PROSPECTUS
Certificate & Diploma Course in Geoinformatics

Last Date of Online Application; 05-12-2023

There is no application fee

Admission Open

COOCH BEHAR COLLEGE
DEPARTMENT OF GEOINFORMATICS

UGC-NSQF (University Grants Commission-National Skills Qualification Framework) Courses in Geoinformatics

Affiliated to

Cooch Behar Panchanan Barma University

CLICK HERE
APPLY NOW

There is no application fee

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ADMISSION SCHEDULE

- **Commencement of Online Application:**
  28.11.2023
- **Last Date of Online Application:**
  05.12.2023
- **Publication of Final Merit List:**
  06.12.2023
- **E-counselling / Admission :**
  Starts from 06-12-2023
- **Class : Starts from 08-12-2023**

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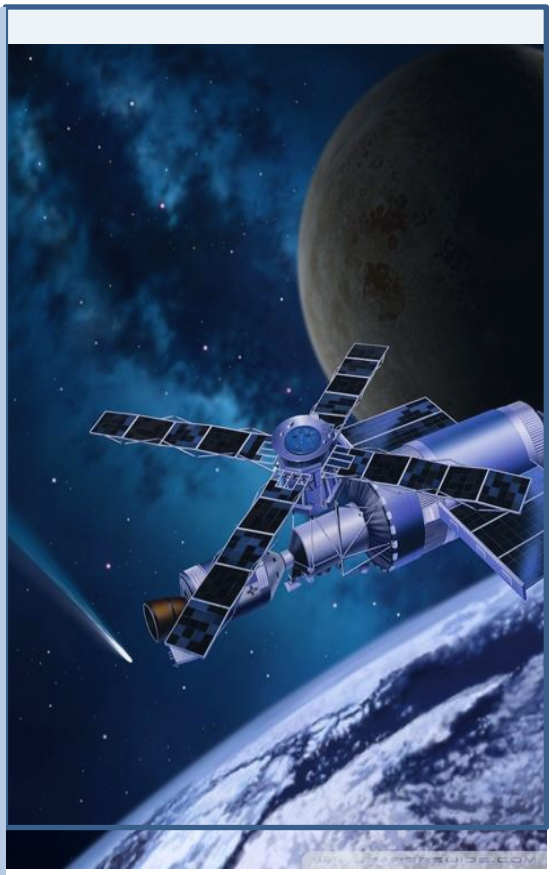
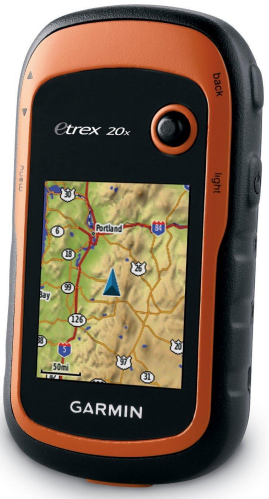
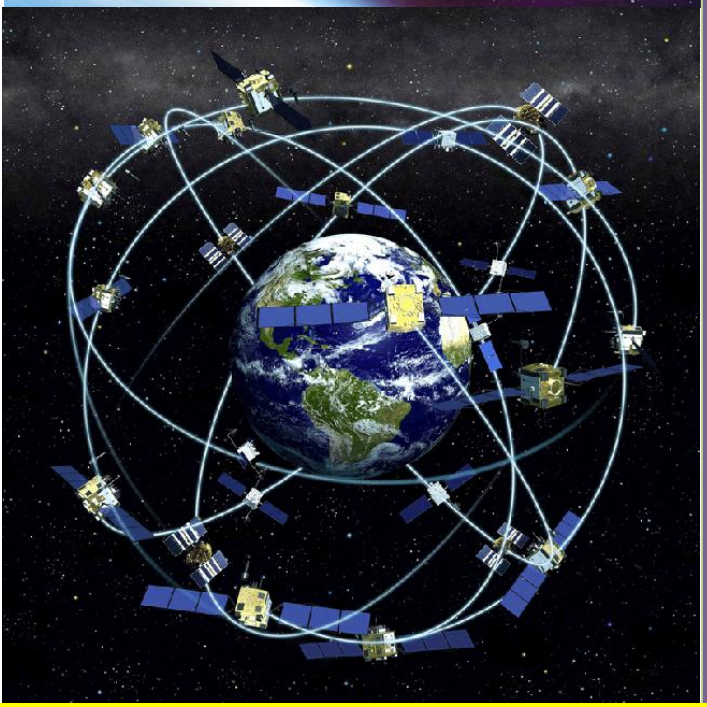
MESSAGE FROM THE DEPARTMENT

The Department of Geoinformatics, Cooch Behar College has established under the National Skills Qualification Framework, University Grants Commission (NSQF) and affiliated to Cooch Behar Panchanan Barma University in the year of 2020. Geoinformatics is the science and the technology which develops and uses information science infrastructure to address the problems of geography, cartography, geosciences, engineering and other branches of science. It is a term used to describe geospatial technologies that ranges of modern tools contributing to the geographic mapping and analysis of natural features on the earth and human made features. The fields and sectors deploying these technologies are currently growing at a rapid pace, informing decision makers on the topics such as soil & agriculture, irrigation & water resource management, urban & regional planning, accident analysis & hot spot analysis, telecom & network services, transportation planning, environmental impact analysis, determining land use/land cover changes, navigation, flood damage estimation, natural resources management, land information system, surveying, detection of coal mine & other minerals, tourism information system, pest control and management, site suitability for waste treatment plant, geologic mapping, locating underground pipes and cables, wildlife management, snow cover mapping, runoff prediction and much more applications. As disasters are spatial in nature, the Geoinformatics act as a decision support tool consisting geospatial techniques and skills of GIS (Geographic Information System), RS (Remote Sensing) & GNSS (Global Navigation Satellite System). So Geoinformatics is useful in disaster management applications & for decision making also.

The Certificate & Diploma courses in Geoinformatics will enhance the skill of the students in this particular techniques which will definitely enable them to use it in their academic study, research and find job as well.







GEOINFORMATICS

Geoinformatics potentially applicable to academic activities, research, business, administration and governance. it includes the following tools and techniques:

Remote Sensing: It is a techniques of taking Imagery and data collected from space or airborne camera and sensor platforms. Some commercial satellite image providers now offer images showing details of one-meter or smaller, making these images appropriate for monitoring humanitarian needs.

Geographic Information Systems (GIS): A suite of software tools for mapping and analyzing data which is georeferenced (assigned a specific location on the surface of the Earth, otherwise known as geospatial data). GIS can be used to detect geographic patterns in any type of spatial and non-spatial data in a same platform.

Global Navigation Satellite System (GNSS): It is nothing but the Positioning System on the earth. Global Positioning System is a network of U.S. Department of Defense satellites which can give precise coordinate locations to civilian and military users with proper receiving equipment. India has also developed her own system in this field.

Internet Mapping Technologies: Software programs like Google Earth and web features like Microsoft Virtual Earth are changing the way geospatial data is viewed and shared.

JOB OPPOTUNITY

With the implementation of Spatial Data Infrastructure at National level (NSDI) and State level (SSDI) with District level (DSDI) and Block level (BSDI), there is a growing need to have trained manpower to deal with the GIS and spatial data collection, assimilation and analysis. Besides it many Industries, government and private organizations are recruiting persons with knowledge in Geoinformatics in various fields like urban planning, watershed management, forestry, water resource management. Geoinformatics & Remote Sensing Cell, Department of Higher Education, Science and Technology and Biotechnology, Government of West Bengal as well as all other state governments and central government implement number of projects on RS & GIS. Certificate or Diploma in Geoinformatics is a desirable qualification for recruitment of project scientists for these projects however essential qualifications may vary from project to project. The private companies in our country have also created ample job opportunities for the students who are expertise with skill based education of Geoinformatics. In education sector this expertise plays a great role for implementing their research objectives in science as well as social sciences.

OUR VISION

Our vision is to be recognized as the most innovative Geoinformatics training centre in our district as well as in West Bengal & to enhance the R.S & GIS skills of the students so that they can get job in different industrial company and use their skill in academic and research oriented work.

OUR MISSION

The institution aims to promote higher education in skill sector, creating dynamic environment through the implementation of updated technology delivering educational opportunities in collaboration with private, public, and semi-public organizations, and create a balanced program of real human resource development in field of Geoinformatics.

WHY ARE WE THE BEST CHOICE FOR YOU?

- Well equipped Remote Sensing & GIS Lab. (Computer Student Ratio- 1: 1) connected with high speed internet by LAN.
- Availability of both open sourced and Trade Software (ERDAS IMAGINE, Geomedia & ARC GIS).
- Providing study materials and e-contents.
- Weekly academic staff meeting & Monthly teachers-students academic meeting
- Departmental and central library facilities.
- ICT based teaching & learning process (smart board, visualizer, PowerPoint lecture, online course).
- Surprise test, class test and internal assessment, innovative teaching learning methods are followed for effective curriculum delivery.
- Providing question bank.
- Students' class presentation with PowerPoint.
- Marks awarded for class attendance.
- Group discussion of students.
- Publication of Magazine.
- Teacher – Guardian meeting.

OUR COLLEGE CAMPUS

COOCH BEHAR COLLEGE

MESSAGE FROM PRINCIPAL

The introduction of Geoinformatics Courses in our college is an opportunity to develop the skill of students in the field of RS & GIS for availing the job opportunity and flourishing their excellency in academic activity and research work. This Course, a New & Original in the field of Higher Education, is approved by the UGC & affiliated to Cooch Behar Panchanan University. The future generations of Cooch Behar & surrounding areas, in particular and the Society, in general will be benefited.

Teaching Faculties

DR. TAPAN KUMAR DAS

Dr. Tapan Kumar Das is an Assistant Professor of Cooch Behar College who did his M.Sc. from University in Calcutta in 1997 and has been awarded Ph. D. degree from Vidyasagar University in 2012. He had undergone NNRMS Certificate Course in RS & GIS from IIRS, Dehradun and completed his P. G. Diploma in Geoinformatics from ITT-Council, Delhi. He has been also serving as Coordinator of IIRS Outreach Programme of Cooch Behar College Centre.

MR. DIPANKAR SAHA

Mr. Dipankar Saha has been graduated in Geography from University of North Bengal in 2016 and done Post Graduation in Geography from Raiganj University in 2018.Qualified West Bengal SET in the year of 2018. He has completed his both Certificate Course in Remote sensing and GIS & NNRMS Course from IIRS, Dehradun and from NIT Agartala in the year of 2020. He obtained his P. G. Diploma in Geoinformatics from ITT-Council, Delhi.

MR.ABHIJIT SEN

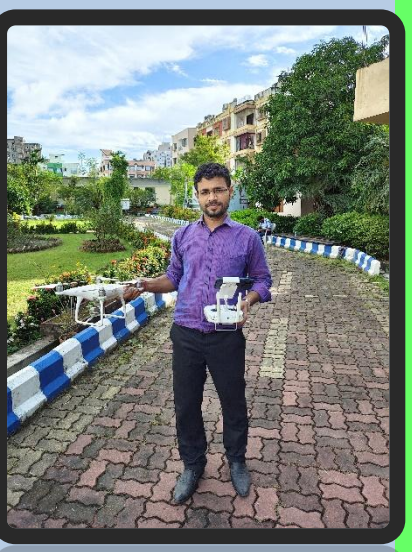
Mr. Abhijit Sen has been graduated in Geography from Calcutta University in 2014 and Post Graduated in Geography from Rabindra Bharati University in 2017 and done his PG Diploma course in RS & GIS from Jadavpur University in 2018. Qualified UGC NET in the year of 2017.

Non-Teaching Staff

ASISH BHOWMICK
Office Assistant

SUDIP DAS
Group-D

Trade Experts



Mr. Soumya Bhattacharyya
Senior Photogrammetry Analyst
Sky Map Global (India) Private Limited

Mr. Prasenjit Pal
Senior Geospatial Analyst
Sky Map Global (India) Private Limited

Mr. Anuj Mittal
Senior Executive (Drone)
Sky Map Global (India) Private Limited

Eligibility Criteria for Admission in Certificate Course:

A Candidate shall be eligible for admission if he/she has passed (10+2) 12th class or equivalent level in any discipline recognized by the Board. Preference will be given to the candidates who have passed 10+2 course with Geography / Physics / Chemistry / Mathematics / Statistics / Biological Sciences / Computer Science / Geology / Economics

Eligibility Criteria for Admission in Diploma Course:

A Candidate shall be eligible for admission if he/she has passed (10+2) 12th class or equivalent level in any discipline recognized by the Board and/or candidates those who have successfully completed 6 months certificate course in Geoinformatics in Semester System under UGC-NSQF Regulation may be permitted lateral entry directly in the second semester of Diploma Course. Preference will be given to the candidates who have passed 10+2 course with Geography / Physics / Chemistry / Mathematics / Statistics / Biological Sciences / Computer Science / Geology / Economic

TOTAL SEAT

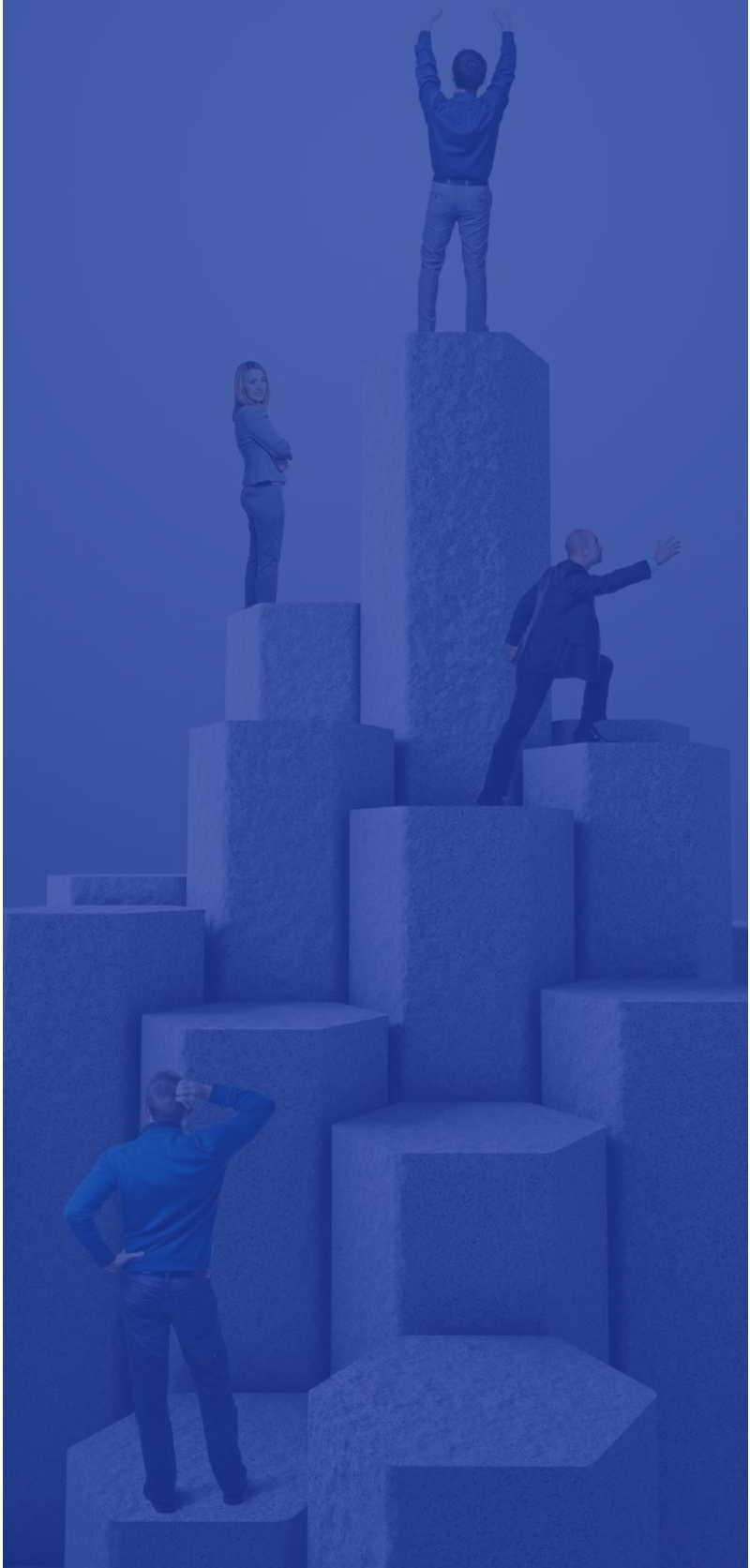
Total Number of Seats is 30 in each courses, both Certificate & Diploma. The admission will be made on the basis of merit list.

Course Tenures & Fees

Certificate Course in Geoinformatics- It is 6 months course equivalent to any certificate course in Remote Sensing & Geographic Information System as well as certificate course in Information and Communication Technologies. This is a part-time class programme. A student perusing any regular course (UG/PG) shall be allowed to proceed for Certificate Course of Geoinformatics side by side. The course fees is 6000/- (Rupees six thousand) only. The university registration fees, examination fees & excursion fees are to be paid additionally.

Diploma Course in Geoinformatics - It is 1 year (2 Semesters) course equivalent to any Diploma Course in Remote Sensing & Geographic Information System as well as Diploma Course in Information and Communication Technologies. The first semester of diploma Course is synchronized with the Certificate Course. The total course fees of Diploma Course is 12000/- (Rupees twelve thousand) only to be paid in 2 instalments (6000/- in each Semesters). Migration Certificate will be required for the external candidates after admission in Diploma Course. The university registration fees, examination fees & excursion fees are to be paid additionally.

MEMORUNDUM OF UNDERSTANDING (MOU) & ADMISSION SCHEDULE



Sky Map Global India Pvt. limited

The Cooch Behar College has signed a Memorandum of Understanding with Sky Map Global India Pvt. Limited for enriching the skill of the students providing hands on training by Trade Experts and offering job for the aspiring students.

The College will sign MoU with more leading companies very soon.

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OUR SUCCESSFUL ACHIEVERS

Mafijul Islam
Diploma Student(2020-2021)
Designation: Junior Research Fellow in GIS
Project work: Digital India land record modernization project.
Parntik Care The Earth Geo info solutions Pvt, Prantik, Bolpur

Rajyasri Adhikari
Certificate Course Student (2021)
Designation: Junior Research Fellow
ICAR-Central Research Institute for Jute and Allied Fibres (ICAR-CRIJAF), Kolkata

COOCH BEHAR PANCHANAN BARMA UNIVERSITY

Certificate & Diploma Course in Geoinformatics
Under National Skills Qualification Framework,
University Grants Commission

Credit Framework and Marks Distribution

Certificate Course in Geoinformatics: 6 months (1st semester only), 30 credits, 400 marks
Diploma Course in Geoinformatics: 12 months (1st & 2nd Semester), 60 credits, 800 marks

Semester	Papers	Name of the Paper	Marks & Credits	General Education Component (GEC)	Skill Development Component (SDC)	Attendance & Comprehensive Evaluation (CE)	Total Marks / Credits
1st Semester	Paper-I	Basics of Computer Application	Marks	30	60	6+4	100
			Credits	2	5	1	8
	Paper-II	Basics of Remote Sensing & Drone Technology	Marks	30	60	6+4	100
			Credits	2	5	1	8
	Paper-III	Basics of Geographic Information System	Marks	30	60	6+4	100
			Credits	2	5	1	8
	Paper-IV	Project Work & Seminar	Marks	70 (Project Work) + 30 (Presentation & Viva-voce)			100
			Credits	6 (SDC)			6
1st SEMSTER TOTAL			Marks	90	280	18+12	400
			Credits	6	21	3	30
2nd Semester	Paper-V	Advanced Remote Sensing	Marks	30	60	6+4	100
			Credits	2	5	1	8
	Paper-VI	Advanced Geographic Information System	Marks	30	60	6+4	100
			Credits	2	5	1	8
	Paper-VII	Global Navigation Satellite System & Advanced Drone Technology	Marks	30	60	6+4	100
			Credits	2	5	1	8
	Paper-VIII	Dissertation & Seminar	Marks	70 (Dissertation) + 30 (Presentation & Viva-voce)			100
			Credits	6 (SDC)			6
2nd SEMSTER TOTAL			Marks	90	280	30	400
			Credits	6	21	3	30

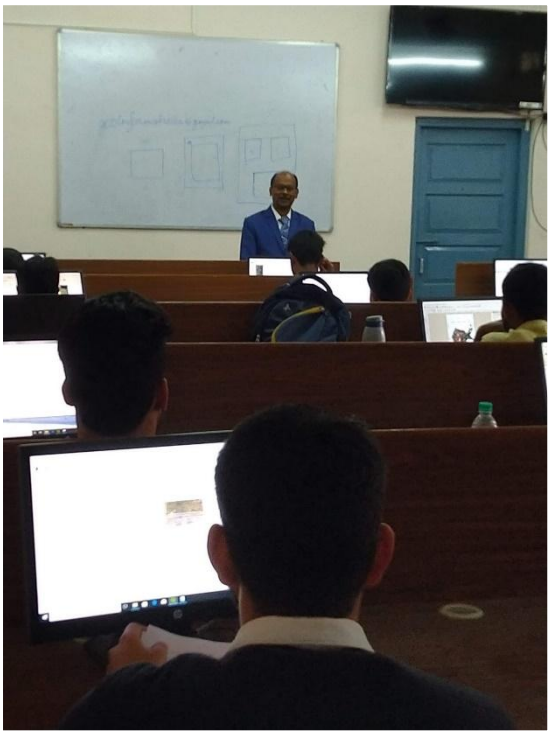
Syllabus of Certificate Course & 1st Semester of Diploma Course

Paper	Topic
Basics of Computer Application PAPER- I	GENERAL EDUCATION COMPONENT
	Computer Applications: 1. Definition of Computer 2. Basic Operations of Computer 3. Input, Output & Storage unit (Primary, Secondary) 4. Central Processing unit 5. Computer Memory (RAM, ROM & Secondary) 6. Number system, Computer Network (LAN, WAN) 7. Computer software & Shortcut Keys 8. Advantages of Computer
	SKILL DEVELOPMENT COMPONENT
	Words, Excel & PPT: 1. Introduction to Word Processor 2. Page setup, font, font style, colour 3. Header & footer, footnote 4. Inserting picture, wrapping textbox 5. Hyperlink 6. Table
	1. Introduction to Spread Sheet 2. Page setup, inserting rows/columns, worksheet, chart, function 3. Formatting cell, color and calculation using functions
	1. Slide Show 2. Creating Slide Show by using Animation Technique 3. Clip Art 4. Picture Editing
Basics of Remote Sensing PAPER -II	GENERAL EDUCATION COMPONENT
	Basics of Remote sensing: 1. Definition on remote sensing 2. Brief history of remote sensing 3. Electromagnetic Radiation (EMR) 4. Process Remote sensing 5. Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission
	1. Remote sensing platforms and sensors 2. Passive & active remote sensing 3. Arial Photographs: Types, scale. resolutions & geometric properties 4. Satellite orbits, types of scanner, swath.
	1. Satellite Images, Concept of Different Bands 2. Resolution of Images (Spatial, Spectral, Radiometric and Temporal) 3. Remote Sensing Data: Digital Image Data Format (BSQ, BIL, BIP)
	SKILL DEVELOPMENT COMPONENT
	Remote Sensing using Standard Open Source Software: 1. Identification of Physical & Cultural features and thematic mapping using Arial photograph 2. Pre-processing of Images: Layer Stacking, Mosaicking & Sub-setting, Clipping Area of Interest (AOI). 3. Digital Image processing: Data Acquisition/Restoration, Image enhancement 4. Band Compositions: True Colour composite (TCC), False Colour composite (FCC) 5. Connect, share & Process EO (Earth Observatory) data using cloud enabled Web Platform
Basics of Geographic Information Systems PAPER –III	GENERAL EDUCATION COMPONENT
	Overview of Geographic Information System: 1. Definition of GIS 2. Brief history of GIS 3. Components of GIS 4. Functions and advantages of GIS 5. Applications of GIS
	SKILL DEVELOPMENT COMPONENT
	GIS using standard Open source Software : 1. Interface & Plugins concepts 2. Raster handling/processing 3. Geo-referencing (Image to Image), (Ground to Image), (Google earth to Image) 4. Projection Transformation
	1. Digitization: Point, Line, & Polygon, Labeling & Symbology 2. Length & Area Calculation
	1. Working with vector layers, vector editing, data attribution, import CSV file 2. Join external file with vector layer 3. Attribute & spatial query. 4. Preparation of LULC Map by on screen digitization 5. Lay out/Map Composition
Project Work PAPER- IV	Project Work & Seminar (Skill Development Component)

Syllabus of 2nd Semester of Diploma Course

Paper	Topic
Advanced Remote Sensing (Industry Standard Image Processing Software) PAPER- V	GENERAL EDUCATION COMPONENT 1. Law of Radiation (Plank's law, Wein's law, Stefen Bolzmann's law), Black Body Radiation. 2. Spectral Reflectance Curves (water, vegetation, soil etc.) 3. Microwave Remote Sensing- introduction, Passive Microwave Remote Sensing, Radar Imaging 4. Hyperspectral Remote sensing 5. Sources of Remote Sensing Data and Information 6. Applications of Remote Sensing SKILL DEVELOPMENT COMPONENT Advanced Remote Sensing (using Industry Standard Image Processing Software): 1. Retrieve of Remote Sensing Data from Bhuvan & USGS portal. 2. Image Processing 3. Supervised classification 4. Unsupervised classification 5. Classification and Reclassification 6. Basic Concept of AI & ML based classification 7. Accuracy Assessment 8. Band Ratioing (NDVI, NDWI, NDSI etc.) 9. Map Layout & export 10. Access Anywhere, Anytime, with a wide selection of AI/ML Models, ARD Toolkit and custom workflows to share with your community using Web Platform.
Advanced Geographic Information System (Industry Standard GIS Software) PAPER- VI	GENERAL EDUCATION COMPONENT Advanced Geographic Information System (using Industry Standard GIS Software): 1. Datum (WGS 84, Everest) 2. Basic concepts & types of projections 3. UTM Projection 4. Geographic Coordinate System 5. Projected Coordinate System 6. Spatial Data Model: Vector Data Model & Raster Data Model 7. DEM, Triangulated Irregulated Network (TIN) SKILL DEVELOPMENT COMPONENT 1. Geospatial Data Analysis: Relief Map, Slope, Aspect & Contour map using DEM Data. 2. Stream Ordering, Watershed Delineation & Drainage Density using DEM Data 3. Interpolation: IDW 4. 3D Mapping 5. Overlay Operation- Vector data overlay, Raster based overlay techniques
Global Navigation Satellite System & Drone Technology PAPER –VII	GENERAL EDUCATION COMPONENT Overview of Global Navigation Satellite System (GNSS): 1. Concepts of GNSS 2. Geoid and ellipsoid 3. Geodetic Satellite, orbit & motion 4. Kepler's Law 5. Different segments of GPS (Space, Control, User) 6. Multi satellite Ranging 7. GPS signal Structure 8. GPS errors Drone / UAV Technology: 1. Basic Knowledge of Drone 2. DGCA Process Flow 3. NPNT Process 4. Drone Fly Operation Process 5. Concept of different types of sensor SKILL DEVELOPMENT COMPONENT Handheld GPS Receiver: 1. GPS data collection and mapping 2. Preparation of table of coordinates and elevation of all points collected & Compare the results on Google map. 3. Navigation with GPS and mapping. Drone / UAV Technology: 1. Drone data collection for mapping and surveillance 2. Drone data processing, Automatic DSM/DTM Collection 3. Ortho-photo map creation using stereo pair Drone imagery 4. Feature extraction from drone imagery
Dissertation & Seminar PAPER- VIII	Dissertation & Seminar (Skill Development Component)

Photographs



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2 No. Kalighat Road, Cooch Behar, West Bengal
PIN:736101

http://www.coochbeharcollege.org.in

geoinformaticscbc@gmail.com

7980002139, 9475753844, 9002171518, 9883280073

https://geoinformaticscbc.wordpress.com/