GOVERNMENT OF WESTERN AUSTRALIA

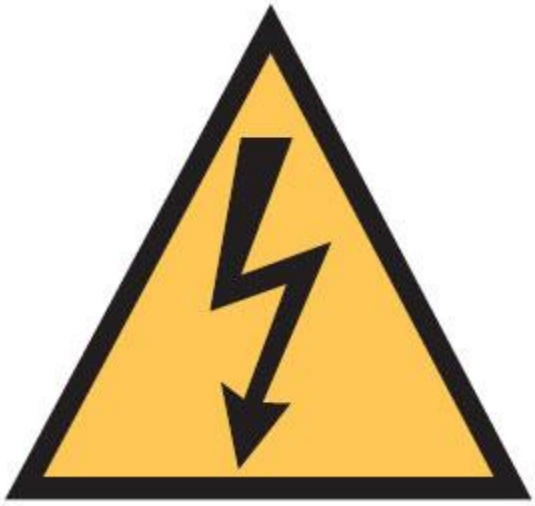
TAFE WA North Metropolitan

RTO Code: 52786

Portfolio of evidence

UEECD0019

Fabricate, Assemble & Dismantle UI Components



UEE Training Package Support Material

Based on:
National Electrotechnology Industry Standards

North Metropolitan TAFE
V1 July 2022

Assessment Task 3 Portfolio of Evidence

Qualification national code and title	UEE30820 Certificate III in Electrotechnology Electrician
Unit/s national code/s and title/s	UEECD0019 - Fabricate, Assemble & Dismantle UI Components

Student Name		**Assessment Type**	☐	Questioning (Oral / Written)
Student ID			☒	Portfolio
Lecturer Name		**Student Result (S/NYS)**		

By completing and submitting this signed form to my lecturer, I am stating that:

a. The attached submission is completely my own work
b. I have correctly cited all sources of information used in this work (if required)
c. I understand a copy of my assessment will be kept by the NMTAFE for their records
d. I understand my assessment may be selected for use in the NMTAFE's validation and audit process to ensure student assessment meets requirements

Student Signature		**Date**	

Assessment type (☑):

☐ Questioning (Oral/Written)
☐ Practical Demonstration
☐ 3rd Party Report
☒ Other – Project/Portfolio *(please specify)*

Assessment Resources:

Resources the assessor is to provide:

- Classroom setting as the venue.
- Workshop
- Hand Tools & Materials
- Test paper
- Graph paper

Resources the candidate is to provide:

- Black or Blue pen
- Pencil and eraser
- Maths drawing set
- Safety Glasses
- Safety Gloves

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Assessment Instructions:

Task description:

The following Portfolio Assessment relates to the knowledge requirements and performance evidence of the unit. Make sure you complete all questions and practical activities

- To be deemed ***Satisfactory*** you are required to achieve a mark of **100%**
- The following **Knowledge Assessment** is an open book assessment and does not need to be completed under supervision
- The following **Practical Activities** must be completed under supervision in a simulated workplace environment
- If ***Not Yet Satisfactory*** you will be required to re-attempt the **Knowledge Questions** that are marked ***not satisfactory*** and/or any **Practical Activity** marked as **Not Yet Satisfactory**

Student Instructions:

Ensure you have access to all the resources required for this assessment as described below.

1. Read the **Questions** section. If you are not clear about a question, ask your assessor for further information.
2. You may be able to complete the questions verbally. This would need to be negotiated with your assessor**.**
3. Your assessor will provide feedback on your answers, including any questions that may require a further response.
4. If you have specific needs that you would like considered during this assessment, please discuss this with your assessor to identify any possible reasonable adjustments **prior** to commencing the assessment.
5. All diagrams must be neat, labelled and in pencil.
6. All calculations and numerical answers must be shown correct to two decimal places and include both the unit of measurement and metric prefix if applicable.

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LABORATORY INSTRUCTIONS

Students working in laboratories at North Metropolitan TAFE Campus's do so on the condition that they agree to abide by the following instructions. Failure to observe the safety instructions may result in disciplinary action up to and including cancellation of your training contract with NMTafe.

1. No circuit is to be plugged in or switched on without the specific permission of the lecturer in charge of the class. A circuit must be switched off, isolated and tested for ZERO VOLTS before any supply leads are removed. The DANGER TAG PROCEDURE must be used at all times.
2. Do not leave any circuit switched on any longer than necessary for testing. Do not leave any circuit switched on unattended.
3. Check each item of equipment before using. Report any broken, damaged or unserviceable equipment to your Lecturer.
4. All wiring must be disconnected at the end of each practical class or as each project is completed.
5. Make all connections in a safe manner with an appropriate connecting device. Unshielded 4mm banana plugs are not to be used for wiring.
6. Switch off, remove the plug from the socket and attach your DANGER TAG to the plug top before working on any project. It is not sufficient to simply turn the switch off.
7. When disconnecting your wiring from a connection made under a screw, undo the screw to remove the wiring, do not cut the wire off.
8. Observe the correct colour code for all wiring projects.
9. Test your circuit for short circuits with your multimeter before asking your Lecturer to switch circuit on. Test the Tester before and after EACH test.
10. Where an activity sheet is issued for a project, complete each step in the Procedure before moving to the next step. Advise your Lecturer when you have completed the activity.
11. Draw ALL DIAGRAMS in PENCIL so that they can be easily changed or corrected. Mark off each connection on your diagram as it is made.
12. Check the range before taking a reading with a multimeter.
13. Make sure that it is YOUR plug before inserting plug into an outlet.
14. Always switch multimeter OFF, or to the highest possible AC VOLTS range when you have finished using it.
15. Report any unexpected situations or events to your Lecturer.

Student's Signature _____ Date: _____

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DANGER TAG PROCEDURE for ELECTRICAL TRADE LABORATORIES

THE FOLLOWING PROCEDURE IS COMPULSORY

1. The student is to attach a DANGER TAG on to the plug top of the project lead before proceeding with the allocated project. A danger tag must be attached to the plug top at all times, when the lead is NOT plugged into the supply outlet. Plug tops or leads are not to be connected to the supply outlet WHILE A DANGER TAG is attached.

2. The student is to assemble the project according to project instruction procedure and lecturer's directions in its isolated and de-energised state and report to the lecturer as necessary and on completion.

3. The lecturer is to:-
   a. Check the project for safety and
   b. Ensure that the student has performed a safety check, including a short circuit test using the recommended procedure.

4. When the lecturer is satisfied that the project is safe to connect and energise the lecturer is to instruct the student to REMOVE the DANGER TAG from the plug top.

5. The student is to plug in the project and switch it on in the presence of the lecturer.

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

7. If the project operates satisfactorily the student may take measurements using correct meters with regard to the safety risks associated with using the particular item of test equipment including;
   a. Selecting correct meter function,
   b. Holding meter probes correctly during measuring with fingers behind knurls (finger guards) at all times.

   This is to be done under general supervision of lecturer. The student is NOT to modify, disassemble or carry out ANY unsafe act.

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8. If the circuit is to be modified the student must:
   a. Switch the circuit off,
   b. Disconnect the project from the supply,
   c. Attach the DANGER TAG to the plug top,
   d. Report to the lecturer for instructions,
   e. In the lecturer's presence the student is to:-
   f. TEST and VERIFY for ZERO VOLTAGE.
   g. Restart the DANGER TAG procedure from step 2 above.

9. When the student is satisfied that the project has been completed the student is to:-
   a. Switch the project off,
   b. Remove the plug,
   c. Replace the DANGER TAG on the plug top,
   d. Report to the lecturer for instructions,

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

   The lecturer is then to instruct the student to:-
   f. Disassemble the project
   g. Remove the DANGER TAG and store the equipment in its designated place.

Failure to follow Danger Tag Procedures when working on practical activities and practical assessments will result in a '**Not yet Satisfactory'** comment recorded for this Unit of Competency

Student's Signature _____ Date: _____

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Complete all Knowledge Questions.

Question 1	In Australia, what is the accepted method of projection for Orthogonal drawings?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 2	What information is provided in a detail drawing?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 3	Give one on-the-job example of where an electrician would make a freehand sketch.	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

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Question 4	What are the four steps involved in carrying out a complete job correctly?		
Answer	**1**		
	2		
	3		
	4		
Feedback			☐ Satisfactory ☐ Not satisfactory

Question 5	List three advantages of using aluminium.		
Answer	**1**		
	2		
	3		
Feedback			☐ Satisfactory ☐ Not satisfactory

Question 6	Can PVC conduit be recycled? If so, for what electrical use?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

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Question 7	To maintain accuracy, what must be done to the points and legs of a set of dividers?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 8	What should be done to the edges of a try square prior to using it for marking out?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 9	Is it permissible to use a steel tape measure near live electrical conductors or terminals?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 10	Name three different types of vice. Which type is best suited to hold steel conduit?		
Answer	**A**		
	B		
Feedback			☐ Satisfactory ☐ Not satisfactory

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Question 11	Why shouldn't multi-grips and pipe wrenches be used on nuts and bolts?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 12	What shape file would be best to enlarge the diameter of a 20 mm hole?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 13	What speed should be used when drilling an 8 mm hole in mild steel?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 14	What is the purpose of a drill gauge?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

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Question 15	What is the correct point angle for a twist drill used for drilling mild steel?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 16	Name the type of imperial thread commonly used on electrical terminals.	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 17	Hand taps are available in three styles. What are they?		
Answer	**1**		
	2		
	3		
Feedback			☐ Satisfactory ☐ Not satisfactory

Question 18	Is it necessary to use a cutting lubricant when tapping a hole in plastic?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

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Question 19	What type of hammer would be used to round over a rivet?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 20	What type of hammer would be used, in conjunction with a cold chisel or scutch, to chase brick work?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 21	What could happen if a flat blade screwdriver is used that is wider than the screwhead?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 22	What is the role of flux in the soldering process?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

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Question 23	What type of solder will become the norm for electrical work in the near future?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 24	What is the most common method of soldering protective earth wires to the main earth wire?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 25	What type of electrical protection must be provided on circuits supplying portable electric power tools?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

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Question 26	What PPE must be worn when using an angle grinder to chase a brick wall?		
Answer	**1**		
	2		
	3		
Feedback			☐ Satisfactory ☐ Not satisfactory

Question 27	When using a large angle grinder, what must the operator be aware of at start-up?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 28	Which produces the better finish in sheet metal: drilling or punching holes?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 29	When preparing sheet metal for folding, at what angle are the mitre joints cut?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

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Question 30	When drilling sheet metal, what must you be careful of as the drill bit breaks through the sheet?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 31	Which is the most accurate for low tolerance measurement: a micrometer or vernier calliper?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 32	What is the resolution of a typical digital micrometer, like the one shown 	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

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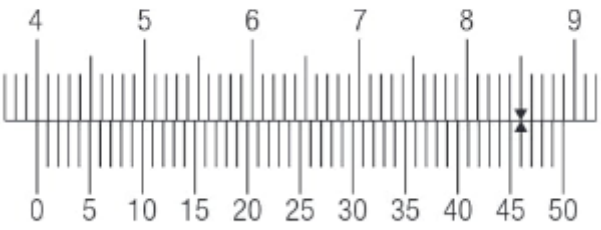
Question 33	Figure 5.170 shows a main scale on a vernier. What value is indicated? **FIGURE 5.170** Witness marks  	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 34	With most torque wrenches, how do you know when correct torque has been applied?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

Question 35	List three potential dangers of using some cleaning solvents.	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

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Question 36	What is the difference between a centre punch and a drift punch?	
Answer		
Feedback		☐ Satisfactory ☐ Not satisfactory

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Practical Activities Overview

1. Orthogonal (3rd Angle) Drawing
2. Freehand Sketching of Objects
3. Material Parts List
4. Identification of Hand Tools
5. Measuring and Marking Out - (optional extra task)
6. Using a Micrometer
7. Using a Vernier Calliper
8. Drilling and Tapping Threads - (optional extra task)
9. Dismantle and Assemble a Component
10. Manufacture Tool Box from Sheet Metal

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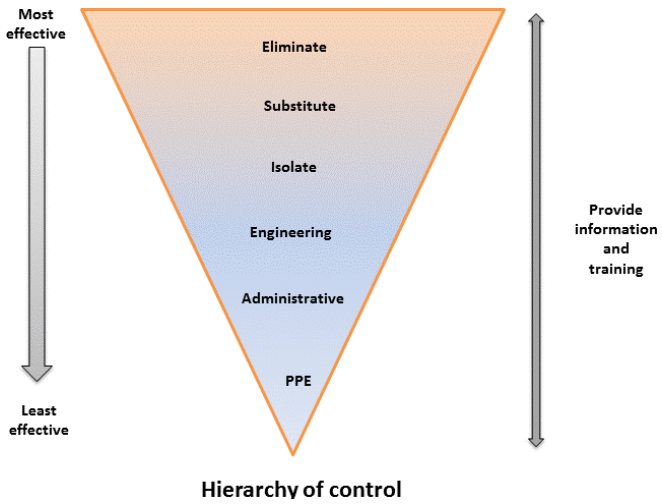
Risk assessment

Consequence		1 **Rare** The event may occur in exceptional circumstances	2 **Unlikely** The event could occur sometimes	3 **Moderate** The event should occur sometimes	4 **Likely** The event will probably occur in most circumstances	5 **Almost Certain** The event is expected to occur in most circumstances
1	**Insignificant** No injuries or health issues	**LOW**	**LOW**	**LOW**	**LOW**	**MODERATE**
2	**Minor** First aid treatment	**LOW**	**LOW**	**MODERATE**	**MODERATE**	**HIGH**
3	**Moderate** Medical treatment, potential LTI	**LOW**	**MODERATE**	**HIGH**	**HIGH**	**CRITICAL**
4	**Major** Permanent disability or disease	**LOW**	**MODERATE**	**HIGH**	**CRITICAL**	**CATASTROPHIC**
5	**Extreme** Death	**MODERATE**	**HIGH**	**CRITICAL**	**CATASTROPHIC**	**CATASTROPHIC**

1. **Eliminate** – if it is possible, the hazard should be removed completely. For example, get rid of dangerous machines.
2. **Substitute** – replace something that produces the hazard with something that does not produce a hazard. For example, replacing solvent based paint with water based paint. Risk assessment on the substitution must be conducted to ensure that it will not pose another hazard.
3. **Engineering control** – isolate a person from the hazard by creating physical barrier or making changes to process, equipment or plant to reduce the hazard. For example, install ventilation systems.
4. **Administrative control** – change the way a person works by establishing policies and procedures to minimise the risks. For example, job scheduling to limit exposure and posting hazard signs.
5. Use **personal protective equipment** (PPE) – protect a person from the hazard by wearing PPE. For example, wearing gloves, safety glasses, hard hats and high-visibility clothing. PPE must be correctly fitted, used and maintained to provide protection.



Hierarchy of control

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Safe Work Method Statement

Revised Risk Rating							
Hazard Control Measures							
Risk Rating							
Hazards							
Task Steps							
Task Step #							

Student Signature.....

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Practical Activity 1

Orthogonal (3rd Angle) Drawing

Objective

To draw a neat freehand pencil sketch showing and orthogonal (3rd Angle) projection of an object from a given oblique projection

Equipment

Dimensioned oblique projection (attached)
Pencil, paper, eraser, 300mm rule

Instructions

1.	Examine the oblique projection provided on the attached sheet and sketch a 3rd Angle projection of the object (on the same page) using the general conventions of engineering drawing. Make valid assumptions for details not provided.	☐ Satisfactory ☐ Not satisfactory

2.	Included the actual full-size dimensions on your sketch	☐ Satisfactory ☐ Not satisfactory

3.	Submit your completed sketch to your lecturer for comment and feedback	☐ Satisfactory ☐ Not satisfactory

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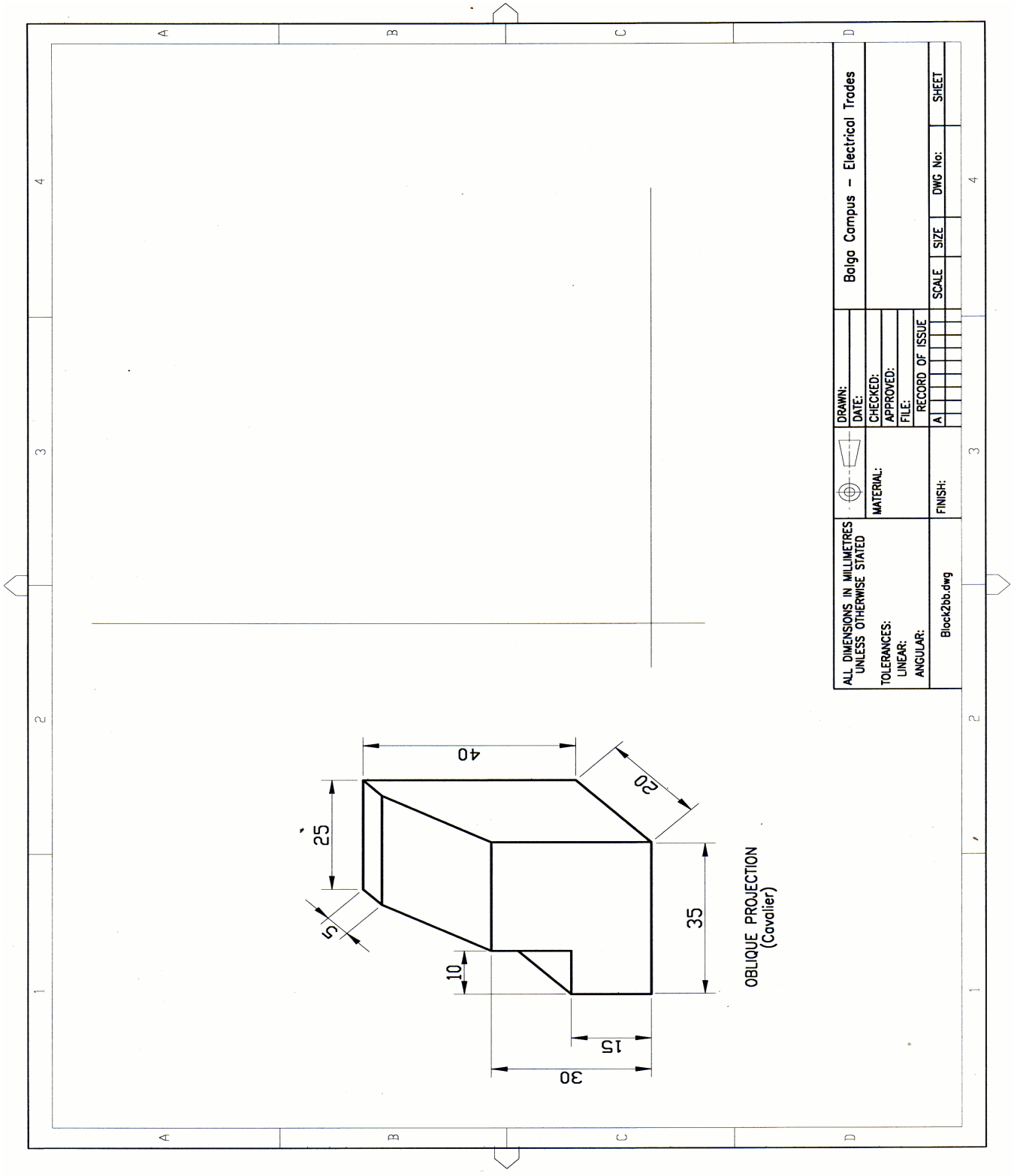

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Practical Activity 2

Freehand sketching of Objects

Objective

To draw three neat freehand pencil sketches showing oblique or isometric views of common objects and present the results in an indexed folio.

Equipment

Pencil, eraser, 300 mm rule.
A4 or A3 paper (square or isometric graph paper may be used).

Instructions

1.	Draw a neat freehand pencil sketch of the three objects supplied (at least one oblique and one isometric). Layout each of the three drawings using appropriate engineering drawing conventions (including dimensions, drawing frame, title block and parts/material list). Use the attached outline drawing sheet if you wish.	☐ Satisfactory ☐ Not satisfactory

2.	Submit your completed sketches to your lecturer for comment and feedback	☐ Satisfactory ☐ Not satisfactory

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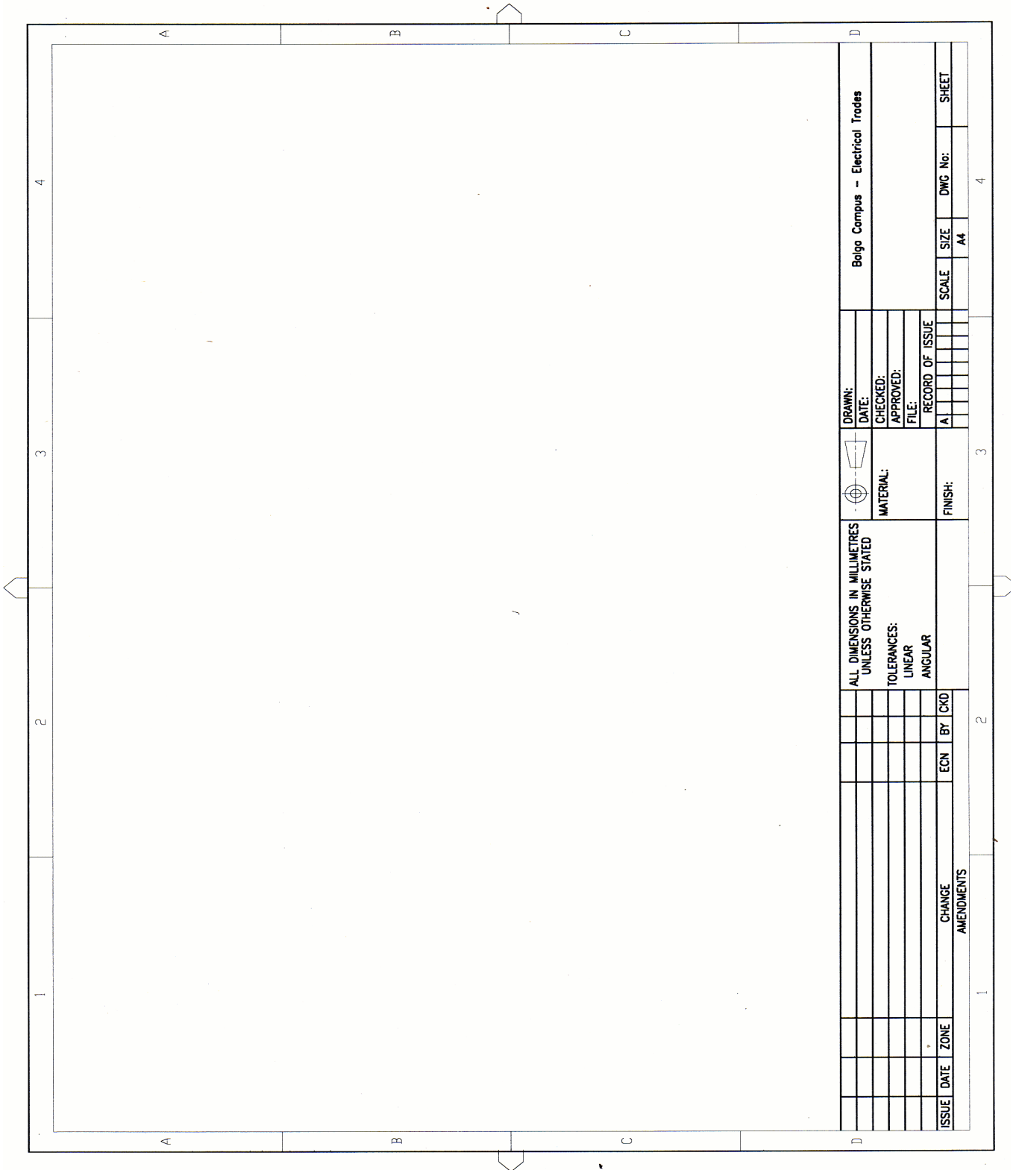

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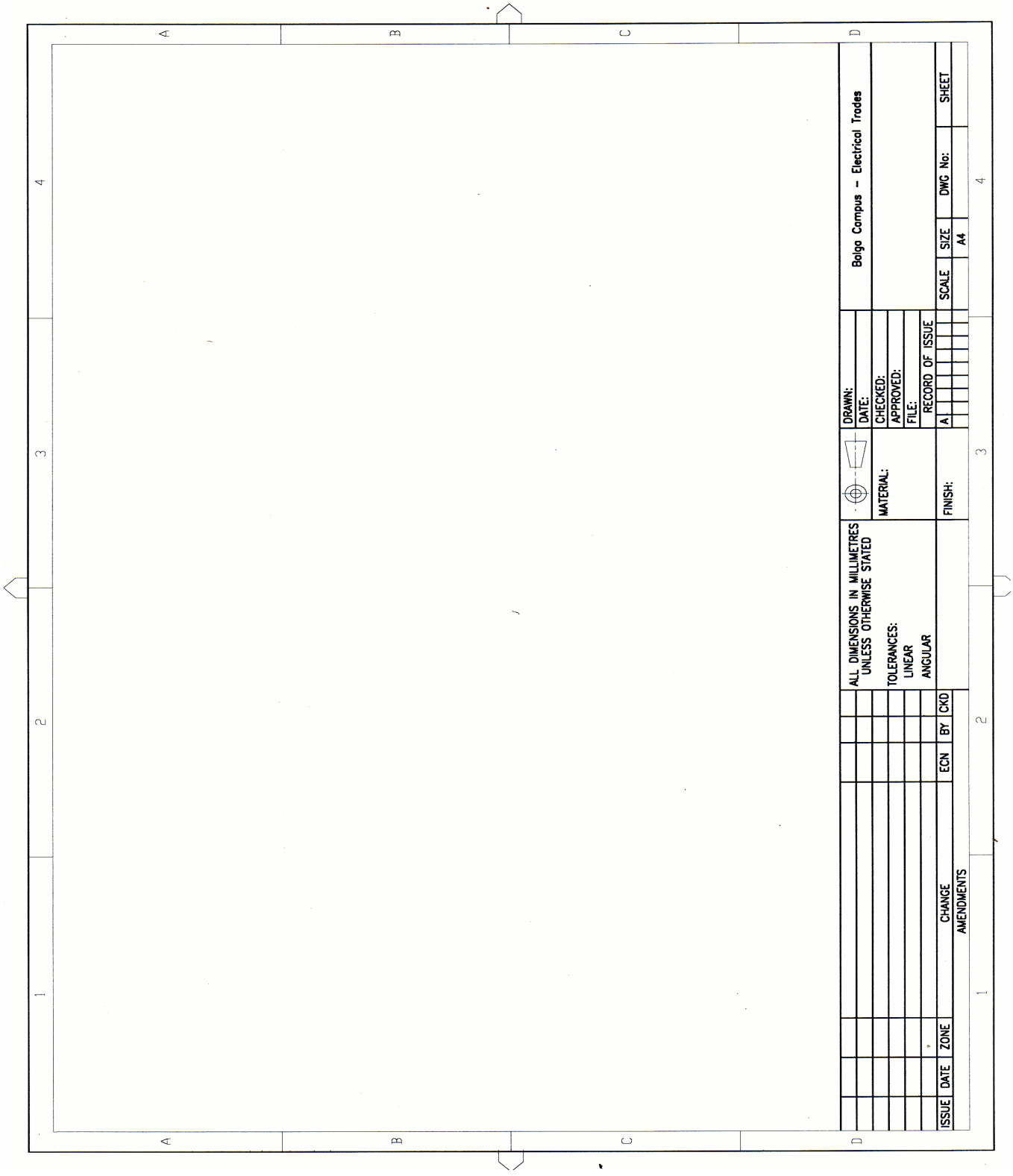

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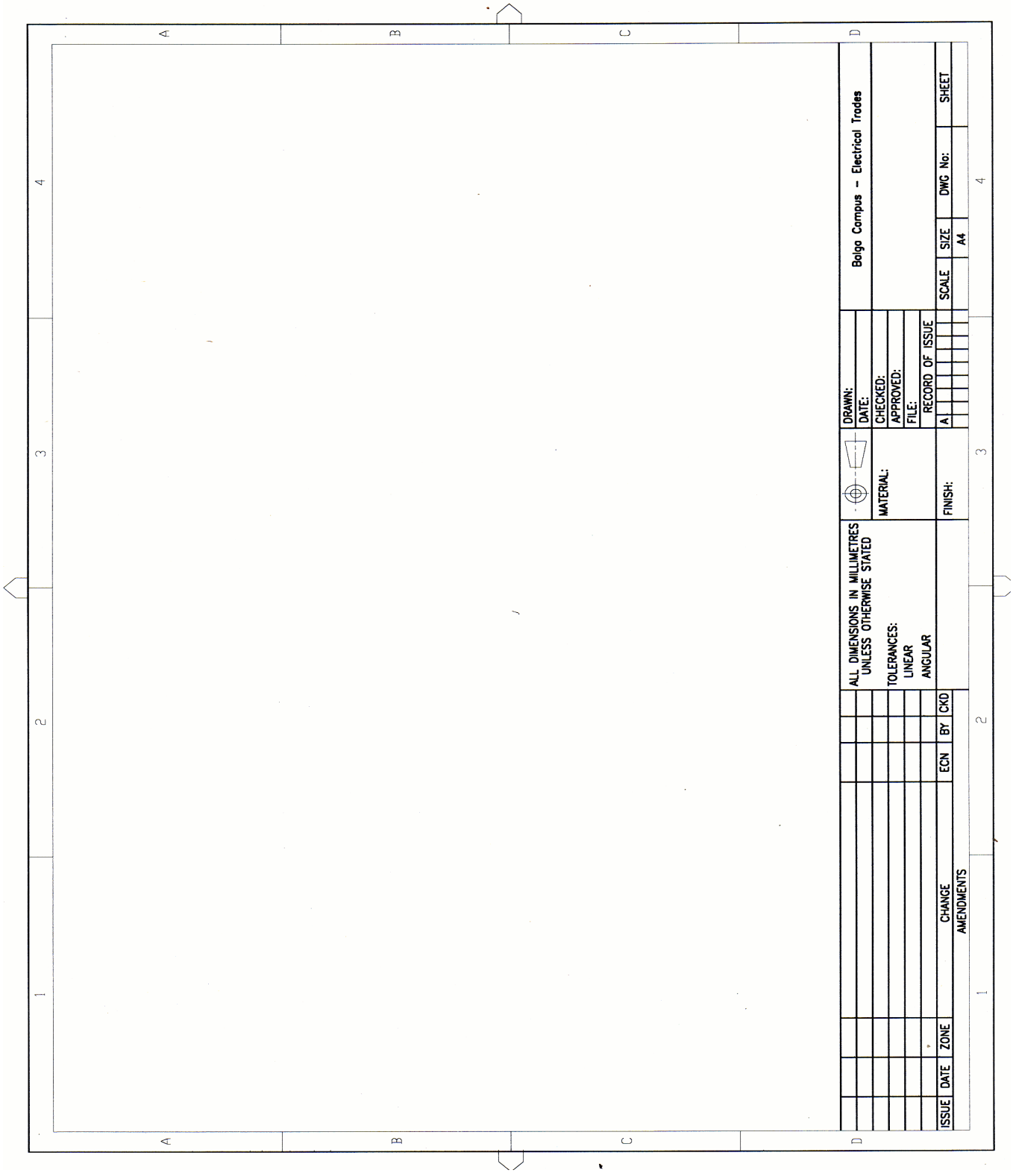

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Practical Activity 3

Material Parts List

Objective

To prepare a materials parts list from a given general assembly drawing.

Equipment

300 mm steel rule.
Slotted Motor Bed Frame (assembled scaled version)
Manufacturers' catalogues and manuals as required.

Instructions

1.	Examine the general assembly drawing of the slotted motor bed attached. Note that the motor bed is slotted to allow for adjustment of the motor position during installation.	☐ Satisfactory ☐ Not satisfactory
2.	Make a list of the materials required to fabricate the slotted motor bed. Make valid assumptions for the detail not provided.	☐ Satisfactory ☐ Not satisfactory
3.	Submit your completed list to your lecturer for comment and feedback.	☐ Satisfactory ☐ Not satisfactory

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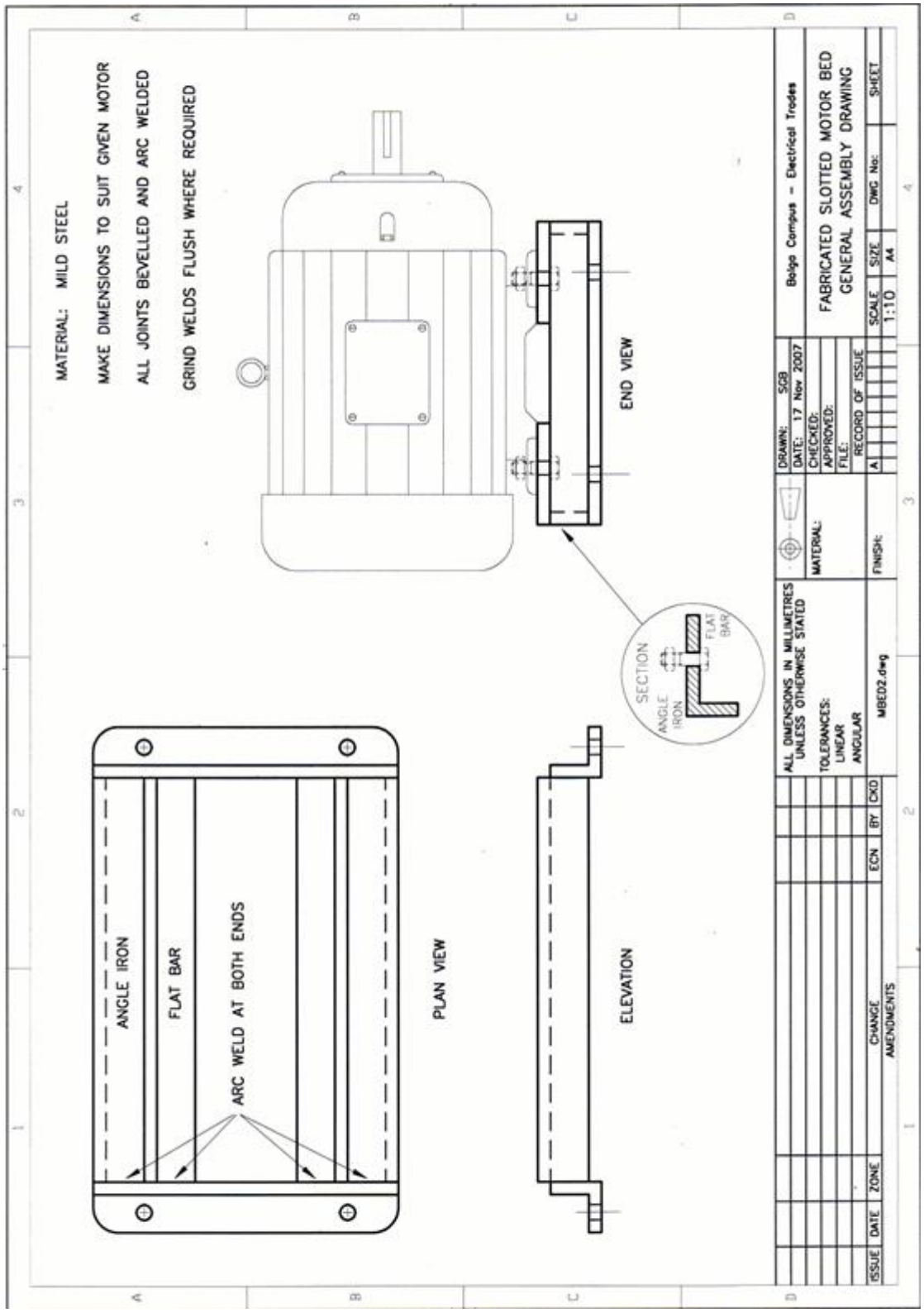

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Material Parts List

Part	Material Type	Dimensions

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Practical Activity 4

Identification of Hand Tools

Objective

To identify common hand tools used for measuring, holding, turning, cutting, shaping, marking, finishing threading and bending metals and non-metallic materials.

Equipment

A selection of hand tools used commonly in the electro-technology industry. Selection of photographs of various hand tools.

Instructions

1.	List the common name of each of the hand tools supplied and state the hazards associated with the use of each one.	☐ Satisfactory ☐ Not satisfactory

2.	Submit your completed list to your lecturer for comment and feedback.	☐ Satisfactory ☐ Not satisfactory

Name	Classification	Hazards
Screwdriver, flat blade	Turning	Possible slipping - rounded tip. Puncture wound if in front of blade.

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Practical Activity 5 – (Optional Extra Task)

Measuring and Marking Out

Objective

To measure dimensions from a technical drawing and mark out the shape on sheet metal.

Equipment

300 mm steel rule.
150 mm spring dividers.
150 mm engineer's tri square.
150 mm scriber.
100 mm centre punch.
150 mm odd-leg callipers.
Combination set with protractor head.
Marking blue.
0.5 mm sheet mild steel or similar (about 110 x 70 mm)

Instructions

1.	Complete Take 5	☐ Satisfactory ☐ Not satisfactory
2.	Examine the technical drawing attached. Note that some of the dimensions are given but others are not.	☐ Satisfactory ☐ Not satisfactory
3.	Measure the dimensions not given (to scale) and mark them on the drawing.	☐ Satisfactory ☐ Not satisfactory
4.	Apply a thin film of marking blue to the work-piece and allow it to dry.	☐ Satisfactory ☐ Not satisfactory
5.	Mark out the shape of the work-piece on the sheet metal (start by constructing a horizontal and vertical datum line). All dimensions must be within 0.5 mm. Note: When scribing lines, always carry the line through for at least 2 mm at each end so that each corner is an intersection of two lines rather than junction of two end points. Not necessary to cut out once marked out.	☐ Satisfactory ☐ Not satisfactory
6.	Submit your work-piece to your lecturer for comment and feedback.	☐ Satisfactory ☐ Not satisfactory

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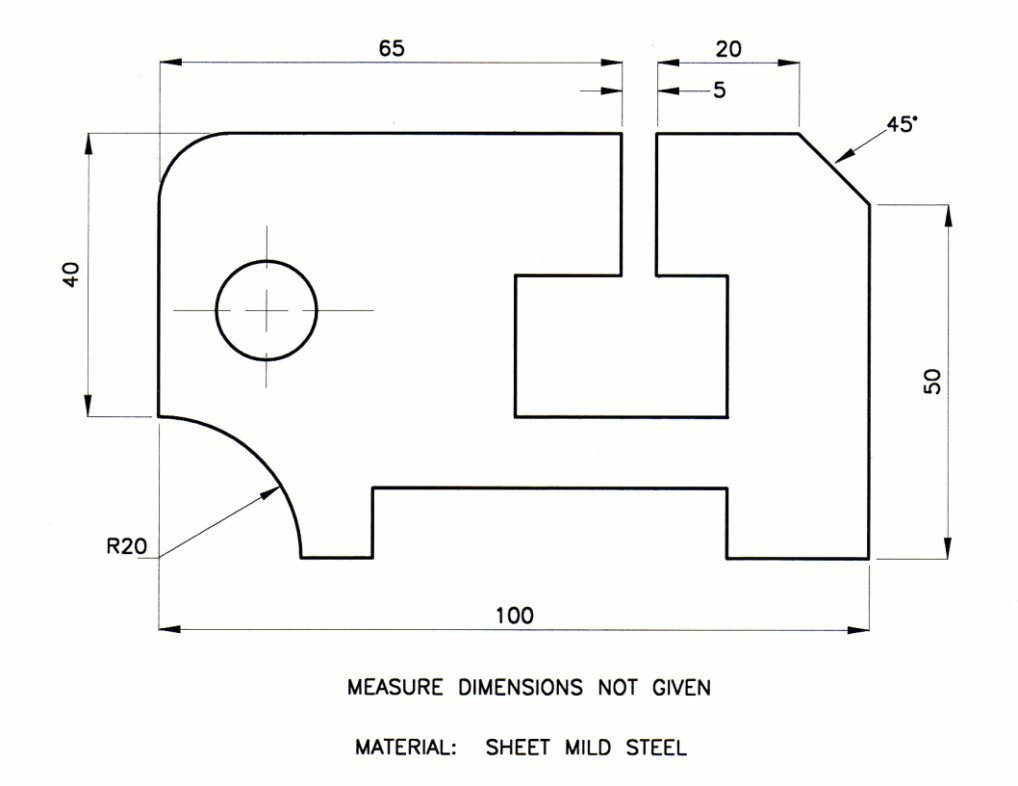
7.	Return all of the equipment to its proper place.	☐ Satisfactory ☐ Not satisfactory

Measuring and Marking Out



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Practical Activity 6

Using a Metric Micrometer

Objective

To measure the appropriate dimensions of an object using a 0-25 mm metric micrometer.

Equipment

0-25 mm metric micrometer
Micrometer adjusting spanner
Sample stepped parallel drift

Instructions

1.	Check the zero setting of the micrometer and adjust the position of the sleeve scale if required.	☐ Satisfactory ☐ Not satisfactory
2.	Measure all diameters on the stepped parallel drift supplied and record your results. Diameter 1: _____ Diameter 2: _____ Diameter 3: _____ Diameter 4: _____ Diameter 5: _____ Diameter 6: _____	☐ Satisfactory ☐ Not satisfactory
3.	Measure all possible dimensions on the workpiece supplied and record your results. Draw a neat freehand pencil sketch of the object and show the measured dimensions.	☐ Satisfactory ☐ Not satisfactory
4.	Submit your results to your lecturer for comment and feedback.	☐ Satisfactory ☐ Not satisfactory
5.	Return all of the equipment to its proper place.	☐ Satisfactory ☐ Not satisfactory

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Neat Pencil Sketch of Object

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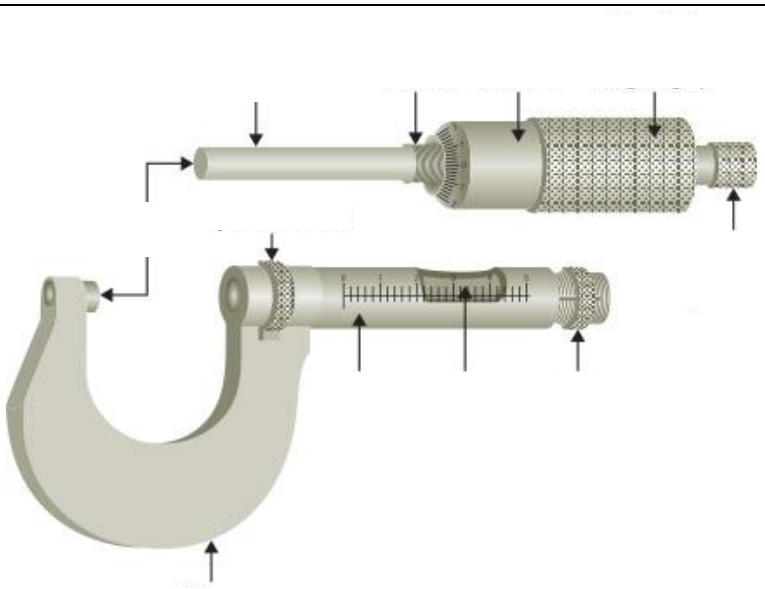
Examine the micrometer, and answer the following questions

Question	Label the major parts of the micrometer shown below.	
Answer		☐ Satisfactory ☐ Not satisfactory

Question	What degree of accuracy can be achieved with the micrometer used?	
Answer		☐ Satisfactory ☐ Not satisfactory

Question	How many divisions are on the thimble scale of a metric micrometer?	
Answer		☐ Satisfactory ☐ Not satisfactory

Question	How many millimetres are there between numbered divisions on the sleeve scale of a metric micrometer?	
Answer		☐ Satisfactory ☐ Not satisfactory

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Practical Activity 7

Using a Vernier Calliper

Objective

To measure the appropriate dimensions of an object using a metric Vernier Calliper.

Equipment

0-200 mm metric Vernier Calliper or similar
Sample stepped parallel drift.

Instructions

1.	Count the number of divisions on the Vernier scale of the Vernier Calliper and calculate the degree of accuracy of the tool. _____	☐ Satisfactory ☐ Not satisfactory
2.	Measure all diameters on the stepped parallel drift supplied and record your results. Diameter 1: _____ Diameter 2: _____ Diameter 3: _____ Diameter 4: _____ Diameter 5: _____ Diameter 6: _____	☐ Satisfactory ☐ Not satisfactory
3.	Measure all possible dimensions on the workpiece supplied and record your results. Draw a neat freehand pencil sketch of the object and show the measured dimensions.	☐ Satisfactory ☐ Not satisfactory
4.	Submit your results to your lecturer for comment and feedback.	☐ Satisfactory ☐ Not satisfactory
5.	Return all of the equipment to its proper place.	☐ Satisfactory ☐ Not satisfactory

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Neat Pencil Sketch of Object

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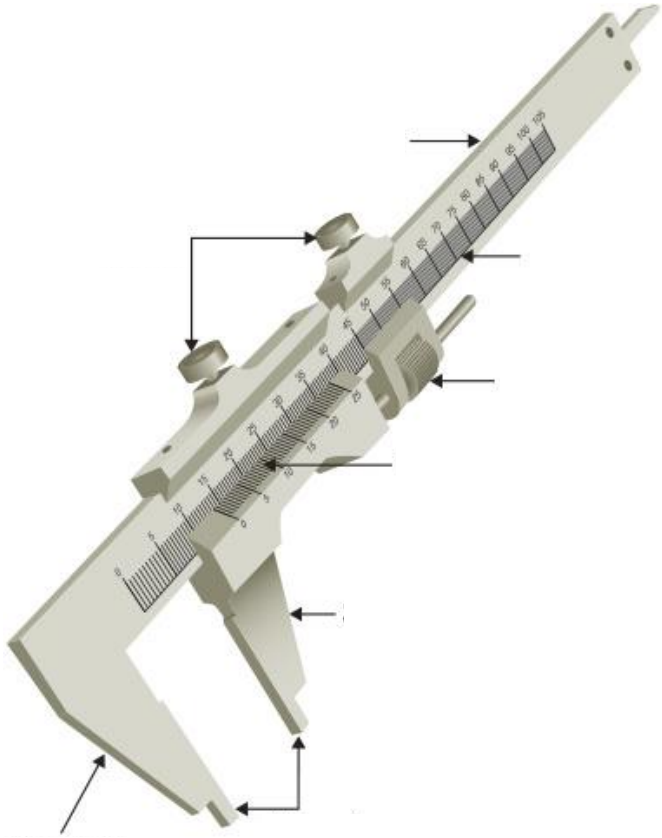
Question	Label the parts of the Vernier Calliper shown below to indicate the part of the tool used to take outside measurements, inside measurements and depth measurements.	
Answer		☐ Satisfactory ☐ Not satisfactory

Question	How many divisions are on the Vernier scale of the Vernier Calliper used for this project?	
Answer		☐ Satisfactory ☐ Not satisfactory

Question	How many millimetres are there between numbered divisions on the main scale of the Vernier Calliper used for this project?	
Answer		☐ Satisfactory ☐ Not satisfactory

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Practical Activity 8 – (Optional Extra Task)

Drilling and Tapping Threads

Objective

To manufacture a brass plate to the given dimensions using hand tools.

Equipment

75 mm of 25x3 mm brass bar.
300 mm steel rule.
300 mm hand hacksaw with a 24 point blade.
Junior hacksaw.
150 mm spring dividers.
150 mm engineer's tri square.
150 mm scriber.
100 mm centre punch.
150 mm odd-leg calipers.
Combination set with protractor head.
Marking blue.
Drills and taps for metric Isocoarse threads - M5 and M6.
Tee tap wrench.
Tapping drill tables.
3 mm and 10 mm twist drill.
Thread cutting compound (Trefolex or similar).
Hand files as required.
Portable electric drill.
Fine emery cloth.
1.5 mm letter and number stamps.
250 gram ball pein hammer or similar.
Workbench with vices.
Wooden filing block.
Working drawing of a Drilling and Tapping Threads (attached).
Safety equipment as required.

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Instructions

1.	Complete Take 5	☐ Satisfactory ☐ Not satisfactory
2.	File one edge and one end of the brass bar so that they are flat and square - finish by draw filing.	☐ Satisfactory ☐ Not satisfactory
3.	Apply a thin film of marking blue to the workpiece and allow it to dry.	☐ Satisfactory ☐ Not satisfactory
4.	Mark out the drilling and tapping block, using the filed edges as datum lines. Note: When scribing lines, always carry the line through for at least 2 mm at each end so that each corner is an intersection of two lines rather than junction of two end points.	☐ Satisfactory ☐ Not satisfactory
5.	Check all of your measurements for accuracy.	☐ Satisfactory ☐ Not satisfactory
6.	Have your marking out checked by your Lecturer.	☐ Satisfactory ☐ Not satisfactory
7.	Determine the sizes of the tapping drills required for the metric Isocoarse threads (from a Tapping Drill Table) and obtain the drills.	☐ Satisfactory ☐ Not satisfactory
8.	Secure the workpiece in a suitable vice and drill all holes with a small portable electric drill.	☐ Satisfactory ☐ Not satisfactory
9.	Tap the metric Isocoarse threads.	☐ Satisfactory ☐ Not satisfactory
10.	Cut and file the workpiece to shape and finish all edges by draw filing.	☐ Satisfactory ☐ Not satisfactory
11.	Have your workpiece checked by your Lecturer.	☐ Satisfactory ☐ Not satisfactory
12.	Mount your workpiece in a filing block and draw file both faces. Finish all surfaces with fine emery cloth.	☐ Satisfactory ☐ Not satisfactory

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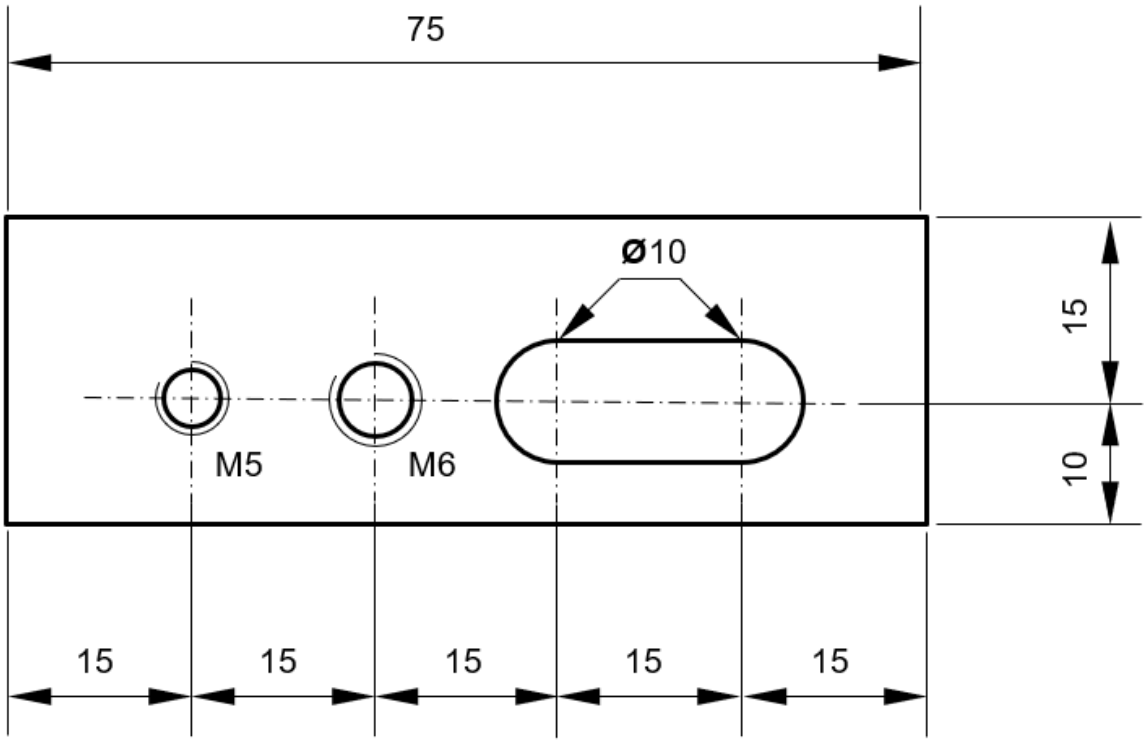
13.	Have your workpiece checked by your Lecturer.	☐ Satisfactory ☐ Not satisfactory
14.	Mark the M5 & M6 threads with letter and number stamps (practice on a piece of scrap metal before you attempt to mark your workpiece). Stamp your initials on your workpiece.	☐ Satisfactory ☐ Not satisfactory
15.	Submit your finished drill and tapping block to your Lecturer for comment and feedback.	☐ Satisfactory ☐ Not satisfactory
16.	Return all of the equipment to its proper place.	☐ Satisfactory ☐ Not satisfactory



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Practical Activity 9

Dismantle and Assemble a Component

Objective

To dismantle and assemble a given component using hand tools.

Equipment

A typical component found in the electrical industry, for example:

- An electric motor or generator.
- A magnetic contactor or motor starter.
- A portable power tool.
- A small petrol engine.
- A small machine.

Hand tools and sundry items as required.
Parts tray.
Manufacturer's information if applicable.
Sample Service Record Card.

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Instructions

1.	Complete Take 5	☐ Satisfactory ☐ Not satisfactory
2.	Examine the component supplied (or provide you own if you wish), and enter the identifying information on the Service Record Card.	☐ Satisfactory ☐ Not satisfactory
3.	Plan the job. Discuss the job with your Lecturer.	☐ Satisfactory ☐ Not satisfactory
4.	Dismantle the component using hand tools. Make sure that you place all components in the parts tray, and use appropriate marking procedures where applicable.	☐ Satisfactory ☐ Not satisfactory
5.	Discuss the dismantling procedure with your Lecturer.	☐ Satisfactory ☐ Not satisfactory
6.	Re-assemble the component.	☐ Satisfactory ☐ Not satisfactory
7.	Enter appropriate information on the Service Record Card.	☐ Satisfactory ☐ Not satisfactory
8.	Have your re-assembled component and your Service Record Card checked by your Lecturer for comment and feedback.	☐ Satisfactory ☐ Not satisfactory
9.	Return all of the equipment to its proper place.	☐ Satisfactory ☐ Not satisfactory

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Service Record Card

Technician		**Date**	
Equipment Description			
Owner			
Enter N/A if not applicable and attach a separate sheet if required			
Reason for Service			
Symptoms of Fault			
Work Required			
Nameplate Details			
Terminal Markings / Connection Diagram			

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Drive Shaft Diameter	
Pulley Diameter	
Belt Number and Type	
Coupling Type	
Bearing Type and Number(s)	
Bearing Lubricant	
Special Tools Required	
Work Done	
Total Hours	
Spare Parts Used	
Additional Work Required	
Additional Comments	

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Practical Activity 10

Manufacture Tool Box from Sheet Metal

Objective

Manufacture a Tool Box from Sheet Metal

Equipment

1 piece of Zinc plated Sheet metal - 600 x 300mm
Hand tools for sheet metal work
Vernier Calliper
Foot Guillotine
Hand Guillotine
Manual and Electric Bending machines
Portable power tools such as a drill
Electrical conduit threading equipment
Drill bits, hole-saws and chassis punches

Instructions

1.	Complete Take 5	☐ Satisfactory ☐ Not satisfactory
2.	Refer to the attached development view of a sheet metal Tool Tray.	☐ Satisfactory ☐ Not satisfactory
3.	Measure the thickness of the standard zinc coated MS sheet provided using a micrometer: _____mm	☐ Satisfactory ☐ Not satisfactory
4.	From the standard sheet size provided determine the best method of cutting out the overall *tool tray* template using sustainable work practices to minimize wastage.	☐ Satisfactory ☐ Not satisfactory
5.	Have this checked by your Lecturer before cutting. Using **Guillotine Safe Operating Procedure** cut out overall shape on Guillotine.	☐ Satisfactory ☐ Not satisfactory
6.	Clearly mark out developed view of *tool tray* using scriber, odd leg callipers, steel rule and combination square. Cut-out and fold marks should be identified.	☐ Satisfactory ☐ Not satisfactory

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7.	Use a *centre punch* for all holes to be drilled. Drill holes using *drill press* and correct size metal twist drill and 20mm whole saw for handle mounting hole.	☐ Satisfactory ☐ Not satisfactory
8.	Fold safe edges with hand bender and hammer flat using appropriate size *ball pein* hammer. Bend up sides using *hand* and *Magna benders*.	☐ Satisfactory ☐ Not satisfactory
9.	Clamp tabs with *vice grips* and drill correct size holes for pop rivets with electric pistol drill. Fit pop rivets with pop rivet gun.	☐ Satisfactory ☐ Not satisfactory
10.	Using 20mm steel conduit cut handle to correct length with hacksaw with 24 pitch blade. Using appropriate cutting compound (Trefolex or similar) thread both ends using *Warragul stock and die*. Fit handle using PVC lock rings and female bushes.	☐ Satisfactory ☐ Not satisfactory
11.	Present project to Lecturer for comment and feedback.	☐ Satisfactory ☐ Not satisfactory
12.	Return all of the equipment to its proper place.	☐ Satisfactory ☐ Not satisfactory

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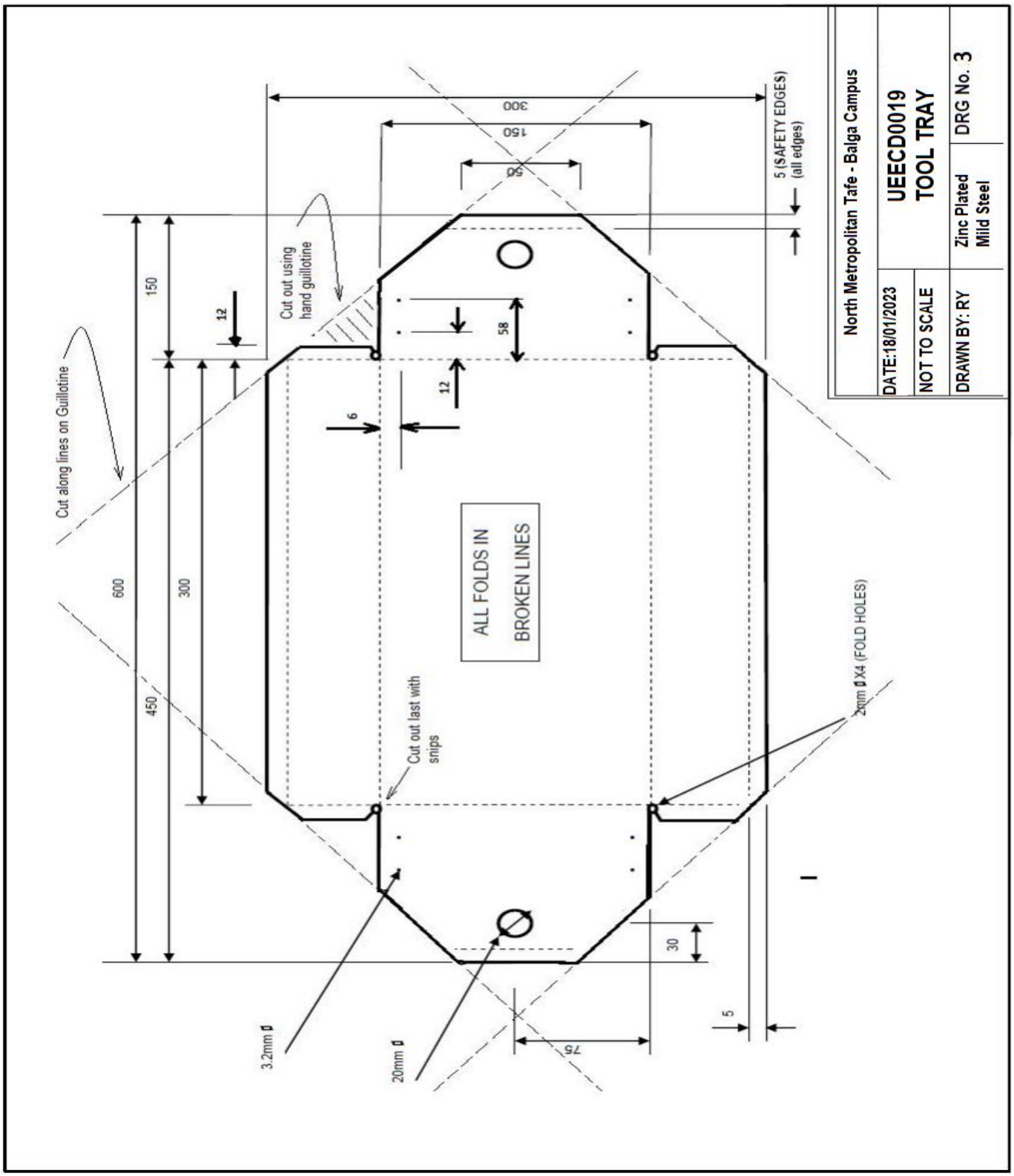

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Reasonable Adjustment			
Adjustment Required	☐ **Yes**	☐ **No**	
Describe the adjustments that have been made to the assessment:			
Assessor name and signature		**Date**	
Student name and signature		**Date**	

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Assessment Outcome Knowledge Questions	☐ **Satisfactory**	☐ **Not Satisfactory**
Assessment Outcome Practical Activities	☐ **Satisfactory**	☐ **Not Satisfactory**
Knowledge Questions / Practical Activity Feedback:		
Actions Required if Not Satisfactory:		

Assessor name and signature		**Date**	
Student name and signature		**Date**	