

MENTORTRAIN – Higher Technician in Electronic Maintenance

| Learning outcomes | Competences to be assessed | Soft skills |
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| LO1 Analogical Electronic Circuits | The apprentice: <ul style="list-style-type: none"> - Characterises both passive and active electronic parts, analyzing their performance and relating them to their implementation in circuits. - Applies measuring and visualisation techniques of analogical electrical analogical signals, describing the equipment and analyzing the procedures used. - Determines the structure of analogical circuits, identifying their application and analyzing the linkage of their parts. - Proposes solutions with analogical circuits, producing sketches and selecting parts. - Checks the functioning of electronic circuits, interpreting diagrams and applying techniques to visualise or to measure signals. - Produces technical documentation related to electrical circuits, by using IT tools and standardized symbology | <ul style="list-style-type: none"> -Self-motivated and is able to work independently -Able to take responsibility for their actions, demonstrates resilience and acts with integrity -Be a reflective apprentice, who is committed to their own personal learning and professional development -Works collaboratively; an enabler who willingly shares knowledge and experience -Promotes diversity, inclusion and equality -Complies with relevant Codes of Conduct and exercises responsibilities in a safe, sustainable and ethical manner |
| LO2 | The apprentice: <ul style="list-style-type: none"> - Identifies the parts of digital electronics, recognizing their technical characteristics and their function within the circuits. | |

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| <p>Microprogrammable Equipment</p> | <ul style="list-style-type: none"> - Assembles digital combinational circuits, identifying parts and blocks and verifying their functioning. - Assembles digital combinational circuits, identifying the features of the different parts and blocks and verifying their functioning - Sets up peripherals and auxiliary devices in micro-processing systems, verifying their functioning and their benefits. - Sets up micro-processing digital equipment, programming functions, depending on their application - Carries out the maintenance of micro-processing digital equipment, repairing faults and dysfunctions. | |
| <p>LO3 Radio-communication Equipment</p> | <p>The apprentice:</p> <ul style="list-style-type: none"> - Determines the building blocks in radio-communication equipment, identifying their modules and components and measuring parameters. - Verifies the functioning of radio-communication equipment, analyzing their internal structure and their features. - Optimizes the functioning of equipment and systems, adjusting their elements and re-setting systems - Prevent malfunctions in equipment and modules of radio-communication systems, measuring elements and identifying acceptance values. | |

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| | <ul style="list-style-type: none"> - Detects faults in equipment and systems by using localization and diagnostic techniques. - Restores the operation of radio-communication equipment, repairing faults and dysfunctions. | |
| <p>LO4 Maintenance of Voice and Data Equipment</p> | <p>The apprentice:</p> <ul style="list-style-type: none"> - Identifies voice and data equipment, recognizing constructive building blocks, depending on their function and their technical features. - Verifies the functioning of voice and data equipment, setting up their modules and equipment and checking parameters. - Carries out the preventive maintenance in equipment and modules, in voice and data systems, monitoring parameters and recognising acceptance values. - Optimises the functioning of equipment and systems, adjusting elements and reconfiguring systems. - Restores the functioning of voice, data and transmission equipment, repairing breakdowns and malfunctions. - Complies with the rules on labour and environmental risk prevention when repairing and maintaining voice and data equipment, identifying the associated risks and the protection measures. | |

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| <p>LO5</p> <p>Maintenance of Industrial Electronics Equipment</p> | <p>The apprentice:</p> <ul style="list-style-type: none"> -Identifies the functioning of industrial electronics equipment and elements, differentiating their structure and their technical features. – Determines blocks and power control systems, analyzing the features of their components and taking measurements. – Characterises the functional blocks in programmable logic systems, interpreting their technical features and verifying their working. – Identifies the blocks and the elements in industrial network equipment, identifying their features and measuring basic parameters of the system. – Distinguishes industrial embedded systems (manipulators and robots), verifying that their elements are interconnected and recognising their technical features. – Detects breakdowns and malfunctions in industrial equipment, identifying the causes and applying procedures and troubleshooting and diagnostic techniques. – Repairs industrial equipment, setting it up and optimizing its functioning – Complies with the rules on labour and environmental risk prevention, for maintenance and repair of industrial electronics equipment, identifying the associated processes and the protection measures. | |
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| <p>LO6</p> <p>Maintenance of Audio Equipment</p> | <p>The apprentice:</p> <ul style="list-style-type: none"> - Identifies functional blocks in audio equipment, identifying the features of their parts and pieces and taking measurements. - Verifies the functioning of preamplifier and mixing equipment, interpreting its technical features and measuring parameters. - Checks the functioning of processing, distribution and amplifier equipment, interpreting their technical features and measuring parameters. - Detects breakdowns and malfunctions in audio equipment and systems, applying diagnostic and troubleshooting. - Repairs breakdowns in audio equipment and electroacoustic devices, replacing elements and identifying those that are compatible. - Complies with the rules on labour and environmental prevention when repairing and maintaining audio equipment, identifying the associated risks and the protection measures. | |
| <p>LO7</p> <p>Maintenance of Video Equipment</p> | <p>The apprentice:</p> <ul style="list-style-type: none"> - Verifies the functioning of video equipment, interpreting their technical documentation identifying their functional blocks. - Maintains video recording equipment, taking measurements and parameter adjustments. - Repairs breakdowns and dysfunctions in video equipment. | |

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| | <ul style="list-style-type: none"> - Carries out the maintenance of recording and video storage equipment, checking the mechanical and electronic components - Repairs breakdowns in video recording and storage equipment, deducing the causes of the breakdown and using troubleshooting techniques. - Carries out the maintenance of video display equipment, applying preventive and predictive maintenance techniques. - Repairs breakdowns in video display equipment, replacing elements and verifying the functioning. | |
| <p>LO8</p> <p>Assembly Processes and Techniques and Maintenance of Electronic Equipment</p> | <p>The apprentice:</p> <ul style="list-style-type: none"> - Draws electronic circuit diagrams, interpreting the design specifications, using specific software of electronic CAD. - Simulates the functioning of electronic systems, comparing the results obtained with the specifications and making proposals for improvement. - Obtains printed circuit boards by means of specific software and justifying the solution according to the features of the electronic circuit. - Builds electronic circuits, applying machining, soldering and finishing techniques. | |

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| | <ul style="list-style-type: none"> - Sets up electronic circuits, justifying the adjustments and verifications performed on the blocks and/or elements of the circuit. - Complies with the rules on labour and environmental risk prevention, identifying the associated risks and the protection measures. | |
| <p>LO9</p> <p>Infrastructure s and Development of Electronic Maintenance ”</p> | <p>The apprentice:</p> <ul style="list-style-type: none"> - Designs plans of maintenance of equipment and electronic systems, applying programming techniques and establishing procedures to monitor and to control the execution. - Manages maintenance operations of equipment and systems, defining the features that guarantee optimal performance. - Plans the supply, establishing its conditions and those of the equipment storage, replacement parts and tools. - Manages the human resources for maintenance, assigning tasks and coordinating work teams. - Manages maintenance workshop, establishing protective electrical, environmental and organizational criteria. - Applies processes and procedures of standardized management systems, by using quality standards and planning their stages. | |

