

Industrial Electrical

► Contact Information

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► Delivery Methods

Face-to-Face: Wahpeton

The Industrial Electrical option of the Electrical Technology program is designed to give students the skills necessary for successful employment in the industrial sector of the electrical industry. The core curriculum of the Electrical Technology programs includes in-depth study of electrical theory, applied math, code study and residential wiring. A substantial amount of hands-on experience is provided in our seven dedicated laboratories, which contain AutoCAD drawing, advanced electrical test equipment, electric motors, magnetic motor starters, programmable controllers, electronic devices and instrumentation. Green technology is applied in areas of lighting and design class, efficiency of motors, controlling of loads (lighting, AC, etc.) in building operation through programmable controllers (PLCs).

The Industrial Electrical option adds skills in the area of automated industrial controls (robotics, pneumatics and digital electronics) as well as large motors and the electronic drives that control those motors. Graduates of this option find employment as maintenance technicians for manufacturing firms, power companies and processing plants. They also have opportunities to work as engineering technicians in the design, manufacturing and sales of electrical equipment. This flexibility in employment is made possible by the department's eight faculty members who collectively have over 200 years of industry and training experience.

Graduates of this option are also exempt from the mandatory classroom training required by North Dakota law (ND Century Code 43-09-11).

While students are fully employable upon completion of this associate-granting program, some elect to return for another year of training, earning the Electrical Master Technician degree (please refer to the Electrical Technology, Electrical Master Technician). Other students may wish to continue their education by returning for an additional year, combining Electrical Technology with Robotics, Automation and Mechatronics, HVAC/R, Plumbing, or business classes. Students may transfer to four-year colleges and universities for a bachelor's degree in programs such as Construction Management or Engineering Technology.

NOTE: This program requires an HP EliteBook 850 Laptop or equivalent. Please refer to the NDSCS website for specifications. The cost will be approximately \$1065.00 if purchased through NDSCS. Contact the NDSCS ITS Department for more information and to reserve/purchase a laptop at 701-671-3333 option 5.

For further information regarding the Electrical Department, contact Ivan Maas, department chair at 701-671-2662.

Course Code	Course Title	Credits
ECAL 101	Direct Current (DC) Fundamentals	5
ECAL 102	Alternating Current (AC) Fundamentals	5
ECAL 103	Electrical Code Study	4
ECAL 111	Electric Meters and Motors Lab	3
ECAL 133	Basic Wiring Lab	3
ECAL 137	Electrical Drafting	2
ECAL 201	Three-Phase Electrical Systems	5
ECAL 205	Electrical Design and Lighting	3
ECAL 211	AC Measurements	4
ECAL 223	Electronic Devices/Lab	4
ECAL 241	Basic Motor Controls Lab	3
ECAL 243	Programmable Logic Controllers Lab	3

Industrial Courses

ECAL 224	Automated Industrial Controls Lab	5
ECAL 242	Advanced Drives/Lab	2
ECAL 253	Introduction to Instrumentation Lab	3

Related/General Education Courses

FYE 101	Science of Success	1
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	
MATH 132	Technical Algebra I	2
MATH 134	Technical Algebra II	2
MATH 136	Technical Trigonometry	2
HPER	Wellness Elective(s)	2
Social and Behavioral Sciences, Humanities, History and/or Computer Electives		4
Recommended:		
• CIS 101 – Computer Literacy – 2 cr		
• PSYC 100 – Human Relations in Organizations – 2 cr		

Total Required Credits **73**

Admission Requirements*

The applicants must be high school graduates or equivalent. Students considered for acceptance must complete all admission requirements.

Please Note: Students are placed into English, math and reading courses based on ACT, ACCUPLACER or other nationally recognized tests. Please see www.ndscs.edu/current-students/student-success/test-center for the NDSCS Course Placement Policy and testing information. Students may be on an extended plan of study pending their course placement.

**Program Admission Requirements are subject to revision. Please check the department or program website under Program Admission Requirements for current information.*

Award

Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Electrical Technology, Industrial Electrical. This is the only program/degree in the ND University System which also qualifies most graduates for the 2,000 hours of apprenticeship credit for North Dakota, South Dakota, and Minnesota.

Revised: May 2022