Electrical Master Technician

Contact Information
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Delivery Methods
Face-to-Face: Wahpeton

The Electrical Master Technician curriculum is designed to meet the diverse needs of the construction and industrial sectors of the electrical field. This curriculum broadens the student’s perspective on the industry with training in alternative energy sources, building control systems, predictive maintenance and automation.

The Electrical Master Technician curriculum builds on the strengths of a two-year degree in Electrical Construction or Industrial Electrical in a 3rd year. It adds cutting-edge technology in medium and high voltage, instrumentation, fiber optics, structured wiring, HVAC/R and other building controls.

The successful completion of the Master Technician program exceeds the number of classroom hours required by the Electrical Boards of North Dakota, Minnesota and South Dakota, thus qualifying graduates for a full year (2,000 hours) work exemption as typically granted by those boards. The NDSCS Electrical Technology program is the only program in the North Dakota University System qualified to receive this credit for hours.

This program also exempts graduates from the mandatory classroom training required by North Dakota law (ND Century Code Section 43-09-11) for all registered electrical apprentices.

Other links of interest:
www.ndseb.com
www.electricity.state.mn.us/BOE.asp
http://dol.sd.gov/bdcomm/electric/
www.bls.gov/oco/ocos206.htm#addinfo

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.

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.

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

Electrical Construction Courses
ECAL 203     Advanced Electrical Code Study     3
ECAL 204     Electrical Planning and Estimating 4
ECAL 233     Commercial Wiring Laboratory       3

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

Additional Master Technician Courses
ECAL 105     Electrical Safety I and NFPA 70E    1
ECAL 237     House Wiring Rough-In              1
ECAL 238     House Wiring Trim-Out              1
ECAL 245     Medium and High Voltage            1
ECAL 246     Alarm, Communications and Data Systems 3
ECAL 254     Instrumentation and Control Systems 4
ECAL 255     Process Measurement and Control Valves 4
ECAL 261     HVAC and Building Systems          2
ECAL 263     Distributed Electrical Systems     3
RAMT 107     Mechanical Drives and Maintenance I 2
RAMT 109     Mechanical Drives and Maintenance II 2
RAMT 244     System Integration and Troubleshooting 2

Related/General Education Courses
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    
FYE 101      Science of Success                 1
MATH 132     Technical Algebra I               2
MATH 134     Technical Algebra II              2
MATH 136     Technical Trigonometry            2
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 109

Revised: May 2022