

### 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** 



There is no application fee







# 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



There is no application fee



### 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 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 fields deploying The features. and sectors 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, resources natural management, 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 fields like various 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 projects however for these scientists 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 role expertise plays a great implementing their research objectives in science as well as social sciences.

#### **OUR VISION**



Our vision he is to recognized the as 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 skill and use their academic and research oriented work

### **OUR MISSION**

The institution aims to promote higher education in skill sector, creating dynamic through environment the implementation of updated technology delivering educational opportunities in collaboration with private. public, semi-public and 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.
Group discussion of students.  Publication of Magazine.

# তমসো মা জ্যোতিগ্ৰিয়

## **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 discipline recognized by the Board and/or candidates those have successfully completed 6 months certificate course in Geoinformatics in System under Semester 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.

# 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.

# ADMISSION SCHEDULE

☐ Commencement of Online Application :

28.11.2023

☐ Last Date of Online Application:

05.12.2023

**D** Publication of Final Merit List:

06.12.2023

☐ E-counselling / Admission :

**Starts from 06-12-2023** 

☐ Class: Starts from 08-12-2023



### **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 & Comprehensiv e Evaluation (CE)	Total Marks / Credits
	Paper-I	Basics of	Marks	30	60	6+4	100
1 <sup>st</sup> Semest		Computer Application	Credits	2	5	1	8
er	Paper-II	Basics of Remote Sensing & Drone Technology	Marks	30	60	6+4	100
			Credits	2	5	1	8
	Paper-III	Basics of	Marks	30	60	6+4	100
		Information System	Credits	2	5	1	8
	Paper-IV	Project Work & Seminar	Marks	70 (Project Work) + 30 (Presentation & Viva-voce)			100
			Credits	6 (SDC)			6
1 <sup>st</sup> SEMSTER TOTAL		Marks	90	280	18+12	400	
		Credits	6	21	3	30	
2 <sup>nd</sup>	Paper-V	Advanced Remote Sensing	Marks	30	60	6+4	100
Seme ster			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) resentation & Viv		100
			Credits		6 (SDC)		6
	and see		Marks Credits	90	280	30	400
	2 <sup>nd</sup> SEMSTER TOTAL			6	21	3	30

# <u>Syllabus of Certificate Course & 1<sup>st</sup> Semester of Diploma Course</u>

Besics of Computer Application  APARE I  Besics of Computer Applications:  Computer Applications of Computer Application  APARE I  Bedinning of Computer Applications of Computer Applications of Computer  Computer Applications of Computer Applicat		
Rasics of Benotes  Basics of Ben	Paper	Topic  GENERAL EDUCATION COMPONENT
Application   Definition of Computer	Pasies of Computer	
FAPER   2. Basic Operations of Computer		
1. Input, Output & Storage unit (Primary, Serondary) 1. Computer Memory (MAM, ROM & Secondary) 1. Computer Software & Shortcut Reys 1. Number system. Computer Network (LUN, WAN) 1. Computer software & Shortcut Reys 1. Advantages of Computer 1. Introduction to Word Processor 1. Page setup, ford, first style, colour 1. Header & Society, foot, ford style, colour 1. Header & Society, foot, ford style, colour 1. Header & Society, foot, ford style, colour 1. Header & Society, foot, foot style, colour 1. The society of the style style, foot, foot style, colour 1. The style, foot, foot style, foot, foot	1.1	
6. Computer Memory (NAM, ROM & Sociodary) 6. Number system, Computer Network (LAN, WAN) 7. Computer software & Shortcut Keys 8. Anivaritages of Computer  Words, Excel & IPT  Words, Excel		B. Input, Output & Storage unit (Primary, Secondary)
6. Number system, Computer Network (LAN, WNN) 7. Computer of Coranguter 8. Advantages of Computer 8. Advantages of Computer 9. SKILL DEVELOPMENT COMPONENT 1. Introduction to Word Processor 2. Page estup, for, front style, colour 3. Header & footies, foothoris 4. Header & footies, foothoris 5. Header & footies, foothoris 6. Table 1. Introduction to Spread Sheet 2. Page estup, inserting rows/columns, worksheet, chart, function 7. Formatting cell, color and calculation using functions 9. Side Show 9. Side Show 9. Creating Side Show by using Animation Technique 9. Picture esting 1. Sensing 1. Sensing 1. Definition or remote sensing 1. Definition or remote sensing 1. Definition or remote sensing 2. Definition or remote sensing 3. Process Remote sensing 3. Process Remote sensing 4. Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission 1. Remote sensing patiers and sensors 1. Satellite Images, Concept of Different Bands 1. Remote Sensing Data Digital Image Data Format (SSG, BL, BP) 1. Sensition of Physical & Calcular Setutures and thematic mapping using Arnal photograph 1. Letter of the State Process of Concept of Different Bands 1. Sensition of Physical & Calcular Setutures and thematic mapping using Arnal photograph 1. Letter Sensing Data Concept of Different Bands 1. Sensition of Physical & Calcular Setutures and thematic mapping using Arnal photograph 1. Letter Sensing Data Concept of Different Bands 1. Sensition of Physical & Calcular Setutures and thematic mapping using Arnal photograph 1. Letter Sensing Data Concept of Different Bands 1. Sensition of Physical & Calcular Setutures and thematic mapping using Arnal photograph 1. Letter Sensing Data Concept of Data Concept Setutures 1. Letter Setutures 1. Letter Setutures 1. Letter Setutures 1. Letter Setu	,	· · · · · · · · · · · · · · · · · · ·
7. Computer software & Shortcut Keys Advantages of Computer  SKILL DEVELOPMENT COMPONENT  Words, Excel & PPF: 1. Introduction to Word Processor 2. Page setup, font, font style, colour 3. International potture, wrapping teathor 4. Internating picture, wrapping teathor 5. Hyperflack 6. Table 7. Introduction to Spread Sheet 7. Page setup, inserting rows/columns, worksheet, chart, function 8. Internating reflection of Columns, worksheet, chart, function 9. Formatting reflection using functions 9. Side Show 9. Colours side Show by using Animation Technique 9. Definition on remote sensing 9. Electromagnetic Radiation (RMI) 9. Process Memote sensing 9. Definition on remote sensing 9. Electromagnetic Radiation (RMI) 9. Process Memote sensing 9. Process Memote sensing 9. Process Memote sensing 9. Process Memote sensing 9. Arial Philosographs: Types, soile resolutions & geometric properties 9. Satellite of Show them and emotor 9. Passive & active remote sensing 9. Arial Philosographs: Types, soile resolutions & geometric properties 9. Satellite trages, Concept of Different Bands 9. Remote Sensing Puts: Digital Image Data Format (BSG, BLL BIP) 9. Remote Sensing Puts: Digital Image Data Format (BSG, BLL BIP) 9. Remote Sensing Puts: Digital Image Data Format (BSG, BLL BIP) 9. Remote Sensing Puts: Digital Image Data Format (BSG, BLL BIP) 9. Remote Sensing Puts: Digital Image Data Format (BSG, BLL BIP) 9. Digital Image processing Data Acquisition (Personal Colour composite (FCC), False Colour composite (FCC) 9. Senson Experiment of Missage (GE) 9. Digital Image processing Data Acquisition (Personal Columnal	!	
SXILL DEVELOPMENT COMPONENT		
SKILL DEVELOPMENT COMPONENT		
Words, Excell & PPT:	· ·	s. Advantages of Computer
Words, Excell & PPT:		CVIII DEVELODATAIT COMPONITAIT
1. Introduction to Word Processor 2. Pages estup, fant, font style, colour 3. Header & footer, footnote 4. Inserting picture, wrapping textbox 5. Hyperlink 6. Table 7. Introduction to Spread Sheet 7. Page setup, inserting rows/columns, worksheet, chart, function 7. Formatting cell, color and calculation using functions 7. Side Show 7. Creating cell, color and calculation using functions 7. Side Show 7. Creating Gide Show by using Animation Technique 7. Creating Gide Show by using Animation Technique 8. Cip Art 8. Picture Editing 8. Picture Editing 8. Definition on remote sensing 9. Definition on remote sensing 9. Electromagnetic Radiation (EMR) 9. Process Remote sensing 9. Electromagnetic Radiation (EMR) 9. Process Remote sensing 9. Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission 9. Process Remote sensing 9. Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission 9. Process Remote sensing 9. Satellite orbits, types of scanner, swath. 9. Remote Sensing Dato Digital Image Data Format (SSQ, Bit, Bir) 9. Remote Sensing ung Standard Open Source Software 9. Process Laury ung Standard Open Source Software 9. Processing Ung Standard Open Source Software 9. Processing Ung Standard Open Source Software 9. Processing Color composite (FCC) 9. Proprocessing of Images, Laury Standin, Moscieling & Sub-tecting, Cliping Area of Interest (AOI) 9. Digital Image Processing Color composite (FCC) 9. Proprocessing of Images, Laury Standin, Moscieling & Sub-tecting, Cliping Area of Interest (AOI) 9. Digital Image Doctor Composite (FCC) 9. Proprocessing of Images, Laury Standin, Moscieling & Sub-tecting, Cliping Area of Interest (AOI) 9. Digital Image Doctor Color composite (FCC) 9. Proprocessing Clipinal Image Doctor Color composite (FCC) 9. Proprocessing Clipinal Image Doctor		
2. Page setup, fort, fort style, colour 3. Header & flooter, fortonce 4. Inserting picture, wrapping textbox 5. Hyperfinik 6. Table 6. Table 7. Tab		
Inserting picture, wrapping textbox		
5. Hyperlink 6. Table 1. Introduction to Spread Sheet 2. Page setup, inserting row/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 6. Clip Art 5. Clip Art 6. Picture Editing 6. Definition on remote sensing 7. Definition on remote sensing 8. Definition on remote sensing 9. PAPER -II 8. Electromagnetic Radiation (EMR) 8. Stellette Cortic, types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission 8. Earlie Cortic, types of Scanner, swath. 9. Satellite Lemps, Concept of Different Bands 9. Satellite Cortic, types of Scanner, swath. 9. Satellite Cortic, types of Scanner,		B. Header & footer, footnote
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 Side Show by using Animation Technique 3. Clip Art 4. Picture Editing GENERAL EDUCATION COMPONENT  Basics of Remote Sansing PAPER -II 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 platricms and sensors 2. Passive & active remote sensing 3. Arial Photographs: Pypes, scale, resolutions & geometric properties 4. Satellite mages, Concept of Different Bands 2. Resolution of Images (Spatial, Spectral, Radiometric and Temporal) 3. Remote Sensing Data Digital Image Data Format (BSQ, BIL, BIP)  Remote Sensing Using Standard Open Source Software: 1. Identification of Physical & Cultural Factures 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 Lobar Acquisition/Restoration, Image enhancement 4. Band Compositions: True Colour composite (TCC), False Colour composite (FCC) 5. Connect, share & Process LO (Earth Disenvatory) data using Icolud enabled Web Platform 5. Systems 6. Applications of GIS 5. Applications of GIS 6. Applications of GIS 6. Applications of GIS 6. Procererencing (Image processing Lobar Acquisition/Restoration, Image cloud enabled Web Platform 6. Band Compositions: True Colour composite (TCC), False Colour composite (FCC) 6. Sonerce, Share & Process LO (Earth Disenvatory) data using Icolud enabled Web Platform 6. Band Compositions: True Colour composite (TCC), False Colour composite (FCC) 7. Remote Sensing using Earth and Image Planes and Image		
Introduction to Spread Sheet   Page setup, inserting rows/columns, worksheet, chart, function   Spread Sheet   Page setup, inserting rows/columns, worksheet, chart, function   Spread Sheet   Page setup, inserting rows/columns, worksheet, chart, function   Spread Sheet   Page setup, inserting rows/columns, worksheet, chart, function   Spread Sheet   Page setup, inserting cell, color and calculation using functions   Spread Sheet   Page setup, inserting setup, inserting setup, inserting setup, inserting   Spread Sheet   Page setup, inserting se	!	
2. Page setup, inserting rows/columns, worksheet, chart, function 3. Formatting cell, color and calculation using functions 4. Side Show 2. Creating Side Show by using Animation Technique 3. Clip Art 4. Picture Editing  Basics of Remote Sensing 1. Definition on remote sensing 2. Brief history of remote sensing 3. Electromagnetic Radiation (EMR) 4. Process Remote sensing 5. Electromagnetic Radiation (EMR) 4. Process Remote sensing 5. Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission 5. Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission 6. Satellite orbits, types of scamer, swath. 6. Satellite orbits, types of scamer, swath. 7. Satellite mages, Concept of Different Bands 7. Remote Sensing Data Concept of Different Bands 7. Remote Sensing Data Scapping, Speak of Format (SQL, Bl, BJP) 8. Remote Sensing Data Scapping, Speak of Format (SQL, Bl, BJP) 8. Remote Sensing Data Scapping, Data Acquisition/Nestoration, image enhancement 8. Digital image processing of Images, Layer Scaking, Mossicking & Sub-setting, Clipping Area of Interest (AOI). 8. Digital image processing Data Acquisition/Nestoration, image enhancement 8. Digital image processing Data Acquisition/Nestoration, image enhancement 8. Definition of GIS 8. Applications of GIS 8. Applications of GIS 8. Applications of GIS 8. Applications of GIS 9. Remote Sensing Layer, Value of GIS 9. Remote Sensing Layer, Value of GIS 9. Remote Sensing Layer, Value of GIS 9. Remote Sensing Data Acquisition (Nestoration, image enhancement 9. Definition of GIS 9. Remote Sensing Layer, Value of GIS 9. Applications of GIS 9. Layer La		5. Table
2. Page setup, inserting rows/columns, worksheet, chart, function 3. Formatting cell, color and calculation using functions 4. Sides Show by using Animation Technique 3. Cip Art 4. Picture Editing  Basics of Remote  Basics of Remote Sensing 1. Definition on 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 5. Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission 6. Satellite orbits, types of scanner, swath. 7. Passive & active remote sensing 8. Arial Photographs: Types, scale, resolutions & geometric properties 8. Satellite orbits, types of scanner, swath. 8. Satellite images, Concept of Different Bands 9. Remote Sensing batis Digital image Data Format (BSQ, BIL, BIP) 8. Remote Sensing batis Digital image Data Format (BSQ, BIL, BIP) 8. Remote Sensing using Standard Open Source Software: 9. Identification of Physical & Cultural Features and thematic mapping using Arial photograph 9. Pre-processing of Images: Layer Stacking, Mossicking & Sub-etting, Clipping Area of Interest (AOI). 9. Digital image processing: Data Acquisition/Restoration, image enhancement 9. Pre-processing of Images: Layer Stacking, Mossicking & Sub-etting, Clipping Area of Interest (AOI). 9. Digital image processing: Data Acquisition/Restoration, image enhancement 9. Definition of Gis 9. Systems 9. Applications of Gis 9. Components of Gis 9. Applications of Gis 9. Applicat		
Serving Cell, color and calculation using functions  1. Slide Show . 2. Creating Slide Show by using Animation Technique 3. Clip Art . 4. Picture Editing . 5. Ecrosing Slide Show by using Animation Technique 5. Creating Slide Show by using Animation Technique 6. Clip Art . 4. Picture Editing . 5. Ecrosing . 5. Definition on remote sensing . 5. Electromagnetic Radiation (EMR) . 6. Process Remote sensing . 7. Electromagnetic Radiation (EMR) . 8. Electromagnetic Radiation (EMR) . 9. Process Remote sensing . 9. Arial Photographs: Types, scale. resolutions & geometric properties . 9. Arial Photographs: Types, scale. resolutions & geometric properties . 9. Satellite orbits, types of Scanner, swath. 9. Satellite Images, Concept of Different Bands . 9. Remote Sensing using Standard Open Source Software: . 9. Identification of Images (Spatial, Spectral, Radiometric and Temporal) . 9. Remote Sensing using Standard Open Source Software: . 9. Identification of Physical & Cultural features and thematic mapping using Arial photograph . 9. Pre-processing of Images: Layer Stacking, Mosalcinka & Sub- setting, Clipping Area of Interest (AOI) . 9. Digital Image processing: Data Acquisition/Restoration, Image enhancement . 9. Bands of . 9. Geographic Information Systems . 9. Connect, share & Process 10 (Earth Observatory) data using cloud enabled Web Platform . 9. Geographic Information Systems . 9. Connect, share & Process 10 (Earth Observatory) data using cloud enabled Web Platform . 9. Geographic Information Systems . 9. Connect, share & Process 10 (Earth Observatory) data using cloud enabled Web Platform . 9. Geographic Information Systems . 9. Connect, share & Process 10 (Earth Observatory) data using cloud enabled Web Platform . 9. Connect, share & Process 10 (Earth Observatory) data using cloud enabled Web Platform . 9. Connect, share & Process 10 (Earth Observatory) data using cloud enabled Web Platform . 9. Conne		
L. Slide Show 2. Creating Slide Show by using Animation Technique 3. Clip Art 4. Picture Editing  GENERAL EDUCATION COMPONENT  Basics of Remote Sensing 1. Definition on remote sensing 2. Birch 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  Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission  Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission  Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission  Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission  Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission  Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission  Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission  Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission  Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission  Interaction of EMR with atmosphere (Types of Atmospheric Scattering, Reflection, Absorption), Energy Transmission  Interaction of Physical & Cultural features and thematic mapping using Arial photograph  Interaction of Physical & Cultural features and thematic mapping using Arial photograph  Interaction of Physical & Cultural features and thematic mapping using Arial photograph  Interaction of Physical & Cultural features and thematic mapping using Arial photograph  Interaction of Physical & Cultural features and thematic mapping using Arial photograph  Interaction of Physical & Cultural features and thema		
Basics of Remote Sensing PAPER-II Basics of Remote sensing: Sensing Se	·	p. Torniatting ten, color and calculation using functions
Basics of Remote Sensing PAPER-II Basics of Remote sensing: Sensing Se		1. Slide Show
Basics of Remote  Basics of Remote sensing: Sensing PAPER -II  Definition on remote sensing: Sensing PAPER -II  Definition on remote sensing Sensing PAPER -II  Definition on remote sensing Sensing PAPER -II  Definition on remote sensing Sensing PAPER -III  Definition of Images (Spatial, Spectral, Radiometric and Temporal) Sensing PAPER -III  Definition of Physical & Cultural features and thematic mapping using Arial photograph PAPER -III  Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and themat		
Basics of Remote Sensing PAPER -II Sensing PAPER -II Sensing PAPER -II Definition on remote sensing: Definition of Remote sensing platforms and sensors: Definition of Remote sensing platforms and sensors: Definition of Remote sensing platforms and sensors: Definition of Images (Spatial, Spectral, Radiometric properties) Definition of Images (Spatial, Spectral, Radiometric and Temporal) Definition of Images (Spatial, Spectral, Radiometric and Temporal) Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of Physical & Cultural features and thematic mapping using Arial photograph Definition of P		
Basics of Remote Sensing 1. Definition on remote sensing 2. Brief history of remote sensing 3. Electromagnetic Radiation (EMR) 4. Process Remote sensing platforms and sensors 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 Photographis: Types, scale, resolutions & geometric properties 4. Satellite Images, Concept of Different Bands 2. Resolution of Images (Spatial, Spectral, Radiometric and Temporal) 3. Remote Sensing bata: Digital Image Data Format (BSQ, BIL, BIP)  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, Mossicking & Sub-setting, Cilipping Area of Interest (AOI). 3. Digital Image processing: Data Acquisition/Restoration, Image enhancement 4. Band Compositions: True Colour composite (TCC) 5. Connect, share & Process EO ( Earth Observatory) data using cloud enabled Web Platform  Basics of Geographic Information 1. Definition of GIS 2. Brief history of GIS 3. Components of GIS 4. Applications of GIS 5. Applications of GIS 5. Applications of GIS 6. Skill Development Component (TCC) 6. Compositions: True Colour composite (TCC) 6. Connect, share & Process EO ( Earth Observatory) data using cloud enabled Web Platform  GENERAL EDUCATION COMPONENT  GIS using standard Open source Software: 1. Interface & Plugins concepts 2. Rester handling/processing 3. Geo-referencing (Image to Image), (Ground to Image), (Google earth to Image) 4. Projection Transformation 4. Projection Transformation 5. Layer and the with vector layer sector editing, data attribution, import CSV file 6. Join external file with vector layer 7. Proper propers of the projection Transformation of Line and Plugication of Line and Plugicatio	,	4. Picture Editing
Sensing PAPER-II 2. Definition on remote sensing PAPER-II 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) 5. SKILL DEVELOPMENT COMPONENT 7. 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 (TCC). Science, share & Process EO (Earth Observatory) data using cloud enabled Web Platform 6. Systems 7. Service of Sensing using Arial photograph 7.		
PAPER -II 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 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)  Remote Sensing using Standard Open Source Software: 1. Identification of Physical & Cultural features and thematic mapping using Arial photograph 2. Pre-processing bat 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 GIS Systems 2. Brief history of GIS 3. Components of GIS 4. Functions and advantages of GIS 4. Functions and advantages of GIS 5. Applications of GIS 5. Components of GIS 5. Components of GIS 6. Applications of GIS 6. Applications of GIS 7. 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. Leagth & Area Calculation 4. Output May Devenue and advantages of Gis and attribution, import CSV file 5. Lour output May Devenue and attribution, import CSV file 6. Join external file with vector layer 7. Attribute & spatial query. 8. Preparation of ULC Map by on screen digitization 8. Act of Components of Composition 9. Act of Composition of Composition of Composition of Composition of Composition of Composition of		
Section   Sect		
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: 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 System: 1. Definition of GIS 3. Applications of GIS 4. Functions and advantages of GIS 5. Applications of GIS 5. Applications of GIS 5. Applications of GIS 6. Singlis 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 & Airea Calculation 4. Preparation of ULC Map by on screen digitization 5. Lay out/Map Composition 6. Lay out/Map Composition	PAPER -II	· · · · · · · · · · · · · · · · · · ·
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.  2. Resolution of Images (Spatial, Spectral, Radiometric and Temporal) 3. Remote Sensing Data: Digital Image Data Format (BSQ, BIL, BIP)  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. Basics of Geographic Information 5 ystems  4. Basic of Geographic Information System: 1. Definition of GIS 5. Components of GIS 6. Enunctions and advantages of GIS 6. Applications of GIS 7. Rester handling/processing 7. Rester handling/processing 7. Rester handling/processing 8. Geo-referencing (Image to Image), (Ground to Image), (Google earth to Image) 9. Digitzation: Point, Line, & Polygon, Labeling & Symbology 9. Length & Area Calculation 1. Working with vector layers, vector editing, data attribution, import CSV file 9. Join external file with vector layer 9. Attribute & spatial query. 9. Preparation of LUC Map by on screen digitization 9. Layout/Map Composition		
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.  2. Resolution of Images (Spatial, Spectral, Radiometric and Temporal) 3. Remote Sensing Data: Digital Image Data Format (BSQ, BIL, BIP)  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 9 Serie history of GIS 9 PAPER –III 4. Functions and advantages of GIS Applications of GIS 5. Application: Point, Line, & Polygon, Labeling & Symbology 1. Length & Area Calculation 1. Digitization: Point, Line, & Polygon, Labeling & Symbology 1. Length & Area Calculation 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		
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 (BSO, BIL, BIP)  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 2. Brief history of GIS 3. Components of GIS 4. Functions and advantages of GIS 5. Applications of GIS 5. Applications of GIS 6. Size of		
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 System: 1. Definition of GIS 2. Brief history of GIS 2. Brief history of GIS 3. Eurocitons and advantages of GIS 4. Functions and advantages of GIS 5. Applications of GIS 5. Applications of GIS 6. SKILL DEVELOPMENT COMPONENT  GIS using standard Open source Software: 1. Interface & Plugins concepts 2. Raster handling/processing 3. Geo-referencing (Image to Image), (Google earth to Image) 4. Projection Transformation 1. Digitization: Point, Line, & Polygon, Labeling & Symbology 2. Length & Area Calculation 1. Working with vector layer 3. Attribute & spatial query, 4. Preparation of LULC Map by on screen digitization 5. Lay out/Map Composition		
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)  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  Definition of GIS 4. Functions of GIS 4. Functions and advantages of GIS 5. Applications of GIS 6. Applications of GIS 6. SKILL DEVELOPMENT COMPONENT  GIS using standard Open source Software: 1. Interface & Plugins concepts 2. Raster handling/processing 3. Geo-referencing (Image 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		
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 PAPER –III Overview of Geographic Information System: 1. Definition of GIS 3. Components of GIS 4. Functions and advantages of GIS 5. Applications of GIS 5. Applications of GIS 6. Interface & Plugins concepts 7. Raster handling/processing 8. Geo-referencing (Image to Image), (Ground to Image), (Google earth to Image) 9. Projection Transformation 9. Digitization: Point, Line, & Polygon, Labeling & Symbology 9. Length & Area Calculation 9. Working with vector layers 9. Attribute & spatial query. 9. Preparation of LULC Map by on screen digitization 9. Lay out/Map Composition		4. Satellite orbits, types of scanner, swath.
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 PAPER –III Overview of Geographic Information System: 1. Definition of GIS 3. Components of GIS 4. Functions and advantages of GIS 5. Applications of GIS 5. Applications of GIS 6. Interface & Plugins concepts 7. Raster handling/processing 8. Geo-referencing (Image to Image), (Ground to Image), (Google earth to Image) 9. Projection Transformation 9. Digitization: Point, Line, & Polygon, Labeling & Symbology 9. Length & Area Calculation 9. Working with vector layers 9. Attribute & spatial query. 9. Preparation of LULC Map by on screen digitization 9. Lay out/Map Composition		
Remote Sensing Data: Digital Image Data Format (BSQ, BIL, BIP)   SKILL DEVELOPMENT COMPONENT		
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 1. Definition of GIS Systems PAPER –III 2. Brief history of GIS 3. Components of GIS 4. Functions and advantages of GIS 5. Applications of GIS 6. Interface & Plugins concepts 7. Raster handling/processing 8. Geo-referencing (Image to Image), (Ground to Image), (Google earth to Image) 7. Projection Transformation 7. Digitization: Point, Line, & Polygon, Labeling & Symbology 7. Length & Area Calculation 8. Attribute & spatial query 8. Attribute & spatial query 9. Preparation of LULC Map by on screen digitization 9. Lay out/Map Composition		
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 PAPER – III 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	•	
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 Definition of GIS PAPER –III Set interface & Plugins of GIS Functions and advantages of GIS SKILL DEVELOPMENT COMPONENT  GIS using standard Open source Software: Interface & Plugins concepts Raster handling/processing Geo-referencing (Image to Image), (Ground to Image), (Google earth to Image) Projection Transformation Digitization: Point, Line, & Polygon, Labeling & Symbology Length & Area Calculation Working with vector layers, vector editing, data attribution, import CSV file Join external file with vector layer Attribute & spatial query. Preparation of LULC Map by on screen digitization Lay out/Map Composition		
Basics of Geographic Information System: Information Systems Process FO (Earth Observatory) data using cloud enabled Web Platform  BAPER -III Systems PAPER -III Systems Paper - Interface & Plugins concepts Connect Software: Information Systems Paper - Interface & Plugins concepts Plugins concepts Plugins concepts Plugins Concepts Plugins Processing Geo-referencing (Image to Image), (Ground to Image), (Google earth to Image) Projection Transformation Digitization: Point, Line, & Polygon, Labeling & Symbology Length & Area Calculation Working with vector layers, vector editing, data attribution, import CSV file Join external file with vector layer Attribute & spatial query. Attribute & spatial query. Preparation of LULC Map by on screen digitization Lay out/Map Composition		
Basics of Geographic Information 1. Definition of GIS PAPER -III 1. Interface & Plugins concepts (FCC) 1. Raster handling/processing 3. Geo-referencing (Image to Image), (Ground to Image), (Google earth to Image) 1. Digitization: Point, Line, & Polygon, Labeling & Symbology 1. Digitization: Point, Line, & Polygon, Labeling & Symbology 1. Working with vector layers, vector edigitization 1. Working with vector layer 3. Attribute & spatial query. 4. Preparation of LULC Map by on screen digitization 1. Lay out/Map Composition 1. Lay		2. Pre-processing of Images: Layer Stacking, Mosaicking & Sub-setting, Clipping Area of Interest (AOI).
Basics of Geographic Overview of Geographic Information System: Information Systems PAPER – III    GIS using standard Open source Software:  Interface & Plugins concepts Raster handling/processing Geo-referencing (Image to Image), (Ground to Image), (Google earth to Image) Projection Transformation Digitization: Point, Line, & Polygon, Labeling & Symbology Length & Area Calculation Working with vector layers, vector editing, data attribution, import CSV file Jine Tepparation of LULC Map by on screen digitization Lay out/Map Composition		
Basics of Geographic Information Systems PAPER -III Systems PAPER -III Systems PAPER -III Paper - III Paper - IIII Paper - III Paper - III Paper - III Paper - III		
Geographic Information Information Systems PAPER -III Systems Sys		, , , , , , , , , , , , , , , , , , ,
Information Systems PAPER –III PAPER –III Systems PAPER –III PAPER		
Systems 2. Brief history of GIS PAPER –III 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	<b>.</b>	
PAPER –III  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		
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		·
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	PAPER -III	
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		5. Applications of GIS
<ol> <li>Interface &amp; Plugins concepts</li> <li>Raster handling/processing</li> <li>Geo-referencing (Image to Image), (Ground to Image), (Google earth to Image)</li> <li>Projection Transformation</li> <li>Digitization: Point, Line, &amp; Polygon, Labeling &amp; Symbology</li> <li>Length &amp; Area Calculation</li> <li>Working with vector layers, vector editing, data attribution, import CSV file</li> <li>Join external file with vector layer</li> <li>Attribute &amp; spatial query.</li> <li>Preparation of LULC Map by on screen digitization</li> <li>Lay out/Map Composition</li> </ol>		SKILL DEVELOPMENT COMPONENT
<ol> <li>Raster handling/processing</li> <li>Geo-referencing (Image to Image), (Ground to Image), (Google earth to Image)</li> <li>Projection Transformation</li> <li>Digitization: Point, Line, &amp; Polygon, Labeling &amp; Symbology</li> <li>Length &amp; Area Calculation</li> <li>Working with vector layers, vector editing, data attribution, import CSV file</li> <li>Join external file with vector layer</li> <li>Attribute &amp; spatial query.</li> <li>Preparation of LULC Map by on screen digitization</li> <li>Lay out/Map Composition</li> </ol>		
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		
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		
<ol> <li>Digitization: Point, Line, &amp; Polygon, Labeling &amp; Symbology</li> <li>Length &amp; Area Calculation</li> <li>Working with vector layers, vector editing, data attribution, import CSV file</li> <li>Join external file with vector layer</li> <li>Attribute &amp; spatial query.</li> <li>Preparation of LULC Map by on screen digitization</li> <li>Lay out/Map Composition</li> </ol>		
<ol> <li>Length &amp; Area Calculation</li> <li>Working with vector layers, vector editing, data attribution, import CSV file</li> <li>Join external file with vector layer</li> <li>Attribute &amp; spatial query.</li> <li>Preparation of LULC Map by on screen digitization</li> <li>Lay out/Map Composition</li> </ol>		·
<ol> <li>Working with vector layers, vector editing, data attribution, import CSV file</li> <li>Join external file with vector layer</li> <li>Attribute &amp; spatial query.</li> <li>Preparation of LULC Map by on screen digitization</li> <li>Lay out/Map Composition</li> </ol>		
<ol> <li>Join external file with vector layer</li> <li>Attribute &amp; spatial query.</li> <li>Preparation of LULC Map by on screen digitization</li> <li>Lay out/Map Composition</li> </ol>		<u> </u>
		3. Attribute & spatial query.
		4. Preparation of LULC Map by on screen digitization
Project work		5. Lay out/Map Composition
DADED IV	1	
PAPER- IV Project Work & Seminar (Skill Development Component)	PAPEK- IV	Project Work & Seminar (Skill Develonment Component)
r roject work & Jennia (Janii Developinent Component)		Troject work & Seminar John Development Components

# <u>Syllabus of 2<sup>nd</sup> Semester of Diploma Course</u>

Paper	Topic  GENERAL EDUCATION COMPONENT						
Advanced	1. Law of Radiation (Plank's law, Wein's law, Stefen Bolzmann's law), Black Body Radiation.						
Remote	2. Spectral Reflectance Curves (water, vegetation, soil etc.)						
Sensing	3. Microwave Remote Sensing- introduction, Passive Microwave Remote Sensing, Radar Imaging						
(Industry	4. Hyperspectral Remote sensing						
Standard	5. Sources of Remote Sensing Data and Information						
Image	6. Applications of Remote Sensing						
Processing	SKILL DEVELOPMENT COMPONENT						
Software) Advanced Remote Sensing (using Industry Standard Image Processing Software):							
PAPER- V	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 Al/ML Models, ARD Toolkit and custom workflows to share with your community using Web Platform.						
	GENERAL EDUCATION COMPONENT						
Advanced	Advanced Geographic Information System (using Industry Standard GIS Software):						
Geographic	1. Datum (WGS 84, Everest)						
Information	2. Basic concepts & types of projections						
System	3. UTM Projection						
(Industry	4. Geographic Coordinate System						
Standard GIS	5. Projected Coordinate System						
Software)	6. Spatial Data Model: Vector Data Model & Raster Data Model						
PAPER- VI	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						
	orema, operation rector data orema, matter stated orema, teaminques						
	GENERAL EDUCATION COMPONENT						
Clabal	Overview of Global Navigation Satellite System (GNSS):						
Global	1. Concepts of GNSS						
Navigation	2. Geoid and ellipsoid						
Satellite	3. Geodetic Satellite, orbit & motion						
System &	4. Kepler's Law						
Drone	5. Different segments of GPS (Space, Control, User)						
Technology	6. Multi satellite Ranging						
PAPER –VII	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						
	A Factoria solder at the decimal decimal income.						
	4. Feature extraction from drone imagery						
Dissertation	4. Feature extraction from drone imagery						
Dissertation & Seminar PAPER- VIII	Dissertation & Seminar (Skill Development Component)						

# **Photographs**















There is no application fee



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



http://www.coochbeharcollege.org.in



geoinformaticscbc@gmail.com

7980<mark>002139, 9475</mark>753844, 9002171518, 98<mark>832800</mark>73











https://geoinformaticscbc.wordpress.com/