

Student names (please print)

_____	_____	_____
_____	_____	_____

Objective

The objective of this lab is for you and your Team to Layout a 'tetris' shape as accurately as possible, develop a procedure to allow someone else non-technical to complete the exercise and determine the error associated with your measurements of the shape.

Instructions

- 1. Layout the assigned shape on the lawn as accurately as possible, use the nails provided to mark the corners.
- 2. You must ensure that all angles are right angles and that your layout is accurate based on the dimensioned drawing provided.
Hint: you will need to use Pythagorean theorem.

$$c = \sqrt{a^2 + b^2}$$

- 3. Make notes on the procedure/steps that you are using.
- 4. Once you are satisfied with your layout let your teacher know and they will come and review your layout.
- 5. Next each group member is required to measure the annotated dimensions (A-E) on your shape in millimetres. A separate student needs to record for the person measuring. Measure the entire shape before switching students. Each group member will have measured the same dimension. Calculate the average of these multiple measurements to get a single representative value. Then, use this average to calculate the absolute error compared to the true value provided in the drawing. Show your work.
- 6. Absolute Error (Δx) is equal to the absolute (| |) difference (-) between the average value from all of your measurements ($x_{ave.}$) and the actual value (x_{actual}) as formulated:

$$\Delta x = |x_{ave.} - x_{actual}|$$

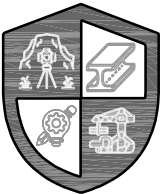
- 7. On the provided paper create a dimensioned sketch of your layout shape, labeling each dimension with the value you calculated above and express it as:

$$x_{ave.} \pm \Delta x$$

Ensure your sketch is neat and clear. Use the skills you are learning in drafting. The title block should be completed with relevant information.

- 8. Annotate the sketch corners (A,B,C,...) and write a procedure referring the annotated corners to explain how to layout the tetris shape to a non-technical person.

- 9. Based on the layout procedure your team developed, identify two potential sources of error that could have impacted your measurements. How would you revise your procedure to reduce these sources of error?



**CIVIL ENGINEERING
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COURSE NAME:

SUBMITTED TO:

ASSIGNMENT / PROJECT:

NAME:	ROLE ON PROJECT:

LEGEND:

DRAWING SCALE:	DATE:
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DRAWING TITLE:

SHEET NUMBER: OF