

Metro Limited Maintenance Electrician JATC

MA #1040

APPROVED ELECTIVE LIST

In Partnership with



APPROVED ELECTIVES FOR LIMITED MAINTENANCE ELECTRICIAN AND STATIONARY ENGINEER APPRENTICES

*LME Apprentices can take any class listed except those specifically identified for Stationary Engineers.
On-line classes are not accepted except those identified below.*

| Course # | Title | Approximate Hours | Credits |
|-----------------|---|--------------------------|----------------|
| ART 294A | Sculpture Welding: Metals | 40 hours | 3 |
| APR 121 | Introduction to Electricity and Circuits | 33 hours | 3 |
| APR 122 | AC/DC Motor Principles | 33 hours | 3 |
| APR 123 | AC Theory for Motors and Transformers | 44 hours | 4 |
| APR 124 | Electrical Systems Operations | 33 hours | 3 |
| APR 125 | Elect. Circuits/Wiring Methods | 33 hours | 3 |
| APR 126 | Electrical Systems Installation per NEC | 33 hours | 3 |
| APR 160 | Intro to Industrial Maintenance | 44 hours | 4 |
| APR 162 | Calculations for the Trades | 44 hours | 4 |
| APR 164 | Industrial Blueprints & Schematics for the Trades | 33 hours | 2 |
| APR 166 | Industrial Rigging | 33 hours | 3 |
| APR 168 | Intro to Bearings, Seals & Lubrication | 33 hours | 3 |
| APR 170 | Power Transmission Systems | 33 hours | 3 |
| APR 172 | Introduction to Hydraulics | 33 hours | 3 |
| APR 221 | Advanced AC Circuitry | 33 hours | 3 |
| APR 222 | Hazardous Locations | 33 hours | 3 |
| APR 223 | Motor Control Operations Including PLC's | 33 hours | 3 |
| APR 224 | Electrical Code - Level I | 44 hours | 4 |
| APR 225 | Electrical Code - Level II | 44 hours | 4 |

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| APR 226 | Electrical Code - Level III | 44 hours | 4 |
| APR 230 | National Electrical Code | 33 hours | 3 |
| APR 231 | National Electrical Code II | 33 hours | 3 |
| APR 260 | Pneumatic System Operations | 44 hours | 4 |
| APR 264 | Mechanical Drive Alignment | 33 hours | 3 |
| APR 266 | Predictive Maintenance Technologies | 44 hours | 4 |
| APR 268 | Industrial Equipment Controls | 33 hours | 3 |
| APR 272 | Machining for Industrial Maintenance | 33 hours | 3 |
| APR 274 | HVAC, Steam & Hot Water Systems | 44 hours | 4 |
| BCT 104 | Construction Math | 33 hours | 3 |
| BCT 106 | Hand/Power Tool Use and Safety | 66 hours | 3 |
| BCT 213 | Commercial Print Reading | 33 hours | 2 |
| CAS 133 | Basic Computer Skills/Microsoft Office | 44 hours | 4 |
| CEU 925P | COYNE 1st Aid/CPR (Required Annually) | 8 hours | 0.8 CEU's |
| CEU 3168 | Forklift Training Safety and Code Certification | 8 hours | 0.8 CEU's |
| COMM 100 | Intro to Speech Communication | 40 hours | 4 |
| CMET 112 | Technical Algebra/Trigonometry | 44 hours | 4 |
| DRF 100 | Drafting Orientation | 30 hours | 3 |
| DRF 117 | Drafting Fundamentals | 60 hours | 4 |
| DRF 126 | Introduction to AutoCAD | 40 hours | 3 |
| DRF 133 | Intermediate Drafting | 70 hours | 4 |
| DRF 136 | Intermediate AutoCAD | 40 hours | 3 |
| DRF 246 | AutoCAD 3-D & Solid Modeling | 40 hours | 3 |
| EET 101 | Introduction to Elect. Test Equipment | 30 hours - lab | 1 |
| EET 121 | Digital Systems I (24hrs lecture+33hrs lab max) | 57 hours | 3 |
| ELT 120 | OSHA 10 Hour Safety Training | 10 hours | 1 |
| ELT 125 | Basic Programmable Controllers (PLC's) | 33 hours | 2 |

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| ELT 126 | Intermediate Programmable Controllers (PLC's) | 33 hours | 2 |
| ELT 150 | Fiber Optics I | 44 hours | 4 |
| ELT 151 | Fiber Optics II | 44 hours | 4 |
| ELT 152 | Fiber Optics: Inside/Outside Plant | 44 hours | 4 |
| ELT 153 | Fiber Optics: Outside Plant | 44 hours | 4 |
| ELT 204 | Adjustable Speed Drives | 33 hours | 2 |
| ELT 210 | Electricity for the Non-Electricians II | 33 hours | 2 |
| ELT 220 | OSHA 30 Hour Safety Training | 33 hours | 3 |
| ELT 225 | Advanced Programmable Controllers | 33 hours | 2 |
| ELT 226 | Basic Human Machine Interface | 33 hours | 2 |
| ELT 120 | OSHA 10 Hour Safety Training | 10 hours | 1 |
| ELT 250 | AMP ACT I | 16 hours | 1 |
| ELT 251 | AMP ACT II | 16 hours | 1 |
| ELT 252 | AMP ACT III | 24 hours | 1 |
| FMT 111 | Refrigeration Electrical I | 33 hours | 2 |
| FMT 112 | Refrigeration Electrical II | 33 hours | 2 |
| FMT 113 | Refrigeration Electrical III | 33 hours | 2 |
| FMT 202 | Direct Digital Controls | 33 hours | 3 |
| FMT 207 | Pneumatic Controls | 33 hours | 2 |
| FMT 210 | Basic HVAC/R Installation & Techniques | 33 hours | 2 |
| FMT 213 | Commercial Refrigeration Shop | 33 hours | 2 |
| FMT 216 | Commercial Systems Design | 33 hours | 3 |
| FMT 265 | Building Commissioning I | 33 hours | 3 |
| HUM 100 | Intro to Humanities | 40 hours | 4 |
| HUM 221 | Leadership Development (JATC Pre-Requisite HUM 100) | 40 hours | 4 |
| MTH | Any 3 Credit or More PCC Math Class ~ <u>Campus Only</u> | - | - |
| MTH 20 | Basic Math | 44 hours | 4 |

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| MTH 58 | Math Literacy I | 44 hours | 4 |
| MTH 60 | Introductory Algebra – 1st Term | 44 hours | 4 |
| MTH 61 | Introductory Algebra-Part I | 33 hours | 3 |
| MTH 62 | Introductory Algebra-Part II | 33 hours | 3 |
| MTH 63 | Introductory Algebra-Part III | 33 hours | 3 |
| MTH 65 | Introductory Algebra – 2nd Term | 44 hours | 4 |
| MTH 70 | Review of Intro Algebra | 44 hours | 4 |
| MTH 75 | Intro to Formal Geometry | 44 hours | 4 |
| MTH 95 | Intermediate Algebra | 44 hours | 4 |
| MTH 105 | Explorations in Mathematics | 44 hours | 4 |
| MTH 111C | College Algebra for Math, Science, Engineering | 55 hours | 5 |
| MTH 111H | College Algebra for Math, Science, Engineering - Honors | 55 hours | 5 |
| MTH 112 | Elementary Functions | 55 hours | 5 |
| MTH 211 | Foundations of Elementary Math I | 44 hours | 4 |
| MTH 212 | Foundations of Elementary Math II | 44 hours | 4 |
| MTH 213 | Foundations of Elementary Math III | 44 hours | 4 |
| MTH 241 | Calculus for Management, Life and Social Science | 44 hours | 4 |
| MTH 243 | Statistics I | 55 hours | 5 |
| MTH 244 | Statistics II | 44 hours | 4 |
| MTH 251 | Calculus I | 44 hours | 4 |
| MTH 252 | Calculus II | 55 hours | 5 |
| MTH 253 | Calculus III | 55 hours | 5 |
| MTH 254 | Vector Calculus I | 55 hours | 5 |
| MTH 256 | Differential Equations | 55 hours | 5 |
| MTH 261 | Applied Linear Algebra I | 55 hours | 5 |
| PHY 101 | Fundamentals of Physics I | 44 hours | 4 |
| SC 11A | Applied Math – A Day Math | hours vary | 4 |

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| SC 11B | Applied Math - B Evening Trade Math | hours vary | 2 |
| WLD 101 | Welding Process & Application | 40 hours | 4 |
| WLD 176B | Basic Fabrication Welding Practice | 30 hours | 3 |
| WLD 186 | Beginning Certification Welding (1 of 4 Courses) | 30 hours | 3 |
| 2ND YEAR APPRENTIC | | | |

| <u>Course #</u> | | | | <u>Title</u> |
|-----------------------------|---|-------------|-----------|---------------------|
| APR 227 | NEC Review and Exam Preparation | 33-36 hours | 3 | |
| CEU 3263 | Electrical Safety/NFPA 70E | 8 hours | 0.8 CEU's | |
| CEU 921Z | National Electrical Code Changes | 8 hours | 0.8 CEU's | |
| CEU 922A | NEC Code Calc. for Motors and Transformers | 8 hours | 0.8 CEU's | |
| CEU 922C | Grounding and Bonding | 8 hours | 0.8 CEU's | |
| CEU 924D | Oregon Electrical Safety Laws | 8 hours | 0.8 CEU's | |
| CEU 9217 | NEC Ratings | 8 hours | 0.8 CEU's | |
| ELT 280 | Electrical Code Changes (Contracted On-Site Training) | 8 hours | 0.5 | |
| ELT 281 | NEC Ratings (Contracted On-Site Training) | 8 hours | 0.5 | |
| ELT 282 | Grounding & Bonding (Contracted On-Site Training) | 8 hours | 0.5 | |
| ELT 283 | Code Calculations (Contracted On-Site Training) | 8 hours | 0.5 | |
| ELT 284 | Motor Controls (Contracted On-Site Training) | 8 hours | 0.5 | |
| Stationary Engineers Only ~ | | | | |

| <u>COURSE #</u> | | | | <u>Title</u> |
|------------------------|--|----------|---|---------------------|
| FMT 100 | Intro to Facilities Maintenance Technology | 33 hours | 2 | |
| FMT 119 | Water Treatment & Distribution | 33 hours | 2 | |
| FMT 122 | Introduction to Boilers | 33 hours | 3 | |
| FMT 125 | Natural Gas Equipment | 33 hours | 2 | |
| FMT 128 | Oil Furnace | 33 hours | 2 | |
| FMT 131 | Lock Service & Repair | 66 hours | 4 | |
| FMT 201 | Intro to Chiller Systems | 33 hours | 3 | |
| FMT 204 | Heat Pumps | 33 hours | 3 | |
| FMT 219 | Residential Systems Roofing | 33 hours | 3 | |

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| FMT 222 | Intermediate Boilers | 33 hours | 3 |
| On-line Web Based and/or Campus – For All apprentices | | | |
| <u>COURSE #</u> | | | <u>Title</u> |
| CAS 121A | Beginning Keyboarding | 10-12 hours | 1 |
| CAS 121 | Beginning Keyboarding | 33 hours | 3 |