Government of Western Australia
North Metropolitan TAFE

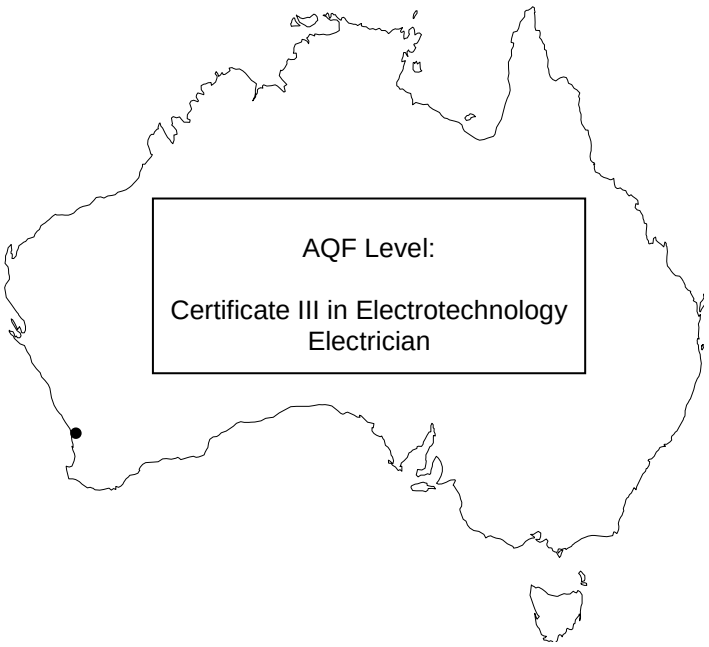
UEE 11 Training Package Support Material
(Non-Endorsed Component)

Based on:
National Electrotechnology Industry Standards

Resource Book

UEENEEC020B

Participate in electrical work and competency development activities



North Metropolitan TAFE
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Version 9 – 08/2018

Acknowledgements

This Unit Guide has been prepared by NMTAFE Lecturers.

It is intended for NMTAFE students only.

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Certificate III in Electrotechnology Electrician UEE 30811

UEENEEC020B – Participate in electrical work and competency development activities

C O N T E N T S

Training Achievement Record:

Activity	Topic	Completed
1-1	Responsibilities under a competency development plan	
1-2	Methods of monitoring and reporting competency development activities	
1-3	Enterprise work activities policies and procedures	
1-4	Bridging the gap	

References

- The Occupational Safety and Health Act 1984 (WA).
- The Occupational Safety and Health Regulations 1996 (WA).
- Electrical Wiring Practice – Volume 1(7th ed.) Pethebridge & Neeson
- Basic Training Manual 16-1, Safe Procedures Electrical Trades
- Code of Practice – Safe electrical work on low voltage electrical installations

Certificate III in Electrotechnology Electrician UEE **30811**

Competency Standard Units

UEENEEC020B – Participate in electrical work and competency development activities

Prerequisite Unit(s)

There are no prerequisite competencies for this unit

ELEMENT		PERFORMANCE CRITERIA	
1	Comply with electrical industry/enterprise work policies and procedures	1.1	Industry/enterprise policies and procedures for all work activities are identified and obtained.
		1.2	Clarification on how particular work is to be carried out and the procedures involved is sought from the immediate supervisor/appropriate person.
		1.3	Unexpected situations are dealt with safely and in accordance with industry/enterprise policies and procedures, and with the approval of an authorised person.
2	Monitor and respond to a personal competency development plan.	2.1	All aspects of the competency development plan are confirmed in consultation with appropriate persons.
		2.2	All components of the competency development plan are followed diligently.
		2.3	Opportunities to practise skills and apply knowledge relative to a particular competency are pursued.
		2.4	Assistance is sought from appropriate persons to overcome difficulties in developing skills and applying knowledge relevant to a particular competency.
		2.5	Progress in competency development is self-monitored against the competency development plan and industry/enterprise policies and procedures.
		2.6	Modifications to the personal competency development plan are made in consultation with appropriate persons.
		2.7	Obligations are met for periodic and timely reporting of competency development activities.
		2.8	Periodic competency development activities report is validated by an appropriate person in accordance with industry/enterprise policies and procedures.

C020B Required Skills and Knowledge (RSAK) Topics:

KS01-EC020B Electrical work competency development. – See page 6

C020B Work Performance Tasks:

Tasks to be entered on Q Tracker

UEENEEC020B – Participate in electrical work and competency development activities

1. Performance requirements:
1a. Related to the following elements:

1. Comply with electrical industry/enterprise work policies and procedures
2. Monitor and respond to a personal competency development plan.

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1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:
All listed tasks related to performance across a representative range of contexts from the prescribed items below:
The minimum number of items on which skill is to be demonstrated

Group No		**Item List**
A.	All of the following:	•Undertaking Orientation/Induction • Describing Training Plans • Gathering appropriate workplace evidence • Recording workplace evidence • Monitoring workplace evidence • Correcting anomalies where evident • Reporting workplace evidence

Workplace Rules:

Rule 1	Follow the instructions
Rule 2	Tolerate ambiguity
Rule 3	Meet your obligations

Note: This information and current details of critical aspects for each competency standard unit (CSU) in this qualification can be found at the Training Standards website www.training.gov.au.

UEENEEC020B – Participate in electrical work and competency development activities

Learning and Assessment Plan

Name of Lecturer: _____

Contact Details: _____

Delivery Mode/s: ☑ Face to Face ☐ On-Line ☐ Blended Delivery ☐ Other

Using:

Session	Nominal Duration	Program of Work (Topics to be covered)	Primary Reference
On the job site	4 hours	All aspects of the competency & training development plan are confirmed with the appropriate persons (on the job)	Training Plan Outline (TPO)
1	1 hour	Comply with Policy & Procedure in relevant CSU's and introduction to future CSU's	Enrolment Forms
2	2 hours	Undertaking orientation & induction	C020B Resource Book
3	2 hours	Describe process & purpose of competency based training plans, assessments and gathering appropriate workplace evidence.	C020B Resource Book
4	1 Hour	Bridging the Gap	Literacy and Numeracy Assessment
5	1 hour	Industry Licensing & registration	Electrical workers licence Energy safety booklet.
6	1 hour	Reporting & recording workplace evidence	"Q" Tracker
T.B.A.	44 hour	To be allocated over the term of training in methods of monitoring, reporting & correcting anomalies. Learner and Employer responsibilities to participate in reporting, monitoring and confirming workplace evidence. Ongoing O.H& S and disciplinary measures.	C020B Resource Book "Q" Tracker and online @ www.qtracker.com.au

I acknowledge that I have received and read this Learning Plan

Student Name:_____ Signature: _____ Date: _____

Lecturer Name	Lecturer Signature	Date

Assessment Strategy

Conditions of Assessment:

Normally learning and assessment will take place in an integrated classroom/ laboratory environment.

It is essential to work through the worksheets and activities in this workbook and follow the guidance of your lecturer. The worksheets and practical activities will provide the required skills and knowledge outlined in this Unit and assists you in achieving competency.

Assessment Methods:

Written Assessment – based on the Required Skills and Knowledge (RSAK). You must achieve a mark of 75% or more in this assessment.

Observed Practical Assessment – based on the Elements and Performance Criteria of this Competency Unit UEENEEC020B. You must achieve a mark of 100% in this assessment.

On-Job-Training:

It is expected that the off-job component of this competency unit will be complemented by appropriate on-job development involving exposure to re-occurring workplace events and supervised experiences. (See Work Performance Tasks.) You are required to log your on-the-job training in your **'Q-Tracker'** account.

Sufficiency of Evidence:

In all instances competency is to be attributed on evidence sufficient to show that a person has the necessary skills required for the scope of work. These include:

- Task skills - performing individual tasks
- Task management skills - managing a number of different tasks
- Contingency management skills - responding to irregularities and breakdowns in routines
- Job/role environment skills - dealing with the responsibilities and expectations of the work environment including working with others.

Evidence must demonstrate that an individual can perform competently across the specified range of activities and has the required knowledge, understanding and associated skills underpinning the competency.

KS01- EEC020B - Required Skills and Knowledge (RSAK)

Evidence shall show an understanding of electrical work competency development activities to an extent indicated by the following aspects:

T1. Responsibilities under a competency development plan:

- Competency Development (Training) Plans encompassing:
  - state/territories requirements (acts/regulations)
  - competency development (training) contracts
  - competency development (training) period
  - purpose of competency development (training) plans
  - process in developing competency development (training) plans
  - parties involved in the competency development (training) plan
- Qualification Structure encompassing:
  - scope of work
  - Training Packages - electrotechnology
  - competency standard units (CSUs)
  - structure of Qualification
  - off-Job Requirements
  - on-Job Requirements
- Responsibilities of Parties to the contract encompassing:
  - employer responsibilities
  - learner responsibilities
  - RTO responsibilities
  - State Training Authorities (STA)
- Electrotechnology Industry Career Opportunities encompassing:
  - industry Areas
  - qualification levels
  - career paths
- Industry customs and practices encompassing:
  - industry bodies – employer and employee representatives
  - regulatory bodies – including licensing/registration, OHS, IR, training authorities – apprentice/trainee regulation
  - vocational and technical education system – Australian Qualification Framework (AQF), credentials, Australian Qualification Training Framework (AQTF)
- Monitoring of Workplace Evidence encompassing:
  - workplace exposure and practices and relationship with competency standard units
  - methods of collecting workplace evidence
  - monitoring period cycle
  - requirements of workplace evidence
  - actions taken for unsatisfactory progression
  - role of state training authority (STA)
  - apprentice/learner responsibilities
  - employer responsibilities
- RTO Policies encompassing:
  - apprentice/Learner Responsibilities
  - teachers/Trainers Responsibilities
  - absenteeism
  - off-Job component assessment specifications
  - on-Job component assessment specifications
  - qualification completion requirements and award
  - advanced standing and/or RPL
  - result review procedures
- Apprentice/Learner Discipline Policy encompassing:
  - apprentices/Learners rights
  - apprentice/Learner responsibilities
  - breaches of discipline
  - types of penalties Apprentice/Learner Responsibilities

- Attendance at the Vocational and Technical Education Centre encompassing:
  - importance of attendance
  - record management of attendance
  - attendance cards
  - advice to employer of absences
- Fire and Emergencies at the Vocational and Technical Education Centre encompassing:
  - designated fire and emergency exists
  - procedures in the event of a fire
  - evacuation procedures
  - assembly points importance of attendance
- Occupational Health and Safety at the Vocational and Technical Education Centre encompassing:
  - eye protection
  - foot protection
  - protective clothing
  - personal injuries
  - mobile phones and personal belonging
  - dress regulations
  - rotating machinery, designated fire and emergency exists
- Entry Requirements encompassing:
  - numeracy requirements
  - literacy requirements
  - vocational and technical education centre support mechanisms
  - testing and appropriate action by learner Eye protection
- Vocational and Technical Education Centre Tour encompassing:
  - vocational and technical education centre layout
  - building layout
  - tour of building and vocational and technical education centre

T2. Methods of monitoring and reporting competency development activities encompassing:

- RTOs responsibility to receive and monitor workplace activities of the apprentice/learner
- Industry requirements for monitoring workplace evidence
- Acceptable methods for monitoring and reporting workplace activities
- Apprentice's/Learner's responsibility to participate in the reporting of workplace activities
- RTOs requirements in periodically evaluating development of apprentices/learners from the workplace activities information gathered, and providing feedback and advice on areas requiring improvement
- Employers responsibilities to participate in monitoring, reporting and confirming workplace activities, and assisting in overcoming areas requiring development by the apprentice/learner
- Options for appeal or assistance from RTO or State Training Authority (STA)

T3. Enterprise work activities policies and procedures encompassing:

- Need for policies and procedures
- Scope for an industry/enterprise to establish work activity policies and procedures - policies and procedure related to safety, effective work outcomes, customer relations, conflict resolution and competency development.
- Following work activities procedures

Government of Western Australia North Metropolitan TAFE	**Participate in electrical work and competency development activities**	Orientation	SGW 11/2012

Introduction and Orientation

Lecturer's Name : _____ Telephone: _____

Orientation

1. Welcome to this College. In order that you may make use of this College your Lecturer will take you around and show you the facilities which are available. Please take particular note of the following:

a. Laboratories and classrooms
b. Workshops and tool store
c. Library Resource Centre with Internet facilities
d. Bookshop
e. Administration block
f. Toilet blocks
g. Student parking areas
h. Cold water drinking facilities
i. First-aid centre
j. Cafeteria
k. Notice boards
l. Location of emergency stop buttons
m. Location of fire extinguishers
n. Telephones for private calls
o. Telephones for emergency calls to the college switchboard
p. Emergency evacuation warning signal
q. Manager's office
r. Location of local safety signage and work instructions

Typical College Hours

2. Session 1: From _____ to _____ in _____

Session 2: From _____ to _____ in _____

Session 3: From _____ to _____ in _____

Session 4: From _____ to _____ in _____

Library Resource Centre hours: _____

Bookshop hours: _____

Night classes begin at: _____

Night Classes

3. The following night classes are available to you at this college to assist you with your studies:

_____

_____

Emergency Procedures

4. When the emergency alarm is sounded you are required to immediately stop what you are doing and move as quickly as possible (without running) to the area described by your Lecturer. Evacuation drills may be carried out at any time during the course.

5. If you are injured whilst attending classes at this college, report immediately to your Lecturer. If your Lecturer is not readily available advise any other member of the college staff or ring the main college switchboard. The First-Aid Officer is _____ .

Safety

6. Proper safety footwear must be worn during all classes (thongs are not acceptable). Clothing must cover the upper part of the body (singlets and tank-tops are not acceptable). Eye protection must be worn in workshop areas. Observe all local safety signs and notices

Class Requirements

7. You will require the following items for each class attendance unless otherwise indicated by your Lecturer:

Resource books (as indicated by your Lecturer) in a large two-ring lever arch file.
Pen, pencil, 300 mm rule, eraser.
50 sheets of ruled A4 paper.
Scientific calculator.

Absences

8. If you are unable to attend any class or assessment session you must inform your lecturer as soon as possible. If you miss an assessment due to illness, please provide your lecturer with a medical certificate in order to negotiate an alternate time for the assessment.

Workplace Tasks

9. This course is intended to reflect the principles and practises required to perform relevant workplace tasks in the electrotechnology industry. “Q Tracker” is used by **NMTAFE** to monitor your completion of Workplace Tasks. Lecturing staff are available at any mutually convenient time to discuss any aspect of this course with you or your employer.

Essential Texts

10. This resource book is intended to be used in conjunction with the following publications:

* Australian Electrical Wiring (7th ed.), Pethebridge & Neeson.
* AS/NZS 3000 (Wiring Rules). Standards Australia
* AS/NZS 3008.1.1 Electrical Installations - Selection of Cables. Part 1

Recommended References

11. The following publications are recommended as additional optional references.

* The Occupational Safety and Health Act 1984 (W.A.).
* The Occupational Safety and Health Regulations 1996 (W.A.),
* Electrical Trade Principles - A Practical Approach. 2nd Ed. J. Hampson and S.Hanssen
* Electrical Principles for the Electrical Trades(6th ed.), J. R. Jenneson.
* Basic Training Manual 16-1, Safe Procedures Electrical Trades.
* Code of Practice. Safe Low Voltage Work Practices by Electricians. Energy Safety WA.
* AS 1470, Code of General Principles for Safe Working in Industry.

12. You are encouraged to make use of the Internet to obtain further information on any of the topics in this course.

Assessment Records

13. This resource book contains essential evidence of your achievements during this part of the electrotechnology course. You need to retain this book so that it can be used in conjunction with your Training Record Book (TRB) and Q Tracker, as evidence that you have completed the relevant requirements of this part of the course for skills recognition purposes.

Training.gov.au Website

14. This course is based on the nationally endorsed Electrotechnology Training Package (UEE011). Details of the course including competency standard units (CSUs), Required Skills and Knowledge (RSAK) and critical aspects are available from the website: www.training.gov.au**.**

Notes:

PLANNING YOUR STUDY TIMETABLE

The area which you use for study should be chosen so that it is free from distractions such as television, radio, telephone, family activities and other general noise.

Ideally it should contain a desk or table which is your work area, and where you can leave your work ready for your next session. You will waste your valuable time, and be less likely to find time for the occasional half hour's work, if you have to re-organise your study materials each time you begin work and pack them away every time you finish.

Some other important factors to consider are:

* **Ventilation** Fresh air is important; it keeps your mind alert.

* **Temperature** If you are cold you may find it hard to relax and to concentrate. Too much warmth may make you sluggish. High temperatures will leave you feeling fatigued. Make use of room heaters or air-conditioners if they are available.

* **Lighting** Lighting should be bright enough without being glaring, and it should not shine straight into your eyes. A shaded desk lamp with an adjustable shade used in conjunction with an overhead light is usually the best.

* **Equipment** Shelves, pin-boards and drawers for books, files and papers make organisation easier.

A study timetable helps you organise your time effectively. You should allow time for:

a. set work or assignments.
b. private study from texts, the Internet and supplementary books.
c. revision or practice.

There are several important points to consider when drawing up your timetable:

* Individual students differ with respect to the time of day which they can study most effectively. Try to discover which times are best for you.

* Generally more time should be allowed for activities that cause you difficulty. These activities should be timetabled for the times when you are freshest.

* Plan activity sessions of approximately 40-50 minutes, with a 10 minute break between sessions.

* Spread your activity periods throughout the week. You will gain more from regular short activity than one or two marathon efforts each week. Not only will you be more alert for most of your study time, but regular study reinforces what you have learnt in the previous session, before you have had time to forget.

* Change your timetable occasionally if you find that it is necessary to do so. Timetables do not have to be rigidly followed.

The 'Survey Q 3R' Study Method

1. An effective method of learning from a textbook or a set of lecture notes is what is called the 'Survey Q 3R Method'. This method can be summarised as follows:

a. **Survey** Take a quick glance through the whole of the chapter or section to be studied; look at the introduction, the major headings and any summary. This gives an overall view of the topic and helps you organise your approach. No more than a few minutes should be spent on this survey.

b. **Question** Turn the heading of each section into a question. Doing this forces you to make a conscious effort to get the object of the section. If no headings are provided by the author, skim rapidly through each meaningful section and provide your own questions in this way.

c. **Read** Make an active search for the answer to the question you have asked yourself; this compels you to read analytically and carefully. Do your own thinking on the question; at the same time try to evaluate the author's statement.

d. **Recite** At the end of each meaningful section, recite to yourself both the question and the answer you have found. If possible jot down from memory a 'working notes' outline in your own words. The tendency in reading textbooks is to keep going, as in reading fiction, but by pausing at the end of each section you will get an opportunity to make sure you have understood the material so far, to help to fix it in your mind and, if you have made your own brief notes, to make later revision easier and quicker.

e. **Review** Repeat the Question, Read, Recite stages until you have come to the end of the chapter or section then review rapidly the whole of it, checking the headings and your own notes, and making one further attempt at recitation. Review again at frequent intervals.

2. The 'Survey Q 3R Method' has been found to be useful not only in studying text books written in prose form, but also where diagrams are involved. It is much more effective than reading and re-reading a chapter five or six times.

3. The essential text for this course are:

Electrical Wiring Practice (7th ed.) – Volumes 1 & 2. Pethebridge & Neeson

Electrical Principles for Electrical Trades (6th ed.) – Volumes 1 & 2.. Jennerson & Harper

STUDENT CONDUCT AND SAFETY POLICY

2018

The following policies are to be applied at NMTAFE BALGA campus in all workshops, laboratories and classrooms.

BEHAVIOUR

- Offensive language will **not be tolerated** on the Campus.
- Students are to inform the lecturer if they are going to leave the workshop, laboratory or classroom *for any reason*.
- There is to be **no** eating, drinking, throwing of objects, skylarking or horseplay of any kind in the workshop, laboratory or classroom.
- Any student showing signs of being affected by *drugs or alcohol* will be refused entry to the workshop, laboratory or classroom. The consumption of alcohol or use of drugs within the campus precincts, including the adjoining car parks and roadways, is not permitted. Any offender risks suspension and/or being charged under the Police Act. Employers will be notified immediately in the case of apprentices/trainees. Parents/guardian of students under 18 years of age will be notified.

THESE SAFETY RULES ARE IN PLACE TO PROTECT THE HEALTH AND SAFETY OF EVERYONE. PLEASE OBSERVE THEM

"IT'S YOUR DUTY OF CARE"

SAFETY

- **ACCIDENTS**
  All accidents must be reported immediately and recorded in the storeman's (O.S.&.H officer) logbook.
  The injured person, witness and lecturer must fill in all the necessary forms.
- **EAR MUFFS**
  Must be worn when nominated machines are used, or advised by the lecturer.
- **HAND TOOLS**
  Tools such as twist drill bits must be kept sharp, or replaced if blunt, to reduce forcing which causes accidents (sharp twist drill bits also produce a quality job).
- **LONG HAIR**
  Must be *restrained* (cap, hair net, etc.) Hair nets are available from the bookshop.
- **MACHINE USE**
  Students must *not use any machine* unless a lecturer is present in the workshop area.
  No machine is to be used by a student until they have been *instructed* by a lecturer in that machine's use and operation.
  No loose clothing is to be worn. Clothing must be kept tucked in, especially when using the machines.
  Students are to read J.S.A. before operating any machine at any time regardless of whether they have read it before.

- **GUARDS ON MACHINES**
  Guards on machines *must not* be removed.
  At no time must a machine be left without a safety guard attached.

- **MACHINES, "OUT OF ORDER"**
  Anyone who finds a machine out of order, or if it develops a fault during use, must immediately report the fault to an instructor and store man.
  An **'Out of Order'** tag / sign must be placed on machine until it's fixed.

- **SUITABLE FOOTWEAR**
  The College is a training establishment and you are expected to wear proper footwear at all times. Acceptable Footwear must have a quality **non-slip** sole. SAFETY CAPS ARE ESSENTIAL. **Thongs, sandals or soft shoes are NOT** permitted.

- **SAFETY GLASSES**
  Anyone working with portable power tools or machinery in or out of the workshops **must** wear **clear** protective safety glasses. **Tinted safety glasses are not acceptable.**
  Any student who repeatedly offends will be denied the use of machines. *Sunglasses are not* an acceptable substitute for safety glasses.

GENERAL

- **BULLYING**
  Bullying is unlawful and could lead to prosecution under the *Occupational Safety and Health Act 1984* and/or disciplinary action by NMTAFE.

  Types of bullying include:

  • Loud and abusive language;

  • Yelling and screaming;

  • Unexplained rages;

  • Unjustified criticism and insults; and

  • Regular humiliation, belittling or undermining of a person.

- **COMPUTER, INTERNET AND NETWORK USAGE**
  The standards for the conduct of students who use computer, Internet and network services are available from the library website. Students should make themselves aware of these standards and abide by them. Should students not abide by these standards, their account may be revoked or fines incurred.

- **EQUAL OPPORTUNITY**
  To ensure that NMTAFE has a working/learning environment free from harassment and discrimination, all students must comply with the Commonwealth Discrimination Act (DA), Racial Discrimination Act (including Racial Vilification provisions which make racially offensive behaviour unlawful) and WA Equal Opportunity (EO) legislative requirements and related legislation.

- **GRAFFITI AND VANDALISM**
  These are criminal offences on crown / government property.
  Prosecution and cancellation of training may result.

- **HYGIENE**
  Food and drink are to be consumed in designated eating areas and not in classrooms or workshops as this can create a health/hygiene hazard. Rubbish/littler must be placed in the bins provided on campus. Spitting within the campus grounds is an unhygienic and is an offensive act which will not be tolerated and may find the offender liable to prosecution.

- **MOBILE PHONES**
  Mobile phones are to be on **SILENT** in the classroom and workshops so that they don't interrupt proceedings and are not to be accessed during class for any reason under any circumstances.

- **MOTOR VEHICLES**
  Campus speed limits must be observed. Any person endangering themselves or others by driving a motor vehicle/cycle dangerously; which includes speeding, tyre burn outs or other unreasonable acts, within the campus precincts or adjoining roadways and car parks, risks suspension and/or being charged under local council by-laws and the Road Traffic Act.

- **RADIOS OR THE LIKE**
  NO radios or other portable music devices are to be used in classrooms or workshops.
  Noise can be a nuisance to other students or classes. It also hinders lesson teaching.
  Valuable items (video cameras, CD players, etc) may be damaged or stolen. The college accepts no responsibility for these items.

- **SMOKING**
  As of January 1st 2011 All NMTAFE Campuses are **SMOKE-FREE ZONES**
  Smoking is not permitted on campuses

- **SUITABLE CLOTHING**
  All students must be suitably dressed when attending the college. NO singlets, tank-tops or graphic tee shirts are to be worn. **No offensive slogans to be displayed.**

- **TOOLS AND TOOL DRAWS**
  Tool draws / boxes must be kept clean at all times.
  Tools are to be checked for the correct number or colour coding, report any missing to the instructor / store man at the beginning of the session.
  All tools obtained from the store must be returned.
  Always ensure tools used are sharp and neatly put away ready for use.

- **WORKSHOPS**
  Workshops must be cleaned up at the end of a class in preparation for the next group.
  Sweeping workshops and cleaning benches down etc, is part of your training in **becoming a safe worker**, and is a contribution towards preventing accidents to others.

LABORATORY INSTRUCTIONS

Students working in laboratories at NMTAFE Balga Campus do so on the condition that they agree to abide by the following instructions. Failure to observe the safety instructions will result in **IMMEDIATE SUSPENSION.**

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.

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 **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.

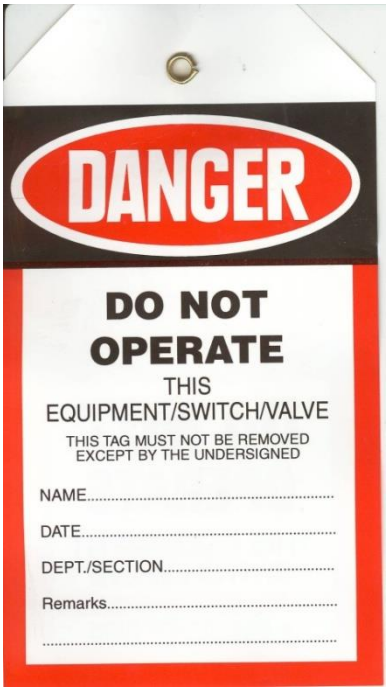
6. The lecturer is to determine whether or not the project is operating satisfactorily.

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.

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,

   In the lecturer's presence the student is to:-
   e. TEST and VERIFY for ZERO VOLTAGE.
   f. 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.

This page is to be filled out and returned to your lecturer **before** commencement of training.

I _____ have read and understood the STUDENT CONDUCT AND SAFETY POLICY.

Please tick and initial the following to indicate that you have read and understand each section:

- ☐ **Behaviour**
- ☐ **Safety**
- ☐ **General**
- ☐ **Laboratory Instructions**
- ☐ **Danger Tag Procedure**

I understand that if I do not adhere to the policy guidelines that as an APPRENTICE I could be: disciplined, sent back to work, suspended from training and/or have my remaining apprenticeship training with NMTAFE Balga Campus cancelled.

I understand that if I do not adhere to the policy guidelines that as a PRE-APPRENTICE I could be: disciplined, suspended from training or have my remaining pre-apprenticeship training with NMTAFE Balga Campus cancelled.

Signed_____

Date_____

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Licensed Trades and Engineering Directorate

Certificate III in Electrotechnology Electrician

NTIS ID: UEE 30811
STATE COURSE ID: A123

Electrical Apprentice Course Induction Package

The course you are undertaking is a nationally recognised qualification called a Certificate III – Electrotechnology Electrician (UEE 30811). It is one of the many qualifications available under the Electrotechnology Training Package throughout Australia within the vocational and training sector of the Australian Qualifications Framework.

The Electrotechnology Training Package is a document that specifies the training and assessment requirements for a range of qualifications in the Electrotechnology industry in Australia, and is one of many different packages available for other types of industry in Australia. The qualifications are arranged in six levels ranging from Certificate I to Advanced Diploma.

This course is intended to build on individual talents and experiences, recognise and respond to the diversity of individual needs, and offer choices and flexibility to cater for individual circumstances.

Units of Competence

The training package is based on the principles of competency based training which means that it specifies certain industry-specified competencies which must be demonstrated and assessed in order to be awarded a particular qualification. The competencies are known as 'Units of Competence' and were arrived at after exhaustive consultation with the Electrotechnology Industry Training Councils (ITCs) and other relevant parties throughout Australia. The competencies that you will be trained and assessed on during your apprenticeship are listed below.

CSU	Type	Hours	Description
			Stage 1A
C020B	Core	54	Participate in electrical work and competency development activities
E101A	Core	18	Apply Occupational Health and Safety regulations, codes and practices in the workplace
E102A	Core	36	Fabricate, assemble and dismantle utilities industry components
E105A	Core	18	Fix and secure electrotechnology equipment
E104A	Core	72	Solve problems in DC circuits
			Stage 1B
E107A	Core	36	Use drawings, diagrams, schedules, standards, codes and specifications
G106A	Core	36	Terminate cables, cords and accessories for low voltage circuits
G101A	Core	54	Solve problems in electromagnetic devices and related circuits
K142A	Core	18	Apply environmentally and sustainable procedures in the energy sector
			Stage 2A
G102A	Core	72	Solve problems in low voltage a.c. circuits
G006A	Core	72	Solve problems in single and three phase low voltage machines
			Stage 2B
G033A	Core	54	Solve problems in single and three phase low voltage electrical apparatus and circuits
E137A	Core	18	Document and apply measures to control OHS risks associated with electrotechnology work
G063A	Core	36	Arrange circuits, control and protection for general electrical installations
G108A	Core	36	Trouble-shoot and repair faults in low voltage electrical apparatus and circuits
			Stage 3A
G109A	Core	72	Select and arrange equipment for general electrical installations
G107A	Core	54	Develop and connect control circuits
			Stage 3B
F102A	Elective	108	Lay and connect cables for multiple access to telecommunication services
F104A	Elective	36	Install and modify performance data communication copper cabling
			Stage 4
G103A	Core	18	Install low voltage wiring and accessories
G104A	Core	18	Install appliances, switchgear and associated accessories for low voltage electrical installations
G105A	Core	36	Verify compliance and functionality of general electrical installations (**Electricians Capstone Assessment After competency in all other units**.)

Course Outline

The training course you have undertaken at this college typically involves attendance at scheduled classes in your employer's time for up to 8 hours per week (8:00 am to 4:45 pm) for 36 weeks in your first 3 years of your apprenticeship. In your fourth year, you will be required to attend for two 4/5 day blocks of training to complete units G103A/G104A and G105A (The Capstone Assessment).

Non-attendances at scheduled classes are required to be reported to your employer. Other modes such as flexible delivery, external studies and block release may be available to you for some aspects of the course – your lecturer can provide additional information on request. Various areas of specialisation are provided for in qualifications under this training package – typically Installation and Servicing (including ACMA - Open Cabling Registration).

A typical apprenticeship has a duration of four consecutive years. The first three years involve attendance at a formal part-time training course, with your employer providing the relevant 'On-the-Job Training'. If your circumstances change after you have begun the course you should advise your lecturer so that alternative arrangements can be made.

This college is a Registered Training Organisation (RTO) which means that it has undergone an accrediting process to be recognised as having the necessary facilities, qualified lecturers and training and assessment processes to deliver this course and other related courses. An RTO is responsible for off-job training delivery and assessment, monitoring on-job training and assessment, recording and reporting individual progress and final certification. When you have successfully completed the relevant units of competence, the off-job training and a final competency test you will be eligible for a Certificate III – Electrotechnology Electrician. This qualification is recognised throughout Australia and you will be eligible for an Electrician's Licence issued by the Electrical Licensing Board of W.A. without further assessment.

Each Unit of Competency of this course of study has specified "Required Skills and Knowledge" (RSAKs). These RSAKs form the basis of the off-the-job training and assessment component of this course. The curriculum materials used for delivery of the apprentice course at this college are based on nationally accredited units of competency from the UEE 11 Electrotechnology Training Package.

Recognition of Prior Learning

If you consider that you already have one or more of the skills specified in the training package units of competence you may apply to the RTO to have these skills recognised. This process is known as Recognition of Prior Learning (RPL) and it will require you to provide sufficient evidence of competence to comply with the assessment guidelines included in the training package. The RPL process at this college can be adjusted to take into account any linguistic, cultural or special needs you may have.

If you have already been assessed as competent by a registered training organisation in one or more of the relevant units of competence, this competence is automatically recognised at this college when you provide the appropriate evidence.

Further details and information relating to what you would need to do to support an RPL application are available from your lecturer on request.

Assessment

During this course you will be assessed at various times and places by a qualified assessor using a process which focuses on the application of knowledge, attitude and skill to the standard of performance required in the workplace, and covers all aspects of workplace performance, including:

- Task skills - performing individual tasks.
- Task management skills - managing a number of different tasks within a job.

- Contingency management skills - responding to breakdowns and changes in routine.
- Job/role environment skills - dealing with the responsibilities and expectations of the workplace.

You will be provided with an Assessment Plan and informed in advance of the context and purpose of the assessment and the assessment process. The assessment will involve the evaluation of sufficient evidence to enable judgements to be made about whether competency has been attained. You will be provided with feedback about the outcomes of the assessment process and guidance on future options. You will be given the opportunity to be reassessed under specified conditions if required.

Your employer will be informed of the results of assessments at various times during the course or on request. Staff at this college will maintain a record of your off-job assessments and you may request information relating to the results during the course.

The table below shows the types of assessment evidence that will be collected at various times during the course and used to make the overall judgement of competence:

Direct observation:	Observation of the learner carrying out limited samples of their usual practical tasks in the workplace or a simulated workplace
Third Party Reports:	Information provided from immediate supervisory or other appropriate persons
Demonstration and questioning:	Demonstration of samples of practical tasks where the assessor can see both the process and the finished product.
Pen and paper tests and essays:	Pen and paper tests and essays to measure underpinning knowledge or problem solving capability.
Portfolios:	Indirect evidence used for assessing skills achieved in the past. They can include work samples.
Simulations:	This may involve an off-site structured practical test. The actual tasks and conditions are similar to real life situations
Oral tests:	Correctly answering oral questions as an adjunct to practical demonstrations including handling of unforeseen circumstances.
Projects:	Assessment of a final product
Workplace Evidence Assessment	The progressive collection, documentation and judgement of critical aspects of evidence over an extended period of time by means of Q-tracker.

The assessment tasks will include assessment of your knowledge, skills and attitudes, and you may appeal against an assessment decision if you consider it necessary, within 4 weeks of notification of the outcome of an assessment. Assessment activities are designed to take into account the principles of validity, reliability, flexibility and fairness, and all students in a particular course are subject to the same type of assessment processes. If you are unable to attend for a particular assessment you should advise your lecturer so that special arrangements can be made if appropriate.

Assessments of a Unit of Competency results will be made available to you and your employer after the assessment. In order to comply with confidentiality requirements you will be requested to provide a written authorisation for college staff to make details of your personal assessments available to your employer. It is an audit requirement that the college provide for retention, archiving and retrieval of student results.

You will be provided with a program and calendar showing when the scheduled off-job assessments will occur. Assessment of underpinning knowledge and practical skills typically occur at the end of each scheduled block of off-job training as shown on the course program.

Curriculum materials used at this college contain information that can be used for self-assessment purposes if required.

Training Plan

Before you began this course a representative from this college contacted your employer and negotiated a Training Plan (TP) to be followed by you to achieve relevant units of competence during your apprenticeship. The signatories are yourself, your employer and the RTO.

Apprentice Work Book (Q-tracker Evidence)

The UEE30811 Certificate III in Electrotechnology requires that Workplace evidence is collected and recorded before an apprentice can be assessed as competent. An online system has been developed called **QTRACKER (www.qtracker.com.au)** that allows Apprentice's to input weekly worksheets. Employers will be called upon to view and approve these worksheets submitted by their apprentices. This newly implemented system (**Apprentice Evidence Tracking**) is a no fuss tool to access and assess the progress of apprentices, addressing timeliness, compliance and on-the-job learning/training.

The **Apprentice** fills in the **Apprentice Workbook**, this represents their daily activities and pertains to the **Units of Competency** they cover over their respective apprenticeships.

Date	Unit	Job Description	Activities	Supervision	Hours	Supervisor/ Tradesperson Licence No.	Supervisor/ Tradesperson Initial	Supervisor/Tradesperson Comments
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
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/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
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/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				
/ /			☐P ☐T ☐C ☐F ☐J ☐O	☐B ☐G ☐D				

ACTIVITIES | P = Planned for work T = Carried out testing C = Carried out the work F = Finished the work J = Job Safety Analysis O = Off the job **SUPERVISION** | B = Broad G = General D = Direct

Supervisor Signature certifies the above work has been completed to the required standards - Supervisor Signature ____________________

Apprentice Workbook - © 2012 Polytechnic West   Supervisor (Printed) ________________ Contact Number (__) __________ Date ___/___/___

POLYTECHNIC WEST

The **Tradesperson**/s view and initial the workbook to verify that the entry is true and correct. (**This initial verifies that the task/s have been completed to the required standards**). The Tradesperson is required to supply their name, contact number and licence number for auditing purposes.

Note: This process should be performed on a daily or weekly basis to ensure the accuracy of the evidence gathered.

You will need to complete the required on-the-job tasks and record their completion on Q-tracker. If you **do not** meet the Q-tracker requirements for each Unit of Competency, you may have to **Repeat** that Unit.

Employability Skills:

Your course program will involve the development and assessment of the following over-arching key employability skills:

1. Communication.
2. Teamwork.
3. Problem solving.
4. Initiative and enterprise.
5. Planning and organising.
6. Self management.
7. Learning.
8. Technology

Entrance Requirements

In order to successfully complete this course you will need to have a sufficient standard of literacy to read and comprehend technical information such as that contained in electrical texts and Australian Standards, and a sufficient standard of numeracy to perform routine calculations involving metric units, decimals, fractions, basic algebra and trigonometry.

Support Services

This college applies access and equity principles and offers timely and appropriate information, advice and support services which can assist you to identify and achieve your desired outcomes. The college anticipates and responds to the evolving requirements of its clients. The formal Code of Practice is displayed in various locations around the college.

Part-time short courses relating to, for example, language, literacy and numeracy, are available from the General Studies section of the college – your lecturer can advise you on how to access these services.

The Library Resource Centre has a collection of publications and other materials (including on-campus Internet access) which are available for your use during your studies. Your lecturer can provide you with information on how to obtain a library card.

Canteen facilities are available on campus.

Fees

The fees relating to AQF accredited courses at this college primarily are based on the number of tuition hours in a particular course, with an additional charge for consumable materials in most cases. The tuition fee is set by the state government, and the materials fee depends on the unit(s) in which you have enrolled. A reduced fee is applicable to concession card holders.

All fees are normally required to be paid before the first class attendance or equivalent. If you need access to a progressive payment or similar facility for fees it is available through the Program Manager.

Fees may be paid by cash, cheque or credit card. A telephone enrolment service is available.

If you are unable to continue with the course after you have enrolled and paid the fees you may be eligible for a refund – see your lecturer for more details.

Enrolment

In order to enrol for a course you need to complete an enrolment form and pay the required fee. You will need a completed enrolment form to be admitted to the class on your first attendance.

Your enrolment form contains details of the nationally recognised name and code number of the course, for which you have enrolled, and the time and location of the first meeting place.

If your circumstances change and you are unable to attend the course after you have paid the enrolment fees you need to formally withdraw from the course in writing and you may be eligible for a refund – details are available from the Customer Service Centre.

Access and Equity

This college has a policy of applying access and equity principles and providing timely and appropriate information, advice and support services intended to assist you to identify and achieve your desired outcomes. If you have, for example, special learning needs, or a specific disability which could affect your studies you should advise your lecturer at the start of the course so that your particular concern can be addressed. The college can arrange for the provision of special language, literacy and numeracy assessment on request.

You can expect to be free from harassment and discrimination during your studies at this college. A formal grievance procedure is in place to deal with such situations if they occur.

There is an expectation that you will have regard for the need to respect the right of others to a comfortable environment, and behave in a manner that is consistent with this need.

Induction/Orientation

Your first attendance for this course will typically include a general tour of the main campus facilities, and you will be provided with local details such as evacuation procedures, safety aspects, class requirements, texts and so on. Details relating to the induction/orientation process are typically provided in the written resource material for the course or in the local Student Handbook.

Typical day-release apprentice classes run from 8:00 am to 4:45 pm and tutorials classes run from 5.30 pm to 7.30 pm. The arrangements for other delivery modes such as Block Release will be provided at the time of enrolment.

Grievance Procedures

This college is committed to the policy of providing a safe and productive environment for students and staff, with a deliberate focus on satisfying the vocational and related cultural aspirations of its clients. If you have a particular complaint or grievance you may bring it to the attention of college management by completing a Student Feedback Form and submitting it through the Campus Administration. It will be processed in accordance with a defined college policy and you will be informed of the results.

Satisfaction Survey

When course is nearing completion you will be requested to complete a brief survey that is intended to provide you with the opportunity to offer your opinions on various aspects of the college and the course you have been studying. The purpose of this survey is to obtain information from you that may be used to evaluate relevant college processes with a view to identifying aspects which are seen to be consistent with policies or those which could be improved.

Your considered participation in this process is seen as a vital component in the delivery of college services.

Articulation and Pathways

The course you are undertaking is a nationally recognised Certificate III qualification. The Electrotechnology Training Package provides for you a pathway to progress to a Certificate IV or beyond if you choose to do so after you have finished your current course. For example you may consider studying for a Certificate IV in Electrotechnology Systems Electrician. Your lecturer can advise you on how to obtain details of the pathways for higher studies under the Electrotechnology Training Package on request, together with general information relating to TAFE colleges at which they may be offered.

Other training packages (such as Metals and Engineering (MEM)) may contain competencies of interest to you in areas such as welding, machining, fabrication techniques, computing, telecommunications and instrumentation – see your lecturer for details.

If you complete part of the requirements for this course, then find that you are unable to continue, you may be eligible to apply for recognition of the skills you have acquired as part of the requirements for a different qualification – see your lecturer for details.

Summary

This document outlines the general arrangements for training and assessment during this course. Your lecturer will provide more detailed information relating to relevant processes and events as you progress. If you have any queries or difficulties with your training please bring them to the attention of your lecturer or your employer as soon as possible.

Good luck with your studies at this college.

I have read and understand the Electrical Apprentice Course Induction Package. I have been inducted in safety at the campus. I understand the college/workshop/classroom policy and agree to abide by the **SAFETY RULES** at all times. I further agree that I have been inducted in “Q” Tracker (Apprentice Evidence Skills Tracker) and agree to my responsibility to enter on a weekly basis my on the job and off the job hours into the “Q” tracker website. www.qtracker.com.au

Candidates Name:	Student ID No:
Candidate’s Signature:	Date:
Assessor’s Signature:	Date:

Licensed Trades and Engineering Directorate

Certificate III in Electrotechnology Electrician

NTIS ID: UEE 30811
STATE COURSE ID: A123

Assessment Plan

Assessment Task:

To assess the candidate's competence in the Certificate III in Electrotechnology Electrician UEE 30811 using a range of assessment methods as listed below.

Assessment Methods:

The following methods of collecting assessment evidence will be used at various times during the course, as specified in the Electrotechnology Training Package.

Direct observation:	Observation of the learner carrying out limited samples of their usual practical tasks in the workplace or a simulated workplace
Third Party Reports:	Information provided from immediate supervisory or other appropriate persons
Demonstration and questioning:	Demonstration of samples of practical tasks where the assessor can see both the process and the finished product.
Pen and paper tests and essays:	Pen and paper tests and essays to measure underpinning knowledge or problem solving capability.
Portfolios:	Indirect evidence used for assessing skills achieved in the past. They can include work samples.
Simulations:	This may involve an off-site structured practical test. The actual tasks and conditions are similar to real life situations
Oral tests:	Correctly answering oral questions as an adjunct to practical demonstrations including handling of unforeseen circumstances.
Projects:	Assessment of a final product
Workplace Evidence Assessment	The progressive collection, documentation and judgement of critical aspects of evidence over an extended period of time by means of Q-tracker.

Assessors:

Qualified electrical lecturing/assessing staff, Building and Construction, NMTAFE

Dates of Assessment:

1. Assessments of underpinning knowledge (non-endorsed component) are to be conducted at the dates and times shown in the Course Program or as otherwise negotiated.

2. Formative practical assessments are to be conducted by direct observation during the training process in a simulated workplace environment at NMTAFE.

General assessment of skills, knowledge and attitudes involving the 4 dimensions of competency and the 7 key competencies (as outlined in the Course Induction Package) will occur by direct observation throughout the training phase for each unit of competence (continuous assessment).

Units of Competence to be Assessed:

CSU	Type	Hours	Description
			Stage 1A
C020B	Core	54	Participate in electrical work and competency development activities
E101A	Core	18	Apply Occupational Health and Safety regulations, codes and practices in the workplace
E102A	Core	36	Fabricate, assemble and dismantle utilities industry components
E105A	Core	18	Fix and secure electrotechnology equipment
E104A	Core	72	Solve problems in DC circuits
			Stage 1B
E107A	Core	36	Use drawings, diagrams, schedules, standards, codes and specifications
G106A	Core	36	Terminate cables, cords and accessories for low voltage circuits
G101A	Core	54	Solve problems in electromagnetic devices and related circuits
K142A	Core	18	Apply environmentally and sustainable procedures in the energy sector
			Stage 2A
G102A	Core	72	Solve problems in low voltage a.c. circuits
G006A	Core	72	Solve problems in single and three phase low voltage machines
			Stage 2B
G033A	Core	54	Solve problems in single and three phase low voltage electrical apparatus and circuits
E137A	Core	18	Document and apply measures to control OHS risks associated with electrotechnology work
G063A	Core	36	Arrange circuits, control and protection for general electrical installations
G108A	Core	36	Trouble-shoot and repair faults in low voltage electrical apparatus and circuits
			Stage 3A
G109A	Core	72	Select and arrange equipment for general electrical installations
G107A	Core	54	Develop and connect control circuits
			Stage 3B
F102A	Elective	108	Lay and connect cables for multiple access to telecommunication services
F104A	Elective	36	Install and modify performance data communication copper cabling
			Stage 4
G103A	Core	18	Install low voltage wiring and accessories
G104A	Core	18	Install appliances, switchgear and associated accessories for low voltage electrical installations
G105A	Core	36	Verify compliance and functionality of general electrical installations (**Electricians Capstone Assessment After competency in all other units**.)

Note: All competency Standard units must be achieved

Brief description of task:

1. The candidate will be required to have satisfactorily completed the training in the units of competence listed above as programmed (with negotiated variations if required) including all underpinning knowledge objective tests and scheduled practical assessments.

2. All off-job assessments are to be conducted in the simulated workplace environment and associated training facilities at NMTAFE

Resources Required

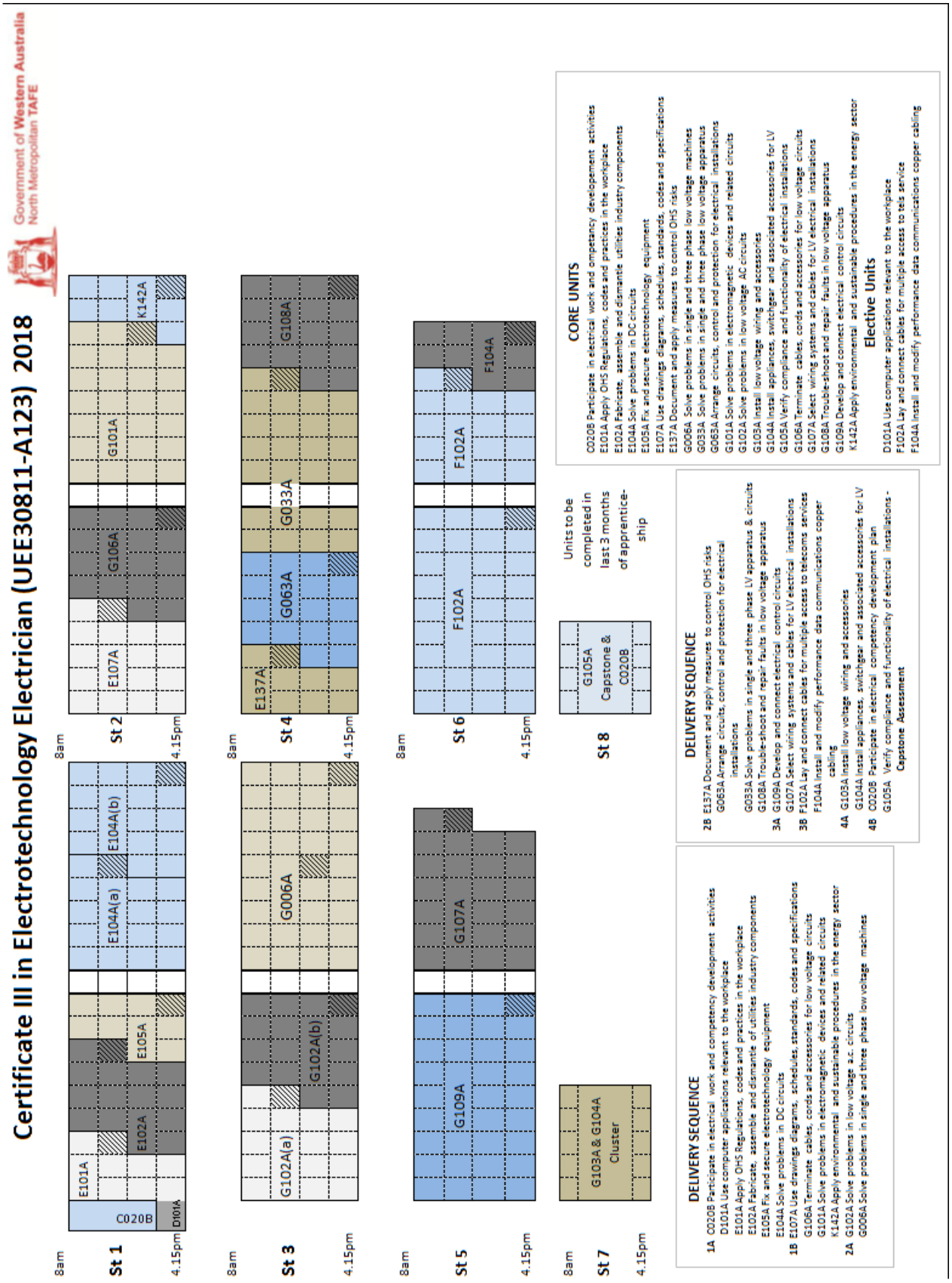
Candidates will require access to the simulated electrical workplace at NMTAFE, with the tools and equipment necessary to complete the required tasks during the training process. Candidates are required to supply their own eye protection and safety footwear during practical sessions.

INSTRUCTIONS FOR CANDIDATES:

All scheduled training activities and Apprentice Evidence Tracking ("Q" Tracker) must be satisfactorily completed.

I have read and understand the Assessment Plan and the college/workshop/classroom policy and agree to abide by the **SAFETY RULES** at all times.

Candidate's Signature:	Date:
Assessor's Signature:	Date:


Government of Western Australia
North Metropolitan TAFE
Certificate III in Electrotechnology Electrician (UEE30811-A123) 2018
St 1
St 2
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E101A
C020B
D101A
E102A
E105A
E104A(a)
E104A(b)
G101A
E107A
G106A
K142A
G102A(a)
G102A(b)
G006A
E137A
G063A
G033A
G108A
G109A
G107A
F102A
F104A
G103A & G104A Cluster
G105A Capstone & C020B
Units to be completed in last 3 months of apprentice-ship
CORE UNITS
C020B Participate in electrical work and competency development activities
E101A Apply OHS Regulations, codes and practices in the workplace
E102A Fabricate, assemble and dismantle utilities industry components
E104A Solve problems in DC circuits
E105A Fix and secure electrotechnology equipment
E107A Use drawings diagrams, schedules, standards, codes and specifications
E137A Document and apply measures to control OHS risks
G006A Solve problems in single and three phase low voltage machines
G033A Solve problems in single and three phase low voltage apparatus
G063A Arrange circuits, control and protection for electrical installations
G101A Solve problems in electromagnetic devices and related circuits
G102A Solve problems in low voltage AC circuits
G103A Install low voltage wiring and accessories
G104A Install appliances, switchgear and associated accessories for LV
G105A Verify compliance and functionality of electrical installations
G106A Terminate cables, cords and accessories for low voltage circuits
G107A Select wiring systems and cables for LV electrical installations
G108A Trouble-shoot and repair faults in low voltage apparatus
G109A Develop and connect electrical control circuits
K142A Apply environmental and sustainable procedures in the energy sector
Elective Units
D101A Use computer applications relevant to the workplace
F102A Lay and connect cables for multiple access to tels service
F104A Install and modify performance data communications copper cabling
DELIVERY SEQUENCE
1A C020B Participate in electrical work and competency development activities
D101A Use computer applications relevant to the workplace
E101A Apply OHS Regulations, codes and practices in the workplace
E102A Fabricate, assemble and dismantle of utilities industry components
E105A Fix and secure electrotechnology equipment
E104A Solve problems in DC circuits
1B E107A Use drawings diagrams, schedules, standards, codes and specifications
G106A Terminate cables, cords and accessories for low voltage circuits
G101A Solve problems in electromagnetic devices and related circuits
K142A Apply environmental and sustainable procedures in the energy sector
2A G102A Solve problems in low voltage a.c. circuits
G006A Solve problems in single and three phase low voltage machines
2B E137A Document and apply measures to control OHS risks
G063A Arrange circuits, control and protection for electrical installations
G033A Solve problems in single and three phase LV apparatus & circuits
G108A Trouble-shoot and repair faults in low voltage apparatus
3A G109A Develop and connect electrical control circuits
G107A Select wiring systems and cables for LV electrical installations
3B F102A Lay and connect cables for multiple access to telecoms services
F104A Install and modify performance data communications copper cabling
4A G103A Install low voltage wiring and accessories
G104A Install appliances, switchgear and associated accessories for LV
4B C020B Participate in electrical competency development plan
G105A Verify compliance and functionality of electrical installations - Capstone Assessment

Government of Western Australia North Metropolitan TAFE	**Participate in electrical work and competency development activities**	Summary Activity 1-2 Gathering appropriate workplace evidence	SGW 17/10/2012

UEE30811 Q-Tracker Work Tasks

UEENEEC020B – Participate in electrical work and competency development activities

Q-Tracker requirements: 40 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Comply with electrical industry/enterprise work policies and procedures
2. Monitor and respond to a personal competency development plan.

For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

3. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

The minimum number of items on which skill is to be demonstrated Group No		**Item List**
A.	All of the following:	•Undertaking Orientation/Induction • Describing Training Plans • Gathering appropriate workplace evidence • Recording workplace evidence • Monitoring workplace evidence • Correcting anomalies where evident • Reporting workplace evidence

UEENEEE101A – Apply OHS regulations, codes and practices in the workplace

Q-Tracker requirements: 20 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to enter a work area
2. Apply safe working practices.
3. Follow workplace procedures for hazard identification and risk control.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

The minimum number of items on which skill is to be demonstrated Group No		**Item List**
A.	All of the following:	•Use correct Personal Protective Equipment • Carry out basic first aid procedures including CPR • Work in a safe manner • Participate in risk control measures when on the job • Be aware of current OHS legislation in dealing with accidents and emergencies • Correct use of MSDS • Correct use of chemicals • Correct isolation/tagging/taping off
B.	At least two of the following: **Working safely at heights**	• step ladder • extension ladder • elevated work platforms • scaffolds

UEENEEE102A – Fabricate assemble and dismantle utilities industry components

Q-Tracker requirements: 40 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Planning and preparing for fabrication assembling and dismantling work.
2. Assemble and dismantle electrotechnology apparatus.
3. Fabricate electrotechnology components.
4. Complete work and report.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

Group No	**The minimum number of items on which skill is to be demonstrated**	**Item List**
A.	All of the following:	•Interpret mechanical drawings • Dismantle and assemble an apparatus
B.	All of the following:	•Sharpening a drill bit for at least two different types of material • Mark out metal in preparation for drilling tapping and bending • Cut metal using hacksaw and shears • Drill and tap ferrous metal • Drill and tap non-ferrous metals • Bend and shape sheet metal • Shape metal using files • Shape non metallic materials using tools • Safely use power tools such as drills and grinders • Fabricating a component that requires the selection and safe use of a variety of fabrication tools

UEENEEE104A – Solve problems in d.c. circuits

Q-Tracker requirements: 40 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to work on d.c. electrical circuits.
2. Solve d.c. circuit problems.
3. Complete work and document problem solving activities.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

Group No	**The minimum number of items on which skill is to be demonstrated**	**Item List**
A.	All of the following: **Series circuits**	• Correctly connect series d.c. circuits • Select test equipment • Connect test equipment • Read meters / instruments correctly • Predict results from circuit configuration / parameters • Apply ohms law to determine voltage, current and resistance • Determine the power dissipated in a load • Solve problems in series d.c. circuits
B.	All of the following: **Parallel circuits**	• Correctly connect parallel d.c. circuits • Select test equipment • Connect test equipment • Read meters / instruments correctly • Predict results from circuit configuration / parameters • Apply ohms law to determine voltage, current and resistance • Determine the power dissipated in a load • Solve problems in parallel d.c. circuits

C. All of the following: **Series-parallel circuits**

- Correctly connect series / parallel d.c. circuits
- Select test equipment
- Connect test equipment
- Read meters / instruments correctly
- Predict results from circuit configuration / parameters
- Apply ohms law to determine voltage, current and resistance
- Determine the power dissipated in a load
- Solve problems in series-parallel d.c. circuits

D. All of the following: **Capacitors**

- Correctly connect capacitors in d.c. circuits
- Solve problems relating to capacitors in d.c. circuits

UEENEEE105A – Fix and secure electrotechnology equipment

Q-Tracker requirements: 100 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to fix and secure equipment.
2. Install fixing and support devices.
3. Complete fixing and support work.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

The minimum number of items on which skill is to be demonstrated Group No | **Item List**

A. All of the following: **Using tools**

- HSS drill bits
- threading taps
- masonry drills
- hammer drill
- measuring tools

B. At least three of the following: **Fixing media**

- hollow wall (cavity fixing)
- brick
- concrete
- steel
- plasterboard

C. At least five of the following: **Fixing devices**

- direct fixing to timber
- *dynabolts*
- PVC plugs
- wooden plugs
- *loxins*
- chemical fasteners
- toggle bolts
- plasterboard devices
- explosive tool studs
- masonry nails
- adhesives / tapes

D. All of the following: **Loading**

Select types of fittings for different weight loads eg. < 5 kg. < 20 kg. < 50 kg and use suitable fittings for different environmental conditions.

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UEENEEE107A – Use drawings, diagrams, schedules, standards, codes and specifications

Q-Tracker requirements: 40 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to use drawings, diagrams, schedules and manuals.
2. Use drawings, diagrams, schedules and manuals to obtain job information.
3. Use drawings, diagrams, schedules and manuals to convey information and ideas.
4. Prepare to use compliance standards, codes and specifications.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,

- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:
All listed tasks related to performance across a representative range of contexts from the prescribed items below:

The minimum number of items on which skill is to be demonstrated Group No		**Item List**
A.	All of the following:	**Drawings, diagrams, schedules, standards, codes and specifications** • Identify drawing symbols • Interpret electrical circuit diagrams • Interpret wiring diagrams • Interpret architectural drawings • Interpret building floor plans • Interpret wiring / cable schedules • Use electrical and building standards and codes to carry out electrical work • Parts / materials lists • Identify function, location, connection

UEENEEE137A – Document and apply measures to control OHS risks associated with electrotechnology work

Q-Tracker requirements: 20 hours of practical training.

1. Performance requirements:
1a. Related to the following elements:
1. Identify and document hazards and risks
2. Assign levels of risk and develop and document control measures.
3. Monitor and review the control measures.

1b. For each element demonstrate performance:
- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:
All listed tasks related to performance across a representative range of contexts from the prescribed items below:

The minimum number of items on which skill is to be demonstrated Group No		**Item List**
A.	All of the following:	**Documenting and recording** • Identifying and recording hazards • Assessing the risks • Documenting control measures (JSA's) • Reviewing and documenting variations • Recording activities • Dealing with unplanned activities

UEENEEF102A – Install and maintain cabling for multiple access to telecommunication services

Q-Tracker requirements: 100 hours of practical training.

1. Performance requirements:
1a. Related to the following elements:
1. Prepare to install and maintain cabling.
2. Install and maintain cabling.
3. Terminate and test cables and earth wires
4. Complete cabling work, records and reporting.

1b. For each element demonstrate performance:
- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:
All listed tasks related to performance across a representative range of contexts from the prescribed items below:

The minimum number of items on which skill is to be demonstrated Group No		**Item List**
A.	At least six of the following:	**Installing and maintaining** • Multiple telephone line • Multi-pair cables • Backbone cabling

• Terminations in socket outlets
• Termination modules
• Termination distributors
• Testing and compliance checks
• Completing cabling documentation

UEENEEF104A – Install and modify performance data communication copper cabling.

Q-Tracker requirements: 100 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to install and/or modify copper cabling.
2. Install copper cables or modify.
3. Terminate copper cables
4. Document and verify copper cabling installation and performance.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

The minimum number of items on which skill is to be demonstrated Group No		**Item List**
A.	At least four of the following:	**Install and terminate**

• Install cable enclosures/distribution boxes
• Install Cat 5 and/or Cat 6 structured cables
• Install coaxial data cables
• Install LAN systems
• Termination modules and data sockets
• Termination distributors
• Testing and compliance checks
• Completing cabling documentation

UEENEEG006A – Solve problems in single and three phase low voltage machines.

Q-Tracker requirements: 100 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to solve single and three phase low voltage machine problems.
2. Solve single and three phase low voltage machine problems.
3. Complete work and document problem solving activities.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

The minimum number of items on which skill is to be demonstrated Group No		**Item List**
A.	At least four of the following:	**Problems in single and three phase low voltage machine and circuits**.

• Determining the operating parameters of existing machines
• Altering an existing machine circuit to comply with specified operating parameters.
• Developing machine circuits to comply with a specified function and operating parameters.
• Determine the cause of low efficiency in an existing machine.
• Determining the problems in existing machines to malfunction (electrical and mechanical problems)
• Determine conditions causing an existing machine/circuit to be unsafe.

UEENEEG033A – Solve problems in single and three phase low voltage electrical apparatus and circuits

Q-Tracker requirements: 400 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to solve single and three phase low voltage electrical apparatus/circuits problems.
2.. Solve single and three phase low voltage electrical apparatus/circuits problems.
3. Completion and documentation problem solving activities.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

Group No	**The minimum number of items on which skill is to be demonstrated**	**Item List**
A.	At least four of the following:	**Problem solving on electrical circuits** • Determining the operating parameters of existing apparatus/circuit. • Altering an existing apparatus/circuit to comply with specified operating parameters. • Developing apparatus/circuits to comply with a specified function and operating parameters. • Determining the cause of low efficiency in an existing apparatus/circuit. • Determining conditions causing an existing apparatus/circuit to be unsafe. • Cable tray/ladder • Underground • Aerial • Catenary
B.	At least four of the following:	**Types of circuits and equipment** • Lighting circuits • Power circuits • Rotating machines • Electric heating • Lighting

UEENEEG063A – Arrange circuits, control and protection equipment for general electrical installations

Q-Tracker requirements: 100 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to arrange electrical installations circuits, control and protection.
2. Arrange electrical installations circuits, control and protection.
3. Document electrical installation circuits control and protection arrangements.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range

This unit shall be demonstrated in relation to selecting wiring systems and cables for at least two general electrical installations comprising a main switchboard, supplying more than one circuit for; lighting, socket outlets and fixed appliances. One of the installations shall include a distribution board separate from the main switchboard and at least one circuit supplying a three phase load and a fire pump.

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

Group No	**The minimum number of items on which skill is to be demonstrated**	**Item List**
A.	All of the following:	**Arranging circuits for electrical installations** • Selecting protection methods • Selecting protection devices including RCD's • Selecting switchgear and control gear • Selecting earthing components • Documentation of electrical installation

UEENEEG101A – Solve problems in electromagnetic devices and related circuits

Q-Tracker requirements: 60 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to work on electromagnetic devices and circuits.
2. Solve electromagnetic devices/circuit problems.
3. Complete work and document problem solving activities.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

Group No	**The minimum number of items on which skill is to be demonstrated**	**Item List**
A.	All of the following: **Electromagnetic applications**	• Correctly connect electromagnetic circuits • Using methodical problem solving techniques. • Solving electromagnetic device problems. • Demonstrate an understanding of the behaviour of current and voltage in circuit with electromagnetic devices • Calculating parameters accurately.
B.	All of the following: **Circuit and device testing**	• Choose correct instruments and ranges for testing • Connect meters to measure parameters in circuits with electromagnetic devices
C.	At least four of the following: **Installing and maintaining electromagnetic devices**	• Reed switches • Solenoids • Relays • Contactors • Inductive limit switches • Bells • Lifting magnets • Core balance devices • Magnetic overloads • Motors • Generators • Magnetic brakes • Magnetic circuit breakers

UEENEEG102A – Solve problems in low voltage a.c. circuits

Q-Tracker requirements: 20 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to solve low voltage a.c. circuit problems.
2. Solve low voltage a.c. circuit problems.
3. Complete work and document problem solving activities.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

Group No	**The minimum number of items on which skill is to be demonstrated**	**Item List**
A.	At least two of the following: **Problem solving on AC circuits**	• Determining the operation parameters of existing circuits. • Altering an existing circuit to comply with specified operating parameters. • Determine the cause of low power factor in an existing circuit.

		• Determining conditions causing an existing circuit to be unsafe includes electric shock hazard from indirect contact with conductive parts, insufficient low impedance of a fault current path and inadequate fault protection.
B.	All of the following: **Single phase circuits**	• Connecting single-phase circuits • Choosing correct instruments • Taking measurements correctly and accurately.
C.	All of the following: **Three-phase circuits**	• Connecting three-phase circuits • Choosing correct instruments • Taking measurements correctly and accurately.
D.	And at least four of the following: **Applications**	• Series ac circuits • Parallel ac circuits • Series / parallel ac circuits • Single phase motors / controls • Three phase motors / controls • Synchronous machines • Transformers / Auxiliary components • Star connected circuits • Delta connected circuits • Star-Delta interconnected circuits • Open Delta circuits

UEENEEG103A – Install low voltage wiring and accessories

Q-Tracker requirements: 100 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to install wiring and accessories.
2. Install wiring and accessories.
3. Completion and report installation activities.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

The minimum number of items on which skill is to be demonstrated Group No		**Item List**
A.	At least three of the following:	**Wiring system enclosures and supports** • Non metallic conduit • Metallic conduit • Ducting • Trunking • Cable tray/ladder • Posts/poles/struts • Catenary
B.	At least four of the following:	**Cable types** • Thermoplastic insulated cable (TPI) • Thermoplastic sheathed flat cable (TPS) • Thermoplastic sheathed circular cable (TPS) • Armoured cable (SWA) • Fire rated cable (HT or HF or MIMS) • Flexible cables • Aerial cable
C.	At least five of the following:	**Circuit purpose** • Consumers mains • Submains • Alternative supply • Lighting • Socket outlets • Single phase fixed appliance • Single phase motor • Three phase motor • Control

UEENEEG104A – Install appliances, switchgear and associated accessories for low voltage electrical installations

Q-Tracker requirements: 100 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to install appliance, switchgear and associated accessories.
2. Install appliances, switchgear and associated accessories.
3. Completion and report installation activities.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

The minimum number of items on which skill is to be demonstrated Group No		**Item List**
A.	Each of the following:	**Installation and connection of accessories** • Installation of main switches, protection devices and links on a main switchboard for the installation of metering. • Installing and connecting of custom switchboard • Socket outlets • Lighting equipment and accessories • Luminaires
B.	At least four of the following:	**Installing and connection of appliances** • Cooking appliances • Smoke and fire detectors • Water heaters and controls • Three phase motor starters and control switches • Fixed electric heating system (room heaters) • Transformers • Appliances producing hot water of steam • Electric heating cables for floors and ceilings • Trace heating • Duct heating • Electric converters • Capacitors • Batteries

UEENEEG105A – Verify compliance and functionality of low voltage general electrical installations

Q-Tracker requirements: 100 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to inspect and test an electrical installation.
2. Visually inspect and conduct safety testing of the installation.
3. Report inspection and test findings.
4. Document electrical installation.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range

This unit shall be demonstrated in relation to selecting wiring systems and cables for at least two general electrical installations comprising a main switchboard, supplying more than one circuit for; lighting, socket outlets and fixed appliances. One of the installations shall include a distribution board separate from the main switchboard and at least one circuit supplying a three phase load.

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

The minimum number of items on which skill is to be demonstrated Group No		**Item List**
A.	All of the following:	**Mandatory tests** • Visual inspection • Insulation resistance • Polarity • Earth continuity

			• Correct connections • Isolation / Lockout
B.	At least two of the following:	**Optional tests**	• Fault loop impedance • Apparatus calibration • Load current of appliance/apparatus • Leakage current • Appliance/apparatus performance characteristics

UEENEEG106A – Terminate cables, cords and accessories for low voltage circuits

Q-Tracker requirements: 100 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to terminate cables, cords and conductors.
2. Terminate cables cords and conductors.
3. Test terminated cables and cords.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

Group No	**The minimum number of items on which skill is to be demonstrated**	**Item List**
A.	All of the following: **Essential cables**	• Unenclosed thermoplastic sheathed (TPS) cable • Enclosed thermoplastic insulated (TPI) or sheathed cables
B.	At least three of the following: **Other cables**	• single cable, • flexible cable including trailing cables, • flexible cord, • shielded cable, • armoured cable, • fire protection cable (Radox, MIMS) • ribbon cable, • other similar and like cables
C.	All of the following: **Connecting accessories**	• Screwed terminals • Soldered terminals • Crimped terminals
D.	All of the following: **Testing**	• Continuity testing • Insulation resistance testing.

UEENEEG107A – Select wiring systems and cables for low voltage general electrical installations

Q-Tracker requirements: 200 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to select wiring systems and cables for general electrical installations.
2. Select wiring systems and cables for general electrical installations
3. Document electrical installations.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

Group No	**The minimum number of items on which skill is to be demonstrated**	**Item List**
A.	All of the following: **Arranging electrical installations**	• Selecting cables

- Selecting protection methods
- Selecting protection devices
- Selecting switchgear and control gear
- Selecting earthing components
- Selecting a wiring system for a fire pump
- Documentation of electrical installation

UEENEEG108A – Trouble-shoot and repair faults in low voltage electrical apparatus and circuits

Q-Tracker requirements: 100 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Prepare to trouble-shoot and rectify faults.
2. Trouble-shoot and repair faults.
3. Completion and report trouble-shoot and repair activities.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

Group No	**The minimum number of items on which skill is to be demonstrated**	**Item List**
A.	At least four of the following:	**Equipment and associated circuits** • Switchboards • Protective devices • Lighting • Heating • Socket outlets • Control devices
B.	At least three of the following:	**Machines and associated control circuits** • Single phase motors • Single phase motor controls • Three phase motors • Three phase motor controls • Synchronous machines • DC machines • DC machines controls • Transformers and auxiliary components

UEENEEG109A – Develop and connect electrical control circuits

Q-Tracker requirements: 200 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Develop and prepare to connect electrical control circuits.
2. Connect and test electrical control circuits.
3. Completion and document circuit development activities.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

Group No	**The minimum number of items on which skill is to be demonstrated**	**Item List**
A.	At least four of the following:	**Control circuit types** • Multiple light switching circuit • Master control circuit • Single stop-start circuit • Multiple stop-start circuit • Time controlled circuit • Machine interlocked circuit • Motor jogging circuit • Machine safety circuit.
B.	Using at least five of the following:	**Devices**

- Multi-way switches
- Switches with more than two positions and off
- Push buttons
- Electromagnetic relays
- Programmable relays
- Contactors
- Reversing contactors
- Three phase starters.
- Reduced voltage starters

C. Using at least two of the following: **Transducers/sensors**

- Timers
- Limit switches
- Proximity switches
- Photoelectric cells
- Pressure switches
- Float switches
- Light sensors
- Temperature sensors

UEENEEK142A – Apply environmentally and sustainable procedures in the energy sector

Q-Tracker requirements: 20 hours of practical training.

1. Performance requirements:

1a. Related to the following elements:

1. Plan and prepare to apply sustainable work practice.
2. Apply sustainable work practice.
3. Complete the application of sustainable work practice.

1b. For each element demonstrate performance:

- across a representative body of performance criteria,
- on at least 2 occasions,
- autonomously and to requirements,
- within the timeframes typically expected of the discipline, work function and industrial environment.

2. Representative range includes the following:

All listed tasks related to performance across a representative range of contexts from the prescribed items below:

The minimum number of items on which skill is to be demonstrated **Item List**
Group No

A. At least one of the following: **Using sustainable energy technologies**

- Using energy-efficiency building design
- Selecting energy-reduction control systems

Supervision of Electrical Apprentices

Electrical apprentices must be supervised!

The degree of supervision (direct, general or broad) requires continual assessment of an apprentice's experience and competence related to the task being undertaken. It can vary from direct to general to broad supervision, depending upon the type of work and the apprentice's progress in achieving competencies.

A gradual relaxation of supervision is logical as an apprentice develops the skills, knowledge and experience leading to a trade qualification.

NOTE: Apprentices are not allowed to supervise other apprentices

Levels of supervision

The Electricity (Licensing) Regulations 1991 states that electrical work must be effectively supervised for the purpose of preventing danger to life and property.

The three levels of supervision of apprentices are defined in Regulation 50 are:

• **Direct (constant) supervision** – the personal supervision of the apprentice, at all times, on a direct (constant) basis, by a person licensed to carry out all the work without supervision. The supervising electrical worker must remain on the same work site as, and in close proximity as the apprentice.

• **General supervision** – general supervision does not require constant attendance of the supervisor. General supervision must be given by a person licensed to carry out the work without supervision. The nature of the work and the competence of the apprentice undertaking it need to be considered. Under general supervision, the supervising electrical worker must remain on the same work site, explain the task, ensure the apprentice understands the work task and carry out any isolation that may be required.

• **Broad supervision** – broad supervision does not require on-going guidance where an apprentice is carrying out familiar tasks. The supervising electrical worker does not have to remain on the same work site, but must attend the work site on a daily basis to provide initial instruction and to verify the electrical work has been carried out safely and correctly.

The following table will provide guidance to the level of supervision that an apprentice will require for the different types of work tasks during his/her on the job training.

Note: Work on any live electrical circuit or live equipment is prohibited.

Supervision Guidelines for Apprentices

Type of Work	Year of Training	Supervision Level
New electrical installations (not connected to the electricity supply)	First Year Second Year Third Year Fourth or Final Year	General General Broad Broad
Maintenance, alterations and additions to existing electrical installations. (isolated and proven de-energised by the supervising electrical worker)	First Year Second Year Third Year Fourth or Final Year	Direct General General Broad
Workshop assembly and maintenance of electrical equipment. (not connected to the electricity supply)	First Year Second Year Third Year Fourth or Final Year	General General Broad Broad
Tag and lockout procedure on de-energised installations and equipment. (isolated and proven de-energised by the supervising electrical worker)	First Year Second Year Third Year Fourth or Final Year	Direct General General Broad
Testing and fault-finding on de-energised installations and equipment. (not connected to the electrical supply or isolated and proven de-energised by the supervising electrical worker)	First Year Second Year Third Year Fourth or Final Year	Direct Direct General General
Live work	**Work on any live electrical circuit or live equipment is prohibited**	

The above information is edited from the Energy Safety Publication: *Safe working guidelines for electrical workers* (March 2018).

PORT FOLIO OF EVIDENCE ASSESSMENT

UEE308011-A123 Certificate III in Electrotechnology Electrician
UEENEEE101A Apply OH&S regulations, codes and practices in the workplace.
UEENEED101A Use basic computer applications relevant to an energy sector workplace.
UEENEEC020B Participate in electrical work and competency development activities.

Student Name:			
Assessor Name:		Stage 1A	
Due Date:	**Week 4 of the Term**	**Date Submitted:**	

STUDENT DECLARATION
I certify that the attached is my/our own work. Signed: _____

Assessor Feedback		**Attempt No:**
Performance demonstrated by this assessment is:	Satisfactory **(S)** or Not Yet Satisfactory **(NYS)**	

Assessors Evidence Checklist :

(a) Supply Large A4 Lever Arch File
Containing C.S.U's C020B and E101A

(b) Stationary, pens, pencils, eraser,
ruler, 50 x paper, Scientific calculator, highlighters

(c) Supply AS/NZ3000:2018 Rule Book (evidence for CO20B)

(d) C.P.R. Certificate of Competency (evidence for E101A)

(e) Typed Worksheet 1-1 (evidence for D101A)

(f) Typed Purpose of an R.C.D. & the AS/NZS3000:2018 Clause no. (evidence for D101A)

(g) On your computer Design a Safety Inspection Checklist / J.S.A. (evidence for D101A) .

(h) Typed Test Before You Touch safety report. (evidence for D101A) .

(i) Introduction to "Q" Tracker and week 3 Data entry on www.qtracker.com.au
(evidence for D101A and CO20B)

(j) Evidence of E.W. Training Licence or application for same. (evidence for E101A)

(k) **NEAT** Presentable **SIGNED** and in a Timely Manner.

Assessor Name:	Assessor Signature:
Assessment outcome and feedback received on:	Date:
Student Name:	Student Signature:

Task **(prerequisite CSU to all other CSU"s - you require 100% to continue)**

Read **SECTION 1** of the E101A Resource Book and the Performance Criteria (page 4 of 75)

Create a **Neat Presentable** Folio of Evidence in a **Large A4** Lever Arch File. Containing:
(a) Resource Book CO20B. Resource Book D101A and Resource Book E101A.
(b) Complete (CPR) competency, one operator, to a simulated victim of electric shock using a manikin. Have your Assessor sign your activity sheet 1-11 (page 70 of 75 of E101A) and include a copy of your competency in your folio of evidence.
(c) Type the answers to work sheet 1-1 O.H.S. Legal (page 14 of 75 of E101A) (Also evidence for D101A)
(d) On your Computer, Design a S.I.C or a J.S.A as per (page 52 of 75 of E101A) (Also evidence for D101A)
(e) Conduct the safety inspection in a typical workplace.
(f) Type a safety report on why "**TEST BEFORE YOU TOUCH"** and the Danger Tag Isolation procedure are paramount in the Electrotechnology Industry. (Also evidence for D101A)

"THIS MAY SAVE YOUR LIFE"

(g) Supply evidence of Pens, pencils, 300mm ruler, 50 sheets of ruled paper, scientific calculator, highlighters, eraser and an **AS/NZ 3000:2018** (Wiring Rules)
With your own name in it
(h)Type the "purpose of an R.C.D", quote the AS/NZ3000:2018 rule no.
(Also evidence for D101A)
(i) Type a short statement on the level of on-the-job Supervision a first year electrical apprentice must have and the type of electrical licence the Supervisor must hold.
Answers can be sourced from the Resource Books/legislation and or Electrical Wiring Practice (7^{th} ed.). Pethebridge and Neeson and /or the library.

Present the folio for assessment **by the specified date (Week 4 of the Term).**

All work must be presented within the allotted time except at the assessor's discretion.

The assessor may ask for oral interpretation of answers from candidates if there is a need for clarification of answers.

Student's **name** must appear on **all** work. **ALL WORK MUST BE YOUR OWN**.

Assessment feedback will be given within one week of the student completing assessment requirements.

Performance Criteria and RSAK as listed on pages 4 of 75 and 8 of 75 respectively in the Resource Book UEENEEE101A form part of this Assessment.

The Assessment Strategy is Folio of Evidence / Short Answer Questions / Practical Exercise / Simulation and Computer Application.
I have read and accept these conditions.

Student's name _____ Date _____

Student's signature _____

Reference:

This workbook has been compiled by Steve Weeks and validated by John Waswo, Steve Weeks, Frank Natalotto, Rod Pash and Nathan Franklin for NMTAFE for educational purposes.

National Curriculum - EE-Oz Training Standards Australia