Overview

This standard is about carrying out efficient and effective fault diagnosis on electronic equipment/circuits, in accordance with approved procedures. You will be expected to use a variety of fault diagnosis methods and techniques, and to utilise a number of diagnostic aids and equipment. From the evidence gained, you will be expected to identify the fault and its probable cause, and to suggest appropriate action to remedy the problem.
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Diagnose faults on electronic equipment and circuits within Automation Systems

Performance criteria

You must be able to:

P1 review and use all relevant information on the symptoms and problems associated with the products or assets to help with fault diagnosis
P2 investigate and establish the most likely causes of the faults
P3 select, use and apply diagnostic techniques, tools and aids to locate faults
P4 complete the fault diagnosis within the agreed time and inform the appropriate people when this cannot be achieved
P5 determine the implications of the fault for other work and for safety considerations
P6 use the evidence gained to draw valid conclusions about the nature and probable cause of the fault
P7 record details on the extent and location of the faults in an appropriate format
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Knowledge and understanding

You need to know and understand:

K1 the health and safety requirements of the area in which the fault diagnosis activity is to take place and the responsibility these requirements place on you
K2 the isolation and lock-off procedure or permit-to-work procedure that applies
K3 how to recognise and deal with victims of electric shock
K4 the importance of wearing protective clothing and other appropriate safety equipment during the fault diagnosis activities
K5 hazards associated with carrying out fault diagnosis on electronic equipment and how to minimise these and reduce any risks
K6 the procedure to be adopted to establish the background of the fault
K7 how to evaluate the various types of information available for fault diagnosis
K8 how to use the various aids and reports available for fault diagnosis
K9 how to use various types of fault diagnostic equipment needed to investigate the problem
K10 digital circuits and their operation
K11 how to analyse evidence and evaluate possible characteristics and causes of specific faults/problems
K12 how to relate previous reports/records of similar fault conditions
K13 the care, handling and application of electronic test instruments
K14 how to calibrate electronic test instruments and check that they are free from damage and defects
K15 the precautions to be taken to prevent electrostatic discharge (ESD) damage to electronic circuits and components
K16 how to obtain and interpret drawings, circuit and physical layouts, charts, specifications, manufacturers’ manuals, history/maintenance reports, graphical electronic/electrical symbols, BS7671/IEE wiring regulations, and other documents needed in the fault diagnosis activities
K17 the basic principles of how the circuit functions, its operating sequence, the function/purpose of individual units/components, and how they interact
K18 the different types of cabling, fittings/connectors, and their application
K19 the different types of control systems and components, and their operation
K20 the functions of different types of electronic components, and their operation
K21 how to evaluate the likely risk to you and others, and the effects the fault could have on the overall system or process
K22 how to prepare and produce a risk analysis report, where appropriate
K23 how to prepare a report, or take follow-up action, on conclusion of the
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fault diagnosis, in accordance with company policy
K24 the extent of your own authority and to whom you should report if you have problems that you cannot resolve
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<th>Creative and Cultural Skills</th>
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