

METHODS OF DELIVERY

Blended Training Mode consisting of

- Theory and Practical Face to Face class at Suite 57/330 Wattle Street , Ultimo NSW2007
- Online Learning Support Portal
www.iqytechnicalcollege.com/el.htm
- Real time live lesson at www.iqytechnicalcollege.com/GoogleMeetingLink.htm
- RPL Assessment
Student's Study Evidence
- E Profiling to record the students

are to be applied in all courses delivered by IQY Technical College

UETDRDS015 Assess distributed energy resource connections to a distribution network

Modification History

Release 1. This is the first release of this unit of competency in the UET Transmission,

Distribution and Rail Sector Training Package Release 4.0.

Application

This unit includes the skills and knowledge required to assess distributed energy resource (DER)

connections to a distribution network in the electricity supply industry (ESI).

It includes knowledge of grid connected distributed energy resources including types, sustainability and potential impacts on existing networks.

It also includes procedures for validating DER connections, and documenting and reporting

recommended solutions for identified generation, supply and load issues.

The application of the skills and knowledge described in this unit may require a licence/registration to practice in the workplace.

Other conditions may also apply under state and territory legislative and regulatory licensing

requirements which must be confirmed prior to commencing this unit.

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

UEEEL0020 Solve problems in low voltage a.c. circuits

UEEEL0021 Solve problems in magnetic and electromagnetic devices

UETDRDS027 Investigate quality of supply issues

UETDREL005 Work safely in the vicinity of live electrical apparatus

UETDRDS015 Assess distributed energy resource connections to a distribution network

connections to a distribution network Date this document

1 Prepare to assess DER connections to a distribution network 1.1 Project requirements are determined	https://www.iqytechnicalcollege.com/Advanced%20Diploma%20in%20Electrical%20Engineering%20UEECD0005%20Physics%20Exercises.pdf
1.2 Assessment specifications are determined in accordance with workplace requirements	(7) Power Quality Notes+Exercises
1.3 Tools, equipment and personal protective equipment (PPE) required for site inspections are determined, obtained and confirmed in working order	Concurrently with UETDREL005
1.4 Requirements for site inspections are determined in accordance with workplace requirements	(2) Power system control equipment (5) Power Line
1.5 Work is prioritised and sequenced for completion in accordance with workplace requirements	Concurrently with UETDREL005
2 Assess DER connections to a distribution network 2.1 Site inspection is performed	AA Type Note 8 Exercises
2.2 DER connection is assessed in accordance with workplace requirements	https://www.iqytechnicalcollege.com/UEE62122%20Advanced%20Diploma%20in%20Engineering%20Technology-Electrical+UEE62220%20Exercises.pdf AA Type Note 1 Exercises
2.3 Sustainable energy principles are used to evaluate and determine best outcomes in accordance with workplace requirements	K135 Exercises+Notes

2.4 Assessment is checked for compliance against legislation, regulations, standards and codes of practice	Line Inspection Manual Activities
2.5 Health and safety risks are identified and minimised or eliminated by using safety and control measures in the design process	Concurrently with UEECD0016
2.6 Quality checks of work are undertaken in accordance with workplace requirements	Power Line Design Quality Notes+Exercises
3 Complete work and documentation 3.1 Completed work is checked against project and workplace requirements	AA Type Notes 2+3+4 Exercises 7762AA Module Book Modified Jan 08 Chapter 1+2 Exercises
3.2 Work records, reports and documentation are completed, approved and appropriate personnel notified in accordance with workplace requirements	AA Type Notes 2+3+4 Exercises
<p>ELEMENTS PERFORMANCE CRITERIA</p> <p>Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least two (2) separate occasions and include:</p> <ul style="list-style-type: none"> <input type="checkbox"/> determining project requirements <input type="checkbox"/> determining design specifications <input type="checkbox"/> obtaining, inspecting and using relevant personal protective equipment (PPE) for site inspection <input type="checkbox"/> determining requirements for site inspections in accordance with workplace requirements 	<p>UETDRTS015 Maintain complex network protection and control systems</p> <p>https://www.nature.com/articles/srep24456</p> <p>www.iqytechnicalcollege.com/srep02764.pdf</p> <p>7762AA Module Book Modified Jan 08</p> <p>Testing Methods</p> <p>G015_G037_G038_G030Pt1_7762AG_Notes Page 1 to 18</p> <p>ASSESSMENT TEST</p> <p>IS67 assessment Mapping Questions</p>

<ul style="list-style-type: none"> <input type="checkbox"/> prioritising and sequencing work for completion in accordance with workplace requirements <input type="checkbox"/> performing at least one site inspection <input type="checkbox"/> applying sustainable energy principles and practices <input type="checkbox"/> checking connection assessment for compliance against legislation, regulations, standards and codes of practice <input type="checkbox"/> identifying, and minimising or eliminating health and safety risks by using safety and control measures <input type="checkbox"/> performing ongoing quality checks of work in accordance with workplace requirements <input type="checkbox"/> checking final design against project and workplace requirements <input type="checkbox"/> completing relevant work records, reports and documentation <input type="checkbox"/> using engineering applications software to assess impact of distributed energy resource (DER) on the network <input type="checkbox"/> completing three (3) assessments of a DER connection using at least two (2) of the following project types: <ul style="list-style-type: none"> <input type="checkbox"/> solar <input type="checkbox"/> wind <input type="checkbox"/> hydro <input type="checkbox"/> hydrogen <input type="checkbox"/> wave <input type="checkbox"/> battery <input type="checkbox"/> completing the following checks for each of the assessments: <ul style="list-style-type: none"> <input type="checkbox"/> voltage rise test <input type="checkbox"/> phase balance test 	
<p>Assessment Requirements for UETDRDS015 Assess</p>	<p>Electrical Distribution 7762AA</p>

<p>distributed energy resource connections to a distribution Powering Skills Organisation</p> <ul style="list-style-type: none"> <input type="checkbox"/> accredited DER equipment is used <input type="checkbox"/> network suitability <input type="checkbox"/> single line diagram <input type="checkbox"/> reverse power flow <input type="checkbox"/> recommending solutions for each of the assessments on identified generation, supply and load issues. 	<p>AA.zip</p> <p>www.highlightcomputer.com/G015-AA Mod.zip</p> <p>https://www.iqytechnicalcollege.com/G037+38+39.pdf</p>
<p>Knowledge Evidence Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:</p> <ul style="list-style-type: none"> <input type="checkbox"/> grid connected distributed energy resources, including: <input type="checkbox"/> types <input type="checkbox"/> sustainability <input type="checkbox"/> impacts on existing network <input type="checkbox"/> procedures for validating DER connections to a distribution network <input type="checkbox"/> procedures for documenting and reporting recommended solutions for identified generation, supply and load issues <input type="checkbox"/> types and application of PPE for site inspection <input type="checkbox"/> manuals, diagrams and drawings. 	<p>Solar Electrical System</p> <p>K125+K135-PV System+PV Inverter.pdf</p> <p>K135 Text book.pdf</p> <p>K135 Lessons</p> <p>https://www.iqytechnicalcollege.com/UEE62122%20Advanced%20Diploma%20in%20Engineering%20Technology-Electrical+UEE62220%20Exercises.pdf</p> <p>K125+K135 Exercises</p>

UETDRDS017 Design customer substations

Application

This unit includes the skills and knowledge required to design customer substations in the

electricity supply industry (ESI).

It includes design specifications, site requirements, systems modelling, sustainable energy

principles, compliance requirements, and identification, minimisation or elimination of health

and safety risks by using safety and control measures.

It also includes the applications of, and the relationship between primary and secondary systems

within the substation environment.

The application of the skills and knowledge described in this unit may require a licence/registration to practice in the workplace.

Other conditions may also apply under state and territory legislative and regulatory licensing

requirements which must be confirmed prior to commencing this unit.

demonstrate achievement of the element. 1 Prepare to design	Study Notes and Technical Data Collection Major Substation Building Standard Ausgrid substation-primary-design-standard SubstationEntry 13__ameu_2012_dangers and hazards of entry_ Ausgrid Network Standard Eta-05-High-Voltage-Substaion-Entry NS186 MAJOR SUBSTATIONS CIVIL WORKS DESIGN STANDARD Assessment Writing Report on Design preparation stage
customer substations 1.1 Project requirements are determined	Design requirement are assessed and the following references are referred

	<p>1-11-FR-12-Substation-Signage Safe Operation and Maintenance of HV Substations Policy Standard-Operating-Procedure-_9-</p>
<p>1.2 Design specifications are determined in accordance with workplace requirements</p>	<p>Substation-Entrance-Exit-Procedure ISSC-28-Guideline-for-Enclosed-Spaces-March-2013 Guide Safe operating system Electrical Safety Rules ES Safety Standards_PF00685 safe-access-to-substations</p> <p>Assessment</p> <p>Submission of substation equipment specification report</p>
<p>1.3 Tools, equipment and personal protective equipment (PPE) required for site inspections are determined, obtained and confirmed in working order</p>	<p>Tools and materials are determined by referring the provided ESI Folder that contains the catalogues, brochures, operating principle, work manuals</p> <p>Assessment</p> <p>Listing of required tools, equipment and materials</p>
<p>1.4 Requirements for site inspections are determined in accordance with workplace requirements</p>	<p>Site Inspection and survey task is to be performed by referring the site survey methods provided in “7762AA Module Book Modified Jan 08”</p>
<p>1.5 Work is prioritised and sequenced for completion in accordance with workplace requirements</p>	<p>Work sequence is to be determined as per project planning .</p> <p>Project Lessons Videos are provided as follows</p> <p>The links contain the following lessons</p> <p>E071+G069+G070 Lesson 1 Project management planning http://youtu.be/VNe56RYAPvg</p> <p>E071+G069+G070 Lesson 2 NSW service rule+Marketing http://youtu.be/6D88EoKTXFA http://youtu.be/tdr9z5WZq2w</p> <p>E071+G069+G070 Lesson 3+4 Contract planning + HV conductor http://youtu.be/k7vuQq7juNk http://youtu.be/RyS31r1aOWQ</p> <p>E071+G069+G070 Lesson 5 Project</p>

	<p>modelling http://youtu.be/7gO57AHY-tk http://youtu.be/lhcVELYNVYw E071+G069+G070 Lesson 6 Job planning http://youtu.be/QDr6ar_ZYmk http://youtu.be/bsBVQFUtGp8</p> <p>E071+G069+G070 Lesson 7 Line infrastructure + Material planning http://youtu.be/x8-gdp3sP8Q</p> <p>E071+G069+G070 Lesson 8 Problem solving and decision making http://youtu.be/Khg1pnkBcQo</p> <p>E071+G069+G070 Lesson 9 Control of project+Maintenance specialist work http://youtu.be/eKuW5um3SR0 http://youtu.be/AA684uXyv48 http://youtu.be/6NG2Qzq4MMg</p> <p>E071+G069+G070 Lesson 10 Contract bid work http://youtu.be/4O9nAOmd4Qg</p> <p>E071+G069+G070 Lesson 11 Project structure http://youtu.be/libplsnVNG4</p> <p>E071+G069+G070 Lesson 12 Analysing plan+ Insurance http://youtu.be/_x3oQvuAGq8 http://youtu.be/dMUAal0A-4w</p> <p>E071+G069+G070 Lesson 13 Modelling project http://youtu.be/FJBVycx0vTM</p> <p>E071+G069+G070 Lesson 14 Project costing+Contracting paper work http://youtu.be/pOke86sLrzw http://youtu.be/2RwrkL0Phb0 http://youtu.be/l7nh4pZqnSw</p> <p>E071+G069+G070 Lesson 15 Change control http://youtu.be/9JR-yJx1D0w</p> <p>E071+G069+G070 Lesson 16 Management leadership+Job accounting http://youtu.be/EYuy1zKJ72k http://youtu.be/Ay2DyulvVhk</p> <p>E071+G069+G070 Lesson 17 Management thinking+Contract management planning http://youtu.be/0LzgzKg5hu8</p> <p>http://youtu.be/nrfgVQ7omfk</p>
<p>Performance criteria describe the performance needed to 2 Design customer substations</p>	<p>Design requirement are assessed and the following references are referred</p> <p>1-11-FR-12-Substation-Signage Safe Operation and Maintenance of HV</p>

	Substations Policy Standard-Operating-Procedure-_9-
2.1 Site inspection is performed	Site Inspection and survey task is to be performed by referring the site survey methods provided in “7762AA Module Book Modified Jan 08” Assessment Site inspection report
2.2 Customer substation is designed in accordance with workplace requirements	Design requirement are assessed and the following references are referred 1-11-FR-12-Substation-Signage Safe Operation and Maintenance of HV Substations Policy Standard-Operating-Procedure-_9-
2.3 Systems modelling is used to evaluate and determine best outcomes in accordance with workplace requirements	G015_G037_G038_G030Pt1_7762AG_Notes And videos The notes are provided in the above book. It contain theory information related to Power system and Substation operation Problems are to be solved as part of assessment Videos G037+G038+G039 Part 1/2/3+IS69 Page 232 to 270 www.highlightcomputer.com/VideoLessons.pdf Power System (2) G037+G038+G039 Lesson 1-Power Flow.zip http://youtu.be/mzwGGXRTtw G037+G038+G039 Lesson 2-Site Earthing.zip http://youtu.be/PATkXVBF9kc http://youtu.be/H4Dj1K238BE G037+G038+G039 Lesson 3-Power System Control Equipments.zip http://youtu.be/JJczbYVWOol G037+G038+G039 Lesson 4-Auxiliary

[System+Harmonic.zip](#)

<http://youtu.be/5mDNHGFLA0c>

[G037+G038+G039 Lesson 5-Harmonic.zip](#)

<http://youtu.be/n41q4Rmz2p0>

<http://youtu.be/8CelGV5AEIk>

http://www.filefactory.com/file/c386dbc/n/G037+G038+G039_Lesson_5-Harmonic.zip

[G037+G038+G039 Lesson 6-Harmonic Calculation.zip](#)

<http://youtu.be/NHSzu6HkOqI>

<http://youtu.be/fSLrPIC6Mho>

http://www.filefactory.com/file/c39bd4a/n/G037_G038_G039_Lesson_6-Harmonic_Calculation.zip

[G037+G038+G039 Lesson 7-Synchronous Generator Loading.zip](#)

<http://youtu.be/jv1q7Mtq7Gs>

http://www.filefactory.com/file/c39be2f/n/G037_G038_G039_Lesson_7-Synchronous_Generator_Loading.zip

[G037+G038+G039 Lesson 8-Turbine Control+Power Line Earthing.zip](#)

<http://youtu.be/0CvgkmDE3Kw>

[G037+G038+G039 Lesson 9-Insulator.zip](#)

<http://youtu.be/l4jqs8MLBFA>

<http://youtu.be/TiQezIA9Z-c>

[G037+G038+G039 Lesson 10-Reliability of Power System.zip](#)

<http://youtu.be/tlUk3nc1xE>

[G037+G038+G039 Lesson 11-Harmonic Reduction.zip](#)

<http://youtu.be/8dYX-11kRcc>

<http://youtu.be/A684Agej8-w>

[G037+G038+G039 Lesson 12-Grounding + Power Quality.zip](#)

<http://youtu.be/QQPUj3WXJnA>

[G037+G038+G039 Lesson 13-Power Quality.zip](#)

http://youtu.be/fel7SCb_QTY

<http://youtu.be/mckK2YhDsnr0>

[G037+G038+G039 Lesson 14-Harmonic Model.zip](#)

<http://youtu.be/dwWBOq-BsLY>

[G037+G038+G039 Lesson 15-Harmonic Losses in Transformer.zip](#)

<http://youtu.be/mwEJgEEgPVc>

<http://youtu.be/1A6FY5f5ijM>

<http://youtu.be/yLiOKy7uJj0>

[G037+G038+G039 Lesson 16-Reliability Improvement.zip](#)

<http://youtu.be/cn-CfDWnUN8>

[G037+G038+G039 Lesson 17-Preparation for emergency.zip](#)

<http://youtu.be/La7Xip8GI2l>

[G037+G038+G039 Lesson 18-Harmonic problems.zip](#)

<http://youtu.be/0Urnkee>

http://youtu.be/zM_Xcwckicw

[G037+G038+G039 Lesson 19-Synchronous machine problems.zip](#)

<http://youtu.be/Lx2S-NATr20>

[G037+G038+G039 Lesson 20-Power Generation + Generator Control.zip](#)

<http://youtu.be/56Ks8sArQxc>

[G037+G038+G039 Lesson 21-Turbine Control+ Digital Excitation.zip](#)

<http://youtu.be/uCsvv18qKwQ>

<http://youtu.be/l4vCDI2CZS0>

[G037+G038+G039 Lesson 22-Power System Protection.zip](#)

<http://youtu.be/c6iXRwfCYBU>

[G037+G038+G039 Lesson 23-Switch Gear.zip](#)

<http://youtu.be/DDpbzgNYTiM>

<http://youtu.be/2cl-nOdBNro>

	<p>The links contain the following lessons</p> <p>G037+G038+G039 Lesson 1-Power Flow</p> <p>G037+G038+G039 Lesson 2-Site Earthing</p> <p>G037+G038+G039 Lesson 3-Power System Control Equipments</p> <p>G037+G038+G039 Lesson 4-Auxiliary System+ Harmonic</p> <p>G037+G038+G039 Lesson 5-Harmonic</p> <p>G037+G038+G039 Lesson 6-Harmonic Calculation</p> <p>G037+G038+G039 Lesson 7-Synchronous Generator Loading</p> <p>G037+G038+G039 Lesson 8-Turbine Control+ Power Line Earthing</p> <p>G037+G038+G039 Lesson 9-Insulator</p> <p>G037+G038+G039 Lesson 10-Reliability of Power System</p> <p>G037+G038+G039 Lesson 11-Harmonic Reduction</p> <p>G037+G038+G039 Lesson 12-Grounding + Power Quality</p> <p>G037+G038+G039 Lesson 13-Power Quality</p> <p>G037+G038+G039 Lesson 14-Harmonic Model</p> <p>G037+G038+G039 Lesson 15-Harmonic Losses in Transformer</p> <p>G037+G038+G039 Lesson 16-Reliability Improvement</p> <p>G037+G038+G039 Lesson 17-Preparation for emergency</p> <p>G037+G038+G039 Lesson 18-Harmonic problems</p> <p>G037+G038+G039 Lesson 19-Synchronous machine problems</p> <p>G037+G038+G039 Lesson 20-Power Generation + Generator Control</p> <p>G037+G038+G039 Lesson 21-Turbine Control+ Digital Excitation</p> <p>G037+G038+G039 Lesson 22-Power System Protection</p> <p>G037+G038+G039 Lesson 23-Switch Gear</p>
<p>2.4 Sustainable energy principles are used to evaluate and determine best outcomes in accordance</p>	<p>Grid connected solar power system videos are provided as follows. The students will need to use standby Renewable power</p>

with workplace requirements

system

Renewable Energy+ Photovoltaic

K025 Lesson 1-PV Cell.zip

<http://youtu.be/KVxTNh71iis>

K025 Lesson 2-PV Power.zip

<http://youtu.be/ZipUk0kc3GA>

K025 Lesson 3-Module derating.zip

<http://youtu.be/Cop7phatWss>

K025 Lesson 4-PV Module daily energy.zip

<http://youtu.be/nXMraW8oxak>

K025 Lesson 5-PV daily energy accurate method.zip

http://youtu.be/kpyEpxVf_EA

K025 Lesson 6-Solar insolation.zip

<http://youtu.be/z4W7pA2t3C4>

<http://youtu.be/dZVccq38xpE>

K025 Lesson 7-Solar geometry.zip

<http://youtu.be/R4-CLzHW5hE>

K025 Lesson 8-PV Semiconductor.zip

<http://youtu.be/sgK639n74ag>

[K025 Lesson 9-Solar irradiation and shading assessment.zip](#)

http://youtu.be/TRq_83z6Zvw

<http://youtu.be/oBgqHGdZqOY>

[K025 Lesson 10-Irridation assessment.zip](#)

<http://youtu.be/3empnl2Sm7w>

[K025 Lesson 11-Solar cell technology.zip](#)

<http://youtu.be/f5M4XVOAqqE>

[K025 Lesson 12-PV Power system.zip](#)

<http://youtu.be/smLWJYcuT6w>

<http://youtu.be/nSu23xn9G08>

[K025 Lesson 13-PV water pumping system.zip](#)

<http://youtu.be/GV0nCaQj2lc>

<http://youtu.be/pD4DcQX6L3Q>

<http://youtu.be/qbsM7mKRh30>

[K025 PV Software Video.zip](#)

<http://youtu.be/i0XO9O1mG7A>

http://youtu.be/45bgWra7_70

<http://youtu.be/rMY8ffuT0bY>

The links contain the following lessons

K025 Lesson 1-PV Cell

K025 Lesson 2-PV Power

K025 Lesson 3-Module derating
 K025 Lesson 4-PV Module daily energy
 K025 Lesson 5-PV daily energy accurate method
 K025 Lesson 6-Solar insolation
 K025 Lesson 7-Solar geometry
 K025 Lesson 8-PV Semiconductor
 K025 Lesson 9-Solar irradiation and shading assessment
 K025 Lesson 10-Irridation assessment
 K025 Lesson 11-Solar cell technology
 K025 Lesson 12-PV Power system
 K025 Lesson 13-PV water pumping system
 K025 PV Software Video

K035 Grid Connected Inverter

K132/142	<u>Sustainability</u>	
UEENEEK148A		Install, configure an power systems
UEENEEK135A		Design grid connect
UEENEEK139A		Design stand-alone
UEENEEK140A		Develop engineerin

Page 491 to 501 of
www.highlightcomputer.com/VideoLessons.pdf

Renewable Energy+ Photovoltaic Inverter

[K035 Lesson 1-Inverter principle.zip](#)

<http://youtu.be/-rdOuZBoCZI>

[K035 Lesson 2-Modified sine wave inverter.zip](#)

<http://youtu.be/QOFpzhUq0l0>

[K035 Lesson 3-Pulse width modulation.zip](#)

<http://youtu.be/NE95TgkrLQA>

	<p>K035 Lesson 4-PV Inverter.zip</p> <p>http://youtu.be/WcxxGQlXpgM</p> <p>http://youtu.be/gkOA2T7qwGk</p> <p>K035 Lesson-5 MOSFET Driver.zip</p> <p>http://youtu.be/K4AzSAvFI6I</p> <p>K035 Lesson-6 PWM Inverter.zip</p> <p>http://youtu.be/Lc_PC44IqLI</p> <p>K035 Lesson-7 Grid Connected Inverter.zip</p> <p>http://youtu.be/5m4SzA2CeRA</p> <p>http://youtu.be/pWQMLkaUfhQ</p> <p>K035 Lesson-8 Inverter Power Flow Model.zip</p> <p>http://youtu.be/wctgCnecrZw</p> <p>The links contain the following lessons</p> <p>K035 Lesson 1-Inverter principle</p> <p>K035 Lesson 2-Modified sine wave inverter</p> <p>K035 Lesson 3-Pulse width modulation</p> <p>K035 Lesson 4-PV Inverter</p> <p>K035 Lesson-5 MOSFET Driver</p> <p>K035 Lesson-6 PWM Inverter</p> <p>K035 Lesson-7 Grid Connected Inverter</p> <p>K035 Lesson-8 Inverter Power Flow Model</p>
<p>2.5 Design is checked for compliance against legislation, regulations, standards and codes of</p>	<p>Design Project is to be completed and assessed</p>

practice	
2.6 Health and safety risks are identified and minimised or eliminated by using safety and control measures in the design process	<p>Guide Safe operating system Electrical Safety Rules ES Safety Standards_PF00685 safe-access-to-substations</p> <p>Substation Entry Notes (Energy Australia / Ausgrid)</p> <p>www.iqytechnicalcollege.com/SubstationEntry.pdf</p> <p>Substation Entry Lessons are to be learnt as part of training</p>
2.7 Quality checks of work are undertaken in accordance with workplace requirements	Quality check procedures are to be submitted
3 Complete work and documentation	Work records and journals are to be prepared as part of the project
3.1 Completed work is checked against project and workplace requirements	Work records and journals are to be prepared as part of the project
3.2 Work records, reports and documentation are completed, approved and appropriate personnel notified in accordance with workplace requirements	Work records and journals are to be prepared as part of the project
<p>Performance Evidence</p> <p>Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least two (2) separate occasions and include:</p> <ul style="list-style-type: none"> <input type="checkbox"/> determining project requirements <input type="checkbox"/> determining design specifications <input type="checkbox"/> obtaining, inspecting and using relevant personal protective equipment (PPE) for site inspection <input type="checkbox"/> determining requirements for site inspections in accordance with workplace requirements <input type="checkbox"/> prioritising and sequencing work for 	Design Project is to be completed and assessed

<p>completion in accordance with workplace requirements</p> <ul style="list-style-type: none"> <input type="checkbox"/> performing at least one (1) site inspection <input type="checkbox"/> demonstrating use of systems modelling to evaluate and determine best outcomes <input type="checkbox"/> applying sustainable energy principles and practices <input type="checkbox"/> checking design for compliance against legislation, regulations, standards and codes of practice <input type="checkbox"/> identifying, and minimising or eliminating health and safety risks by using safety and control measures <input type="checkbox"/> performing ongoing quality checks of work in accordance with workplace requirements <input type="checkbox"/> checking final design against project and workplace requirements <input type="checkbox"/> completing relevant work records, reports and documentation <input type="checkbox"/> completing six (6) designs from at least two (2) of the following project types: <ul style="list-style-type: none"> <input type="checkbox"/> single transformer substation <input type="checkbox"/> multi-transformer substation <input type="checkbox"/> upgrade/alteration to existing asset <input type="checkbox"/> auto-changeover system <input type="checkbox"/> drafting each of the following for each of six (6) substation designs: <ul style="list-style-type: none"> <input type="checkbox"/> single line diagram <input type="checkbox"/> above ground layout diagram <input type="checkbox"/> earthing layout diagram <input type="checkbox"/> primary plant dimensioning checklist <input type="checkbox"/> standards compliance checklist <p>Assessment Requirements for UETDRDS017 Design customer substations Date this document was generated: 31 January 2025 Approved Page 211 of 1738 © Commonwealth of Australia, 2025 Powering Skills Organisation</p> <ul style="list-style-type: none"> <input type="checkbox"/> hazard identification, risk assessment and control measures. 	
<p>Knowledge Evidence Evidence required to demonstrate</p>	<p>The lessons are provided in the online link https://www.iqytechnicalcollege.com/Form</p>

competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:

- customer substation design, including:
 - project requirements
 - design specifications
 - hazard, risk assessment and risk control requirements, including potential hazards
 - types and application of PPE
 - site inspections
 - application of sustainable energy principles and practices
 - compliance with legislation, regulations, standards, codes of practice, and project and workplace requirements
 - work records, reports and documentation
 - manuals, diagrams and drawings
 - types, functionality and maintenance of specialist tools, including:
 - laser scans
 - geotech studies
 - survey equipment
 - ground penetrating radar
 - buried services and other infrastructure, including:
 - telecommunications
 - power
 - water
 - sewerage
 - gas
 - relationship between primary and secondary systems
 - types of substations or upgrades, including:
 - single transformer substations
 - multi-transformer substations
 - upgrade/alteration to existing assets
 - auto-changeover systems
 - transformers, including:
 - types
 - characteristics
 - basic construction
 - operation under load/no-load conditions

[71ESILesson.htm](#)

as well as the documents contained in the folder

UETDRTS017 Maintain interdependent network protection and control systems

<https://ietresearch.onlinelibrary.wiley.com/doi/full/10.1049/gtd2.12177>

www.iqytechnicalcollege.com/S017.pdf

<https://www.pdfdrive.com/protection-of-electrical-networks-d33483131.html>

[http://www.iqytechnicalcollege.com/Protection of Electrical Networks \(PDFDrive \).pdf](http://www.iqytechnicalcollege.com/Protection of Electrical Networks (PDFDrive).pdf)

<https://www.pdfdrive.com/electric-power-system-planning-d39893329.html>

www.iqytechnicalcollege.com/Electric-Power-System-Planning-Issues-and-Algorithms-and-Solutions.pdf

Test Questions and Exercises

ESI Exercises

- types and operation of tap changing switches
- Powering Skills Organisation
- efficiency and cooling
- auxiliary equipment
- maintenance
- restrictions to parallel operation
- harmonics issues and remedies
- testing and fault-finding procedures
- fire and oil management, including:
 - bund design
 - flame traps
 - oil/water separation systems.
- high voltage (HV) switchgear, including:
 - protection and alarms
 - operating limitations
 - protection device rating
 - switching equipment and practices
 - paralleling requirements
 - isolation and earthing procedures
 - common distribution faults
 - metering and control equipment including:
 - types of meters
 - installation and removal
 - associated equipment and accessories
 - testing procedures
 - automation systems, including:
 - function
 - main components
 - operation procedure
 - layout principles for a distribution substation including:
 - relationship to overall power system
 - purpose
 - location
 - equipment layout
 - principles of computer-aided drafting.

UETDRDS019 Design distribution substations

<p>Demonstrate achievement of the element. 1 Prepare to design distribution substations 1.1 Project requirements are determined</p>	<p>Study Notes and Technical Data Collection Major Substation Building Standard Ausgrid substation-primary-design-standard SubstationEntry 13__ameu_2012_dangers and hazards of entry_ Ausgrid Network Standard Eta-05-High-Voltage-Substaion-Entry NS186 MAJOR SUBSTATIONS CIVIL WORKS DESIGN STANDARD Assessment Writing Report on Design preparation stage</p>
<p>1.2 Design specifications are determined in accordance with workplace requirements</p>	<p>Design requirement are assessed and the following references are referred 1-11-FR-12-Substation-Signage Safe Operation and Maintenance of HV Substations Policy Standard-Operating-Procedure-_9-Substation-Entrance-Exit-Procedure ISSC-28-Guideline-for-Enclosed-Spaces-March-2013 Guide Safe operating system Electrical Safety Rules ES Safety Standards_PF00685 safe-access-to-substations Assessment Submission of substation equipment specification report</p>
<p>1.3 Tools, equipment and personal protective equipment (PPE) required for site inspections are determined, obtained and confirmed in working order</p>	<p>Tools and materials are determined by referring the provided ESI Folder that contains the catalogues, brochures, operating principle, work manuals Assessment Listing of required tools, equipment and materials</p>
<p>1.4 Requirements for site inspections are determined in accordance with workplace requirements</p>	<p>Site Inspection and survey task is to be performed by referring the site survey methods provided in "7762AA Module Book Modified Jan 08"</p>

1.5 Work is prioritised and sequenced for completion in accordance with workplace requirements

Work sequence is to be determined as per project planning .

Project Lessons Videos are provided as follows

The links contain the following lessons

E071+G069+G070 Lesson 1 Project management planning

<http://youtu.be/VNe56RYAPyg>

E071+G069+G070 Lesson 2 NSW service rule+Marketing

<http://youtu.be/6D88EoKTXFA>

<http://youtu.be/tdr9z5WZq2w>

E071+G069+G070 Lesson 3+4 Contract planning + HV conductor

<http://youtu.be/k7vuQq7juNk>

<http://youtu.be/RyS31r1aOWQ>

E071+G069+G070 Lesson 5 Project modelling

<http://youtu.be/7gQ57AHY-tk>

<http://youtu.be/lhcVELYNVYw>

E071+G069+G070 Lesson 6 Job planning

http://youtu.be/QDr6ar_ZYmk

<http://youtu.be/bsBVQFUtGp8>

E071+G069+G070 Lesson 7 Line infrastructure + Material planning

<http://youtu.be/x8-gdp3sP8Q>

E071+G069+G070 Lesson 8 Problem solving and decision making

<http://youtu.be/Khg1pnkBcQo>

E071+G069+G070 Lesson 9 Control of project+Maintenance specialist work

<http://youtu.be/eKuW5um3SR0>

<http://youtu.be/AA684uXyv48>

<http://youtu.be/6NG2Qzg4MMg>

E071+G069+G070 Lesson 10 Contract bid work

<http://youtu.be/4O9nAOmd4Qg>

E071+G069+G070 Lesson 11 Project structure

<http://youtu.be/libplsnVNG4>

E071+G069+G070 Lesson 12 Analysing plan+ Insurance

<http://youtu.be/x3oQvuAGq8>

<http://youtu.be/dMUAal0A-4w>

E071+G069+G070 Lesson 13 Modelling project

<http://youtu.be/FJBVycx0vTM>

E071+G069+G070 Lesson 14

Project costing+Contracting paper work

<http://youtu.be/pOke86sLrzw>

<http://youtu.be/2RwrkL0Phb0>

<http://youtu.be/l7nh4pZqnSw>

E071+G069+G070 Lesson 15 Change control

<http://youtu.be/9JR-yJx1D0w>

E071+G069+G070 Lesson 16

Management leadership+Job accounting

<http://youtu.be/EYuy1zKJ72k>

<http://youtu.be/Ay2DyulvVhk>

E071+G069+G070 Lesson 17

Management thinking+Contract management

	<p>planning</p> <p>http://youtu.be/0LzqzKg5hu8</p> <p>http://youtu.be/nrfqVQ7omfk</p>
<p>2 Design distribution substations</p> <p>2.1 Site inspection is performed</p>	<p>Site Inspection and survey task is to be performed by referring the site survey methods provided in “7762AA Module Book Modified Jan 08”</p> <p>Site Inspection and survey task is to be performed by referring the site survey methods provided in “7762AA Module Book Modified Jan 08”</p> <p>Assessment</p> <p>Site inspection report</p>
<p>2.2 Distribution substations are designed in accordance with workplace requirements</p>	<p>Folder Substation Modelling Technical Reference</p> <p>Assessment</p> <p>Perform the modelling calculation project initial steps</p>
<p>2.3 Systems modelling is used to evaluate and determine best outcomes in accordance with workplace requirements</p> <p>2.4 Sustainable energy principles are used to evaluate and determine best outcomes in accordance with workplace requirements</p>	<p>G015_G037_G038_G030Pt1_7762AG_Notes And videos</p> <p>The notes are provided in the above book. It contain theory information related to Power system and Substation operation</p> <p>Problems are to be solved as part of assessment</p> <p>Videos</p> <p>G037+G038+G039 Part 1/2/3+IS69</p> <p>Page 232 to 270</p> <p>www.highlightcomputer.com/VideoLessons.pdf</p> <p>Power System (2)</p> <p>G037+G038+G039 Lesson 1-Power Flow.zip</p> <p>http://youtu.be/mzwGGXRTtw</p> <p>G037+G038+G039 Lesson 2-Site Earthing.zip</p> <p>http://youtu.be/PATkXVBF9kc</p> <p>http://youtu.be/H4Dj1K238BE</p> <p>G037+G038+G039 Lesson 3-Power System</p>

[Control Equipments.zip](#)

<http://youtu.be/JJczbYVWOol>

[G037+G038+G039 Lesson 4-Auxiliary System+Harmonic.zip](#)

<http://youtu.be/5mDNHGFLA0c>

[G037+G038+G039 Lesson 5-Harmonic.zip](#)

<http://youtu.be/n41q4Rmz2p0>

<http://youtu.be/8CelGV5AEIk>

http://www.filefactory.com/file/c386dbc/n/G037+G038+G039_Lesson_5-Harmonic.zip

[G037+G038+G039 Lesson 6-Harmonic Calculation.zip](#)

<http://youtu.be/NHSzu6HkOqI>

<http://youtu.be/fSLrPIC6Mho>

http://www.filefactory.com/file/c39bd4a/n/G037_G038_G039_Lesson_6-Harmonic_Calculation.zip

[G037+G038+G039 Lesson 7-Synchronous Generator Loading.zip](#)

<http://youtu.be/jv1q7Mtq7Gs>

http://www.filefactory.com/file/c39be2f/n/G037_G038_G039_Lesson_7-Synchronous_Generator_Loading.zip

[G037+G038+G039 Lesson 8-Turbine Control+Power Line Earthing.zip](#)

<http://youtu.be/0CvgkmDE3Kw>

[G037+G038+G039 Lesson 9-Insulator.zip](#)

<http://youtu.be/l4iqs8MLBFA>

<http://youtu.be/TiQezlA9Z-c>

[G037+G038+G039 Lesson 10-Reliability of Power System.zip](#)

<http://youtu.be/tlUk3nc1xE>

[G037+G038+G039 Lesson 11-Harmonic Reduction.zip](#)

<http://youtu.be/8dYX-11kRcc>

<http://youtu.be/A684Agej8-w>

[G037+G038+G039 Lesson 12-Grounding + Power Quality.zip](#)

<http://youtu.be/QQPUj3WXJnA>

[G037+G038+G039 Lesson 13-Power Quality.zip](#)

http://youtu.be/fel7SCb_QTY

<http://youtu.be/mckK2YhDsnr0>

[G037+G038+G039 Lesson 14-Harmonic Model.zip](#)

<http://youtu.be/dwWBOq-BsLY>

[G037+G038+G039 Lesson 15-Harmonic Losses in Transformer.zip](#)

<http://youtu.be/mwEJgEEgPVc>

<http://youtu.be/1A6FY5f5ijM>

<http://youtu.be/yLiOKy7uJj0>

[G037+G038+G039 Lesson 16-Reliability Improvement.zip](#)

<http://youtu.be/cn-CfDWnUN8>

[G037+G038+G039 Lesson 17-Preparation for emergency.zip](#)

<http://youtu.be/La7Xip8GI2l>

[G037+G038+G039 Lesson 18-Harmonic problems.zip](#)

<http://youtu.be/0Urnkee>

http://youtu.be/zM_Xcwckicw

[G037+G038+G039 Lesson 19-Synchronous machine problems.zip](#)

<http://youtu.be/Lx2S-NATr20>

[G037+G038+G039 Lesson 20-Power Generation + Generator Control.zip](#)

<http://youtu.be/56Ks8sArQxc>

[G037+G038+G039 Lesson 21-Turbine Control+ Digital Excitation.zip](#)

<http://youtu.be/uCsvv18gKwQ>

<http://youtu.be/l4vCDI2CZS0>

[G037+G038+G039 Lesson 22-Power System Protection.zip](#)

<http://youtu.be/c6iXRwfCYBU>


[G037+G038+G039 Lesson 23-Switch Gear.zip](#)

<http://youtu.be/DDpbzgNYTiM>

<http://youtu.be/2cl-nOdBNro>

	<p>The links contain the following lessons</p> <p>G037+G038+G039 Lesson 1-Power Flow</p> <p>G037+G038+G039 Lesson 2-Site Earthing</p> <p>G037+G038+G039 Lesson 3-Power System Control Equipments</p> <p>G037+G038+G039 Lesson 4-Auxiliary System+ Harmonic</p> <p>G037+G038+G039 Lesson 5-Harmonic</p> <p>G037+G038+G039 Lesson 6-Harmonic Calculation</p> <p>G037+G038+G039 Lesson 7-Synchronous Generator Loading</p> <p>G037+G038+G039 Lesson 8-Turbine Control+ Power Line Earthing</p> <p>G037+G038+G039 Lesson 9-Insulator</p> <p>G037+G038+G039 Lesson 10-Reliability of Power System</p> <p>G037+G038+G039 Lesson 11-Harmonic Reduction</p> <p>G037+G038+G039 Lesson 12-Grounding + Power Quality</p> <p>G037+G038+G039 Lesson 13-Power Quality</p> <p>G037+G038+G039 Lesson 14-Harmonic Model</p> <p>G037+G038+G039 Lesson 15-Harmonic Losses in Transformer</p> <p>G037+G038+G039 Lesson 16-Reliability Improvement</p> <p>G037+G038+G039 Lesson 17-Preparation for emergency</p> <p>G037+G038+G039 Lesson 18-Harmonic problems</p> <p>G037+G038+G039 Lesson 19-Synchronous machine problems</p> <p>G037+G038+G039 Lesson 20-Power Generation + Generator Control</p> <p>G037+G038+G039 Lesson 21-Turbine Control+ Digital Excitation</p> <p>G037+G038+G039 Lesson 22-Power System Protection</p> <p>G037+G038+G039 Lesson 23-Switch Gear</p>
<p>2.5 Design is checked for compliance against legislation, regulations, standards and codes of practice</p>	<p>Design Project is to be completed and assessed</p>
<p>2.6 Health and safety risks are identified and minimised or eliminated by using safety and</p>	<p>Guide Safe operating system Electrical Safety Rules ES Safety Standards_PF00685</p>

<p>control measures in the design process</p>	<p>safe-access-to-substations Substation Entry Notes (Energy Australia / Ausgrid) www.iqytechnicalcollege.com/SubstationEntry.pdf Substation Entry Lessons are to be learnt as part of training</p>
<p>2.7 Quality checks of work are undertaken in accordance with workplace requirements</p>	<p>Quality check procedures are to be submitted</p>
<p>3 Complete work and documentation 3.1 Completed work is checked against project and workplace requirements</p>	<p>Work records and journals are to be prepared as part of the project</p>
<p>3.2 Work records, reports and documentation are completed, approved and appropriate personnel notified in accordance with</p>	<p>Work records and journals are to be prepared as part of the project</p>
<p>workplace requirements Performance Evidence Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least two (2) separate occasions and include:</p> <ul style="list-style-type: none"> <input type="checkbox"/> determining project requirements <input type="checkbox"/> determining design specifications <input type="checkbox"/> obtaining, inspecting and using relevant personal protective equipment (PPE) for site inspection <input type="checkbox"/> determining requirements for site inspections in accordance with workplace requirements <input type="checkbox"/> prioritising and sequencing work for completion in accordance with workplace 	<p>Folder Substation Modelling Technical Reference</p> <p>6-ESI Study Package 7 (4,8,11,13)- Drawing</p> <ul style="list-style-type: none"> <input type="checkbox"/> Items ESI 1.1 Working at Height.pdf ESI 1.2 OHS Requirement.pdf ESI 1.3 IIG Requirement.pdf ESI 1.4 Installation Procedure.pdf ESI 1.5 Metering.pdf ESI 1.6 Over voltage containment.pdf ESI 1.7 HV Substation.pdf ESI 1.8 Voltage stabiliser.pdf ESI 2.1 Legal Aspect.pdf ESI 2.1 System Planning.pdf ESI 2.3 Tariffs.pdf ESI 2.4 Environmental Consideration.pdf ESI 4-11 Power Transformer.zip ESI 5 Machinery Installation.zip ESI 7 Drawings Circuit.zip ESI 7 Drawings Switching Diagram.zip ESI 7 Drawing2.zip ESI 7 Electrical Installation Design.zip ESI 13 Voltage regulation devices.zip

<p>requirements</p> <ul style="list-style-type: none"> <input type="checkbox"/> performing at least one (1) site inspection <input type="checkbox"/> demonstrating use of systems modelling to evaluate and determine best outcomes <input type="checkbox"/> applying sustainable energy principles and practices <input type="checkbox"/> checking design for compliance against legislation, regulations, standards and codes of practice <input type="checkbox"/> identifying, and minimising or eliminating health and safety risks by using safety and control measures <input type="checkbox"/> performing ongoing quality checks of work in accordance with workplace requirements <input type="checkbox"/> checking final design against project and workplace requirements <input type="checkbox"/> completing six (6) designs from at least two (2) of the following project types: <ul style="list-style-type: none"> <input type="checkbox"/> single transformer substations <input type="checkbox"/> multi-transformer substation <input type="checkbox"/> upgrade/alteration to existing assets <input type="checkbox"/> drafting all of the following for each design: <ul style="list-style-type: none"> <input type="checkbox"/> single line diagram <input type="checkbox"/> above ground layout diagram <input type="checkbox"/> earthing layout diagram <input type="checkbox"/> primary plant dimensioning checklist <input type="checkbox"/> standards compliance checklist <input type="checkbox"/> hazard identification, risk assessment and control measures. 	 <p>The screenshot shows a list of files in a folder, including:</p> <ul style="list-style-type: none"> ESI 15 Electrical Estimating 2.zip ESI 15 Electrical Estimating 3.zip ESI 18.1 Substation equipments 1.zip ESI 18.2 Substation equipments 2.zip ESI 18.3 Substation equipments 3.zip ESI 18.2 Generator Control + Load Flo... ESI 18.3 Generator .zip ESI 19.1 Computer Control.zip ESI 19.4 Turbine Control.zip ESI 22.1 Generator Study.zip ESI 22.2 Voltage surge control.zip ESI 23.1 Generator Rating.zip ESI 23.1 Transformer Rating.zip ESI 24 Modern Power System.zip ESI 25+27+31+32 Part 1 Electrical Instal... ESI 25+27+31+32 Part 2 Installation an... ESI 25+27+31+32 Part 3 Electrical Dra... ESI 25+27+31+32 Part 4 Data Com and... ESI 25+27+31+32 Part 5 Installation W...
<p>Knowledge Evidence</p> <p>Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and</p>	<p>Work records and journals are to be prepared as part of the project</p> <p>Power system 2-G037+G038+G039.zip</p> <p>Power System 2 G037+G038+G039</p>

include knowledge of:

distribution substation design, including:

project requirements
 design specifications
 hazard, risk assessment and risk control requirements, including potential hazards

types and application of PPE
 site inspections
 use of systems modelling for best outcomes

application of sustainable energy principles and practices
 compliance with legislation, regulations, standards, codes of practice, and project and workplace requirements

work records, reports and documentation

manuals, diagrams and drawings

the purpose and features of typical co-generation systems and associated network constraints

substations and power transformers including:

characteristics
 testing and commissioning
 maintenance
 metering and control equipment

switchgear

earthing

surge protection

auxiliary equipment

transformers, including:

types

characteristics

basic construction

operation under load/no-load conditions

types and operation of tap changing switches

efficiency and cooling

auxiliary equipment

maintenance

restrictions to parallel

operation

G037+G038+G039 Part 1/2/3+IS69

Page 232 to 270

www.highlightcomputer.com/VideoLessons.pdf

[Power System \(2\)](#)

[G037+G038+G039 Lesson 1-Power Flow.zip](#)

<http://youtu.be/mzwGGXRTtw>

[G037+G038+G039 Lesson 2-Site Earthing.zip](#)

<http://youtu.be/PATkXVBF9kc>

<http://youtu.be/H4Dj1K238BE>

[G037+G038+G039 Lesson 3-Power System Control Equipments.zip](#)

<http://youtu.be/JJczbYVWOoI>

[G037+G038+G039 Lesson 4-Auxiliary System+Harmonic.zip](#)

<http://youtu.be/5mDNHGFLA0c>

[G037+G038+G039 Lesson 5-Harmonic.zip](#)

<http://youtu.be/n41q4Rmz2p0>

<http://youtu.be/8CelGV5AEIk>

[G037+G038+G039 Lesson 6-Harmonic Calculation.zip](#)

<http://youtu.be/NHSzu6HkOqI>

<http://youtu.be/fSLrPIC6Mho>

[G037+G038+G039 Lesson 7-Synchronous Generator Loading.zip](#)

<http://youtu.be/jv1q7Mtq7Gs>

[G037+G038+G039 Lesson 8-Turbine Control+Power Line Earthing.zip](#)

<http://youtu.be/0CvgkmDE3Kw>

[G037+G038+G039 Lesson 9-Insulator.zip](#)

<http://youtu.be/l4jqs8MLBFA>

<http://youtu.be/TiQezIA9Z-c>

[G037+G038+G039 Lesson 10-Reliability of](#)

- harmonics issues and remedies
- testing and fault-finding procedures
- high voltage (HV) switchgear, including:
- protection and alarms

[Power System.zip](#)

<http://youtu.be/tlUk3nc1lxE>

[G037+G038+G039 Lesson 11-Harmonic Reduction.zip](#)

<http://youtu.be/8dYX-11kRcc>

<http://youtu.be/A684Agej8-w>

[G037+G038+G039 Lesson 12-Grounding + Power Quality.zip](#)

<http://youtu.be/QQPUj3WXJnA>

[G037+G038+G039 Lesson 13-Power Quality.zip](#)

http://youtu.be/fel7SCb_QTY

<http://youtu.be/mcK2YhDsnr0>

[G037+G038+G039 Lesson 14-Harmonic Model.zip](#)

<http://youtu.be/dwWBOq-BsLY>

[G037+G038+G039 Lesson 15-Harmonic Losses in Transformer.zip](#)

<http://youtu.be/mwEJgEEgPVc>

<http://youtu.be/1A6FY5f5ijM>

<http://youtu.be/yLiOKy7uJj0>

[G037+G038+G039 Lesson 16-Reliability Improvement.zip](#)

<http://youtu.be/cn-CfDWnUN8>

[G037+G038+G039 Lesson 17-Preparation for emergency.zip](#)

<http://youtu.be/La7Xip8GI2l>

[G037+G038+G039 Lesson 18-Harmonic problems.zip](#)

<http://youtu.be/0Urnkee>

http://youtu.be/zM_Xcwckicw

[G037+G038+G039 Lesson 19-Synchronous machine problems.zip](#)

<http://youtu.be/Lx2S-NATr20>

[G037+G038+G039 Lesson 20-Power Generation + Generator Control.zip](#)

<http://youtu.be/56Ks8sArQxc>

[G037+G038+G039 Lesson 21-Turbine Control+ Digital Excitation.zip](#)

<http://youtu.be/uCsvv18qKwQ>

<http://youtu.be/l4vCDI2CZS0>

[G037+G038+G039 Lesson 22-Power System Protection.zip](#)

<http://youtu.be/c6iXRwfCYBU>

[G037+G038+G039 Lesson 23-Switch Gear.zip](#)

<http://youtu.be/DDpbzgNYTiM>

<http://youtu.be/2cl-nOdBNro>

The links contain the following lessons

G037+G038+G039 Lesson 1-Power Flow

G037+G038+G039 Lesson 2-Site Earthing

G037+G038+G039 Lesson 3-Power System

Control Equipments

G037+G038+G039 Lesson 4-Auxiliary System+ Harmonic

G037+G038+G039 Lesson 5-Harmonic

G037+G038+G039 Lesson 6-Harmonic

Calculation

G037+G038+G039 Lesson 7-Synchronous Generator Loading

G037+G038+G039 Lesson 8-Turbine Control+ Power Line Earthing

G037+G038+G039 Lesson 9-Insulator

G037+G038+G039 Lesson 10-Reliability of Power System

G037+G038+G039 Lesson 11-Harmonic Reduction

G037+G038+G039 Lesson 12-Grounding + Power Quality

G037+G038+G039 Lesson 13-Power Quality

G037+G038+G039 Lesson 14-Harmonic Model

G037+G038+G039 Lesson 15-Harmonic Losses in Transformer

G037+G038+G039 Lesson 16-Reliability Improvement

G037+G038+G039 Lesson 17-Preparation for emergency

G037+G038+G039 Lesson 18-Harmonic problems

G037+G038+G039 Lesson 19-Synchronous machine problems

G037+G038+G039 Lesson 20-Power Generation + Generator Control

G037+G038+G039 Lesson 21-Turbine Control+ Digital Excitation

G037+G038+G039 Lesson 22-Power System

Protection
G037+G038+G039 Lesson 23-Switch Gear

- Name
- 📁 ESI 25-27-31-32 Part 2 Installation an...
- 📁 ESI 25-27-31-32 Part 3 Electrical Dra...
- 📁 ESI 25-27-31-32 Part 4 Data Com and...
- 📁 ESI 25-27-31-32 Part 5 Installation W...
- 📁 ESI 25-27-31-32 Part 6 Switching 1+2...
- 📁 ESI 25-27-31-32 Part 7 Switching 3+4...
- 📁 ESI 25-27-31-32 Part 8a Electrical Inst...
- 📁 ESI 25-27-31-32 Part 8b Electrical Inst...
- 📁 ESI 25-27-31-32 Part 9 Electrical Insta...
- 📁 ESI 25-27-31-32 Part 10.zip
- 📁 ESI 27.1 Arts and Science of Protective ...
- 📁 ESI 27.2 Arts and Science of Protective ...
- 📁 ESI 27.3 Arts and Science of Protective ...
- 📁 ESI 27.4Circuit Breaker 1.zip
- 📁 ESI 27.5 Circuit Breaker 2.zip
- 📁 ESI 28.1 Power Accessories 1.zip
- 📁 ESI 28.2 Power Accessories 2.zip
- 📁 ESI 28.3 Power Accessories 3.zip
- 📁 ESI 28.4 Power Accessories 4.zip

- 📁 ESI 28.4 Power Accessories 4.zip
- 📁 ESI 28.5 Power Accessories 5.zip
- 📁 ESI 28.6 Power Accessories 6.zip
- 📁 ESI 33.1 Power Quality Concept.zip
- 📁 ESI 33.2 Harmonic in capacitor.zip
- 📁 ESI 33.3 Harmoniceffect on machin
- 📁 ESI 33.4 Harmonic in synchronous i
- 📁 ESI 33.5 Harmonic in transformer.d
- 📁 ESI 33.6 Power Quality Improvemen
- 📁 ESI 33.7 Power Quality Improvemen
- 📁 ESI 33.8 Power Quality Improvemen
- 📁 ESI 33.9 Power Quality Improvemen
- 📁 ESI 34.1 Power Eght Commissionin
- 📁 ESI 34.2 Power Eght Commissionin
- 📁 ESI 34.3 Power Eght Commissionin
- 📁 ESI 34.4 Power Eght Commissionin
- 📁 ESI 34.5 Power Eght Commissionin
- 📁 ESI 34.6 Power Eght Commissionin
- 📁 ESI 34.7 Power Eght Commissionin

- operating limitations
- protection device rating
- switching equipment and practices
- paralleling requirements
- isolation and earthing procedures
- common distribution faults
- automation systems, including:
 - function
 - main components
 - operation procedure
 - layout principles for a distribution substation including:
 - relationship to overall power system
 - purpose
 - location
 - equipment layout
 - fire and oil management, including
 - bund design
 - flame traps
 - oil/water separation systems.



	<p>KNOWLEDGE ASSESSMENT</p> <p>The lessons are provided in the online link https://www.iqytechnicalcollege.com/Form71ESILesson.htm as well as the documents contained in the folder</p> <p>Test Questions and Exercises</p> <p>ESI Exercises</p>

UETDRDS020 Design overhead distribution systems

<p>1 Prepare to design overhead distribution systems 1.1 Project requirements are determined</p>	<p>OH Line Design Reference –Electrical Distribution AA Type Note 3 and 4 Determination of required OH Line and Pole Design</p>
<p>1.2 Design specifications are determined in accordance with workplace requirements</p>	<p>Stress , Strain, Bending Moment, Shear Force, Air Pressure , Conductor weight determination Assessment Technical Problems</p>
<p>1.3 Tools, equipment and personal protective equipment (PPE) required for site inspections are determined, obtained and confirmed in working order</p>	<p>OH Line Construction Tools and materials list determination Reference OH Equipment Electrical Distribution Assessment Tools and materials list preparation for electrical distribution</p>
<p>1.4 Requirements for site inspections are determined in accordance with workplace requirements</p>	<p>AA_typed_note_8 Line survey+Site Inspection Assessment Line survey action</p>
<p>1.5 Work is prioritised and sequenced for completion in accordance with workplace requirements</p>	<p>New South Wales Standard Electricity Service & Installation Rules</p>
<p>2 Design overhead distribution systems 2.1 Site inspection is performed</p>	<p>AA_typed_note_8 Line survey+Site Inspection Assessment Line survey action</p>
<p>2.2 Overhead distribution systems are designed in</p>	<p>Line Design Project</p>

accordance with workplace requirements	
2.3 Systems modelling is used to evaluate and determine best outcomes in accordance with workplace requirements	Line Design Project Use of mathematical parameter
2.4 Environmental sustainability principles are used to evaluate and determine best outcomes in accordance with workplace requirements	Environmental impact assessment Wind load, Ice on conductor, Tension, Stress, Sag., Ground clearance Assessment Various problems
2.5 Design is checked for compliance against legislation, regulations, standards and codes of practice	Design check
2.6 Health and safety risks are identified and minimised or eliminated by using safety and control measures in the design process	Electrical Safety Rules Electricity hazards and safety Guide Assessment Outline the hazards and prepare the control action Risk assessment and prevention plan
2.7 Quality checks of work are undertaken in accordance with workplace requirements	Quality Check
3 Complete work and documentation 3.1 Completed work is checked against project and workplace requirements	Project Check
3.2 Work records, reports and documentation are completed, approved and appropriate personnel notified in accordance with workplace requirements	Preparation of design report with necessary diagrams
Performance Evidence Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and	Design 1-OH Line Design Calculations Design 2- OH Line Design Drawing Plus

performance criteria on at least two (2) separate occasions and include:

- designing of overhead distribution systems, including:
 - specifications
 - requirements for site inspection
 - systems modelling to evaluate and determine best outcomes
 - sustainable energy principles and practices
 - compliance against legislation, regulations, standards and codes of practice, project and workplace requirements
 - identifying minimising or eliminating health and safety risks by using safety and control measures
 - environmental sustainability principles
 - obtaining, inspecting and using relevant personal protective equipment (PPE) for site inspection
 - prioritising and sequencing work for completion in accordance with workplace requirements
 - performing at least one (1) site inspection
 - performing ongoing quality checks of work in accordance with workplace requirements
 - checking final design against project and workplace requirements
 - completing relevant work records, reports and documentation
 - completing six (6) overhead distribution or sub-transmission system designs for at least three (3) of the following:
 - residential subdivision developments
 - industrial/commercial subdivision developments
 - upgrade/alteration to existing assets
 - multi-pole extensions
 - in-line pole relocations

[http://www.iqytechnicalcollege.com/UEE62122 Advanced Diploma in Engineering Technology-Electrical+UEE62220 Exercises.pdf](http://www.iqytechnicalcollege.com/UEE62122%20Advanced%20Diploma%20in%20Engineering%20Technology-Electrical+UEE62220Exercises.pdf)

Page 116 to 132 Work Performance Problems

<https://www.iqytechnicalcollege.com/ASPLevel2.htm>

Topic 2 Class 2 C Level 2 Electrician OH Line

<ul style="list-style-type: none"> <input type="checkbox"/> multi-circuit overhead lines <input type="checkbox"/> completing all of the following for each design: . 	
<p>Knowledge Evidence</p> <p>Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and include knowledge of:</p> <ul style="list-style-type: none"> <input type="checkbox"/> overhead distribution systems design, including: <input type="checkbox"/> project requirements <input type="checkbox"/> design specifications <input type="checkbox"/> hazard, risk assessment and risk control requirements, including potential hazards <input type="checkbox"/> types and application of PPE <input type="checkbox"/> site inspections <input type="checkbox"/> prioritisation and sequencing of work for completion <input type="checkbox"/> use of systems modelling to evaluate and determine best outcomes <input type="checkbox"/> application of environmental sustainability principles and practices <input type="checkbox"/> compliance with legislation, regulations, standards, codes of practice, and project and workplace requirements <input type="checkbox"/> work records, reports and documentation <input type="checkbox"/> distribution infrastructure, including: <input type="checkbox"/> manuals and diagrams <input type="checkbox"/> residential subdivision developments <input type="checkbox"/> industrial/commercial subdivision developments <input type="checkbox"/> upgrade/alteration to existing assets <input type="checkbox"/> multi-pole extensions <input type="checkbox"/> in-line pole relocations <input type="checkbox"/> multi-circuit overhead lines <input type="checkbox"/> construction types, structures and clearances <input type="checkbox"/> material lists, conductor size, type and route length <input type="checkbox"/> control procedures and documents, including: 	<p>AA.zip</p> <p>www.highlightcomputer.com/G015-AA Mod.zip</p> <p>G015/ IS67+68+ IS74</p> <p>Page 196 to 231 of</p> <p>www.highlightcomputer.com/Video Lessons.pdf</p> <p>Power System (1)</p> <p>G015(AA)Lesson 1-Distribution system.zip http://youtu.be/VuzjXkRx4UI</p> <p>G015(AA)Lesson 2-Demand factor.zip http://youtu.be/cUGbxhBT-Dc</p> <p>http://youtu.be/DCCl4cO3Vu8</p> <p>G015(AA)Lesson 3-Sag.zip http://youtu.be/1s496h-luu8</p> <p>G015(AA)Lesson 4-OH Line mechanical design.zip http://youtu.be/T0BnyqV9T6E</p> <p>http://youtu.be/hu1TrUv2_OY</p> <p>G015(AA)Lesson 5-UG Cable.zip http://youtu.be/hHCLzMnVmT0</p> <p>http://youtu.be/A5AieaBBZHo</p> <p>G015(AA)Lesson 6-Voltage control.zip http://youtu.be/y1vTM5fvfyU</p> <p>http://youtu.be/Z9HBGsVqymA</p>

- | | |
|---|--|
| <ul style="list-style-type: none"><input type="checkbox"/> design control checklists<input type="checkbox"/> common design errors<input type="checkbox"/> rectification of errors<input type="checkbox"/> layout principles for overhead distribution, including determination of:<ul style="list-style-type: none"><input type="checkbox"/> conductor size, type and route length<input type="checkbox"/> materials, equipment and tools<input type="checkbox"/> component types, quantities and costing<input type="checkbox"/> component and equipment spacing<input type="checkbox"/> resources required for stringing and maintenance of conductors<input type="checkbox"/> types and characteristics of poles and associated equipment <p>Assessment Requirements for UETDRDS020 Design overhead distribution systems</p> <ul style="list-style-type: none"><input type="checkbox"/> buried services and other infrastructure, including:<ul style="list-style-type: none"><input type="checkbox"/> telecommunications<input type="checkbox"/> power<input type="checkbox"/> water<input type="checkbox"/> sewerage<input type="checkbox"/> gas<input type="checkbox"/> calculation of voltage drop in relation to length of cable run<input type="checkbox"/> methods of joining and terminating conductors<input type="checkbox"/> techniques in the installation of conductors<input type="checkbox"/> techniques in location of conductor faults<input type="checkbox"/> techniques in conductor drawing<input type="checkbox"/> principles of computer-aided drafting. | |
|---|--|

UETDRDS022 Design underground distribution systems

<p>1 Prepare to design Underground distribution systems 1.1 Project requirements are determined</p>	<p>OH Line Design Reference –Electrical Distribution AA Type Note 5+6 Determination of required UG Line and Pole Design</p>
<p>1.2 Design specifications are determined in accordance with workplace requirements</p>	<p>Assessment Technical Problems</p>
<p>1.3 Tools, equipment and personal protective equipment (PPE) required for site inspections are determined, obtained and confirmed in working order</p>	<p>UGLine Construction Tools and materials list determination Reference UG Equipment Electrical Distribution Assessment Tools and materials list preparation for electrical distribution</p>
<p>1.4 Requirements for site inspections are determined in accordance with workplace requirements</p>	<p>AA_typed_note_5+6 Line survey+Site Inspection Assessment Line survey action</p>
<p>1.5 Work is prioritised and sequenced for completion in accordance with workplace requirements</p>	<p>New South Wales Standard Electricity Service & Installation Rules</p>
<p>2 Design Underground distribution systems 2.1 Site inspection is performed</p>	<p>AA_typed_note_5 + 6 Line survey+Site Inspection Assessment Line survey action</p>
<p>2.2 Underground distribution systems are designed in accordance with workplace</p>	<p>Line Design Project</p>

requirements	
2.3 Systems modelling is used to evaluate and determine best outcomes in accordance with workplace requirements	Line Design Project Use of mathematical parameter
2.4 Environmental sustainability principles are used to evaluate and determine best outcomes in accordance with workplace requirements	Environmental impact assessment Stress in UG Cable, Cable fault, Line Capacitance, UG Line protection Assessment Various problems
2.5 Design is checked for compliance against legislation, regulations, standards and codes of practice	Design check
2.6 Health and safety risks are identified and minimised or eliminated by using safety and control measures in the design process	Electrical Safety Rules Electricity hazards and safety Guide Assessment Outline the hazards and prepare the control action Risk assessment and prevention plan
2.7 Quality checks of work are undertaken in accordance with workplace requirements	Quality Check
3 Complete work and documentation 3.1 Completed work is checked against project and workplace requirements	Project Check
3.2 Work records, reports and documentation are completed, approved and appropriate personnel notified in accordance with workplace requirements	Preparation of design report with necessary diagrams
Performance Evidence Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria on at least two (2)	Design 1-UG Line Design Calculations Design 2- UG Line Design Drawing Plus

separate occasions and include:

- designing underground distribution systems, including:
 - specifications
 - requirements for site inspection
 - systems modelling to evaluate and determine best outcomes
 - sustainable energy principles and practices
 - compliance against legislation, regulations, standards and codes of practice, project and workplace requirements
 - identifying, minimising or eliminating health and safety risks by using safety and control measures
 - environmental sustainability principles
 - obtaining, inspecting and using relevant personal protective equipment (PPE) for site inspection
 - prioritising and sequencing work for completion in accordance with workplace requirements
 - performing at least one (1) site inspection
 - performing ongoing quality checks of work in accordance with workplace requirements
 - checking final design against project and workplace requirements
 - completing relevant work records, reports and documentation
 - completing six (6) underground distribution or sub-transmission system designs for at least three (3) of the following:
 - residential subdivision developments
 - industrial/commercial subdivision developments
 - upgrade/alteration to existing assets
 - underground supplies to customers
 - completing for each of the designs:
 - a design control checklist

[http://www.iqytechnicalcollege.com/UEE62122 Advanced Diploma in Engineering Technology-Electrical+UEE62220 Exercises.pdf](http://www.iqytechnicalcollege.com/UEE62122%20Advanced%20Diploma%20in%20Engineering%20Technology-Electrical+UEE62220Exercises.pdf)

Page 116 to 132 Work Performance Problems

[https://www.iqytechnicalcollege.com/ASPLLevel2.htm](https://www.iqytechnicalcollege.com/ASPLevel2.htm)

Topic 2 Class 2 B Level 2 Electrician UG Line

<input type="checkbox"/> rectifying errors.	
<p>Knowledge Evidence</p> <p>Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:</p> <ul style="list-style-type: none"> <input type="checkbox"/> underground distribution systems design, including: <ul style="list-style-type: none"> <input type="checkbox"/> project requirements <input type="checkbox"/> design specifications <input type="checkbox"/> hazard, risk assessment and risk control requirements, including potential hazards <input type="checkbox"/> types and application of PPE <input type="checkbox"/> site inspections <input type="checkbox"/> prioritisation and sequencing of work for completion <input type="checkbox"/> use of systems modelling to evaluate and determine best outcomes <input type="checkbox"/> application of sustainable energy principles and practices <input type="checkbox"/> compliance with legislation, regulations, standards, codes of practice, and project and workplace requirements <input type="checkbox"/> work records, reports and documentation <input type="checkbox"/> distribution infrastructure, including: <ul style="list-style-type: none"> <input type="checkbox"/> manuals, diagrams and drawings <input type="checkbox"/> residential subdivision developments <input type="checkbox"/> industrial/commercial subdivision developments <input type="checkbox"/> upgrade/alteration to existing assets <input type="checkbox"/> underground supplies to customers <input type="checkbox"/> material lists, cable size, type and route length <input type="checkbox"/> control procedures and documents, including: <ul style="list-style-type: none"> <input type="checkbox"/> design control checklists <input type="checkbox"/> common design errors <input type="checkbox"/> rectification of errors <input type="checkbox"/> layout principles for underground distribution, including determination of: <ul style="list-style-type: none"> <input type="checkbox"/> cable size, type and route length <input type="checkbox"/> materials, equipment and tools 	<p>AA.zip</p> <p>www.highlightcomputer.com/G015-AA Mod.zip</p> <p>G015/ IS67+68+ IS74</p> <p>Page 196 to 231 of</p> <p>www.highlightcomputer.com/Video Lessons.pdf</p> <p>Power System (1)</p> <p>G015(AA)Lesson 1-Distribution system.zip http://youtu.be/VuzjXkRx4UI</p> <p>G015(AA)Lesson 2-Demand factor.zip http://youtu.be/cUGbxhBT-Dc</p> <p>http://youtu.be/DCCL4cO3Vu8</p> <p>G015(AA)Lesson 3-Sag.zip http://youtu.be/1s496h-luu8</p> <p>G015(AA)Lesson 4-OH Line mechanical design.zip http://youtu.be/T0BnyqV9T6E</p> <p>http://youtu.be/hu1TrUv2_OY</p> <p>G015(AA)Lesson 5-UG Cable.zip http://youtu.be/hHCLzMnVmT0</p> <p>http://youtu.be/A5AieaBBZHo</p> <p>G015(AA)Lesson 6-Voltage control.zip http://youtu.be/y1vTM5fvfyU</p> <p>http://youtu.be/Z9HBGsVgymA</p>

- component types, quantities and costing
 - component and equipment spacing
 - installation considerations for underground cable including:
 - workplace requirements
 - excavation and trench safety regulations
 - gas detection procedures
 - working in confined spaces
 - PPE requirements
 - liquified gas equipment hazards
 - testing procedures for liquified gas equipment
- Assessment Requirements for UETDRDS022 Design underground distribution systems
Date this document was generated: 31 January 2025
Approved Page 244 of 1738
© Commonwealth of Australia, 2025
Powering Skills Organisation
- buried services and other infrastructure, including:
 - telecommunications
 - power
 - water
 - sewerage
 - gas
 - trench excavation and reinstatement procedures
 - calculation of voltage drop in relation to length of cable run
 - techniques for reducing electrical stress on cables
 - cable derating factors
 - methods for joining and terminating cables
 - techniques for the installation of cables above and below ground
 - techniques for cable testing and the location of cable faults
 - techniques for cable drawing.

Elements and Performance Criteria

ELEMENTS PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

<p>1 Prepare to work safely in 1.1 Legislation, regulations, standards, codes of practice and UETDREL005 Work safely in the vicinity of live electrical apparatus Date this document was generated: 31 January 2025 the vicinity of live electrical apparatus organisational workplace requirements for the work to be performed are referred to and confirmed</p>	<p>http://www.iqytechnicalcollege.com/Codes of Practice_Safe Work Australia.pdf</p> <p>Test Q5 Q11</p>
<p>1.2 Plant, tools, equipment and personal protective equipment (PPE) required for work are determined, obtained and confirmed in working order</p>	<p>www.iqytechnicalcollege.com/IC-Electrical-Work-Plan-8538-PDF.pdf</p> <p>www.iqytechnicalcollege.com/Electrical Installation Materials.pdf</p> <p>Test Q10</p>
<p>1.3 Hazards are identified, risks</p>	<p>www.iqytechnicalcollege.com/mcop-managing-electrical-risks in the workplace-v1.pdf</p>

assessed and control measures identified and applied	Test Q1
1.4 Work permits are received and signed in accordance with workplace requirements	www.iqytechnicalcollege.com/Electrical-Work-Permit.PDF Test Q5
1.5 Safe approach distances for the work to be performed are determined and confirmed in accordance with workplace requirements	www.iqytechnicalcollege.com/Electrical-Work-Permit.PDF www.iqytechnicalcollege.com/Australias-Energy-Networks_2021_05.pdf www.iqytechnicalcollege.com/overhead-underground-electric-lines-general-guide.pdf www.iqytechnicalcollege.com/Work-near-overhead-power-lines-code-of-practice.pdf Test Q20
1.6 Safety observer role and responsibilities are discussed and confirmed in accordance with workplace requirements 1.7 Communication method between the workers and safety observer is determined and confirmed in accordance with workplace requirements	www.iqytechnicalcollege.com/electrical-system-safety-rules-20201222.pdf www.iqytechnicalcollege.com/electrical-system-safety-rules-20201222.pdf http://www.iqytechnicalcollege.com/10 Ways to Communicate Safety Standards at Your Company.pdf Q22+23+24
1.8 Worksite is prepared in accordance with the work plan	www.iqytechnicalcollege.com/Construction-work-COP.pdf

and workplace requirements	
2 Work safely in the vicinity of live electrical apparatus	http://www.iqytechnicalcollege.com/Law and regulation Safe Work Australia.pdf
2.1 Legislation, regulations, standards, codes of practice and organisational workplace requirements for the work to be performed are applied and monitored	http://www.iqytechnicalcollege.com/Codes of Practice Safe Work Australia.pdf Q14+Q129
2.2 Lifting, working at heights and the use of plant, tools and equipment are carried out in accordance with workplace requirements	http://www.iqytechnicalcollege.com/electricaltrade2022.htm#E101A Working at Height Quizzes
2.3 Hazard control measures are monitored in accordance with workplace requirements	http://www.iqytechnicalcollege.com/electricaltrade2022.htm#E101A Hazard Control Quizzes
2.4 Safety observer is positioned to observe the work in accordance with workplace requirements	www.iqytechnicalcollege.com/electrical-system-safety-rules-20201222.pdf www.iqytechnicalcollege.com/electrical-system-safety-rules-20201222.pdf Test Q22
2.5 Communication methods between	http://www.iqytechnicalcollege.com/10 Ways to Communicate Safety Standards at Your Company.pdf

workers and safety observer are used in accordance with workplace requirements	Q23+24+32
2.6 Safe approach distances are maintained when the work is being performed in the vicinity of live electrical apparatus	www.iqytechnicalcollege.com/Electrical-Work-Permit.PDF www.iqytechnicalcollege.com/Australias-Energy-Networks_2021_05.pdf www.iqytechnicalcollege.com/overhead-underground-electric-lines-general-guide.pdf www.iqytechnicalcollege.com/Work-near-overhead-power-lines-code-of-practice.pdf Q26
2.7 Incidents or unplanned events are responded to in accordance with workplace requirements	http://www.iqytechnicalcollege.com/mcop-managing-electrical-risks_in_the_workplace-v1_(1).pdf Q24 Live Rescue UETDRRF04 Unit Practices
3 Complete work and documentation	
3.1 Incidents or unplanned events are reported in accordance with workplace requirements	http://www.iqytechnicalcollege.com/Report_an_incident_-_Energy_Safe_Victoria.pdf Q3+21+27
3.2 Work permits are signed off in accordance with workplace requirements	www.iqytechnicalcollege.com/7b0aea25-17b0-4f21-af01-2c6de6065eba.pdf Class Discussion
3.3 Worksite is rehabilitated, cleaned and made safe in	www.iqytechnicalcollege.com/CCEW_template.pdf Class Discussion

accordance with workplace requirements	
3.4 Plant, tools and equipment are cleaned, checked and returned to storage in accordance with workplace requirements	Policy Documents Examples UETDREL005 Workbook Exercises
3.5 Work records, reports and documentation are completed in accordance with workplace requirements Foundation Skills	Policy Documents Examples UETDREL005 Workbook Exercises
Evidence required to demonstrate competence in this unit must be relevant to and satisfy all requirements of the elements and performance criteria on at least two separate occasions and include: <ul style="list-style-type: none"> applying relevant legislation, regulations, standards, codes of practice and organisational workplace requirements, including: work health and safety (WHS)/occupational health and safety (OHS) identifying hazards, assessing risks, identifying, applying and monitoring control 	https://www.youtube.com/watch?v=wal2KP1bbIY https://www.youtube.com/watch?v=hLbMk4UyvmE https://www.youtube.com/watch?v=StHT-MCitmY https://www.youtube.com/watch?v=fllM_4G-W-l https://www.youtube.com/watch?v=WNot2owlv8c https://www.worksafe.qld.gov.au/resources/videos/films/electrical-safety-for-apprentices https://www.safeworkaustralia.gov.au/resources-and-publications/video-and-audio/electrical-safety-protecting-you-and-your-workmates https://www.safework.nsw.gov.au/hazards-a-z/electrical-and-power/electrical-work https://esv.vic.gov.au/campaigns/never-work-live/

<p>measures obtaining, inspecting and using relevant personal protective equipment (PPE) determining communication method with safety observer confirming safety observer is in position in accordance with workplace requirements determining electricity network voltages, including: low voltage (LV) high voltages (HV): distribution sub-transmission transmission identifying electricity network assets determining and confirming safe approach distances performing work while maintaining the personal safe approach distance obtaining and signing on and off relevant work permits in accordance with workplace requirements dealing with an unplanned event on at least one (1) occasion completing relevant work records, reports and documentation.</p>	<p>https://www.youtube.com/watch?v=StHT-MCitmY</p>
<p>Knowledge Evidence Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:</p>	<p>UETDREL005 Workbook</p>

relevant
legislation, regulations
standards, codes of
practice and
organisational
workplace

requirements,
including:

WHS/OHS

safe approach

distances

emergency

procedures

hazard, risk

assessment and risk

control requirements,

including potential

hazards

types and

application of PPE

safe use of tools

and equipment

application,

purpose and types of

permits

events constituting

an unplanned event

or incident

procedures for

responding to an

unplanned event or

incident

safety observer:

role and

responsibilities

communication

methods

basic electrical

principles, including:

voltage, current

and resistance

typical effects of

current, including

physiological effects

and induced voltages

consequences of

short circuits,

including arc flash

and touch and step

potentials

electricity

networks, including:

LV

HV:

distribution

sub-transmission

transmission

earthing systems

associated assets

layouts and configuration basic protection relationship between an overhead and underground supply system terminology related to working safely in the vicinity of live electrical apparatus.	
Performance Evidence	