Course outline

Week 0: Prerequisite

Week 1: Introduction to Higher Surveying and

Coordinate System &

Week 2: Coordinate System

and Reference Frame & Time

Week 3: Time and Astronomy

Adjustments Computations

Week 4: Error, Accuracy, and

Week 5: Error, Accuracy, and

Adjustments Computations,

GPS & Photogrammetry

Week 6: Photogrammetry

Week 7:Photogrammetry

Week 8:Photogrammetry & LiDAR (LiDARgrammetry)

Lec 1:Geolocation and errors

Lec 2:Information extraction

Lec 3:RADAR fundamenetals-

Week 9: RADAR

(RADARgrammetry)

of LiDAR data

from LiDAR data

Quiz : Assignment 9

week 9

Week 10: RADAR

Week 11: RADAR

(RADARgrammetry)

(RADARgrammetry) &

Hydrographic Survey

Week 12: Hydrographic

Survey & Navigation

Download Videos

Weekly feedback form for

Adjustments Computations

& Error, Accuracy, and

Reference Frame

and Astronomy

course work?

Unit 11 - Week 9: RADAR (RADARgrammetry)

Assignment 9 How does an NPTEL online

The due date for submitting this assignment has passed.

a. 13.46 cm and increase by 65.24%

b. 13.46 cm and decrease by 68.24%

c. 15.46 cm and increase by 65.24%

d. 15.46 cm and decrease by 68.24%

a. Both statement 1 and statement 2 are false

b. Statement 1 is true , statement 2 is false

c. Statement 1 is false, statement 2 is true

b. Statement 1 is true, statement 2 is false

d. Both statement 1 and statement 2 are true

a. Both statement 1 and statement 2 are false

b. Statement 1 is true, statement 2 is false

C. Statement 1 is false, statement 2 is true

d. Both statement 1 and statement 2 are true

d. Both statement 1 and statement 2 are true

a. Both statement 1 and statement 2 are false

b. Statement 1 is true , statement 2 is false

c. Statement 1 is false, statement 2 is true

a. Both statement 1 and statement 2 are false

d. Both statement 1 and statement 2 are true

a. Both statement 1 and statement 2 are false

b. Statement 1 is true , statement 2 is false

C. Statement 1 is false, statement 2 is true

c. Statement 1 is false, statement 2 is true

d. Both statement 1 and statement 2 are true

a. Both statement 1 and statement 2 are false

b. Statement 1 is true , statement 2 is false

c. Statement 1 is false, statement 2 is true

b. Statement 1 is true, statement 2 is false

d. Both statement 1 and statement 2 are true

a. Both statement 1 and statement 2 are false

b. Statement 1 is true , statement 2 is false

c. Statement 1 is false, statement 2 is true

b. Statement 1 is true , statement 2 is false

d. Both statement 1 and statement 2 are true

a. Both statement 1 and statement 2 are false

b. Statement 1 is true, statement 2 is false

C. Statement 1 is false, statement 2 is true

a. Both statement 1 and statement 2 are false

d. Both statement 1 and statement 2 are true

a. Both statement 1 and statement 2 are false

b. Statement 1 is true , statement 2 is false

c. Statement 1 is false, statement 2 is true

d. Both statement 1 and statement 2 are true

d. Both statement 1 and statement 2 are true

a. Both statement 1 and statement 2 are false

b. Statement 1 is true , statement 2 is false

c. Statement 1 is false, statement 2 is true

d. Both statement 1 and statement 2 are true

d. Both statement 1 and statement 2 are true

a. Both statement 1 and statement 2 are false

b. Statement 1 is true, statement 2 is false

C. Statement 1 is false, statement 2 is true

d. Both statement 1 and statement 2 are true

d. Both statement 1 and statement 2 are true

a. Both statement 1 and statement 2 are false

b. Statement 1 is true , statement 2 is false

c. Statement 1 is false, statement 2 is true

c. Statement 1 is false, statement 2 is true

Reference Frame of IMU at switch on condition.

a. Both statement 1 and statement 2 are false

b. Statement 1 is true, statement 2 is false

c. Statement 1 is false, statement 2 is true

a. Both statement 1 and statement 2 are false

d. Both statement 1 and statement 2 are true

a. Both statement 1 and statement 2 are false

b. Statement 1 is true , statement 2 is false

c. Statement 1 is false, statement 2 is true

b. Statement 1 is true, statement 2 is false

d. Both statement 1 and statement 2 are true

a. Both statement 1 and statement 2 are false

b. Statement 1 is true, statement 2 is false

c. Statement 1 is false, statement 2 is true

a. Both statement 1 and statement 2 are false

may cause fatigue at early stage of flight mission.

a. Both statement 1 and statement 2 are false

b. Statement 1 is true , statement 2 is false

c. Statement 1 is false, statement 2 is true

d. Both statement 1 and statement 2 are true

d. Both statement 1 and statement 2 are true

a. Both statement 1 and statement 2 are false

b. Statement 1 is true , statement 2 is false

c. Statement 1 is false, statement 2 is true

c. Statement 1 is false, statement 2 is true

d. Both statement 1 and statement 2 are true

a. Both statement 1 and statement 2 are false

b. Statement 1 is true, statement 2 is false

c. Statement 1 is false, statement 2 is true

d. Both statement 1 and statement 2 are true

a. Both statement 1 and statement 2 are false

b. Statement 1 is true, statement 2 is false

c. Statement 1 is false, statement 2 is true

d. Both statement 1 and statement 2 are true

d. Both statement 1 and statement 2 are true

information because noise will confuse the detecting system.

a. Both statement 1 and statement 2 are false

b. Statement 1 is true , statement 2 is false

c. Statement 1 is false, statement 2 is true

c. Statement 1 is false, statement 2 is true

d. Both statement 1 and statement 2 are true

d. Both statement 1 and statement 2 are true

and so we use it for remote sensing Statement 2: Microwaves can penetrate through ionosphere

d. Both statement 1 and statement 2 are true

both data sets. Statement 2: LAS data format contains topology information about LiDAR data.

d. Both statement 1 and statement 2 are true

maneuvering to reach at starting point of a flight line earlier than fixed wing aircraft.

fired pulses during one scan of oscillating mirror has maximum spacing across direction of flight.

DTM represents the terrain which was originally available before construction of man-made features.

b. 13.46 cm and decrease by 68.24%

No, the answer is incorrect.

Accepted Answers:

which are beneath aircraft.

No, the answer is incorrect.

Accepted Answers:

surface by plane of triangle.

No, the answer is incorrect.

Frame (ITRF) and WGS 84 ellipsoid.

No, the answer is incorrect.

Accepted Answers:

a. 0.076 m

b. 0.079 m

C. 0.077 m

d. 0.078 m

Accepted Answers:

Score: 0

a. 0.076 m

Score: 0

Score: 0

Score: 0

No, the answer is incorrect.

No, the answer is incorrect.

a. 1.732 m, 0.077 m

b. 1.735 m, 0.079 m

c. 1.736 m, 0.087 m

d. 1.734 m, 0.077 m

Accepted Answers: a. 1.732 m, 0.077 m

No, the answer is incorrect.

No, the answer is incorrect.

Accepted Answers:

Score: 0

Score: 0

Score: 0

flight duration.

Score: 0

uniformity of data.

Score: 0

system.

Score: 0

will derive terrain.

Score: 0

Score: 0

Score: 0

Score: 0

Score: 0

Score: 0

As per our records you have not submitted this assignment.

calculate the percentage (%) increase/decrease vertical accuracy of LiDAR data.

Announcements

1) If horizontal accuracy (1a) of LiDAR point is 15 cm and vertical accuracy (1a) is 8 cm, calculate vertical accuracy on an inclined plane of 20°. And

Consider following two statements: Statement 1: Adding the lever arm into the coordinate of body coordinate system (BCS) will translate coordinates 1 point

into Earth Tangential Coordinate System. Statement 2: Earth Tangential System is centered at aircraft path and has a x and y axis parallel to Earth surface features

Consider following two statements: Statement 1: PRF of an airborne LiDAR sensor decreases with height because higher heights need more

travelling time for each pulse. Statement 2: Due to sequential firing of a laser pulse an airborne laser scanner provides less PRF as flying height increases.

Consider following two statements: Statement 1: Increasing data density will map the edges of buildings because laser pulses at higher data density 1 point

certainly fall on building edges. Statement 2: Increasing overlap of LiDAR data will increase data density and increase the resolution of data without increasing the

Consider the following statements: Statement 1: Data density is a function of scanning frequency and increasing scanning frequency will increase

data density. Statement 2: Uniform distribution LiDAR data is also a function of scanning frequency and it should be designed with other variables to achieve

6) Consider following two statements: Statement 1: LiDAR observation equation requires the latitude and longitude of interpolated flight trajectory for 1 point

7) Consider the following two statements: Statement 1: Digital Surface Model (DSM) contains actual data of surface that include all super-structure and 1 point

natural objects (e.g. tree, buildings, ground, hills, valleys etc.) Statement 2: Digital Terrain Model (DTM) is calculated by removing all artificial super-structure. So

Consider following two statements: Statement 1: TIN (Triangular Irregular Network) is a data structure to store LiDAR data. This data structure

9) Consider the following two statements: Statement 1: Maneuvering with steep bank angles is not desired because, although it reduces the flight

increase flight duration in air and may cause disturbances to aircraft, and higher flight duration can also cause lack of concentration to the flying crew.

duration in air, it may cause fatigue and air sickness to the flying crew. Statement 2: Small banking angle is (less than 25°) is also not desired because it will

10) Consider the following two statements: Statement 1: Cushion period provides time to a pilot to align aircraft on a flight line well before starting of data point

11) Consider following two statements: Statement 1: Zigzag (Z-shaped or saw toothed) scanning pattern is achieved because a sensor continuously fires 1 point pulses in a line across the flight direction and aircraft speed perpendicular to scan direction creates Z-shaped pattern. Statement 2: Spacing between first and last

12) Consider following two statements: Statement 1: IMU, in general, indicates the direction of gravity but in airborne LiDAR data acquisition, it indicates 1 point

the direction of ellipsoidal normal. Statement 2: True North indicated by IMU is true North of geodetic meridians indicated by International Terrestrial Reference

13) Consider following two statements: Statement 1: Bore sight values $(\alpha_0, \beta_0, \gamma_0)$ are angular values between Scanner Reference Frame and IMU

14) Consider following two statements: Statement 1: Term topology in raster data and vector data are same, however, it has different interpretation for

15) Consider following two statements: Statement 1: If neighbourhood of data point contain tree and trench, and terrain, averaging is expected to give 1 point

terrain. Statement 2: If neighbourhood of data point contain both tree, trench and terrain, height that is occurring minimum number of time in neighbourhood data

16) Consider following two statements: Statement 1: Increasing bank angle of aircraft for completing a turn at faster rate is avoided because the GPS

17) Consider following two statements: Statement 1: Microwave region is opaque (non-transparent) to atmosphere, that is why it reflects more energy

18) Consider following two statements: Statement 1: Radio region of EM Spectrum ranges from 300 KHz – 300 GHz that includes microwave region of 1 point

19) Consider following two statements: Statement 1: GPS frequencies are located in L band of RADAR that is why they are denoted by L1, L2, L5

Statement 2: RADAR is an active microwave remote sensing, i.e. RADAR has its own source of energy that works in microwave region of EM spectrum.

20) Consider following two statements: Statement 1: Attenuation of signal means change in the shape of wavefront and distortion means change in the 1 point

23) Find the lateral spacing of the scatterers (cardinal effect) and the spacing in the range direction of scatters (Bragg scattering, assume n=1) when we 1 point

24) Consider following two statements: Statement1: Topographic LiDAR uses single frequency wave to generate point data of the terrain and does not 1 point

take into account of the intensity of reflected or refracted portion of the EMR. Statement2: RADAR works on multi frequencies of the EMR to map the terrain and

magnitude of a signal Statement 2: Noise is random error in the signal (useful information) and so if noise is high in a given signal, it is difficult to detect the true

1 point

1 point

1 point

EM Spectrum Statement 2: Though RADAR stands for Radio Detection and Ranging, it uses all bands from Microwave region

21) What is the depth (skin depth) of sea water, when we are using a RADAR of frequency $8.9 \times [10]^8 Hz$ (tan δ =1)?

22) Why do we use corner reflectors while mapping a ground surface using Radar (RAR / SAR) ?

are imaging a terrain with a RADAR (wavelength = 10 cm) having a slant range of 30 m and incident angle of 40°?

a. Since they have perfect geometry helps in estimating the geometry of scene

d. To calibrate the radar interferometer, since they have perfect size (height)

b. For calibration of reflectivity estimate of the scene

c. To estimate the resolution of the scene

For calibration of reflectivity estimate of the scene

takes into account of the intensity of backscattered portion of the EMR.

a. Both statement 1 and statement 2 are false

b. Statement 1 is true , statement 2 is false

c. Statement 1 is false, statement 2 is true

b. Statement 1 is true, statement 2 is false

d. Both statement 1 and statement 2 are true

lock may be lost. Statement 2: Higher values of banking angle though completes the turn faster, but flying crew may not be comfortable as fast maneuvering in air

(Body Reference Frame) but centered at GPS. Statement 2: Bore sight values are the angular values between Reference Fame of IMU at switch off condition and

acquisition on a flight line. Statement 2: Helicopter needs less cushion period than that of fixed wing aircraft because helicopter can perform sharp turning/

contains information of vertices of each data points of Delaunay triangles. Statement 2: In 3D triangulation, a triangle surface represents a hollow area on ground

geolocation of LiDAR data. Statement 2: LiDAR observation equation uses latitude and longitude of flight trajectory points in geodetic curvilinear coordinate

About the Course

1 point

1 point

1 point

1 point

Progress

Due on 2020-04-01, 23:59 IST.

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Ask a Question