

Assessment Mapping - Template

(streamlined training package)

This template to be used for “new” endorsed streamlined training packages.

Instruction for use: These instructions in RED should be deleted from the completed document. Instructions in **BLUE** should be written over with appropriate information.

- This template is to be completed by the assessment developer to ensure the assessments meet the training package requirements for the unit of competency.
- It must be used during the assessment validation process.
- Record of this document must be retained in the faculty TAS teamshare teaching section.
- Add rows and columns as required below.

This document should be viewed concurrently with K151A Assessment Mapping+Performance .pdf

Click [HERE](#)

Faculty:		College:	
Teaching Section:	Electrical Engineering		
Qualification Number and Name:	Advanced Diploma of Electrical Engineering		
Unit of Competency Number and Name:	UEENEEK151A Develop effective engineering strategies for energy reduction in buildings		

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Copy and paste the following table for each element as required

Elements & Performance Criteria			Assessment event(s)		
Element(s)	PC No	Performance Criteria (PC)	Assessment event 1 Written Test	Assessment event 2 Practical & Observation	Assessment event 3 Assignment
1.Prepare to develop strategies for effective energy reduction in buildings	1.1	OHS procedures for a given work area are identified, obtained and understood	Q1 of K151A Assessment Mapping+ Performance .pdf (Page 1)		
	1.2	Established OHS risk control measures and procedures are followed in preparation for the work	Q2 of K151A Assessment Mapping+ Performance .pdf (Page 1)		
	1.3	The extent of evaluation is determined from specifications of building(s) and services, plant and machinery and discussed with appropriate personnel	Q1 ,2, 5 of Test 1		
	1.4	Advice is sought from the work supervisor to ensure the work is coordinated effectively with others		Observation Assessment Mapping+ Performance .pdf (Page 2)	
	1.5	Tools, testing devices, and materials needed to carryout the work are obtained and checked for correct operation and safety	Q3, 4 of Test 1		
2 Develop strategies for effective energy reduction in buildings.	2.1	OHS risk control measures and procedures for carrying out the work are followed	Q2 of K151A Assessment Mapping+ Performance .pdf (Page 3)		

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Elements & Performance Criteria			Assessment event(s)		
Element(s)	PC No	Performance Criteria (PC)	Assessment event 1 Written Test	Assessment event 2 Practical & Observation	Assessment event 3 Assignment
	2.2	Tests and measurements are carried out in strict accordance with OHS requirements safety procedures	Q6, 8 of Test 2		
	2.3	In-depth knowledge of the energy use of building services, plant and machinery is applied to the evaluation process	Q1a of Test 2	Practical (1) Measure energy usage in the building .	Advanced Diploma in Electrical Engineering Exercises (Page 271/272) Q1 to 27
	2.4	Energy evaluation tests are set up in accordance with established test methods and procedures for each particular parameter under scrutiny	Q3,4 of Test 2		Advanced Diploma in Electrical Engineering Exercises (Page 271/272) Q62 to 72
	2.5	Strategies to reduce energy use with compromising occupancy standards are developed from knowledge of energy management and evaluation			Advanced Diploma in Electrical Engineering Exercises (Page 271/272) Q84 to 102
	2.6	Unexpected situations are dealt with safely and with the approval of an authorised person		Q4 of K151A Assessment Mapping+ Performance .pdf (Page 10)	
	2.7	Evaluation is carried out without damage to systems, circuits, the surrounding environment or services and using sustainable energy practice		Observation – Practical 2 Solar panel installation practical	
3 Document and report strategies for effective energy	3.1	OHS work completion risk control measures and procedures are followed	As per 1.1 & 1.2		

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Elements & Performance Criteria			Assessment event(s)		
Element(s)	PC No	Performance Criteria (PC)	Assessment event 1 Written Test	Assessment event 2 Practical & Observation	Assessment event 3 Assignment
reduction in buildings					
	3.2	Work site is cleaned and made safe in accordance with established procedures		Observation – Housekeeping Activity	
	3.3	Results of energy use evaluation and recommended strategies and their criterion for energy reduction are documented in accordance with established procedures			Advanced Diploma in Electrical Engineering Exercises (Page 271/272) Q103 to 115
	3.4	Energy reduction report is forwarded to appropriate persons		Practical 3-Preparing energy reduction plan report	

Add rows to the following table as required

Performance Evidence	Assessment event 1 Written Test	Assessment event 2 Practical & Observation	Assessment event 3 Assignment
Risk assessment in installing solar panel on rooftop	Q1,2 of K151A Assessment Mapping+ Performance .pdf (Page 1)		
Passive solar design, Assessing comfort conditions			Advanced Diploma in Electrical Engineering Exercises (Page 271/272) Q1 to 27

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Performance Evidence	Assessment event 1 Written Test	Assessment event 2 Practical & Observation	Assessment event 3 Assignment
Ventilation system design & application of psychrometric chart, Determination of energy usage			Advanced Diploma in Electrical Engineering Exercises (Page 271/272) Q62 to 72
Measure energy usage in the building		Practical 1	
Solar panel installation		Practical 2	
Design for climate, Determining Solar effect & wind condition.			Advanced Diploma in Electrical Engineering Exercises (Page 271/272) Q84 to 102
Matching solar panel to load		Q4 of K151A Assessment Mapping+ Performance .pdf (Page 10)	
Energy use evaluation and recommended strategies			Advanced Diploma in Electrical Engineering Exercises (Page 271/272) Q103 to 115
Energy reduction report preparation		Practical 3	

Add rows to the following table as required

Knowledge Evidence	Assessment event 1 Written Test	Assessment event 2 Practical & Observation	Assessment event 3 Assignment

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Knowledge Evidence	Assessment event 1 Written Test	Assessment event 2 Practical & Observation	Assessment event 3 Assignment
T1 Climate and thermal comfort	Test 2 Q6		
T2 Solar geometry and radiation	Test 1 Q2		
T3 Heat transfer	Test 1 Q1 & Q6		
T4 Glazing Systems	Test 1 Q2		
T5 Insulation	Test 1 Q1 & Q5		
T6 Thermal mass	Test 1 Q1 & Q7		
T7 Comfort control strategies	Test 2 Q1a, Q6,Q7		
T8 Energy efficiency in buildings + T11 Energy rating schemes			Advanced Diploma in Electrical Engineering Exercises (Page 271/272) Q103 to 115
T10 Integration of active solar system			Advanced Diploma in Electrical Engineering Exercises (Page 271/272) Q84 to 102
T12 Sustainable and safe building materials			Advanced Diploma in Electrical Engineering Exercises (Page 271/272) Q56 to 67

Assessment Conditions	Assessment event 1 Written Test	Assessment event 2 Practical & Observation	Assessment event 3 Assignment
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Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the welectrical workshop K2.11. Application of safe working practice & regarding the housekeeping rules are to be observed. Emergency procedures are to be informed. Safety equipments & first aids equipments are to be available. The students get the access to <ul style="list-style-type: none"> • Relevant practical equipments • Records relating to electrical engineering resources 	Test 1+2	Practical 1,2,3	All assignments

Created by (Name)	U Kyaw Naing (Joe)	Date created	16 August 2016
Approved by (Name)		Date approved	
Signature		Date modified	

UEENEEK151A

Develop effective engineering strategies for energy reduction in buildings

ASSESSMENT QUESTIONS & TESTS ARE BASED ON THE FOLLOWINGS, THEY ARE MODIFIED, EXTRACTED SOME PARTS, APPLIED THE SIMILAR ONES, ALTER AND UTILIZED IN ASSESSMENT TASKS & THEORY TESTS FROM TIME TO TIME.

1 Prepare to develop strategies for effective energy reduction in buildings

1.1 OHS procedures for a given work area are identified, obtained and understood

Q1. To install the solar panel on the roof top, outline the OHS aspects to be concerned.

Marking Guide+Question (4 marks)

- Precaution regarding working at height
- Precaution against electrocution due to panel terminal
- Precaution on insulation & heat resistance to protect heating
- Ensure the strength of roof trusses to withstand the weight of equipments and workmen.

1.2 Established OHS risk control measures and procedures are followed in preparation for the work

Q2. List the risk level associated with the tasks in the following table from 1 to 6. 1=The most serious, 6=least serious

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[Type here]

Injury caused by falling down from the height	
Electrical fire caused by overheating of solar panels	
No matching of solar panel and inverter	
Electrical interruption when sun set due to lack of battery.	
Equipments damage due to electrical surge	
Appearance of solar panel	

Marking Guide+Question (6 marks)

Injury caused by falling down from the height	1
Electrical fire caused by overheating of solar panels	2
No matching of solar panel and inverter	4
Electrical interruption when sun set due to lack of battery.	6
Equipments damage due to electrical surge	3
Appearance of solar panel	5

1.3 The extent of evaluation is determined from specifications of building(s) and services, plant and machinery and discussed with appropriate personnel

Test 1 Question

Q1+Q2+Q5

1.4 Advice is sought from the work supervisor to ensure the work is coordinated effectively with others

Observation (10 marks)

The practical tasks will be performed by 2 teams

Duties of team 1

Determine total electrical usage by all electrical equipments in a home

Duties of team 2

Estimate the appropriate size of solar panel to meet the electrical usage

The co-ordination between two teams will be assessed.

1.5 Tools, testing devices, and materials needed to carryout the work are obtained and checked for correct operation and safety

Test 1 Q3+4

Location of Evidences (Table 1)

Performnce Criteria	Above	Location of Evidences
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[Type here]

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Marking Guide/ Assessment Cover/ Feedback own record		Record2016/Students/TAFE/Sem 1-2016/Sem1 2016 Students work Assessment 1/K151 Assessment 1/Question Marking scheme Record2016/Students/TAFE/Sem 1-2016/Sem1 2016 Students work Assessment 1/K151 Assessment 1/ Assessment Cover Sheet Record2016/Students/TAFE/Sem 1-2016/Sem1 2016 Students work Assessment 1/K151 Assessment 1/ Assessment Feedback Sheet
Students' work in own record	Summative Assessment- Formal Tests	Record2016/Students/TAFE/Sem 1-2016/Sem1 2016 Students work Assessment 1/K151 Assessment 1/Student Work
	Formative Assessment/Practical+ Class works	Record2016/Students/TAFE/Sem 1-2016/Sem1 2016 Students work Assessment 2/K151 Assessment 2 /Student Work Record2016/Students/TAFE/Sem 1-2016/Sem1 2016/Sem 1 Part 1 2016 Attendance Records+Record Books
Marking Guide to be presented for audit		In attached USB/DVD/CD Attached Some documents in team share UEE11-1.5 Printed documents
Students' work to be presented for audit		In attached USB/DVD/CD Attached Some documents in team share UEE11-1.5 Printed documents

2 Develop strategies for effective energy reduction in buildings.

2.1 OHS risk control measures and procedures for carrying out the work are followed

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Q3. Match the OHS risk & control activities

Injury caused by falling down from the height	Matching solar panel rating & inverter rating
Electrical fire caused by overheating of solar panels	Fall prevention system is utilized
No matching of solar panel and inverter	Design & arrangement according to plan
Electrical interruption when sun set due to lack of battery.	Installation of back up battery
Equipments damage due to electrical surge	Use of insulators under solar panel & proper air ventilation
Appearance of solar panel	Surge protector is applied

Marking Guide+Question (6 marks)

Injury caused by falling down from the height	Fall prevention system is utilized
Electrical fire caused by overheating of solar panels	Use of insulators under solar panel & proper air ventilation
No matching of solar panel and inverter	Matching solar panel rating & inverter rating
Electrical interruption when sun set due to lack of battery.	Installation of back up battery
Equipments damage due to electrical surge	Surge protector is applied
Appearance of solar panel	Design & arrangement according to plan

2.2 Tests and measurements are carried out in strict accordance with OHS requirements safety procedures

Test 2 Question 6+8

Advanced Diploma in Electrical Engineering Exercises (Page 273)

(3) Solar calculation , thermodynamic principle

Slide 1

Q35.Sketch solar irradiation diagram

Slide 2

Q36.Write the equation to calculate solar irradiation.

2.3 In-depth knowledge of the energy use of building services, plant and machinery is applied to the

[Type here]

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evaluation process

Test 2 Question 1a

Advanced Diploma in Electrical Engineering Exercises (Page 271/272)

(1)Passive solar design

Q1.What is a active solar system?

Q2.What are micro-climates in Australia?

Slide 2+8

Q3.What is passive solar system design?

Slide 3

Q4.What is thermal mass?

Q5.What are the features of hot humid climate?

Slide 4

Q6.Sketch the building glassing system & how it effects the heating in building?

Slide 5

Q7.Sketch the overview & layout of a building for wind and direct entry

Q8.Sketch direct and indirect sun gain system

Slide 6

Q9.Sketch solar collector.

Slide 7

Q10.Sketch (a) Air based solar system (b) Water based solar system.

Slide 9+10+11

Q11.What are the factors affecting comfort?

Slide 12+13+14

Q12.Explain psychometric chart.

Slide 15

Q13.Explain (a) Humidity (b) Relative humidity (c) wet bulb temperature (d) Dew point temperature

Slide 16+17

Q14.Sketch the construction of air conditioning system for commercial building

Slide 18+20

272

Q15.Explain the methods for measuring air movement and balancing

Slide 19

Q16.Describe basic building construction with sketches.

[Type here]

[Type here]

(2) climate and human comfort

Slide 1

Q17.What is comfort?

Slide 2

Q18.Write the equation to calculate heating degree day.

Q19.Sketch wind and flow diagram of world

Slide 3+4

Q20.Describe the feature of (a) Hot arid zone (b) Temperate zone

Slide 5+6

Q21.How does heat produced in human's body?

Slide 7+8

Q22.What change is required to make the comfort when relative humidity is too high?

Slide 9

Q23.What is shading coefficient?

Slide 10+11

Q24.Sketch incidence & reflected ray diagram.

Slide 11

Q25.Write the equation for environmental temperature & dry resultant temperature.

Slide 12+13

Q26.Write the equation for thermal neutrality.

Slide 14.

Q27.Write the heat gain values for various types of activities.

2.4 Energy evaluation tests are set up in accordance with established test methods and procedures for each particular parameter under scrutiny

Advanced Diploma in Electrical Engineering Exercises (Page 277/278)

Test 2 Question ¾

(6) Ventilation, application of psychrometric chart

Slide 1

Q62.Explain ventilation

Slide 2+3+4+5+6

Q63.Describe air velocity and air volume

Q64.What are the systems of ventilation ? sketch the diagrams.

Slide 7+8

[Type here]

[Type here]

Q65. Sketch air ventilation system for multi storey building.

Slide 9

Q66. Describe the application of psychrometric chart.

Slide 10+11+13+14

Q67. In winter, air at dry bulb temperature of 66°C & 70% RH enters the building through a heating battery. It is heated to dry bulb temperature of 25°C without adding moisture from psychrometric chart. Find

(a) Wet bulb temperature of incoming air

(b) Relative humidity of heated air.

Q68. In Summer, air at dry bulb temperature of 27°C and wet bulb temperature 20°C enters the building through a cooling coil. It is cooled to dry bulb temperature of 19°C

Find

(a) Relative humidity of incoming air

277

(b) Relative humidity of supply air after cooling.

Q69. The air in a room has a dry bulb temperature of 23°C . Find (a) The relative humidity of air (b) The temperature of walls when condensation occurs.

Q70. Air enters the plant at a dry bulb temperature of 24°C and 80% RH & is required to be cooled to dry bulb temperature of 19°C & 60% RH. Find (a) the temperature of air in washer (b) the reduction in moisture content of supply air.

Slide 16+17+18+19+20

Q71. (a) Calculate heat gain per day from the customers in a 200 m^2 gym, If the gym capacity is 60 customers and the gym is full between 6 am to 8 am and 5 pm to 8:30 pm. At all other times, it is 30% full on average.

(b) Calculate heating contributions from all the appliances in a communal house containing 8 people. The house has one electric hot water system for two bath rooms, 6 bed rooms and one all electric kitchen. One TV, seven music systems, two computers and twenty lights. Assume that the house uses 32 kwh per day and the hot water is 45% of the load. The cooker consumes 20% of the load and 20% of heat generated by cooker is vented outside by the range hood.

(c) In above (b) would it make any difference if the water heater was located outside the building?

(d) What would be the heat gain per month if the cooker in (b) uses bottle gas (Gas is 45MJ/Kg and the house uses 0.5 kg/day)

(e) The table below lists the power consumption of the appliances used in the house and the hours per day for which they are used. Calculate heat gain from appliances per month.

[Type here]

[Type here]

Appliance Power (watt) Daily usage per appliance (hr)

TV 50 15

Music system 45 3

Computer 100 13

Printer 20 1

Lights 80 2

(7)Thermal mass, centralised air conditioner, cooling load

Slide 1

278

Q72.What are the materials that can be used as thermal mass . Explain the installation method of them.

2.5 Strategies to reduce energy use with compromising occupancy standards are developed from knowledge of energy management and evaluation

Advanced Diploma in Electrical Engineering Exercises (Page 279/280)

Activity

Measure energy usage in the building .

After having applied the energy saving process, compare the energy usage and submit the report.

Test 2 Q 1b

(10) Building service energy management

Slide 1

Q84.Explain building service energy management system.

Slide 2

Q85.Write electricity & oil gas energy unit calculation formula

Slide 3+4

Q86.Compare building load sources

Q87.Express factors influencing room load.

Q88.What are fresh air requirements for various types working spaces.

Slide 5

Q89.Sketch fresh air supply system.

Slide 6

Q90.What are the factors affecting building energy

Slide 7 to 15

Q91.Sketch building water supply system and pipe fitting

[Type here]

[Type here]

Slide 10+11

Q92. Sketch hot water system.

(11) Design for climate

Slide 1 to 4

Q93. What are the principles of design for climate?

Slide 5+6

Q94. Explain how to achieve thermal comfort inside building.

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(12) Air movement

Slide 1

Q95. Explain air movement to get comfort.

Slide 2

Q96. What is evaporative cooling?

Slide 3

Q97. What are the ways of designing the building for Australian climate?

(13) Solar effect & wind condition.

Slide 1

Q98. Explain the features of temperate climate & typical home construction method.

Slide 2

Q99. Explain hot arid climate & home construction method.

Slide 3

Q100. Explain hot humid climate & home construction method.

Slide 4

Q101. Sketch diagram for home to access the wind.

Slide 5

Q102. Write the equation to calculate ventilation.

2.6 Unexpected situations are dealt with safely and with the approval of an authorised person

Q4. If the voltage rating of available solar panel can not exactly match the required voltage level, what will you do?

Marking Guide+Question (2 marks)

Connect series/ parallel to get the most appropriate voltage.

[Type here]

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Determine appropriate inverter & step up step down transformer.

2.7 Evaluation is carried out without damage to systems, circuits, the surrounding environment or services and using sustainable energy practice

Observation

- Observe students fabrication of solar panel design & connection

www.electricaldiploma2013.webs.com

Work performance + Practical Instruction Back up

Click [HERE](#) to download practicals

<http://www.filefactory.com/file/cf88135/n/Practical.zip>

- Refer Solar & Renewable Energy Practicals

Location of Evidences (Table 1)

3 Document and report strategies for effective energy reduction in buildings

3.1 OHS work completion risk control measures and procedures are followed

As per 1.1 & 1.2

3.2 Work site is cleaned and made safe in accordance with established procedures

Observation

Students activity in house keeping after the practical task is observed & evaluated.

3.3 Results of energy use evaluation and recommended strategies and their criterion for energy reduction are documented in accordance with established procedures

Advanced Diploma in Electrical Engineering Exercises (Page 280)

After having applied the energy saving process, compare the energy usage and prepare the comparison chart

14) HVAC

Slide 1

Q103.What are the housekeeping check lists for HVAC system?

Slide 2+3

[Type here]

[Type here]

Q104.Explain the energy efficient operation of air-conditioning system.

Slide 4 to 8

Q105.Execute the building survey activities as described in slide 4+5

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Q106.What are the building survey procedures for domestic and commercial buildings?

(15) Solar hot water system

Slide 1+2

Q107.Sketch solar hot water system.

Slide 3

Q108.Sketch the construction and connection of solar absorber plates

Slide 4

Q109.Describe (a) Collector surface coating (b) Heat transfer medium (c) Insulation (d) Capacity of storage tank (e) Hot water temperature of solar hot water system.

Slide 5

Q110.Sketch connection of collector and storage tank.

Slide 6

Q111.Sketch the hydraulic circuit of solar water.

Slide 7

Q112.Sketch the electrical circuit for solar water heating system.

Slide 8+9

Q113.Describe installation , orientation & sizing of solar collector system.

Slide 10

Q114.Sketch solar assisted heat pump.

Slide 11

Q115.Explain lighting management for commercial building

3.4 Energy reduction report is forwarded to appropriate persons

Observation

After having applied the energy saving process, compare the energy usage and prepare the comparison chart to be included in the report Presentation & assessment.

The students will need to provide the conclusion on the idea regarding the further energy reduction plan. The conclusion is assessed.

EKAS	Delivery & assessment System
KS01-EK151A Energy efficient building design	Record2016/Students/TAFE/Sem 1-2016/Sem1

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<p>Evidence shall show an understanding of energy efficient building design to an extent indicated by the following aspects:</p> <p>T1 Climate and thermal comfort encompassing:</p> <ul style="list-style-type: none">☑ characteristics of the different Australian climatic types.☑ use of climatic data in published and electronic forms to extract the quantities relevant to energy efficient design.☑ relationship between climate and comfort using bioclimatic or psychrometric charts.☑ calculation of heating or cooling degree days or degree hours for various locations.☑ calculation of thermal neutrality for a given location. <p>T2 Solar geometry and radiation encompassing:</p> <ul style="list-style-type: none">☑ definition of the terms: declination, hour angle, zenith angle, azimuth and altitude angles, the equation of time.☑ conversion of solar time to local time and vice versa.☑ position of the sun and the length of shadows with the aid of algorithms, tables, sun charts or computer software.☑ daily irradiation incident on a wall, window or roof of a given tilt and orientation.☑ relative summer and winter irradiation of	<p>2016 Students work Assessment 1/K151 Assessment 2 /Question Marking scheme Building Design+Material Science-K041+E047.zip</p> <p>Energy Efficient Building Design</p> <p>K041 Lesson 1-Solar Design.zip http://youtu.be/KF3jT7Wm60I</p> <p>K041 Lesson 2-Basic psychrometric chart.zip http://youtu.be/iVU9d2OrN_c</p> <p>K041 Lesson 3-Total heat resistance.zip http://youtu.be/QEC3CFN0C0A</p> <p>K041 Lesson 4-U value Heat conductance calculation.zip http://youtu.be/qjWiSnYVYwI</p> <p>K041 Lesson 5-Glazing+Net Heat gain heat loss.zip http://youtu.be/az4jFnDn4eQ</p> <p>K041 Lesson 6-Shading.zip http://youtu.be/srTWLtaPpgg</p> <p>K041 Lesson 7-Insulation+ Thermal</p>
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<p>windows facing the cardinal orientations.</p> <p>T3 Heat transfer encompassing:</p> <ul style="list-style-type: none">☐ thermal processes of conduction, convection and radiation apply to the transfer of heat in buildings.☐ calculation of the summer and winter U-values of building elements using tables and software.☐ calculation of the infiltration heat transfer in a building. <p>T4 Glazing Systems encompassing:</p> <ul style="list-style-type: none">☐ different types of glazing systems and their characteristics.☐ different types of shading devices and the window orientations for which they are most appropriate.☐ solar heat gain for different glazing types and angles of incidence☐ calculation of the average daily irradiation of a window partly shaded by eaves, using computer software.☐ calculation of the average daily heat gain through a window partly shaded by eaves. <p>T5 Insulation encompassing:</p> <ul style="list-style-type: none">☐ different types of insulation and where they are used.☐ how different types of insulation are installed in roofs, walls and floors.	<p>mass.zip</p> <p>http://youtu.be/T8D_KeXhB2Q</p> <p>http://youtu.be/Ws5H152tgEo</p> <p>K041 Lesson 8-Thermal mass insulation.zip</p> <p>http://youtu.be/R5Qv2EFjUVU</p> <p>K041 Lesson 9-Airconditioning load calculation.zip</p> <p>http://youtu.be/KrHJkNwbr0l</p> <p>http://youtu.be/mxP4thaiS88</p> <p>K041 Lesson 10-Heat gain per day.zip</p> <p>http://youtu.be/X5B99-Q6ddU</p> <p>K041 Lesson 11-Ventilation.zip</p> <p>http://youtu.be/LdCEptDVMIY</p> <p>K041 Lesson 12-Building heating load</p> <p>http://youtu.be/VDHI1YbcX3c</p> <p>http://youtu.be/FH1bPDCuLD0</p> <p>K041 Lesson 13-Design Assessment Tools</p> <p>K041 Lesson 14-Design for Australian</p>
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<p>☒ determination of the minimum R-values of roof insulation for different locations using Australian Standard AS2627 or similar standards.</p> <p>T6 Thermal mass encompassing:</p> <p>☒ advantages and disadvantages of using substantial thermal mass in different climate types and for different heating and cooling regimes.</p> <p>☒ where thermal mass can be located in a building.</p> <p>☒ explain what is meant by the following terms: time lag, decrement factor, admittance, response factor.</p> <p>T7 Comfort control strategies encompassing:</p> <p>☒ interpretation of the usefulness of a design strategy with the aid of a psychrometric chart showing control potential zones for a particular location.</p> <p>☒ selection of the most useful comfort control strategies for Australian climatic regions.</p> <p>T8 Energy efficiency in buildings encompassing:</p> <p>☒ determination of the direction of the following: both true and magnetic, north winter and summer sunrise, winter and summer sunset.</p> <p>☒ solar access in summer and winter to various possible house locations on a site and room locations within the</p>	<p>climate.zip</p> <p>http://youtu.be/6Vhv5H4Wfps</p> <p>K041 Lesson 15-Domestic solar hot water system.zip</p> <p>http://youtu.be/JCgqvzX5jHY</p> <p>http://youtu.be/j5bfWGOS_zA</p> <p>K041 Lesson 16-Energy efficiency+Lighting.zip</p> <p>http://youtu.be/CVvXJj28pcg</p> <p>K041 Lesson 17-Illumination+Smoke alarm.zip</p> <p>http://youtu.be/piMwahVLYhw</p> <p>http://youtu.be/JBvzyR-GzA</p> <p>K041 Lesson 18-Water supply.zip</p> <p>http://youtu.be/-A96eIUfsNU</p> <p>K041 Lesson 19-Ventilation+Lighting control.zip</p> <p>http://youtu.be/CO0ClnAFT6A</p> <p>K041 Lesson 20-Electrical system design.zip</p> <p>http://youtu.be/KX7E_Nc7_54</p> <p>K041 Lesson 21-Building materials.zip</p>
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house.

☑ how vegetation can be used to both funnel and deflect wind.

☑ using cross ventilation as a cooling strategy.

T9 Thermal performance of a building encompassing:

☑ heating requirements of a building using the heating degree day or hour method.

☑ dynamic performance predicted by a computer simulation program such as NatHERS or BERS.

T10 Integration of active solar systems encompassing:

☑ active solar system types available which can provide hot water, space heating and cooling.

☑ the best location on the roof, and the optimum tilt and orientation of the collector panels.

☑ function of the main components of an air or water-based solar space heating system.

☑ schematic of the fluid circuit of an air or water-based space heating system.

☑ main solar cooling system types.

T11 Energy rating schemes encompassing:

☑ differences in approach used by house energy rating schemes in Australia.

☑ energy performance of a number of houses using a computer simulation program such as NatHERS or BERS.

<http://youtu.be/Gi77wNzXEj4>

<http://youtu.be/ZkgOHP0RESs>

<http://youtu.be/C6sxFVofvkE>

<http://youtu.be/8BcUJ7BDKII>

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<p><input type="checkbox"/> other methods to reduce energy consumption within and outside a building including appliance efficiency, human behaviour changes, building management strategies and transportation minimisation.</p> <p><input type="checkbox"/> additional cost of energy efficiency measures and cost savings using life cycle cost or simple pay back methods according to Aust. Standard AS3595 and AS4536.</p> <p>T12 Sustainable and safe building materials encompassing:</p> <p><input type="checkbox"/> common building materials and their embodied energy content.</p> <p><input type="checkbox"/> environmental impact of the production of various building materials.</p> <p><input type="checkbox"/> problems associated with the use or disposal of building materials.</p>	
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Location of Evidences (Table 1)

Performance Criteria	Above	Location of Evidences
Marking Guide/ Assessment Cover/ Feedback own record		Record2016/Students/TAFE/Sem 1-2016/Sem1 2016 Students work Assessment 1/K151 Assessment 2 /Question Marking scheme Record2016/Students/TAFE/Sem 1-2016/Sem1 2016 Students work Assessment 1/K151 Assessment 2/

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		Assessment Cover Sheet Record2016/Students/TAFE/Sem 1-2016/Sem1 2016 Students work Assessment 1/K151 Assessment 2/ Assessment Feedback Sheet
Students' work in own record	Summative Assessment- Formal Tests	Record2016/Students/TAFE/Sem 1-2016/Sem1 2016 Students work Assessment 1/K151 Assessment 2 /Student Work
	Formative Assessment/Practical+ Class works	Record2016/Students/TAFE/Sem 1-2016/Sem1 2016 Students work Assessment 1/K151 Assessment 2 /Student Work Record2016/Students/TAFE/Sem 1-2016/Sem1 2016/Sem 1 2016 Attendance Records+Record Book
Marking Guide to be presented for audit		In attached USB/DVD/CD Attached Some documents in team share UEE11-1.5 Printed documents
Students' work to be presented for audit		In attached USB/DVD/CD Attached Some documents in team share UEE11-1.5 Printed documents

ASSESSMENT SCHEDULE

Performance Criteria	Assessment 1 Practical		Assessment 2 Theory
	Continuous Observation	Written Assessment as part of Practical	Written Assessment
1.1		X	
1.2		X	
1.3		X	X

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1.4	X		
1.5		X	X
2.1		X	
2.2		X	X
2.3		X	X
2.4		X	X
2.5	X	X	X
2.6	X		
2.7	X		
3.1	X	X	
3.2	X		
3.3		X	X
3.4		X	X
EKAS Assessment		X	X

Energy Efficiency References

<http://electricaldiploma2013.zoomshare.com/files/energyefficiencereference.htm>

Advanced Diploma in Electrical Engineering Exercises

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