CE200 SURVEYING
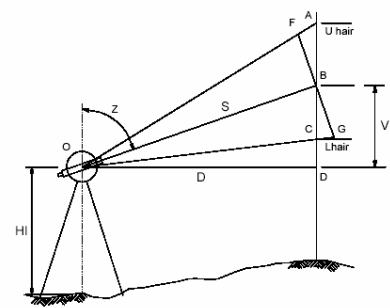
Lecture 4.2
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TACHEOMETRY

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Tacheometry is an easy and cheap method of collecting much topographic data. You can use a theodolite combined with a staff to produce a plan with natural surface features and contours.

Station Point	Target Point	Horizontal Circle Reading β	Vertical Angle Z	Staff Readings U,M,L	100.S	d_{Ai} e_{Ai}	Azimuth α_{Ai}	X_i ΔX_{Ai}	Y_i ΔY_{Ai}	Z_i ΔH_{Ai}
A	B									
	1									

$d= 100*S*cos^2h = 100*S*sin^2Z$

$e= 100*S*sinh*cosh = 100*S*cosZ*sinZ$

$\Delta H= I+e-M$

Field Procedure

❖ Set up the instrument at a reference point
❖ Read upper, middle, and lower hairs.
❖ Release the rodman for movement to the next point.
❖ Read and record the horizontal angle.
❖ Read and record the vertical angle.

There are 4 main sources of error:

* Staff Readings
* Tilt of the Staff
* Vertical Angle
* Horizontal Angle

Fieldwork 4, Phase 2: Contours by tacheometer

Draw another plan of your own field with contour lines by applying tacheometric method.

- Bring us:
✓ Measurements of your traverse.
✓ Calculation of your traverse.
✓ A sketch showing traverse points and legs, approximate locations of points and their numbers.
✓ Tacheometric fieldbook.
(Use the coordinates of traverse calculation.)
✓ Plan with the same scale of previous plan.
✓ Report