

Digital Land Surveying and Mapping (DLS&M)
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Lecture – 38
Demonstration of Digital Land Survey Detailing

Welcome students. This is the 38th lecture on Digital Land Surveying and Mapping. Now in this class, I will be demonstrating the collection of field details using total station.

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Now, the steps of carrying out the detailing of surveying is that in the usually we have collected the GPS data at this station and there is one more station there and one more station there, these are the three points whose location already we have find out by using GPS, so these are the point three points whose coordinates are known. Now one of this station is this one on which we have set up this total station, now you know that the total station has to be fixed when the tripod stand then we have centered and leveled.

So, now you can see here in this display you will be able to see that the all the three levels are at the center; that means our instrument is properly leveled as well as through by looking through this collimator we have found that our instrument is exactly centered on this point, so the centering and leveling of this instrument has been done. Now we will start taking our observation now to start the collection of data there are two parts of

setting up; one is that physical part which; that means, consisting of fixing, leveling, centering and the another part is to create the job inside it for collection of data.

Now as we had press the button prior g, this this is the magnet field software, so to create the job first we have to this is the main menu of the magnetic field software. So, now we have to click the job and now we are creating a new job and we are giving some name suppose today's date 07; 02, 07; 02 is the date we have given.

So, next; so we have to select the projection system then datum we are taking WGS 84 coordinate system because the coordinate of this point we have collected using WGS 84 system and u t m north a jole 43. So, now it is ok; now the job is being creating with this information that we will be collecting the data using WGS 84 system. After the job has been created, now we have to give the coordinate of this point, so now we are giving the station coordinate of this point.

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This is 7 8.

0.

7 8.

0.

0.

186.

186.

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Then our northing is.

330.

33.

0.

07.

6.

7 6.

77.

77.

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And then elevation.

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207.68.

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210.

Point (Refer Time: 04:49).

Height of the instrument now you have to measure the height of the instrument.

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That of the instrument we are measuring from a station point we have to measure the height of the instrument this is the mark, what is the amount?

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1.36; so height of the instrument is 1.36, now we have to leave it here; 1.36, so scale 1 is to 1 backside point. Now I have to go to the back side point; back side point is 2, so now I have to bisect this point, now we have occupied the station this one whose coordinate is been stored in this data collector and then I will be focusing to our backside to s 2 that is the station; s 2.

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Now, I have bisected that prism using this that is the back side I have taken and set.

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Now, this instrument is setting that one now here you can see in this that occupation s 1 station back side that is the prism and azimuth; azimuth of this line is 201 degree 48 minute 5 second that has been computed by the software available in the data collector and we got these horizontal angles, vertical angle slope distance. So, that is what we have to collect and we have now set up the instrument, you can see different data like local time error in horizontal angle measurement, error in vertical angle measurement,

standard deviation error horizontal, so all these many other things we can get it from here.

Now all with this our setting up of the instrument is over, now we can take survey detailing using the module will called survey and then we have to go to the top of module. Suppose there is a there is a wall and there is a garden, so I will like to first locate the now I will bisect that object; that is the corner of the wall. So, our prism has been hold there now from here I will bisect that thing that point name I am giving it by 1 and boundary corner so and the code; I can make use of any code.

Now I will look at these, so now I have bisected that object now I will tell it to take the reading, now it is taking the reading and it has been stored inside. So, now I will take the second corner of the boundary wall, so now next point I will like to take the corner of the building; a boundary wall; so now I am bisecting it. So, now I bisected that corner again I am taking reading, so this is I am giving the number as 2 boundary corner. So, now it is taking the boundary corner reading and it has taken and is stored it.

Next, I will like to take the corner of this garden you can see this garden, now I can take the reading suppose this is one garden corners g c. So, and I want to take a reading; so the instrument is taking reading. So, like that we can take reading of so many points using reflector, so in that way I have shown you the how to take reading using reflector now I want to show you how to make use of reflector less.

In order to go forward reflector less measurements first we have to go to e d m then we have to choose the reflector less. Now I have to suppose I want to find out the location of this lamp post.

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So, now this lamp post I will like to bisect, so through this; so I bisected the lamp post now if I measure. So, I can give the name like lamp post 1; now I will measure it.

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Actually in a reflector less mode we generally send a dim of red light, but since there are so many light; so we are unable to recognize. So, we have to assume that yes this is the object because I have bisected it through this, so now if we I want to measure the height

of this building then also we can do using reflector less mode doing the same thing we have to first orient this our instrument bisect that top of this building and then we have to look through this I can see the top of parapet. Now if I let us say this is parapet, parapet 1 then if I send the reflector beam, now I will demonstrate the action of this instrument in a reflector less mode.

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Now, I want to locate this tree using in a without reflector; that means, in a reflector less mode. So, in this tree we have bisected the point as shown in the hole and now we will measure that now you can see there is a red blinking on that row on the tree. So, that indicates that this instrument is taking in a reflector less mode measurement of the tree location, so all that about the reflector less mode.

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Now once we have taken the observations, we may need to check; what are the locations we have taken and what are the coordinates how does it look in a map. So, from this our observation window there is a small window called map m; in that if we view if we go to the view. So, there are two option normal and map, now if I select the map now you can see here that whatever we have taken the observations these are showing like l p; that means, then p p s t all these thing. So, and also we can see the coordinate of this points m view edit points.

So, if we go to the edit point then you can see all these; that garden corner then now I different points we have taken like tree t r 1 then lamp post l p 1, so all these are available in this. So, in that way we can get the coordinate over all these points in the northeast coordinate system, so with this I like to, now this is the method of radiation. Now I will like to demonstrate the method of resection like we have these three points known this point is known, that point is known and that point is known. There is another point there where the GPS coordinate has taken which is known to us.

Now suppose we want to set up our instrument somewhere there whose location we do not know. So, simply we can put it there and from these three known coordinates we can get the coordinate of that point the location of the instrument station. So, I will now go for that part of the experiment that whatever we have taught in the last class as the method of resection. Now I will be explaining the method of resection as I had already

told in a last class, in the method of resection we need to have at least two and preferably three points whose positions are known. Now in this I have three points; one is there, another is there and the third one is there these three points locations are known we have already find out these location by using GPS.

So using these three locations known location I will like to find out the location of this instrument station; that means, what is the location of this point that is what I am trying to find out and that is done by method of resection. Now to start with first we have to open the magnet field software which I have opened here, now this is the main menu in this main menu first we have to go to because job we have to do, but in this case already we have created a job; our job name is 0702; which is already open. So, we need not go for when redoing any new job, so in the same job we are working now we should set up; now in the within the set up first we will go for resection.

Now under resection it is axing which station I am occupying; that means, it is axing to give a name to this station. Suppose I am giving it the name as s, so enter; so and it is axing for the height of the instrument. So, already I have measured the height from station 2 point to this is 1.45, so I am giving it 1; 1 4 5. So, now next I want to now first bisect this point; this is our point number s 1, so I will like to bisect the before that I have to give it the coordinate from the list. So, I am pressing the list command where I will get the coordinate of all the point known point, so I am giving you the s 1. So, and the height of the reflector is 2 meter, so I am giving 2.00.

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Now I am bisecting that object.

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So, now I am bisected it and I want to measure, so it is measuring now. So, now I am to store it; now I will bisect these to second object and I have to show the point this is s 2 and the height of the instrument height of reflector is 2 meter. Now I am telling that you will start measurement, so it has taken the measurement now I am do stored it.

So, now I have bisected that reflector and now I am taking the reading, so now I am storing it. So, in that way we can compute the location of this station point by method of

resection, so that all I want to demonstrate. Now once the location has been established then we can go for measurement or location of details of different points from this station as we did as I had did by method of radiation. So, from this location by method of radiation also I get the detailing of different points.

So, with this I like to conclude today's demonstration of detailing of digital survey by using the total station.

Thank you very much.