

ASSIGNMENT

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| Course Code | ESC103A |
| Course Name | Engineering Drawing |
| Programme | B.Tech |
| Department | CSE |
| Faculty | FET |

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| Reg. No | 17ETCS002159 |
| Semester/Year | 02/2018 |
| Course Leader/s | |

| Declaration Sheet | | | |
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| Student Name | | | |
| Reg. No | | | |
| Programme | | Semester/Year | |
| Course Code | | | |
| Course Title | | | |
| Course Date | | to | |
| Course Leader | | | |
| <p>Declaration</p> <p>The assignment submitted herewith is a result of my own investigations and that I have conformed to the guidelines against plagiarism as laid out in the Student Handbook. All sections of the text and results, which have been obtained from other sources, are fully referenced. I understand that cheating and plagiarism constitute a breach of University regulations and will be dealt with accordingly.</p> | | | |
| Signature of the Student | | Date | |
| Submission date stamp (by Examination & Assessment Section) | | | |
| Signature of the Course Leader and date | | Signature of the Reviewer and date | |
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Question No. 1

Solution to Question A:

The Given Radial Position and the Elevation data is in meters, which needs to be reduced to a proper scale to be drawn on paper, hence the Scale was taken as $1m = 0.4 mm$. Or $\frac{4}{10000}$ times the value, or 2500: 1.

The Scaled Data is given below

| Data | In metre(m) | In millimetre(mm) |
|-------|-------------|-------------------|
| H cam | 62 | 24.8 |
| H1 | 228 | 91.2 |
| H2 | 224 | 89.6 |
| H3 | 216 | 86.4 |
| H4 | 258 | 103.2 |
| R1 | 100 | 40 |
| R2 | 120 | 48 |
| R3 | 110 | 44 |
| R4 | 125 | 50 |

Table 1.1 data table.

| Θ value | In degree ($^{\circ}$) |
|----------------|--------------------------|
| $\Theta 1$ | 309 |
| $\Theta 2$ | 281 |
| $\Theta 3$ | 181 |
| $\Theta 4$ | 91 |

Table 1.2 data table.

Where Hcam, H1, H2, H3, H4 are Elevation of pulleys and camera with respect to ground.

$\Theta 1$, $\Theta 2$, $\Theta 3$, $\Theta 4$ are Angular position of pulleys in the top view from the horizontal line drawn through the camera.

R1, R2, R3, R4 are Radial position of pulleys.

A.2 Manual Drawing – plotting of the given data

As per given data the drawing is drawn by manually in A4 size sheet.

A.3 Manual Drawing – Front View, Top View, True Lengths

In manual drawing, the front view, top view and true lengths are shown and labelled.

A.4 AutoCAD Drawing – plotting of the given data

As per given data the drawing is drawn in AutoCAD.

A.5 AutoCAD Drawing – Front View, Top View, True Lengths

In AutoCAD drawing the front view, top view and true lengths are shown and labelled.

A.6 Labelling

Both AutoCAD drawing and Manual drawing are labelled.

The front and top view of the location of the spider cam and the pulleys are drawn.

Determine the shortest length of rope needed for connecting each pulley to the cam. Also indicate the required angles and total length of the rope.

The Shortest length of rope will be the sum of Top View length of the Rope :

$$(100 + 120 + 110 + 125) = 455m$$

Total Length of the rope required will be the sum of True Lengths :

$$(77.5 + 80.6 + 75.7 + 93) = 326.8 = \frac{326.8}{4} = 817m$$

Solution to Question B:

The Given Height of Nest and the Elevation data is in meters, which needs to be reduced to a proper scale to be drawn on paper, hence the Scale was taken as $1m = 1\text{ mm}$. Or $\frac{1}{1000}$ times the value, or 1000: 1.

The Scaled Data is given below

| Data | In metre(m) | In millimetre(mm) |
|--------|-------------|-------------------|
| H nest | 15 | 15 |
| H1 | 30 | 30 |
| H2 | 31 | 31 |
| H3 | 12 | 12 |
| X1 | 15 | 15 |
| X1 | 38 | 38 |
| X2 | 39 | 39 |

Table 1.3 data table.

| α value | In degree ($^{\circ}$) |
|----------------|--------------------------|
| α_1 | 42 |
| α_2 | 42 |
| α_3 | 49 |

Table 1.4 data table.

B.2 Manual Drawing – plotting of the given data

As per given data the drawing is drawn by manually in A4 size sheet.

B.3 Manual Drawing – Front View, Top View, True Lengths

In manual drawing, the front view, top view and true lengths are shown and labelled.

B.4 AutoCAD Drawing – plotting of the given data

As per given data the drawing is drawn in AutoCAD.

B.5 AutoCAD Drawing – Front View, Top View, True Lengths

In AutoCAD drawing the front view, top view and true lengths are shown and labelled.

B.6 Labelling

Both AutoCAD drawing and Manual drawing are labelled.

The front and top view of the nest and food storage locations. Obtain the true distance between these locations and calculate the total distance it travels.

The True Length are: $36.2m$, $59.8m$, $60.6m$

The Total Distance travelled as seen from TOP View : $79m + 59m + 20m + 57m = 215\text{ m}$