Electrical Master Technician

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

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

Required minimum placement scores:

<table>
<thead>
<tr>
<th>ACT</th>
<th>ACCUPLACER</th>
<th>ACCUPLACER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading – 15</td>
<td>Reading Comp – 61</td>
<td>NEXT GENERATION</td>
</tr>
<tr>
<td>English – 15</td>
<td>WritePlacer – 3-4</td>
<td></td>
</tr>
<tr>
<td>Math – 17</td>
<td>Arithmetic – 51</td>
<td>Writing – 237</td>
</tr>
<tr>
<td></td>
<td>Elementary Algebra – 25</td>
<td>OAS – 232</td>
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</tbody>
</table>

Or transfer equivalencies will apply as appropriate.

Applicants not meeting the above requirements are encouraged to visit with the academic counselor at 701-671-2257 or the Electrical Technology department chair at 701-671-2662 for strategies to meet the admission requirements.

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

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                        | 3       |
ENGL 120    | College Composition II                          | 3       |
ENGL 125    | Introduction to Professional Writing             | 3       |
COMM 110    | Fundamentals of Public Speaking                 | 3       |
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 | 4       |
and/or Computer Electives                    |
Recommended:
• CIS 101 – Computer Literacy – 2 cr
• PSYC 100 – Human Relations in Organizations – 2 cr

Total Required Credits 109

Award
Upon successful completion of the required courses, students will be awarded an Associate in Applied Science degree in Electrical Technology.

Revised: May 2021