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NOTE: The nationally endorsed qualification referred to in this document is subject to review via continuous improvement processes thus qualifications and units referenced are subject to change. Please consult the NTIS website www.ntis.gov.au or EE-Oz Training Standards website www.ee-oz.com.au for information about the current version of this qualification and units and any equivalences that may apply.

BACKGROUND

In February 2006, the Council of Australian Governments (COAG) agreed, that by 1 July 2007 there would be a single offshore assessment process to meet migration qualification recognition and occupational licensing requirements for migrants from the following countries: United Kingdom; India; Sri Lanka; South Africa; and the Philippines for identified occupations. These occupations include electrician, lineworker, cable jointer and refrigeration and air-conditioning mechanic. To do this, a single overseas assessment standard accepted by all states and territories needed to be in place.

On 7 September 2006 the Electrician, Air-Conditioning and Refrigeration Mechanic Action Group agreed to the following national Training Package competency requirements for the occupations of electrician, lineworker, cable jointer and, refrigeration and air-conditioning mechanic for the purpose of offshore assessment of skilled migrants:

- Certificate III in Electrotechnology Electrician (UEE30807)
- Certificate III in Refrigeration and Air-Conditioning (UEE31307)
- Certificate III in ESI – Distribution (Lineworker) (UET30206)
- Certificate III in ESI – Cable Jointing (UET30406)

Late in 2006, the Department of Employment and Workplace Relations (DEWR), in consultation and cooperation with the Department of Education, Science and Training (DEST) contracted the ElectroComms and EnergyUtilities Industry Skills Council, trading as EE-Oz Training Standards, to produce a benchmark resource outlining the 'Minimum Australian Context Gap' for the qualifications listed above.

EE-Oz Training Standards identified and documented for each of the occupations listed below, the relevant National Training Packages and related codes, the Certificate III qualifications, agreed competency requirements, Australian knowledge/experience contained in the competencies and the relevant gap training needed to attain the Australian contextual knowledge and experience. EE-Oz Training Standards subsequently compiled a comprehensive

(200 page) report: *Minimum Australian Context Training Gap (MACG) advice for Electrotechnical Certificate III Qualifications* covering the following occupations:

- Electrician;
- Electrical Fitter;
- Refrigeration and Air-Conditioning Mechanic Trade;
- Electrical Lineworker; and
- Electrical Cable Jointer.

From 1 September 2007, the VETASSESS Consortium, an assessing authority gazetted by the Minister for Immigration and Citizenship, was commissioned to undertake trade skills assessments under the General Skilled Migration Program (GSM) for selected countries and trade occupations.

VETASSESS assesses the trade skills of people in the above listed occupations intending to migrate to Australia from the United Kingdom, India, Sri Lanka, South Africa and the Philippines. This is in place of the Trades Recognition Australia (TRA) process for these countries.

The VETASSESS consortium assessment process is very rigorous and assesses against the whole qualification. The assessment is conducted in English and is undertaken in three steps, namely:

STEP 1. INFORMATION AND ASSESSMENT TOOL

STEP 2. COMPETENCY PROFILE (PAPER-BASED)

Identify established evidence review process:

- Training – qualification/training certificates
- Work experience
- Other – licences/industry recognition
- Determine technical interview

STEP 3. PRACTICAL SKILLS ASSESSMENT

- Technical interview (oral/written)
- Skills assessment
- Challenge test
- Simulated activities

Further information can be found at the VETASSESS website: www.vetassess.com.au

VETASSESS CONSORTIUM ASSESSMENT PROCESS

1. INFORMATION AND ASSESSMENT TOOL

A self-assessment tool is provided to the candidate free-of-charge to assist the candidate to determine if they have the skills required. The self-assessment is available in print form.

2. COMPETENCY PROFILE

A paper-based assessment is undertaken to review the candidate's trade qualifications and work experience evidence. This evidence is used to develop a competency profile to show that the candidate:

- has the skills to do particular jobs;
- has the knowledge and understanding of why the job is done in a particular way;
- understands the policies and procedures relating to the work;
- can manage more than one task at a time;
- can deal with everyday problems associated with the work; and
- can work with other team members.

If the evidence meets the requirements, the candidate will proceed to the practical skills assessment.

3. PRACTICAL SKILLS ASSESSMENT

A practical skills assessment, including a technical interview, is conducted in the candidate's home country.

The technical interview is conducted by an assessor and involves a series of interview questions specifically developed for each occupation. Questions focus on the critical aspects of the competency (skill) groups, are written in plain English and use a mix of open ended questions and questions requiring specific answers.

The practical assessment involves a series of 'challenge tests' or simulated activities that integrate a number of the competency (skill) groups required for the occupation and relevant Australian qualification. The person conducting the practical assessment is a qualified tradesperson and assessor from Australia.

THE AUSTRALIAN CONTEXT TRAINING GAP

Whilst the knowledge and skills of many overseas workers is very high, there are differences in the manner in which this technical expertise needs to be applied, a difference that represents a gap. Regulators are especially concerned that the gap be addressed in regulated trade vocations such as electrical, refrigeration and air-conditioning, electricity linework and cable jointing, where the work context may differ markedly in overseas countries and where such differences could endanger lives, infrastructure or systems.

Differences between Australian and overseas occupational practices often arise as a result of the use of different standards, regulations and/or industry codes/guidelines in the worker's place of origin. For instance, in Australia and New Zealand, there are particular standards and practices that are not seen or applied in any other country, others in only a few other countries. Specific examples in relation to electrotechnology work include:

- Meeting the language, literacy and numeracy requirements detailed in each competency standard unit using the Technical Communication aspect of the national framework, as outlined in the National Reporting System report, *A mechanism for reporting outcomes of adult English language, literacy and numeracy programs*. (Australian National Training Authority (ANTA) and the Department of Employment, Education and Training (DEET), 1994-5);
- Meeting Australia/New Zealand Industry Standards as detailed in the AS/NZS3000 "Wiring Rules";
- Compliance with the Multiple Earth Neutral (MEN) system;
- Compliance of the local authority legislation, regulations and mandatory testing requirements;
- Responsibilities inherent to working in an Australian Competency Based Training (CBT) context; and
- Compliance with occupational health and safety and environmental requirements under Australian law.

It is unlikely that any workers from outside Australia or New Zealand will have the knowledge and practical work experience required to satisfy the Australian jurisdictional regulatory authorities (and thus the Training Package's) requirements.

Hence, skilled workers who have successfully completed the VETASSESS Consortium assessment and who seek to migrate to Australia and deploy their skills in work in Australia, have a predetermined training gap known as the 'MACG', which requires completion in Australia before a qualification can be granted and a licence issued (where applicable).

Therefore a candidate who successfully completes the VETASSESS Consortium assessment in their home country must then meet the MACG training in Australia. This training comprises formal off-the-job training at an Australian Registered Training Organisation and on-the-job training with an employer in Australia.

Once the training is complete the individual is awarded the relevant Training Package qualification and licence (where relevant).

ADVICE GIVEN TO SUCCESSFUL CANDIDATES

Candidates who have successfully completed the VETASSESS assessment and are migrating to Australia under the General Skilled Migration Program are given an information kit to assist them complete the process of gaining a qualification and licence (where applicable) in Australia. The candidate information kit is available on the EE-Oz Training Standards website www.ee-oz.com.au.

OFFSHORE TECHNICAL SKILLS RECORD

Upon arrival in Australia, candidates are given an Offshore Technical Skills Record (OTSR) which, on presentation to the industry regulator, entitles them to a provisional/restricted licence. Candidates are only eligible for an OTSR if they are competent against all the technical components in every unit of competency comprising the Certificate III in ESI – Cable Jointing qualification. A sample of an OTSR is contained below.

OFFSHORE TECHNICAL SKILLS RECORD

THIS OFFSHORE TECHNICAL SKILLS RECORD ENTITLES THE HOLDER TO AN ENTRY-LEVEL OR RELEVANT PROVISIONAL OCCUPATIONAL LICENCE IN ANY STATE OR TERRITORY SUBJECT TO THE APPLICANT ALSO MEETING THE NON-SKILL LICENCE REQUIREMENTS.

THIS IS TO CERTIFY THAT

John Citizen



T08PE10884

HAS BEEN ASSESSED AS HAVING THE REQUIRED TECHNICAL SKILLS AS DETAILED IN THIS OFFSHORE TECHNICAL SKILLS RECORD FOR A

Certificate III in ESI - Cable Jointing (UET30406)
(Training Package Electrotechnology UEE06)

John Citizen has not demonstrated the necessary Australian experience and competence to be issued a full AQF qualification. Gap training, as detailed in this Offshore Technical Skills Record, is required for the applicant to obtain an Australian Qualifications Framework Certificate III in ESI - Cable Jointing.

This Offshore Technical Skills Record is issued by a designated relevant assessing authority for the purposes of the Migration Regulations 1994.

Sue Hamilton
Manager
Skills Recognition International (Onshore Operations)

13 June 2008

OFFSHORE TECHNICAL SKILLS RECORD

FOR

John Citizen T08PE10884

IN RELATION TO UNITS OF COMPETENCY WITHIN THE
 CERTIFICATE III IN ESI - CABLE JOINTING (UET30406)
 TRAINING PACKAGE UEE08

THE CANDIDATE HAS BEEN ASSESSED AS HAVING THE REQUIRED TECHNICAL SKILLS WITHIN THE FOLLOWING UNITS OF COMPETENCY:

UNIT NUMBER	UNIT TITLE	EQUIVALENT TECHNICAL SKILLS DEMONSTRATED	AUSTRALIAN EXPERIENCE AND COMPETENCE DEMONSTRATED
CORE UNITS			
UETDRCJ01A	Lay electrical cables	✓	✗
UETDRCJ06A	Install and maintain de-energised LV underground polymeric cables	✓	✗
UETDRCJ07A	Install and maintain de-energised HV underground polymeric cables	✓	✗
UETDREL01A	Apply environment and sustainable energy procedures	✓	✗
UETDREL02A	Operate plant and equipment near live electrical conductors/apparatus	✓	✗
UETDREL04A	Working safely near live electrical apparatus as non electrical worker	✓	✗
UETDRIS01A	Install electrical equipment (Network Infrastructure)	✓	✗
UETDRIS02A	Maintain electrical equipment (Network Infrastructure)	✓	✗
UEUNEEE001A	Apply OHS practices in the workplace	✓	✗
UEUNEEE002A	Dismantle, assemble and fabricate electrotechnology components	✓	✗
UEUNEEE003A	Solve problems in extra-low voltage, single path circuits	✓	✗
UEUNEEE004A	Solve problems in multiple path DC circuits	✓	✗
UEUNEEE005A	Fix and secure equipment	✓	✗
UEUNEEE007A	Use drawings, diagrams, schedules and manuals	✓	✗
UEUNEEE008A	Lay wiring and terminate accessories for extra-low voltage circuits	✓	✗
UEUNEEG001A	Solve problems in electromagnetic circuits	✓	✗
UEUNEEG002A	Solve problems in single and three phase low voltage circuits	✓	✗
ELECTIVE UNITS [WILL VARY PERSON TO PERSON]			
UETDRCJ02A	Install and maintain de-energised LV underground paper insulated cables	✓	✗
UETDRCJ03A	Install and maintain de-energised HV underground paper insulated cables	✓	✗
UETDRCJ05A	Perform straight through HV paper insulated to polymeric transition joint	✓	✗
UETDRCJ08A	Joint and maintain energised LV underground polymeric cables	✓	✗
UETDRIS18A	Locate faults in underground power cables	✓	✗

END OF STATEMENT

OFF-JOB TECHNICAL TRAINING PROGRAM

CERTIFICATE III IN ESI – CABLE JOINTING QUALIFICATION (UET30406)

BRIDGING PROGRAM FOR OVERSEAS CABLE JOINTERS

The contents of this program will meet the relevant Australian Acts, Regulation, Codes and Standards, and state/territory Occupational Health and Safety (OH&S) legislation and regulations for the person to perform: laying, installation and maintenance of de-energised LV and HV underground polymeric cables; and the installation and maintenance of electrical equipment.

The following Australian Standards and Codes will be used throughout this gap training:

AS/NZS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS/NZS 3008.1.1	Electrical installations – Selection of cables – Cables for alternating voltages up to and including 0.6/1 kV – Typical Australian installation conditions
AS/NZS 3760	In-service safety inspection and testing of electrical equipment
AS/NZS 4836	Safe working on low-voltage electrical installations

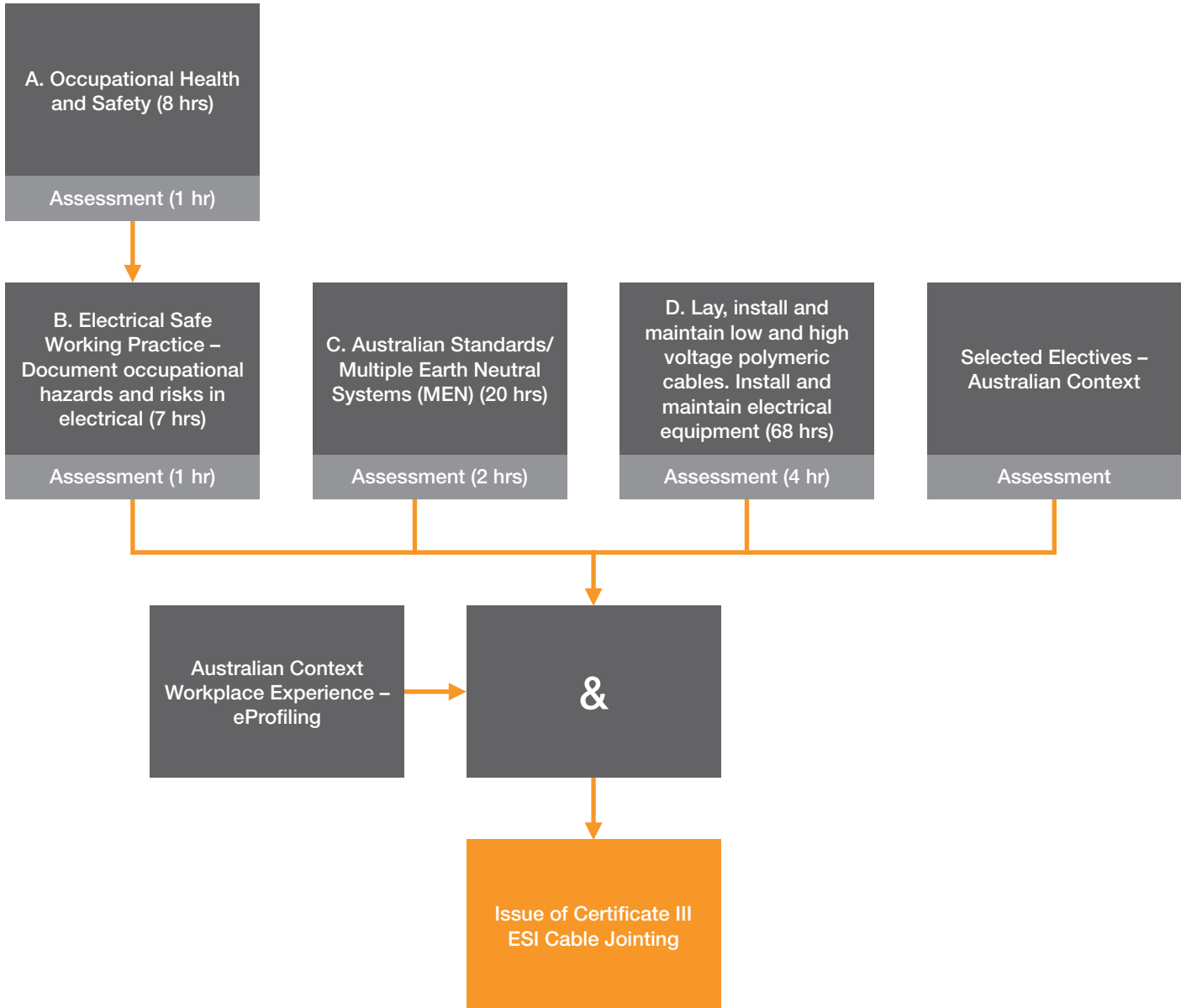
The nominal time for the gap training is 103 hours plus additional 8 hours for assessment tasks to be completed. This nominal time is an estimate and may vary depending upon the applicants experience and the methods of delivery. These hours are based on the requirements that the experienced Cable Jointers would have the prerequisite level 3 in reading, writing and numeracy.

SUBJECT	NOMINAL HOURS	ASSESSMENT HOURS	TOTAL HOURS
A. Occupational Health and Safety	8	1	9
B. Electrical Safe Working Practice and Risk Assessment	7	1	8
C. Multiple Earth Neutral System and Australian Wiring Standards	20	2	22
D. Lay, install and maintain low and high voltage polymeric cables. Install and maintain electrical equipment	68	4	72
TOTAL HOURS	103	8	111

This program is best delivered over several months in parallel with experience in cable jointing work. See the following diagrams – The Australian Context Training Gap – Off-Job Component and Recommended Training Program for UET 30406 CIII in ESI – Cable Jointer.

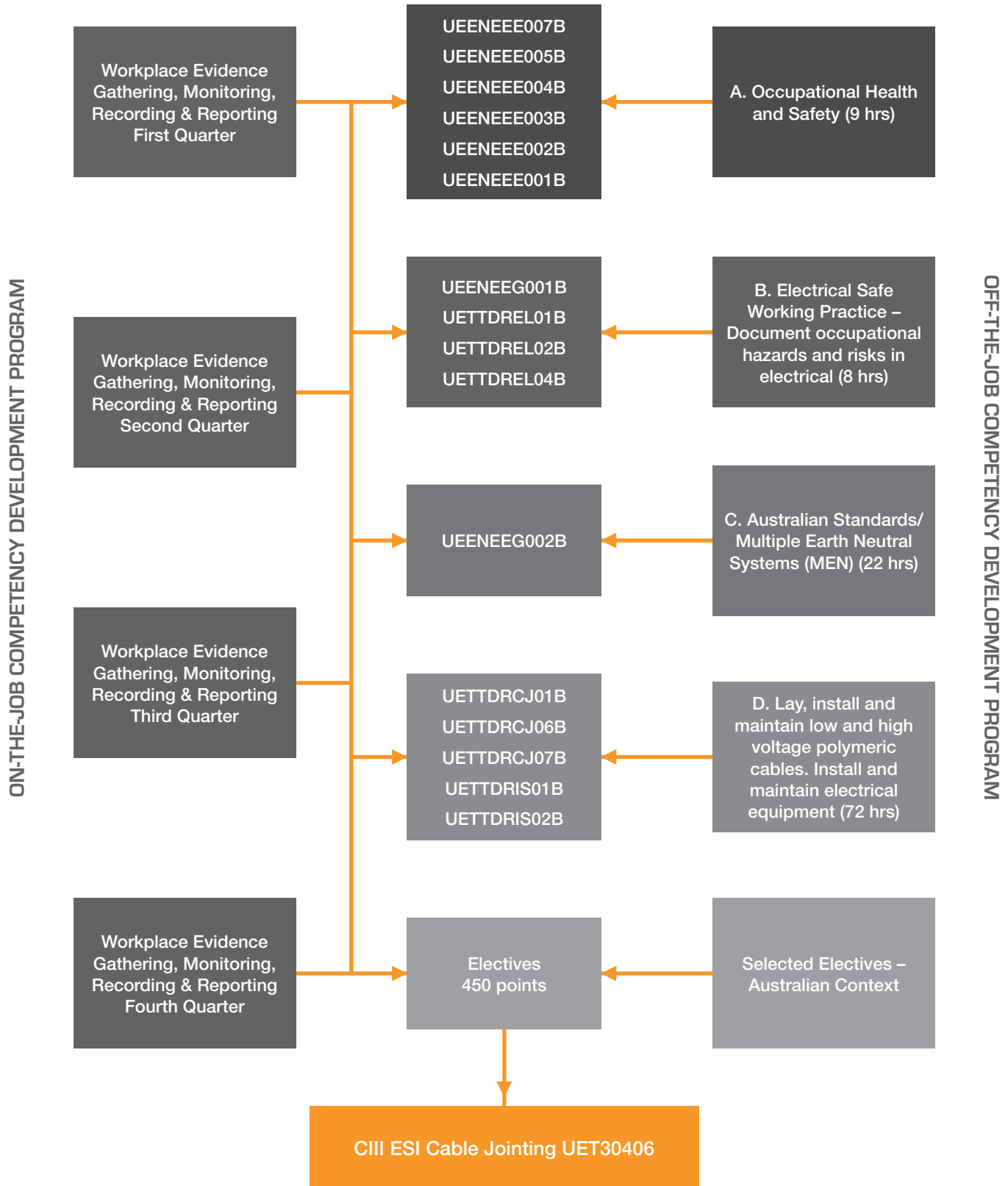
AUSTRALIAN CONTEXT TRAINING GAP – OFF-JOB COMPONENT

UET30406 – CIII ESI CABLE JOINTING



RECOMMENDED TRAINING PROGRAM FOR UET30406 CIII IN ESI CABLE JOINTING

CERTIFICATE III ESI CABLE JOINTING MINIMUM AUSTRALIAN CONTEXT GAP TRAINING (RECOMMENDATION)



MINIMUM AUSTRALIAN CONTEXT TRAINING GAP

TABLE 1

A. OCCUPATIONAL HEALTH AND SAFETY – AUSTRALIAN CONTEXT

Apply the following throughout this subject:

- Relevant Australian Acts, Regulation, Codes and Standards; and
- State/Territory Occupational Health and Safety (OH&S) legislation and regulations

CONTENT TITLE/ CONTENT TOPICS	LEARNING OBJECTIVES: Learners should be able to meet the following learning objectives:	SUGGESTED NOMINAL HOURS
1. OH&S FUNDAMENTALS		
<ul style="list-style-type: none"> • OH&S principles • Aims and objectives of legislation • Responsibilities, rights and obligations • OH&S consultation (safety committees) • Powers of inspectors • Risk management principles • Hazard identification and controls • Risk assessment documentation • Hazard control and monitoring • Housekeeping • Personal Protective Equipment (PPE) 	<ul style="list-style-type: none"> a) State the underlying principles of OH&S. b) List general aims and objectives of the relevant state or territory legislation relating to OH&S. c) List employer and employee responsibilities, rights and obligations. d) State major functions of safety committees and representatives. e) List the powers given to Occupational Health and Safety Inspectors. f) Describe the principles of risk management and state the purpose of each. g) List the hierarchy of OH&S hazard control measures. h) State the required documentation for risk assessment. i) Define housekeeping and describe potential hazards in relation to improper housekeeping. j) Select appropriate PPE given hazardous situations. 	2
2. WORKING WITH ELECTRICITY		
<ul style="list-style-type: none"> • Electricity and electric shock • Causes of electrical accidents • Protective measures • Residual Current Devices (RCDs) • Isolation of supply • Rescue from a live electrical situation 	<ul style="list-style-type: none"> a) State the effects that electric shock can cause to the human body. b) Describe common causes of electrical accidents. c) Describe precautions that can minimise the change of electric shock (earthing, extra low voltage, fuses, circuit breakers and RCDs). d) Explain the protection offered by a RCD. e) State the need for ensuring the (safe) isolation of an electrical supply. f) Describe an appropriate method of removing an electric shock victim from a live electrical situation. 	2

3. LIFE SUPPORT: CPR IN THE WORKPLACE

<ul style="list-style-type: none"> • First aid • Responsibilities of first aiders • First aid management • Accident scene procedures • Legal and ethical issues • Duty of care • Examination for injuries • Cardio pulmonary arrest • CPR procedures • Level of consciousness • Shock 	<ul style="list-style-type: none"> a) Define first aid. b) Define the responsibilities of the first aider. c) Describe the priorities of first aid management for any accident or injury. d) Explain the procedures required at an accident scene. e) Examine legal and ethical issues, which may impact on the management of care. f) Explain the term 'duty of care'. g) Simple examination of a casualty for injuries. h) Describe the effect of cardio pulmonary arrest on the body. i) Manage the simulated conditions of: airway obstruction; respiratory arrest; and cardio pulmonary arrest. j) Demonstrate single and two-person cardio pulmonary resuscitation (CPR). k) Describe the signs and symptoms of an altered level of consciousness. l) Demonstrate management by simulation of a casualty with an altered level of consciousness. m) Describe the signs and symptoms of shock. n) Demonstrate management by simulation of a casualty in shock. 	4
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ASSESSMENT:	1
TOTAL:	9 HRS

B. ELECTRICAL SAFE WORKING PRACTICE AND RISK ASSESSMENT – AUSTRALIAN CONTEXT

Apply the following throughout this subject:

- Relevant Australian Acts, Regulation, Codes and Standards, including:
 - AS/NZS 3760 In-service safety inspection and testing of electrical equipment; and
 - AS/NZS 4836 Safe working on low-voltage electrical installations.
- State/Territory OH&S legislation and regulations

CONTENT TITLE/ CONTENT TOPICS	LEARNING OBJECTIVES: Learners should be able to meet the following learning objectives:	SUGGESTED NOMINAL HOURS
1. RISK ASSESSMENT		
<ul style="list-style-type: none"> • Electrical hazards • Control measures 	a) Describe the principles of risk assessment in relation to electrical devices and machines operating at low voltage. b) List control measures that apply to electrical devices and machines operating at low voltage.	4
2. MEASUREMENT INSTRUMENTS		
<ul style="list-style-type: none"> • Selection of meters • Category of meter • Use, care and storage of instruments 	a) List the factors to be considered in selecting meters for a particular application. b) List the safety category of meters and their associated applications. c) List steps and procedures for the safe use, care and storage of electrical instruments.	2
ASSESSMENT:		1
TOTAL:		7 HRS

C. MULTIPLE EARTH NEUTRAL SYSTEM AND AUSTRALIAN WIRING STANDARDS – AUSTRALIAN CONTEXT

Apply the following throughout this subject:

- Relevant Australian Acts, Regulation, Codes and Standards, including:
 - AS/NZS 3000 Electrical installations (known as the Australian/New Zealand Wiring Rules);
 - AS/NZS 3008.1.1 Electrical installations – Selection of cables – Cables for alternating voltages up to and including 0.6/1 kV – Typical Australian installation conditions;
 - AS/NZS3017 Electrical installations – Testing and inspection guidelines; and
 - AS/NZS 3760 In-service safety inspection and testing of electrical equipment.
- State/Territory OH&S legislation and regulations

CONTENT TITLE/ CONTENT TOPICS	LEARNING OBJECTIVES: Learners should be able to meet the following learning objectives:	SUGGESTED NOMINAL HOURS
1. STANDARDS, REGULATIONS AND TESTING FOR SUPPLY		
<ul style="list-style-type: none"> • Scope of standards • Legislative requirements • Purpose of standards • Standards organisations • Application of standards • Low voltage installations • Testing for supply 	<ul style="list-style-type: none"> a) State the scope of work covered by licensing in the electrotechnology industry. b) State the legislative requirements for ensuring electrical or electronic equipment is safe. c) Describe the purpose of technical standards and their development. d) Describe the role of standards Australia/New Zealand, International Organisation for Standardisation (ISO) and the International Electrotechnical Commission (IEC). e) Explain the arrangement and use of technical standards in relation to electrical and electronic work. f) Describe a typical electrical installation including consumers mains, main switchboards, submains, distribution boards and final sub-circuits. g) Use basic testing equipment to test electrical supplies. 	4
2. ISOLATION AND LOCKOUT PROCEDURES		
<ul style="list-style-type: none"> • Isolation/lockout devices • Equipment for dead testing • Isolation procedures 	<ul style="list-style-type: none"> a) Identify the correct fuse, circuit breaker or isolator to enable safe isolation. b) Safely isolate an electrical circuit and/or equipment. c) Safely test electrical circuits/equipment to confirm isolation. d) Correctly use safety tags, notices, access permits and lockable devices. 	4

MINIMUM AUSTRALIAN CONTEXT TRAINING GAP

3. EARTHING 1		
<ul style="list-style-type: none"> • Definition of terms • Multiple Earthed Neutral (MEN) system • Draw a MEN system of earthing • Earthing conductors • Earthing conductor sizes • Equipotential bonding conductors 	a) Define the terms earthed, earthed situation, earth electrode, equipotential bonding, multiple earthed neutral, main earthing conductor, protective earthing conductor, functional earthing conductors and MEN link. b) State the operating principle of a MEN system. c) Draw and label a multiple earthed neutral earthing system. d) List types and uses of earthing conductors. e) Select earthing conductors for given active conductors. f) Select equipotential bonding conductors.	4

4. EARTHING 2		
<ul style="list-style-type: none"> • The fault loop • Earthing conductor arrangements • Earthing requirements of an installation • Installation of MEN system 	a) Draw the equivalent circuit of a fault loop. b) Draw and label earthing conductor arrangements. c) Plan the earthing requirements of a given installation. d) Install a MEN earthing system for a single phase domestic installation.	4

5. FAULT LOOP IMPEDANCE		
<ul style="list-style-type: none"> • Fault loop impedance of an alternating current (a.c.) supply system • Fault loop impedance calculations • Fault loop impedance measurements • Fault loop impedance testing 	a) Describe the term fault loop impedance of an a.c. power system. b) Determine fault loop impedance using resistance and reactance values from AS/NZS 3008.1.1. c) Measure fault loop impedance of typical circuits. d) List the procedures for testing fault loop impedance.	4

ASSESSMENT:	2
TOTAL:	22 HRS

D. LAY, INSTALL AND MAINTAIN LOW AND HIGH VOLTAGE POLYMERIC CABLES. INSTALL AND MAINTAIN ELECTRICAL EQUIPMENT

Apply the following throughout this subject:

- Relevant Australian Acts, Regulation, Codes and Standards, including:
 - AS/NZS 3000 Electrical installations (known as the Australian/New Zealand Wiring Rules);
 - AS/NZS 3760 In-service safety inspection and testing of electrical equipment; and
 - AS/NZS 4836 Safe working on low-voltage electrical installations.
- State/Territories OH&S legislation and regulations

CONTENT TITLE/ CONTENT TOPICS	LEARNING OBJECTIVES: Learners should be able to meet the following learning objectives:	SUGGESTED NOMINAL HOURS
PART 1: CABLE INSTALLATION SAFETY		
1. CABLE INSTALLATION SAFETY		
<ul style="list-style-type: none"> • Excavation and trench safety regulations • Gas detection • Confined spaces • Personal Protection Equipment • LPG equipment • Gas bottle testing • Hydraulic tools and equipment • Systems and procedures 	<ul style="list-style-type: none"> a) State the safety regulations for excavation and trenches related to underground cable installation. b) Describe the procedures for detecting gas during underground cable installation. c) Define any state/territory and/or OHS regulations/ legislations/requirements associated with working in confined spaces. d) List the Personal Protective Equipment required for underground cable installation. e) State the hazards associated with the use of LPG equipment for jointing underground cable. f) Describe the procedure for testing gas bottles. g) State the hazards associated with the use of hydraulic tools and equipment for jointing and terminating underground cables. h) Describe the permit to work systems and isolations procedures relevant for underground cable installation. 	4
2. TRENCHES		
<ul style="list-style-type: none"> • Excavation and reinstatement • Common trenching 	<ul style="list-style-type: none"> a) Describe the procedures for trench excavation and reinstatement, incorporating safety (such as shoring), enterprise and legislation/regulation requirements. b) Define common trenching and how the need for common trenching with other utilities, can be established. 	3

MINIMUM AUSTRALIAN CONTEXT TRAINING GAP

CONTENT TITLE/ CONTENT TOPICS	LEARNING OBJECTIVES: Learners should be able to meet the following learning objectives:	SUGGESTED NOMINAL HOURS
PART 2: HAZARDS		
1. ELECTRICAL HAZARDS		
<ul style="list-style-type: none"> • Types of electrical hazards • Effects of electrical hazards • Electrical hazards associated when using plant, tools and equipment to undertake work such as: <ul style="list-style-type: none"> • Setting up scaffolding; • Rigging; • Painting; • Vegetation control; and • Other linework activities. 	<ul style="list-style-type: none"> a) List the types of electrical hazards. b) Describe the effects of electrical hazards. c) Define a method of identifying hazards, assessing and controlling OH&S risks, in relation to working safely near live electrical apparatus (e.g. powerlines). d) Define the risks and control measure when using plant, tools and/or equipment near live electrical apparatus. 	4
2. HIGH AND LOW VOLTAGE SYSTEM COMPONENTS AND HAZARDS		
<ul style="list-style-type: none"> • High and low voltage system components • High voltage hazards • Low voltage hazards • Induction and induced voltages • Step and touch potential • Dealing with fallen and low conductors • Power Frequency Flashover and Switching Surge Flashover • Earthing apparatus and hardware • Excavating near underground power cables 	<ul style="list-style-type: none"> a) Identify parts of the electrical system that operate at low voltage and high voltage. b) Describe the risks and control measures for dealing with the hazards of high and low voltage. c) Define the terms 'Induction' and 'Induced Voltages'. d) Describe the causes and hazards associated with induced voltages. e) Define the terms 'ground gradient', 'step potential' and 'touch potential'. f) Describe the hazards associated with 'step potential' and 'touch potential'. g) List common causes of 'step potential' and 'touch potential' and use a diagram to show the effects of 'step potential' and 'touch potential'. h) Explain the reason for earthing apparatus and hardware. i) Describe the risks and control measures for dealing with fallen overhead conductors and low conductors. j) Define the terms 'Power Frequency Flashover' and 'Switching Surge Flashover' in relation to safe approach distances. k) Describe the risks and control measures for excavating near underground power cables. 	4

3. ELECTRICAL PERMITS AND SWITCHING PROGRAMS

<ul style="list-style-type: none"> • Types of electrical permits • Purpose of electrical permits • Electrical access permit • Vicinity authority • Issuing officer, recipient in charge and recipient • Portable earthing • Short-circuiting • Switching programs • Locking and tagging 	<ol style="list-style-type: none"> a) Identify the different types of electrical permits. b) Explain the purpose of an electrical access permit and vicinity authority. c) Describe when an electrical access permit and vicinity authority must be used. d) Describe the responsibilities of an Issuing Officer, Recipient in Charge and Recipient. e) Complete an electrical access permit and vicinity authority. f) Explain the purpose of portable earthing and short-circuiting of overhead power lines. g) Explain the purpose of a switching program. h) Explain the requirements for locking and tagging electrical equipment. 	<p>4</p>
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MINIMUM AUSTRALIAN CONTEXT TRAINING GAP

CONTENT TITLE/ CONTENT TOPICS	LEARNING OBJECTIVES: Learners should be able to meet the following learning objectives:	SUGGESTED NOMINAL HOURS
PART 3: POWERLINE SAFETY		
1. POWERLINE SAFETY		
<ul style="list-style-type: none"> • Earthing/bonding circuits • Application of above for low voltage circuits: <ul style="list-style-type: none"> • phase identification; • neutral identification; • installing earth and short circuits; and <ul style="list-style-type: none"> • access permits and procedures for high voltage. • Access to apparatus: <ul style="list-style-type: none"> • out of service low voltage • dead low voltage • de-energised low voltage; • energised low voltage; • dead high voltage; • isolated high voltage; and • energised high voltage. • Minimum Clearances: <ul style="list-style-type: none"> • personnel; • vehicles; • mobile plant; • scaffolding; • elevating work platforms; • insulated plant; • phase to phase; and • phase to earth. • Conductive poles: <ul style="list-style-type: none"> • low voltage v/s high voltage; • natural timber; • treated timber; • steel; • concrete; and • structures fitted with earthing. 	<ul style="list-style-type: none"> a) State the safety precautions associated with enterprise procedures. b) State the precautions and method of phase and neutral identification low voltage circuits. c) State the enterprise related safe working practices and procedure to attach “on-site” low and high voltage earthing device to de-energised overhead circuit. d) State the minimum enterprise clearances between low and high voltage overhead conductors. e) State the statutory clearances from ground to structures. f) Identify the enterprise low voltage and high voltage limits of safe approach to apparatus. g) State the enterprise requirements of persons prior to making bare hand contact with dead low voltage mains and apparatus. h) Specify the relevant enterprise electrical access permits requirements. i) Describe the enterprise safe working practices required to enable safe working on conductive poles. j) State the enterprise related safe working practices and the procedure to attach an “on-site” earthing device to de-energised low and high voltage overhead circuit. k) State the circumstances where the creation of equipotential working zone is necessary through a temporary bonding. l) Demonstrate the enterprise procedure in attaching an “on-site” earthing device to de-energised low and high voltage overhead circuit, including but not limited to: <ul style="list-style-type: none"> • consideration of possible mechanical force imbalance before, during and after work; • consideration in creating an equipotential working zone; • ensuring properly attached when working aloft; • ensuring the correct use of Personal Protective Equipment; and • consideration for adverse weather conditions such as lightning, storms and/ or heavy rain. 	8

CONTENT TITLE/ CONTENT TOPICS	LEARNING OBJECTIVES: Learners should be able to meet the following learning objectives:	SUGGESTED NOMINAL HOURS
PART 4: STANDARDS AND SAFETY		
1. STANDARDS		
<ul style="list-style-type: none"> • Codes of practice • Legislation • Supply authority regulations • Enterprise requirements 	a) Identify the standards, codes of practice, legislation, supply authority regulations, industry guidelines and/or enterprise requirements associated with the jointing of LV polymeric cables.	4
2. LPG		
<ul style="list-style-type: none"> • Safety • Personal Protective Equipment • General maintenance and repair 	a) Describe the safety techniques required in the use of LPG for the jointing and termination of LV polymeric cable. b) List and describe the Personal Protective Equipment required in the use of LPG for the jointing and termination of LV polymeric cable. c) Describe the general maintenance and repair required in the use of LPG for the jointing and termination of LV polymeric cable.	4
3. CABLE JOINTING SAFETY		
<ul style="list-style-type: none"> • Cable identification • Confined spaces • Permits and procedures • Rescue and response 	a) Describe the correct identification method of the underground cable(s) to be jointed. b) Describe the safety precautions necessary when cable jointing in confined spaces. c) Explain the permit to work systems and isolated procedures associated with cable jointing in confined spaces. d) Describe the emergency rescue/response, including first aid, associated with cable jointing in confined spaces.	4

MINIMUM AUSTRALIAN CONTEXT TRAINING GAP

CONTENT TITLE/ CONTENT TOPICS	LEARNING OBJECTIVES: Learners should be able to meet the following learning objectives:	SUGGESTED NOMINAL HOURS
PART 5: HIGH VOLTAGE CABLE JOINTING STANDARDS AND SAFETY REQUIREMENTS		
1. STANDARDS		
<ul style="list-style-type: none"> • Codes of practice, legislation • Supply authority regulations • Industry guidelines, enterprise requirements 	a) Identify the standards, codes of practice, legislation, supply authority regulations, industry guidelines and/or enterprise requirements associated with the jointing and termination of high voltage polymeric cable.	3
2. REQUIREMENTS		
<ul style="list-style-type: none"> • Enterprise construction manuals • System diagrams/plans and drawings 	b) Identify the requirements for the use of enterprise construction manuals, system diagrams/plans and drawings to obtain all relevant information for the jointing and termination of high voltage polymeric underground cable. c) Describe the permit to work system for high voltage cable jointing work. d) Identify the characteristics of different types of cables and components. e) Explain the purpose of stress control.	4
3. PROCEDURES AND TECHNIQUES		
<ul style="list-style-type: none"> • Isolating • Earthing • Jointing • Terminations 	a) Describe the procedure for isolating high voltage underground cables, including methods for proving safe to work and the correct identification of the cables to be worked on. b) Describe earthing procedures for high voltage cables. c) Describe the techniques used in jointing high voltage underground cable, including but not limited to: <ul style="list-style-type: none"> • short circuit cores and seal cable; • straight through; • trifurcating; and • cable sealing ends. d) Describe the techniques used in high voltage cable termination, including but not limited to: <ul style="list-style-type: none"> • pole top termination; and • substation/switchgear and transformer cable box termination. 	4

CONTENT TITLE/ CONTENT TOPICS	LEARNING OBJECTIVES: Learners should be able to meet the following learning objectives:	SUGGESTED NOMINAL HOURS
PART 6: POWERLINE SAFETY		
1. POWERLINE SAFETY PERSONAL PROTECTIVE EQUIPMENT (PPE)		
<ul style="list-style-type: none"> • Regulatory, standards, industrial guidelines and enterprise requirements for the use of PPE • Types: <ul style="list-style-type: none"> • Helmet; • Glasses; • Hearing protection; • Respirators; • Overalls or uniform including high visibility; • Gloves (rated and working); and • Boots • Proper use • Inspection, care and maintenance 	<ul style="list-style-type: none"> a) State the regulatory requirements, industrial guidelines and standards relating to the use of PPE. b) Describe the relevant enterprise requirements relating to the use of PPE. c) Identify the typical items of PPE used by lineworkers and state their applications. d) Demonstrate the proper use and care of chosen items of PPE. e) Describe the inspection, maintenance and replacement requirements of PPE. 	4
2. TRAFFIC MANAGEMENT		
<ul style="list-style-type: none"> • Purpose • Electricity Supply Industry (ESI) linework responsibilities • Regulatory requirements: <ul style="list-style-type: none"> • statutory; and • enterprise. • Methods of traffic management: <ul style="list-style-type: none"> • use of road signs and devices; and • use of radio communications (OHCC LS). 	<ul style="list-style-type: none"> a) State the statutory requirements for ESI workers in relation to traffic management. b) Determine and demonstrate the relevant procedure used to provide an effective traffic management scheme. c) Demonstrate the effective use of a two-way radio. 	4

3. SMALL FIRE CONTROL

- Enterprise requirements
- Principles and components of combustion
- Fire hazards and risks
- Fire prevention
- Fire response
- Extinguisher types and fire compatibility:
 - extinguisher rating; and
 - compatible fire/equipment combinations.
- Hands-on use of extinguishers and hose reel
- Personal protection – safety and survival
- Bushfire behaviour
- Bushfire control and extinguishment

- a) State enterprise requirement relating to small fire control.
- b) State the principles of combustion:
 - components of combustion; and
 - classes of fire.
- c) Describe fire extinguishers:
 - name type and colour;
 - interpret an extinguisher rating; and
 - identify compatible fire/equipment combinations.
- d) Describe the effective and safe use of fire equipment.
- e) Outline methods of reducing the workplace fire risk.
- f) Outline the principles of safety and survival in bushfires.
- g) Describe bushfire behaviour.
- h) State the principles of bushfire control and extinguishment.
- i) Describe the safe procedure in extinguishing a fire.

4

4. RESCUE PROCEDURES

<ul style="list-style-type: none"> • Regulatory, standards, industrial guidelines and enterprise requirements • Rescue from heights • Emergency escape from an elevated work platform (EWP). • Confined spaces: <ul style="list-style-type: none"> • Definition of confined spaces to Australian Standards; and • Enterprise requirements. • Rescue from contact with live electrical apparatus 	<ul style="list-style-type: none"> a) State the regulations, standards, industrial guidelines and enterprise requirement relating to rescues. b) State the procedure for rescuing a person from heights. c) Demonstrate a rescue from heights in accordance with enterprise requirements. d) State the procedure for emergency escape from an EWP, including the use of Controlled Descent Devices. e) Demonstrate an emergency escape from a EWP. f) Define a confined space in accordance with Australian standards. g) State the procedures for rescuing a person from confined spaces. h) Demonstrate a rescue from a confined space in accordance with enterprise requirements. i) Describe and demonstrate the safe emergency procedures for rescuing victims from contact from live electrical equipment, including but not limited to: <ul style="list-style-type: none"> • priority of the safe procedures to undertake; • involvement of external emergency services; and • demonstrate the correct procedure for CPR. 	4
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ASSESSMENT:	4
TOTAL:	72 HRS

ePROFILING

eProfiling is an innovative electronic workplace skill development system that reports on the work experiences of learners, such as apprentices and trainees. It is a cost effective non-intrusive tool used by Registered Training Organisations (RTOs), such as TAFE and Industry Skill Centres, in partnership with employers, to assess a learner's competence for issuance of a national qualification. Under eProfiling, specific workplace information is gathered systematically.

WHY DO WE NEED PROFILING?

RTOs, in partnership with the employer need evidence from the workplace/work site to help monitor and finally assess a learner's development of competency. They need a good quality, modern, efficient and cost effective way of gathering this information.

National Electronic Data Capture Services, with the support of key industry representatives has developed a singular national system for this purpose. The national profiling management agents, supported by respective state/territory agencies carry out this work.

HOW DOES ePROFILING WORK?

eProfiling works by regularly measuring the progress of a learner or apprentice against industry agreed, predetermined advisory targets (formerly known as benchmarks) directly linked to the national competency standard units. This is achieved through an approved competency development training program for the selected qualification. The steps below provide an overview of the process.

STEP 1 – The RTO registers a Release of Information form.

STEP 2 – A Learner will register a weekly record through logging into the website and registering their weekly record of work, also known as the weekly card.

STEP 3 – An employer verifies the work by using their 'login' to validate a summary of the apprentices' weekly card.

STEP 4 – Data is analysed by the eProfiling system program against predetermined advisory targets.

STEP 5 – Graphic/anomaly reports are generated by the program and placed on the website for the employer, learner and RTO to view.

STEP 6 – The RTO reviews work exposure against the advisory targets for acceptance or action.

WHAT PART DOES ePROFILING PLAY?

Assessment for a national qualification is now the responsibility of the RTO, in partnership with the employer and learner/apprentice/trainee. The eProfiling system is used by RTOs to analyse a learner's performance against industry set national standards (of competency).

