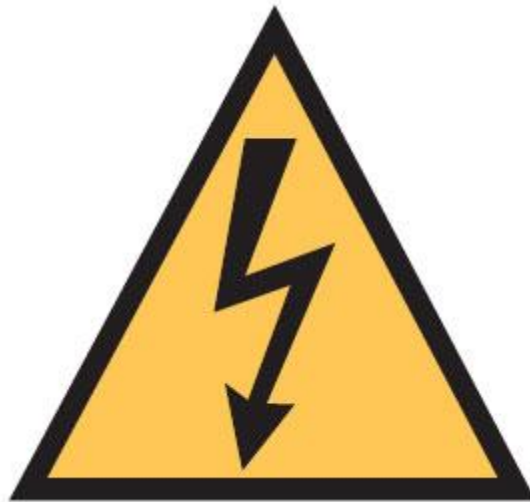


Portfolio of evidence

UEECD0020

Fix and Secure Electrotechnology Equipment



UEE Training Package Support Material

**Based on:
National Electrotechnology Industry Standards**



Assessment Task 3 Portfolio of Evidence

Qualification national code and title	UEE30820 Certificate III in Electrotechnology Electrician
Unit/s national code/s and title/s	UEECD0020 - Fix and Secure Electrotechnology Equipment

Student Name		Assessment Type	<input type="checkbox"/>	Questioning (Oral / Written)
Student ID			<input checked="" type="checkbox"/>	Portfolio
Lecturer Name		Student Result (S/NYS)		
<p>By completing and submitting this signed form to my lecturer, I am stating that:</p> <ol style="list-style-type: none"> The attached submission is completely my own work I have correctly cited all sources of information used in this work (if required) I understand a copy of my assessment will be kept by the NMTAFE for their records I understand my assessment may be selected for use in the NMTAFE's validation and audit process to ensure student assessment meets requirements 				
Student Signature		Date		

Assessment type (- Questioning (Oral/Written) - Practical Demonstration - 3rd Party Report - Other – Project/Portfolio *(please specify)*

Assessment Resources:

Resources the assessor is to provide:

- Classroom setting as the venue.
- Workshop
- Toolbox
- Hammer Drill
- Hollow Wall Fittings
- Solid Wall Fittings
- Electrical Accessories
- Hearing Protection
- Dust Mask

20mm PVC Junction Box Resources the candidate is to provide:

- Black or Blue pen
- Pencil and eraser
- Clear Safety Glasses
- Safety Gloves



Assessment Task 3 Portfolio of Evidence

Qualification national code and title	UEE30820 Certificate III in Electrotechnology Electrician
Unit/s national code/s and title/s	UEECD0020 - Fix and Secure Electrotechnology Equipment

Assessment Instructions:

Task description:

The following Portfolio Assessment relates to the knowledge requirements and performance evidence of the unit. Make sure you complete all questions and practical activities

- To be deemed **Satisfactory** you are required to achieve a mark of **100%**
- The following **Knowledge Assessment** is an open book assessment and does not need to be completed under supervision
- The following **Practical Activities** must be completed under supervision in a simulated workplace environment
- If **Not Yet Satisfactory** you will be required to re-attempt the **Knowledge Questions** that are marked **not satisfactory** and/or any **Practical Activity** marked as **Not Yet Satisfactory**

Student Instructions:

Ensure you have access to all the resources required for this assessment as described below.

1. Read the **Questions** section. If you are not clear about a question, ask your assessor for further information.
2. You may be able to complete the questions verbally. This would need to be negotiated with your assessor.
3. Your assessor will provide feedback on your answers, including any questions that may require a further response.
4. If you have specific needs that you would like considered during this assessment, please discuss this with your assessor to identify any possible reasonable adjustments **prior** to commencing the assessment.
5. All diagrams must be neat, labelled and in pencil.
6. All calculations and numerical answers must be shown correct to two decimal places and include both the unit of measurement and metric prefix if applicable.



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LABORATORY INSTRUCTIONS

Students working in laboratories at North Metropolitan TAFE Campus's do so on the condition that they agree to abide by the following instructions. Failure to observe the safety instructions may result in disciplinary action up to and including cancellation of your training contract with NMTafe.

1. No circuit is to be plugged in or switched on without the specific permission of the lecturer in charge of the class. A circuit must be switched off, isolated and tested for ZERO VOLTS before any supply leads are removed. The DANGER TAG PROCEDURE must be used at all times.
2. Do not leave any circuit switched on any longer than necessary for testing. Do not leave any circuit switched on unattended.
3. Check each item of equipment before using. Report any broken, damaged or unserviceable equipment to your Lecturer.
4. All wiring must be disconnected at the end of each practical class or as each project is completed.
5. Make all connections in a safe manner with an appropriate connecting device. Unshielded 4mm banana plugs are not to be used for wiring.
6. Switch off, remove the plug from the socket and attach your DANGER TAG to the plug top before working on any project. It is not sufficient to simply turn the switch off.
7. When disconnecting your wiring from a connection made under a screw, undo the screw to remove the wiring, do not cut the wire off.
8. Observe the correct colour code for all wiring projects.
9. Test your circuit for short circuits with your multimeter before asking your Lecturer to switch circuit on. Test the Tester before and after EACH test.
10. Where an activity sheet is issued for a project, complete each step in the Procedure before moving to the next step. Advise your Lecturer when you have completed the activity.
11. Draw ALL DIAGRAMS in PENCIL so that they can be easily changed or corrected. Mark off each connection on your diagram as it is made.
12. Check the range before taking a reading with a multimeter.
13. Make sure that it is YOUR plug before inserting plug into an outlet.
14. Always switch multimeter OFF, or to the highest possible AC VOLTS range when you have finished using it.
15. Report any unexpected situations or events to your Lecturer.

Student's Signature _____ Date: _____

Assessment Task 3 Portfolio of Evidence

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DANGER TAG PROCEDURE for ELECTRICAL TRADE LABORATORIES

THE FOLLOWING PROCEDURE IS COMPULSORY



1. The student is to attach a DANGER TAG on to the plug top of the project lead before proceeding with the allocated project. A danger tag must be attached to the plug top at all times, when the lead is NOT plugged into the supply outlet. Plug tops or leads are not to be connected to the supply outlet WHILE A DANGER TAG is attached.

2. The student is to assemble the project according to project instruction procedure and lecturer's directions in its isolated and de-energised state and report to the lecturer as necessary and on completion.

3. The lecturer is to:-

- a. Check the project for safety and
- b. Ensure that the student has performed a safety check, including a short circuit test using the recommended procedure.

4. When the lecturer is satisfied that the project is safe to connect and energise the lecturer is to instruct the student to REMOVE the DANGER TAG from the plug top.

5. The student is to plug in the project and switch it on in the presence of the lecturer.

6. The lecturer is to determine whether or not the project is operating satisfactorily.

7. If the project operates satisfactorily the student may take measurements using correct meters with regard to the safety risks associated with using the particular item of test equipment including;

- a. Selecting correct meter function,
- b. Holding meter probes correctly during measuring with fingers behind knurls (finger guards) at all times.

This is to be done under general supervision of lecturer. The student is NOT to modify, disassemble or carry out ANY unsafe act.



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8. If the circuit is to be modified the student must:
- a. Switch the circuit off,
 - b. Disconnect the project from the supply,
 - c. Attach the DANGER TAG to the plug top,
 - d. Report to the lecturer for instructions,
 - e. In the lecturer's presence the student is to:-
 - f. TEST and VERIFY for ZERO VOLTAGE.
 - g. Restart the DANGER TAG procedure from step 2 above.
9. When the student is satisfied that the project has been completed the student is to:-
- a. Switch the project off,
 - b. Remove the plug,
 - c. Replace the DANGER TAG on the plug top,
 - d. Report to the lecturer for instructions,

In the lecturer's presence the student is to:-

- e. TEST and VERIFY for ZERO VOLTAGE.

The lecturer is then to instruct the student to:-

- f. Disassemble the project
- g. Remove the DANGER TAG and store the equipment in its designated place.

Failure to follow Danger Tag Procedures when working on practical activities and practical assessments will result in a '**Not yet Satisfactory**' comment recorded for this Unit of Competency

Student's Signature _____ Date: _____



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Complete all Knowledge Questions.

Question 1	What four (4) drive types are used in security applications?	4 marks
Answer	1	
	2	
	3	
	4	
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory

Question 2	What type of screw is used where a flat bearing surface exists and a countersunk screw is not required?	1 mark
Answer		
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory

Question 3	What is the diameter of an 8 gauge woodscrew?	1 mark
Answer		
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory



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Question 4	Is it true or false that hollow wall anchors may be fixed in place using either a screwdriver or a setting tools?	1 mark
Answer	True	False
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory

Question 5	List three (3) types of light duty anchor suitable for fixing electrical equipment to solid walls	3 marks
Answer	1	
	2	
	3	
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory

Question 6	If red plastic wall plugs are to be used to fix an electrical accessory, what size hole should be drilled to accommodate the plug and what gauge screw should be used to fix the accessory?	2 marks
Answer	A	
	B	
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory



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Question 7	Actuated fixing tools are used for rapid fixing to what materials?	2 marks
Answer	1	
	2	
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory

Question 8	As solid wall construction does not provide a cavity to conceal wiring runs, what must be done to solid walls to be able to conceal wiring?	1 mark
Answer		
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory

Question 9	A metric thread is labelled M10 x 1.5. What does this mean?	1 mark
Answer		
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory

Question 10	What type of washer is used in place of spring washers, where surface damage is to be avoided?	1 mark
Answer		
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory



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Question 11	What is the chief disadvantage of a shifting spanner?	1 mark
Answer		
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory

Question 12	List four (4) risk sources (hazards) associated with drilling steel and masonry and four (4) items of PPE that should be used when drilling	8 marks
Answer	HAZARDS	PPE
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory

Question 13	What advantage of using bonding tape instead of bolts, screws or rivets?	1 mark
Answer		
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory



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Question 14	Into what materials may medium duty chemical anchors be used to fix threaded studs?	1 mark
Answer		
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory

Question 15	In order to be aware of the possible dangers, what document must be read prior to using chemical anchors?	1 mark
Answer		
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory

Question 16	What is the minimum recommended distance from the edge of a hollow masonry block to install a chemical anchor?	1 mark
Answer		
Feedback		<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory



Assessment Task 3 Portfolio of Evidence

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Practical Activities Overview

1. To affix electrical accessories to solid walls, bricks, concrete and steel



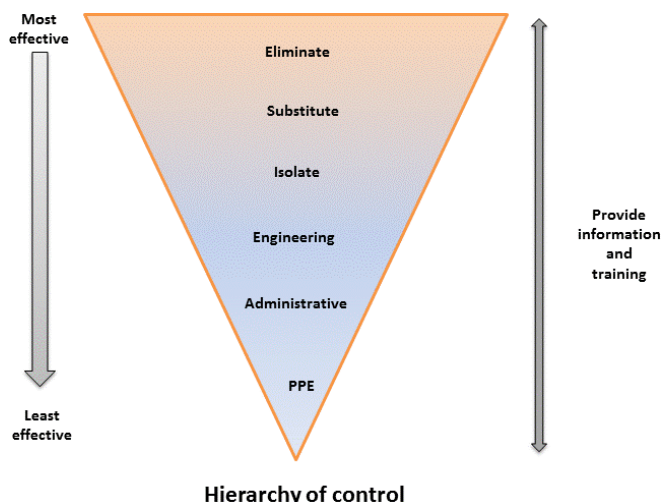
Assessment Task 3 Portfolio of Evidence

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Risk assessment

Consequence		1	2	3	4	5
		Rare The event may occur in exceptional circumstances	Unlikely The event could occur sometimes	Moderate The event should occur sometimes	Likely The event will probably occur in most circumstances	Almost Certain The event is expected to occur in most circumstances
1	Insignificant No injuries or health issues	LOW	LOW	LOW	LOW	MODERATE
2	Minor First aid treatment	LOW	LOW	MODERATE	MODERATE	HIGH
3	Moderate Medical treatment, potential LTI	LOW	MODERATE	HIGH	HIGH	CRITICAL
4	Major Permanent disability or disease	LOW	MODERATE	HIGH	CRITICAL	CATASTROPHIC
5	Extreme Death	MODERATE	HIGH	CRITICAL	CATASTROPHIC	CATASTROPHIC

- Eliminate** – if it is possible, the hazard should be removed completely. For example, get rid of dangerous machines.
- Substitute** – replace something that produces the hazard with something that does not produce a hazard. For example, replacing solvent based paint with water based paint. Risk assessment on the substitution must be conducted to ensure that it will not pose another hazard.
- Engineering control** – isolate a person from the hazard by creating physical barrier or making changes to process, equipment or plant to reduce the hazard. For example, install ventilation systems.
- Administrative control** – change the way a person works by establishing policies and procedures to minimise the risks. For example, job scheduling to limit exposure and posting hazard signs.
- Use **personal protective equipment (PPE)** – protect a person from the hazard by wearing PPE. For example, wearing gloves, safety glasses, hard hats and high-visibility clothing. PPE must be correctly fitted, used and maintained to provide protection.





Assessment Task 3 Portfolio of Evidence

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Safe Work Method Statement

Revised Risk Rating							
Hazard Control Measures							
Risk Rating							
Hazards							
Task Steps							
Task Step #							

Student Signature.....



Assessment Task 3 Portfolio of Evidence

Qualification national code and title	UEE30820 Certificate III in Electrotechnology Electrician
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Practical Activity 1

To affix electrical accessories to solid walls, bricks, concrete and steel

Objective

To affix a metal plate to solid wall, brick, concrete and steel using two different mounting methods for each

Equipment

Toolbox, Metal Plate (pre-drilled), Solid Wall, Brick, Concrete, Sheet Steel, Hammer Drill, Drill, Masonry Drill Bits, Jobber Drill Bits, Solid Wall Fittings

Instructions

Fix the pre-drilled metal plate to the solid wall, brick, concrete and steel. Ensuring that the metal plate is level and secure.

The following fixings **must** be used for the following solid walls.

- | | |
|-------------------------------------|-----------------------------|
| Plastic Plug & Screw – Hollow Brick | Masonry Screw – Solid Brick |
| Nylon Anchor – Hollow Brick | Loxin – Concrete |
| Dyna Bolt – Solid Brick | Drop In Anchor – Concrete |

The following fixings will be supplied:

Plastic Plug and Screw



Masonry Screw



Dynabolt



Nylon Anchor



Loxin



Drop In Anchor



Rivet



Screw & Nut





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Instructions

Fix all electrical accessories to solid walls, bricks, concrete and steel as per the following instructions.

1.	Complete Take 5	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory
2.	Correctly install "Wall Plug" into hollow brick and secure metal plate	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory
3.	Correctly install "Nylon Anchor" into hollow brick and secure metal plate	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory
4.	Correctly install "Dynabolt" into solid brick and secure metal plate	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory
5.	Correctly install "Masonry Screw" into solid brick and secure metal plate	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory
6.	Correctly install "Drop In Anchor" into concrete and secure metal plate	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory
7.	Correctly install "Loxin" into concrete and secure metal plate	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory
8.	Correctly install "Screw & Nut" into steel and secure metal plate	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory
9.	Correctly install "Rivet" into steel and secure metal plate Set Rivet by using correct sized "Rivet Gun" Tool.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory
10.	Have your work checked by your Lecturer	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory
11.	Once completed to a Satisfactory standard as advised by your Lecturer, all Accessories and Fittings can be removed and placed in its correct location	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory
12.	Work Area is cleaned and rubbish placed in correct bins.	<input type="checkbox"/> Satisfactory <input type="checkbox"/> Not satisfactory



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Reasonable Adjustment			
Adjustment Required	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Describe the adjustments that have been made to the assessment:			
Assessor name and signature		Date	
Student name and signature		Date	



Assessment Task 3 Portfolio of Evidence

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Assessment Outcome Knowledge Questions	<input type="checkbox"/> Satisfactory	<input type="checkbox"/> Not Satisfactory
Assessment Outcome Practical Activities	<input type="checkbox"/> Satisfactory	<input type="checkbox"/> Not Satisfactory

Knowledge Questions / Practical Activity Feedback:

Actions Required if Not Satisfactory:

Assessor name and signature		Date	
Student name and signature		Date	