

UoC: UEENEEE102A - Fabricate, assemble and dismantle utilities industry components CIII-Core

Essential Performance Capabilities: Not specified, as a thorough understanding of this UEENEEE102A is essential to be able to apply any and all of the skills inferred in the EPCs

Required skills and knowledge	McGraw Hill Text	Heading reference	Test Bank	Quizzes	Cases	Worksheets	PPTs	Interactives	Animations
T1 Mechanical drawing interpretation and sketching encompassing:									
drawing standards and conventions used in drawings of mechanical components as specified in AS1100	Pethebridge, Electrical Wiring Practice 8e	18.4 Job planning				Q1	Slide 2,3,4,5,6,7		
basic abbreviations and symbols used in drawing of mechanical components	Pethebridge, Electrical Wiring Practice 8e	18.4 Job planning	Q1			Q1	Slide 2,3,4,5,6,7		
interpretation of mechanical drawings commonly used in the electrotechnology industry (orthogonal projection, third angle detail and assembly drawings, pictorial views)	Pethebridge, Electrical Wiring Practice 8e	18.4 Job planning	Q2, Q3	Q3		Q1	Slide 2,3,4,5,6,7		
laying out a drawing of mechanical components using engineering drawing convention	Pethebridge, Electrical Wiring Practice 8e	18.4 Job planning				Q1	Slide 2,3,4,5,6,7		
freehand drawings of mechanical components showing all information needed for its manufacture/fabrication	Pethebridge, Electrical Wiring Practice 8e	18.4 Job planning	Q4			Q1	Slide 2,3,4,5,6,7		
T2 Workshop planning and materials encompassing:									
methods used to work safely in an industrial work environment	Pethebridge, Electrical Wiring Practice 8e	18.1 Workshop safety practices	Q31		Q1, Q2, Q3, Q4, Q5	Q2, Q3	Slide 8,9,10,11,12,13,14,15,16		Properties to consider when selecting materials for fabricating custom components
typical non-electrical hazards in the workplace	Pethebridge, Electrical Wiring Practice 8e	18.1 Workshop safety practices		Q4	Q1, Q2, Q3, Q4, Q5	Q2, Q3	Slide 8,9,10,11,12,13,14,15,16		Properties to consider when selecting materials for fabricating custom components
control measures for dealing with hazards identified	Pethebridge, Electrical Wiring Practice 8e	18.1 Workshop safety practices	Q6		Q1, Q2, Q3, Q4, Q5	Q2, Q3	Slide 8,9,10,11,12,13,14,15,16		Properties to consider when selecting materials for fabricating custom components
Conducting a risk assessment on a given work environment, documenting and assessing the risks identified	Pethebridge, Electrical Wiring Practice 8e	18.1 Workshop safety practices			Q1, Q2, Q3, Q4, Q5	Q2, Q3	Slide 8,9,10,11,12,13,14,15,16		Properties to consider when selecting materials for fabricating custom components
type of metallic and non-metallic materials used in the electrotechnology industry and application of the common materials	Pethebridge, Electrical Wiring Practice 8e	18.1 Workshop safety practices	Q5		Q1, Q2, Q3, Q4, Q5	Q2, Q3	Slide 8,9,10,11,12,13,14,15,16		Properties to consider when selecting materials for fabricating custom components
planning process	Pethebridge, Electrical Wiring Practice 8e	18.1 Workshop safety practices			Q1, Q2, Q3, Q4, Q5	Q2, Q3	Slide 8,9,10,11,12,13,14,15,16		Properties to consider when selecting materials for fabricating custom components
T3 Measuring and marking out encompassing:									
reasons for measuring and marking out	Pethebridge, Electrical Wiring Practice 8e	18.4 Job planning	Q7	Q5	Q4, Q5	Q4, Q5, Q6, Q7, Q8, Q9, Q10	Slide 2,3,4,5,6,7, 17,18,19		
tools used for marking out	Pethebridge, Electrical Wiring Practice 8e	18.4 Job planning	Q8		Q4, Q5	Q4, Q5, Q6, Q7, Q8, Q9, Q10	Slide 2,3,4,5,6,7, 17,18,19		
measuring and marking out a project accurately following correct procedures	Pethebridge, Electrical Wiring Practice 8e	18.4 Job planning	Q9		Q4, Q5	Q4, Q5, Q6, Q7, Q8, Q9, Q10	Slide 2,3,4,5,6,7, 17,18,19		
sustainable energy work practices related to reducing waste when marking out	Pethebridge, Electrical Wiring Practice 8e	18.4 Job planning			Q4, Q5	Q4, Q5, Q6, Q7, Q8, Q9, Q10	Slide 2,3,4,5,6,7, 17,18,19		
T4 Holding and cutting encompassing:									
common tools for holding (bench vices, multi-grips, vice grips, wrenches)	Pethebridge, Electrical Wiring Practice 8e	18.5 Cutting and shaping			Q3	Q11, Q12, Q13, Q14	Slide 23, 24,25,26,27,28,29		
common tools for cutting metallic and non-metallic material (hacksaws, wood saws, chisels, pliers, files)	Pethebridge, Electrical Wiring Practice 8e	18.5 Cutting and shaping	Q10, Q11, Q12, Q13, Q14, Q15, Q16		Q3	Q11, Q12, Q13, Q14	Slide 23, 24,25,26,27,28,29		
procedure for using a range of tools for cutting, shaping, and finishing metallic and non-metallic materials	Pethebridge, Electrical Wiring Practice 8e	18.5 Cutting and shaping		Q4, Q6	Q3	Q11, Q12, Q13, Q14	Slide 23, 24,25,26,27,28,29		
safety procedures when using holding and cutting tools	Pethebridge, Electrical Wiring Practice 8e	18.5 Cutting and shaping			Q3	Q11, Q12, Q13, Q14	Slide 23, 24,25,26,27,28,29		
T5 Drills and drilling encompassing:									
types of drills used in the electrotechnology industry	Pethebridge, Electrical Wiring Practice 8e	18.6 Drills and drilling	Q17, Q18, Q19, Q32			Q15, Q16, Q17, Q18, Q19	Slide 30,31,32,33		
sharpening twist drills	Pethebridge, Electrical Wiring Practice 8e	18.6 Drills and drilling				Q15, Q16, Q17, Q18, Q19	Slide 30,31,32,33		
drilling metallic and non-metallic components	Pethebridge, Electrical Wiring Practice 8e	18.6 Drills and drilling		Q4		Q15, Q16, Q17, Q18, Q19	Slide 30,31,32,33		
safe use of a bench drill	Pethebridge, Electrical Wiring Practice 8e	18.6 Drills and drilling				Q15, Q16, Q17, Q18, Q19	Slide 30,31,32,33		
T6 Tapping and threading encompassing:									
type and size of commonly used threads used in electrotechnology work	Pethebridge, Electrical Wiring Practice 8e	18.7 Thread cutting and tapping	Q20			Q20	Slide 34,35,36,37	Label the various parts of a hand tap:	
taps and tap wrenches	Pethebridge, Electrical Wiring Practice 8e	18.7 Thread cutting and tapping	Q21			Q20	Slide 34,35,36,37	Label the various parts of a hand tap:	
tapping metallic and non-metallic components	Pethebridge, Electrical Wiring Practice 8e	18.7 Thread cutting and tapping		Q7		Q20	Slide 34,35,36,37	Label the various parts of a hand tap:	
stock and die tools	Pethebridge, Electrical Wiring Practice 8e	18.7 Thread cutting and tapping				Q20	Slide 34,35,36,37	Label the various parts of a hand tap:	
threading metallic and non-metallic components	Pethebridge, Electrical Wiring Practice 8e	18.7 Thread cutting and tapping				Q20	Slide 34,35,36,37	Label the various parts of a hand tap:	
T7 General Hand Tools encompassing:									
hammers used in electrotechnology work	Pethebridge, Electrical Wiring Practice 8e	18.2 Tools used in electrical work	Q23, Q24		Q5	Q21	Slide 38,39,40		
screwdrivers used in electrotechnology work	Pethebridge, Electrical Wiring Practice 8e	18.2 Tools used in electrical work			Q5	Q21	Slide 38,39,40		
spanners and sockets used in electrotechnology work	Pethebridge, Electrical Wiring Practice 8e	18.2 Tools used in electrical work		Q8	Q5	Q21	Slide 38,39,40		
pliers used in electrotechnology work	Pethebridge, Electrical Wiring Practice 8e	18.2 Tools used in electrical work	Q22		Q5	Q21	Slide 38,39,40		
assembling components applicable to electrotechnology industry using a variety of hand tools	Pethebridge, Electrical Wiring Practice 8e	18.2 Tools used in electrical work			Q5	Q21	Slide 38,39,40		
T8 Joining techniques encompassing:									

types of machine screws and nuts	Pethebridge, Electrical Wiring Practice 8e	18.8 Joining components	Q27		Q1	Q22	Slide 41,42,43,44		
forms of welding (Oxy-acetylene, electric arc welding)	Pethebridge, Electrical Wiring Practice 8e	18.8 Joining components	Q25, Q26		Q1	Q22	Slide 41,42,43,44		
forms of brazing and hard soldering	Pethebridge, Electrical Wiring Practice 8e	18.8 Joining components			Q1	Q22	Slide 41,42,43,44		
process of soft soldering	Pethebridge, Electrical Wiring Practice 8e	18.8 Joining components			Q1	Q22	Slide 41,42,43,44		
joining components using machine screws	Pethebridge, Electrical Wiring Practice 8e	18.8 Joining components		Q1	Q1	Q22	Slide 41,42,43,44		
joining components using welding, brazing or soldering techniques	Pethebridge, Electrical Wiring Practice 8e	18.8 Joining components			Q1	Q22	Slide 41,42,43,44		
T9 Portable electric power tools encompassing:									
portable electric power tools (grinders, drills, jigsaws, saws)	Pethebridge, Electrical Wiring Practice 8e	18.2 Tools used in electrical work	Q28, Q29	Q2		Q23	Slide 38,39,40		
applications of portable electric power tools used in the electrotechnology work.	Pethebridge, Electrical Wiring Practice 8e	18.2 Tools used in electrical work				Q23	Slide 38,39,40		
using portable power tools	Pethebridge, Electrical Wiring Practice 8e	18.2 Tools used in electrical work				Q23	Slide 38,39,40		
fabricating components using power tools (drills, grinders)	Pethebridge, Electrical Wiring Practice 8e	18.2 Tools used in electrical work				Q23	Slide 38,39,40		
T10 Sheet metal work encompassing:									
types of sheet metal materials used in the electrotechnology work	Pethebridge, Electrical Wiring Practice 8e	18.5 Cutting and shaping				Q24, Q25, Q26	Q11, Q12, Q13, Q14		
names and applications of the types of fabrication materials	Pethebridge, Electrical Wiring Practice 8e	18.5 Cutting and shaping				Q24, Q25, Q26	Q11, Q12, Q13, Q14		
tools used with sheet metals in electrotechnology work (hacksaw, tin snips, guillotines, punches, notching tools, folding machines)	Pethebridge, Electrical Wiring Practice 8e	18.5 Cutting and shaping	Q30, Q31	Q9		Q24, Q25, Q26	Q11, Q12, Q13, Q14		
techniques used in fabricating sheet metal (cutting, bending, drilling/punching, joining, cutting mitres)	Pethebridge, Electrical Wiring Practice 8e	18.5 Cutting and shaping				Q24, Q25, Q26	Q11, Q12, Q13, Q14		
marking out, cutting, bending, drilling and/or cutting and/o punching holes, joining and cutting mitred joints using sheet metal	Pethebridge, Electrical Wiring Practice 8e	18.5 Cutting and shaping	Q31			Q24, Q25, Q26	Q11, Q12, Q13, Q14		
sustainable energy work practices to reducing waste when fabricating using sheet metal	Pethebridge, Electrical Wiring Practice 8e	18.5 Cutting and shaping				Q24, Q25, Q26	Q11, Q12, Q13, Q14		
fabricating components using sheet metal and fabrication tools	Pethebridge, Electrical Wiring Practice 8e	18.5 Cutting and shaping				Q24, Q25, Q26	Q11, Q12, Q13, Q14		
T11 Low tolerance measurement encompassing:									
tolerance	Pethebridge, Electrical Wiring Practice 8e	18.4 Job planning				Q27, Q28, Q29	Slide 2,3,4,5,6,7		
techniques in using vernier callipers	Pethebridge, Electrical Wiring Practice 8e	18.4 Job planning				Q27, Q28, Q29	Slide 2,3,4,5,6,7, 21		
techniques in using micrometers	Pethebridge, Electrical Wiring Practice 8e	18.4 Job planning				Q27, Q28, Q29	Slide 2,3,4,5,6,7		
using vernier callipers to measure engineering components	Pethebridge, Electrical Wiring Practice 8e	18.4 Job planning	Q33, Q36			Q27, Q28, Q29	Slide 2,3,4,5,6,7		
using micrometers to measuring engineering components	Pethebridge, Electrical Wiring Practice 8e	18.4 Job planning				Q27, Q28, Q29	Slide 2,3,4,5,6,7		
T12 Dismantling and assembly techniques encompassing:									
tools used in dismantling and assembling electrotechnology equipment (spanners, screwdrivers, bearing pullers, etc)	Pethebridge, Electrical Wiring Practice 8e	18.9 Dismantling and assembling equipment	Q34, Q35, Q36, Q38		Q1, Q2, Q4, Q5	Q30, Q31	Slide 46, 47		
procedures for ensuring the safe treatment of dismantled components	Pethebridge, Electrical Wiring Practice 8e	18.9 Dismantling and assembling equipment	Q37		Q1, Q2, Q4, Q5	Q30, Q31	Slide 46, 47		
dismantling electrical, electronic, instrumentation or refrigeration/air conditioning piece of equipment using correct procedures	Pethebridge, Electrical Wiring Practice 8e	18.9 Dismantling and assembling equipment			Q1, Q2, Q4, Q5	Q30, Q31	Slide 46, 47		
assembling electrical, electronic, instrumentation or refrigeration/air conditioning piece of equipment using correct procedures	Pethebridge, Electrical Wiring Practice 8e	18.9 Dismantling and assembling equipment			Q1, Q2, Q4, Q5	Q30, Q31	Slide 46, 47		