollment Services will schedule orientation for the student. Orientation includes a tour of the NDSCS campus, financial aid counseling, scheduling (academic advising) and registration.

SPONSOR APPROVAL

Applicants must complete an interview with and secure approval of a sponsor. The applicant is responsible for obtaining a sponsor. Applicants should take the Dealer Approval Form to a potential sponsor. Complete the approval form and return it to Enrollment Services if it is determined that the dealer will grant sponsorship. If the dealer decides not to grant sponsorship, then the student should contact the NDSCS coordinator for assistance in securing a sponsor.

SCHOLARSHIP AVAILABILITY

A general scholarship application must be completed to be eligible for scholarships.

COLLEGE EXPENSES

Contact the Director of Enrollment Services for tuition costs.

NOTE: All tuition, fees, room and board costs are tentative and are subject to change. Personal costs are rough estimates of personal spending. Contact the NDSCS Enrollment Services office for a current information sheet.

CONTACT INFORMATION

Students should direct all inquiries to the following contact persons.

North Dakota State College of Science Primary Contacts:

Terry Marohl
Department Chair
Diesel Technology
701-671-2308 or 800-342-4325 ext. 3-2308
Terry.Marohl@ndscs.edu

Jenny Schmitt
Program Assistant
Diesel Technology
701-671-2330
Jenny.Schmitt@ndscs.edu

STUDENT TOOL LIST

Students are responsible for purchasing or providing their own tools. Below is a list of required tools for the program. These tools can be purchased from NDSCS at a substantial discount through the Bookstore.

QTY	DESCRIPTION	CATALOG #	VENDOR
1	Classic 7-drawer 40" Red	KRA4107FPBO	Snap-on
1	3/8" Dr, Adaptor Set, Comb. Drive, 6 pc.	1206GS	Snap-on
1	1/4" Dr, General Serv, Fractional/Metric, 44 pc., 6 pt.	144TMPB	Snap-on
1	3/8" Dr.,Torx®, Standard, T27 to T55 Plus GM-Style T47 (7 pcs.)	207EFTXY	Snap-on
1	Set, Socket, Deep, 12 pt. 11 pc. 1/4"-7/8"	211SFY	Snap-on
1	3/8" Dr., Metric Socket Set, Shallow, 12 pc., 12 pt.	212FMY	Snap-on
1	3/8" Dr. Metric Deepwell Socket Set (8mm-19mm)	212SFSMY	Snap-on
1	Set, General Service, 12 pt. (18 pc.) (Tools Only)	218AFP	Snap-on
1	1/2" Dr, Metric Socket Set, Shallow, 12 pt.	313SWMYA	Snap-on
1	1/2" Dr, General Service Set, 17 pc., 6 pt.	317MSPC	Snap-on
1	Stainless Wire Brush	AC59C	Snap-on
1	1/4 Npt F Coupler Auto Type	AHC24D	Snap-on
4	Air Line Adaptor, Male	AHC24MD	Snap-on
1	Hex Wrench Set, Silver, L-Shape, 15 pc.	AW1015DK	Snap-on
1	Hex Metric Wrench Set, Gold, L-Shape, 14 pc.	AWM140DK	Snap-on
1	Pliers, Adjustable Joint, Straight Serrated Jaws 12-3/4	AWP120	Snap-on
1	Curved Locking Jaw Pliers	BLP10	Snap-on
1	Hammer, Ball Peen 16 oz. Fiberglass	BPN16B	Snap-on
1	0-1" Micrometer	CNT3M101	Snap-on
1	Carbon Scraper, Rigid, Black, 14"	CSA14C	Snap-on
1	Feeler Gauge, Bent Blade, 25 Blades	FB300A	Snap-on
1	Feeler Gauge, U.S./Metric, 25 Blades	FB325A	Snap-on
1	Air Chuck, Dual Foot, 6-1/2"	GA356B	Snap-on
1	Set Dial Test Indicator, Long Range	GA3645	Snap-on
1	Black Frame Safety Glasses	GLASS31BK	Snap-on
1	Hammer, Dead Blow 48 oz.	HBFE48	Snap-on
1	B.P. Hammer, Hand Drilling, Fiberglass Handle 4 lb.	HD4SG	Snap-on
1	Tapered Rubber Tip Blow Gun, 4-1/2" Long	JT13B	Snap-on
1	Nylon Strap Oil Filter Wrench	KDT3149	Snap-on
1	5/16" Comb. Wrench, Std Length, 12 pt.	OEX10B	Snap-on
1	Comb. Wrench Set, 14 pc., 12 pt.	OEX714KB	Snap-on
1	Metric Wrench, Comb., Short, 6mm, 12 pt.	OEXM6B	Snap-on
1	Metric Wrench Set, Comb., 10 pc., 12 pt.	OEXM710B	Snap-on
1	Metric Wrench, Comb., Short, 7mm, 12 pt.	OEXM7B	Snap-on
1	Metric Wrench, Comb., Short, 8mm, 12 pt.	OEXM8B	Snap-on
1	Metric Wrench, Comb., Short, 9mm, 12 pt.	OEXM9B	Snap-on
1	Prybar Set (4 Pcs.)	PBS704	Snap-on
1	Pen Tire Pressure Gauge, 10 to 150 Psi	PGPL150	Snap-on
1	Putty Knife Scraper, Red 1-1/4"	PK53A	Snap-on
1	3 pc. Pliers Set	PL307ACF	Snap-on
1	Dial Caliper 0"-6" Range	PMF147A	Snap-on
1	Bronze Drift Punch 13/16" pt., 8"	PPB826A	Snap-on

QTY	DESCRIPTION	CATALOG #	VENDOR
1	Race Punch, Oval Bearing 20"	PPC20LB	Snap-on
1	Punch & Chisel Set, 11 pc.	PPC710BK	Snap-on
1	Wire Stripper, Cutter, Crimper/Bolt Cutter	PWC9	Snap-on
1	Telescoping Magnet Pick Up Tool	PT5C	Snap-on
1	Telescoping Round Pocket Mirror	PTM143	Snap-on
1	Wire Stripper, Cutter, Crimper/Bolt Cutter	PWC9	Snap-on
1	Torque Wrench, Adj. Click Type, Flex Head, 5-75 ft./lb., 3/8" Dr.	QD2FR75B	Snap-on
1	Socket, Spark Plug, Shallow, 13/16", 6 pt.	S9704KA	Snap-on
1	Socket, Spark Plug, Shallow, 5/8", 6 pt.	S9706KA	Snap-on
1	Screwdriver Flat Tip, Pocket, Orange, .025" Tip, 4-3/4"	SDD224O	Snap-on
1	Instinct AWL	SG7ASABR	Snap-on
1	Mini Pick Set, Pastic Handle, Black, 4 pc.	SGASA204CR	Snap-on
1	8 pc. Screwdriver Set, Red, Soft	SGDX80BR	Snap-on
1	1/4" Driver, Long Shank 5-3/4"	SGT4BR	Snap-on
1	Striking Prybar 4 pc. Set Orange	SPBS704AO	Snap-on
1	Snap Ring Pliers, Angle Jaws 8-7/8" Long	SRP2B	Snap-on
1	Snap Ring Pliers, Angle Jaws 14" Long	SRP4	Snap-on
1	Pliers, Retaining Ring 7-7/16"	SRPC7000	Snap-on
1	Metric, Shallow, 10mm, 12 pt.	SWM101A	Snap-on
1	Metric, Shallow, 11mm, 12 pt.	SWM111A	Snap-on
1	Metric, Shallow, 25mm, 12 pt.	SWM251	Snap-on
1	Metric, Shallow, 26mm, 12 pt.	SWM261	Snap-on
1	Metric, Shallow, 27mm, 12 pt.	SWM271	Snap-on
1	Torqometer, Basic 3/8" Dr. 300 lb.	TE25A	Snap-on
1	Torque Wrench, Adj. Click Type, U.S., Flex-Ratchet, 40-250 ft./lb., 1/2" Dr.	TQFR250E	Snap-on
1	Socket, Shallow 1-1/4" 12 pt.	TW401	Snap-on
1	Brush, Wire, Brass, Miniature, 2"	WBBS2	Snap-on
1	Ear Protector	YA160A	Snap-on
1	Soapstone Marker	YA247-2	Snap-on
1	Welding Gloves	YA427B	Snap-on
1	Oil Filter Slip Joint Pliers	YA4274A	Snap-on
1	Oil Filter Pliers	YA4275	Snap-on
1	Lifting Brackets	7100U1	Otc
1	Measuring Tape, U.S./Metric	33-215	Stanley
1	Fluke Multimeter 87-V	2074974	Fluke
1	Cut 1 Dipped Gloves SML-2xl (Sized)	48-22-8903	Milwaukee
1	4' Endless Sling	EN1801TX4	Tuff-Edge
1	Hole Gauge .300-.400"	CEN-4313	Central Tools
1	HD Orange Nitrile PF Ind Gloves Box/100 (Sized)	GWGN46100	Gloveworks
1	Mini Led 2-Cell AAA Red Flashlight	SP32036	Maglite
1	Deutsch Removal Tool Set	588U	Thexton

SPONSOR APPROVAL OF STUDENT

DIRECTIONS TO THE STUDENT

Fill in your name and address in the lines below. Then, take this Sponsor Approval Form to the John Deere Construction and Forestry dealer for approval of the sponsorship.

Student's Name _____

Street Address _____

City, State, Zip _____

Phone _____

DIRECTIONS TO THE DEALER

_____ I agree to provide sponsorship for the above student in the Diesel Technology – General Diesel / John Deere Construction and Forestry Partnership at NDSCS.

Dealership _____

Street Address _____

City, State, Zip _____

Phone _____

Authorizing Representative _____

Date _____

STUDENT RELEASE OF INFORMATION FORM

I hereby grant permission to North Dakota State College of Science to share my high school transcripts, pre-admission test results, interview data, and college grades and progress reports with the sponsoring John Deere Construction and Forestry dealership.

Student Signature _____

Street Address _____

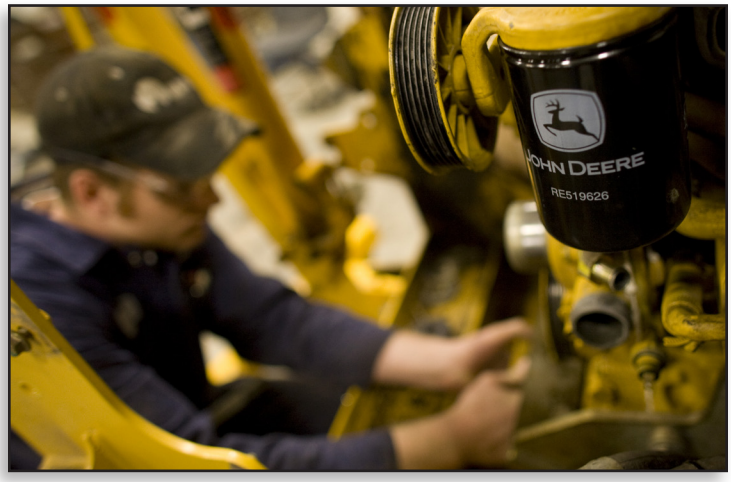
City, State, Zip _____

Date _____

Return this completed form to:
NDSCS Enrollment Services
800 Sixth St. N.
Wahpeton, ND 58076-0002

CORRESPONDENCE

All correspondence should be directed to the following address:
Diesel Technology
Enrollment Services
North Dakota State College of Science
800 Sixth St. N.
Wahpeton, ND 58076



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