

## 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 3<sup>rd</sup> 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](http://www.ndseb.com)  
[www.electricity.state.mn.us/BOE.asp](http://www.electricity.state.mn.us/BOE.asp)  
<http://dol.sd.gov/bdcomm/electric/>  
[www.bls.gov/oco/ocos206.htm#addinfo](http://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](http://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**