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| 1. Title      | Avionic maintenance practices application  |
| 2. Code       | EMAMAG325A   |
| 3. Range      | This unit of competency is for people pursuing UoCs in the avionic repair and avionic maintenance domains. It covers electrical knowledge and generic maintenance practices which apply to avionic repair and maintenance activities.  |
| 4. Level      | 3  |
| 5. Credit     | 9  |
| 6. Competency | <p style="text-align: center;"><u>Performance Requirement</u></p> <p>6.1 Demonstrate knowledge of direct current (DC) electrical circuits</p> <ul style="list-style-type: none"> <li>◆ Able to describe the direct current (DC) sources in terms of their application to avionic components and systems, including: electron theory, static electricity, electrical terms, generation methods, electrical cells.</li> <li>◆ Able to describe the direct current resistive circuits in terms of their application to avionic components and systems, including: resistance and resistors, circuit operation, electrical power, variable resistors.</li> <li>◆ Able to describe the capacitors in terms of their application to and use in, avionic components and systems, including: capacitor principles, types, operation in circuits.</li> <li>◆ Able to describe the magnetism in terms of its characteristics and application to electrical circuits and avionic equipment, including: properties of magnets, terrestrial magnetism, magnetic fields, electromagnetic induction.</li> </ul> |

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|  | <p>6.2 Demonstrate knowledge of alternating current (AC) circuits</p> | <ul style="list-style-type: none"> <li>◆ Able to describe the direct current rotating machines in terms of principles of construction and operating characteristics, including: motors, generators.</li> <li>◆ Able to describe the alternating current single-phase circuits in terms of their characteristics and application to avionic systems and equipment, including: range electrical terms, reactance, impedance, series and parallel circuits, resonance, filter circuits, calculations performed.</li> <li>◆ Able to describe the alternating current rotating machines in terms of principles of construction and operating characteristics, including: range motors, generators.</li> <li>◆ Able to describe the three phase alternating current in terms of its application to aircraft electrical systems, including: star and delta connection, line and phase values.</li> <li>◆ Able to explain the transformers in terms of types and principles of operation, including: variac, double-wound, auto-transformer.</li> </ul> |
|  | <p>6.3 Identify avionic and aircraft wiring components</p>            | <ul style="list-style-type: none"> <li>◆ Able to select the aircraft wiring to match circuit specifications, including: insulation type, wire gauge, conductor material, wire numbering.</li> <li>◆ Able to select the avionic components to match circuit specifications, including: semiconductors, fuses, plugs, connectors, terminals, solenoids, relays, transformers, circuit breakers, switches, resistors, capacitors, batteries, ground points. by appearance, by symbols on circuit diagrams.</li> </ul>  |

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|                               | <p>6.4 Apply avionic repair and maintenance skills</p> <ul style="list-style-type: none"> <li>◆ Able to test the circuit protection devices in accordance with standard industry practices, including: circuit breakers, fuses.</li> <li>◆ Able to solder the avionic components in accordance with standard industry practices, including: cup terminals, turret terminals, axial lead components, dual-in-line packages, coaxial plugs. tooling selected.</li> <li>◆ Able to avoid the electrostatic discharge damage in accordance with standard industry practices.</li> <li>◆ Able to measure the electrical quantities in accordance with standard industry practices, including: continuity, insulation, voltage, current, resistance, frequency. in alternating and direct current circuits.</li> </ul> |
| <p>7. Assessment Criteria</p> | <p>The integral outcome requirements of this UoC are:</p> <ul style="list-style-type: none"> <li>(i) Able to demonstrate knowledge of direct and alternating current electrical circuits and their application and use in avionic equipment.</li> <li>(ii) Able to identify avionic and aircraft wiring components, test circuit protection devices, solder plugs, terminals and avionic parts. and are able to measure electrical quantities and avoid electrostatic discharge damage when handling avionic components.</li> </ul>   |
| <p>8. Remarks</p>             | <p>Ref: NZQA - 7247</p>   |