VALUE-ADDED COURSE

On

Global Positioning System

(GEOVAC 001)

(With effect from 2022-2023)

COURSE OFFERED BY

Department of Geography

PASKURA BANAMALI COLLEGE (AUTONOMOUS)

Panskura RS, Purba Medinipur

PIN 721152

COURSE DETAILS

1. Name of the course: **Global Positioning System**

2. Course structure: **Theory and Practical**

3. Intake capacity: **Minimum 20**

4. Course fees: **Rs 300.00** (three hundred/candidate)

5. Course time: **30 hours**

6. Medium of instruction**: English**

7. Mode of teaching: **Blended**

8. Course coordinator: **Dr. Tanmoy Karan**

9. Coordinator's contact information: tanmoygeorsgis@gmail.com

Global Positioning System

(Number of lectures to be delivered for theory & practical 30 hours)

Theory: (Number of lectures to be delivered for this group -15 hours)

1. Introduction to GPS, GPS Satellite constellation, GPS segments. GPS signal structure, GPS triangulation, types of GPS receivers. GPS Positioning Types- absolute and differential. Different GPS system - NAVSTAR, GLONASS, Indian Regional Navigational Satellite System (IRNSS)
2. Geodesy and satellite navigation, Coordinate: global and local coordinate systems, satellite and conventional geodetic systems, time system.
3. GPS signal structure, GPS coding system. Pseudo range, C/A Code, P Code, Navigation Code, SA, Format of GPS data (RINEX) NGS-SP3, RTCM SC-104 and NMEA 018, GPS errors and biases
4. Mobile Mapping and GPS Applications: Mobile Mapping basic concepts and applications, GPS Application in Surveying and Mapping
5. Applications of GPS in surveying and mapping and resources management.

Practical: (Number of lectures to be delivered for this group - 15 hours)

1. Introduction to a GPS and initial setting, Creating attribute table for GPS receiver, Selection of Reference Station, Reference Station Equipment.
2. GPS data collection: Point Data collection using GPS with different datum, Line data collection using GPS and measurements.
3. Processing of the GPS data: Distance and area calculation. GPS aided traversing (manual and computer plotting using software), Creating attribute table in GPS pro software and Export functions, GPS and GIS integrations output preparation.

References

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4. P. Singal & R. S. Chiller, A review on GPS & its applications in computer science, International Journal of Computer Science and Mobile Computing, Vol 3, Issue 5, 2014.
5. Thomas A. Herring, Geodetic Applications of GPS,Vol. 87, No. 1, January 1999.

6. H. Yavasoglu', E. Tari', M. Sahin', H. Karaman',T. Erden', S. Bilgi], S. Erdogan', Applications of Global Positioning System (GPS) in Geodynamics: With Three Examples from Turkey, Afyon Kocatepe University Department of Geodesy and Photogrammetry,

7. Philip Moore and Peter Crossley, GPS applications in power systems, Power Engineering Journal February 1999, 33.

8. Henry, Saravanan & Kulathuran, Applications of GPS in Fisheries and Marine Studies, International Journal of Advance Research in Computer Science, Vol 2, No 6, 2011.

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10. P. Verma & J H Bhatia, Design & Development of GPS and GSM based Tracking system with Google based monitoring, in International journal in Computer Science Engineering and Applications, vol 3, no 3, 2013.

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20. Tom Logsdon, Navstar Global Positioning System, Van Nostrand Reinhold, 1992