Online Certificate Course on Advance GIS Mapping using QGIS (OCC-AGMQ)

Hands on Trainng with Theory
Starting: 19th March, 2022

QGIS

Course Guide

Jointly Organized by

The Department of Geography, Hiralal Bhakat College
A Govt. Aided Degree College
Affiliated to the University of Burdwan
Nalhati, Birbhum, West Bengal - 731220, India

About the Programme

With the advancement of science and technology today, data collection, interpretation, and analysis have become relatively easy. Remote sensing is the science and art of acquiring, assessing, and analysing data. Remote sensing and GIS serve as practical tools for assessing, managing and predicting different resources on the earth's surface and in other accessible planetary bodies. A large amount of geospatial data nowadays is obtained from various sources, and they are used in various assignments and projects in the form of secondary data sets. Satellite imagery and the Geographic Information Systems act as an excellent tool for supporting environmental management, resource management, disaster management, global climate change, forest and wildlife conservation, land use and land cover mapping, etc. The GIS-based soft wares provide an excellent platform for integrating all types of geospatial data with different attributes. These help in different types of modelling like hydrological modelling, climate modelling, soil mapping etc. and all these are done based on Spatio-temporal data. This programme will provide a detailed lecture on the overview of remote sensing and GIS and discuss the sources of various satellite-based geospatial data; we will provide classes on hands-on training on QGIS software so that learners can perform the operations of their own using this software. This programme is inter-disciplinary; any pure science and social science discipline can access this programme.

Content of Advance GIS Mapping using QGIS (OCC-AGMQ)

Watershed analysis

- Extraction of stream from digital elevation model
- Delineation of drainage basin from digital elevation model
- Preparation of DEM from Google earth and preparation of contour and 3D model
- Extraction of individual features like water bodies, vegetation from satellite image
- Analysis of drainage basin & Stream ordering
- Absolute relief, relative relief and dissection index of a drainage basin

Urbanization and its Climatic changes in Geospatial Viewpoint

- Prediction of LULC map
- Change detection of LULC maps
- Extraction of land surface temperature
- LST relation with different other remote sensing indices
- Heat map in QGIS

Miscellaneous

- Interpolation in QGIS & Preparation of Geological map of any area
- Preparation of AHP model for the delineation of Groundwater potential zones
- Fire location map, rainfall prediction map, night view map & Preparation of location map

Programme Team

Eminent Resource Person

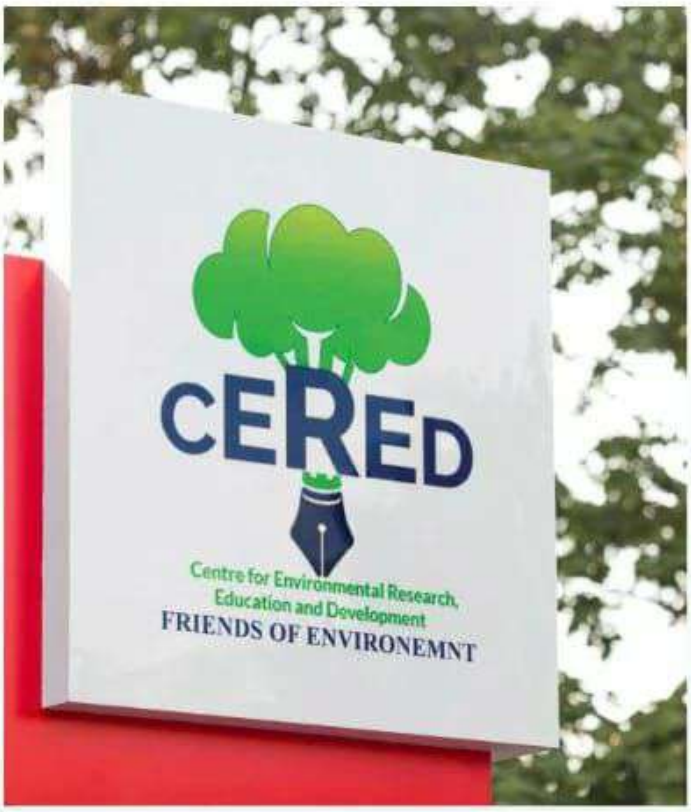
Dr Niladri Das
Assistant Professor, Department of Geography,
Hiralal Bhakat College

Course Coordinators

Mr. Biswarup Bhattachrya, M.Tech, IIRS- ISRO
Course Coordinator, Centre for Environmental Research Education and Development (CERED), HFOE

Mr. Biswajit Mondal, SACT, Department of Geography, HBC
Course Coordinator, Hiralal Bhakat College

Dr. Mousumi Pal
Miss Ananya Chatterjee
Academic Coordinator, Centre for Environmental Research Education and Development (CERED), HFOE



About the Centre

Centre for Environmental Research Education and Development (CERED) is a constituent body of the Hariharpur Friends of Environment organisation. CERED Promotes Fundamental advances in understanding and factual knowledge are needed to solve urgent environmental problems through Research, Education and Development. The main objective of CERED is to create an environment for effective teaching-learning by encouraging the students and faculty to nurture their intellectual curiosity and scientific and research temperament. CERED expand the area of knowledge through collaboration with any Govt. and Non-Govt. Organisations, academic institutions like schools, colleges, universities etc., different management institutes, non-government organisations, even industry or business/corporate houses in Indian and abroad, in such a manner as may be necessary for the promotion of the objectives of the Hariharpur Friends of Environment.

About Hiralal Bhakat College

Hiralal Bhakat College is located in the Rampurhat sub-division of the district of Birbhum in West Bengal. Situated in a backward area, it is a co-education college affiliated to the University of Burdwan. The College has 1.4 acres (5666 square meters) of land and is geographically located in a semi-urban rural area. Situated by the Panagarh-Morgram Expressway, this college is well connected with the capital and other important places of West Bengal. The College received recognition from the University Grants Commission (UGC) under 2(f) as Hiralal Bhakat College on18th October 1993. It is without doubt that the goals and objectives of such a college located in a rural and backward area would always be society dependant and case specific. The college started and proceeds with the simple goal of making people conscious, of producing graduated out of first generation learners, of churning out responsible and conscientious citizens for the nation, and of constructing outputs who would be able to control their own destiny and livelihood with their own efforts. Hence, the objectives of the college are to provide the students with education which does not cost much and with minimum facilities under one roof so as to enable them to prosper in their lives and be instrumental in the uplift in the real sense of the term. The same are made known to the students from time to time through the college prospectus as well as college magazines and through interactions with the faculty and staff of the college.

About the Department

The Department of Geography has started its journey from 2008 with a General Course of Undergraduate Programme. Later it was upgraded by an Honours Course from 2013. At present the Department includes three Assistant Professors, four SACTs and one Laboratory Attendant. The Department is facilitated by a well-equipped general laboratory and a RS & GIS laboratory with proper internet connection. Following the University prescribed syllabus, student-computer ratio is routinely maintained in the RS & GIS laboratory. An annual also follow a YouTube channel entitled 'World of Geography, Hiralal Bhakat College' to revisit some important classes. Teachers demonstrate practical classes in audio-visual mediums to grow a user-friendly attitude of students towards equipment. Recently an ICSSR funding Research Project was completed in this Department successfully.

INTRODUCTION TO THE COURSE

General Introduction

The Online Certificate Course Advance GIS Mapping using QGIS (OCC-AGMQ) organised by Department of Geography, Hiralal Bhakat College and Centre for Environmental Research Education and Development, Hariharpur Friends of Environment, aims at providing knowledge to the learners in the areas of Remote sensing, GIS and advance GIS mapping using the software QGIS. The duration of the course is 2 Months (Saturday and Sunday), and it includes Practical (1 Credits) and Assignments (1 Credits) and the basic eligibility criteria of the course is 10+ 2 or Equivalent. This programme is inter-disciplinary; any disciplines from pure science and social science can access this programme.

Eligibility Criteria

Candidates should have passed / pursuing Graduation or Post Graduation from any recognised university.

Response Language

Candidates must write their examinations and other forms of assessment in English, as the response language. Assessed work in theory of knowledge and the extended essay must also be presented in English.

Duration of the Course

2 Months (Saturday and Sunday)

Registration Details

Mode of Registration: Online through Google Forms

Registration Open:

Last Date of Registration:

Modes of Classes and Examination

Online Classes will be conducted through Google Meet

Course Structure

Total Number of Classes: 16

Total Time: 70 Hrs.

The Online Certificate Course on Advance GIS mapping and QGIS (OCC-AGMQ) consists of Total 2 Credits i.e.,

Practical (1 Credit)

Assignment (1 Credit)

Fees Structure

The fee structure for Online Certificate Course on Advance GIS mapping and QGIS (OCC-AGMQ) is as follows:

Students: ₹ 2000/-

Research Scholar: ₹ 2200/-

Faculty: ₹ 2500/-

There is no separate Examination fee.

Assignments and Examination

Total 8 assignments will be given and all of them are compulsory. One Term end exam will be there at the end of 16 Classes.

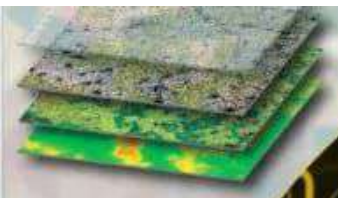
Eligibility for the Examinations

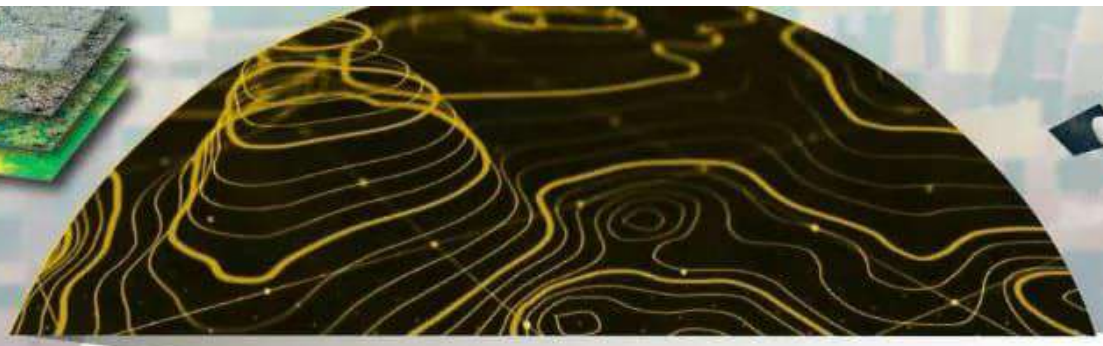
To be eligible to appear in the term-end examination in any Course, Candidates should have submitted the assignments for the respective Course and should have Minimum 75% attendance in classes.

Evaluation

COURSE SYLLABUS AND TIMINGS

WEEK	CLASS AND DATE	TOPICS	SUBTOPICS
WEEK 1	CLASS 1 Saturday	Watershed analysis	Extraction of stream from digital elevation model
	CLASS 2 Sunday	Watershed analysis	Delineation of drainage basin from digital elevation model
ASSIGNMENT 1			
WEEK 2	CLASS 3 Saturday	Watershed analysis	Preparation of DEM from Google earth and preparation of contour and 3D model
	CLASS 4 Sunday	Watershed analysis	Extraction of individual features like water bodies, vegetation from satellite image
ASSIGNMENT 2			
WEEK 3	CLASS 5 Saturday	Watershed analysis	Analysis of drainage basin & Stream ordering
	CLASS 6 Sunday	Watershed analysis	Absolute relief, relative relief and dissection index of a drainage basin
ASSIGNMENT 3			
WEEK 4	CLASS 7 Saturday	Urbanization and its climatic changes in geospatial viewpoint	Prediction of LULC map
	CLASS 8 Sunday	Urbanization and its climatic changes in geospatial viewpoint	Change detection of LULC maps
ASSIGNMENT 4			
WEEK 5	CLASS 9 Saturday	Urbanization and its climatic changes in geospatial viewpoint	Extraction of land surface temperature
	CLASS 10 Sunday	Urbanization and its climatic changes ingeospatial viewpoint	LST relation with different other remote sensing indices
ASSIGNMENT 5			
WEEK 6	CLASS 11 Saturday	Urbanization and its climatic changes in geospatial viewpoint	Heat map in QGIS
	CLASS 12 Sunday	Miscellaneous	Interpolation in QGIS & Preparation of Geological map of any area
ASSIGNMENT 6			
WEEK 7	CLASS 13 Saturday	Miscellaneous	Preparation of AHP model for the delineation of groundwater potential zones
	CLASS 14 Sunday	Miscellaneous	Fire location map, rainfall prediction map, night view map & Preparation of location map of any study area
ASSIGNMENT 7			
WEEK 8	CLASS 15 Saturday	Miscellaneous	Random forest classification
	CLASS 16 Sunday	Miscellaneous	Animating map in QGIS
ASSIGNMENT 8			





USEFUL CONTACTS

Academic, Exam and other relating to the course:
Course Coordinator OCC-AGMQ
E-mail: occagmq.cered@gmail.com
Contact: +91 7557885703

Purchasing of Video Clips, PowerPoints of the Course and Study Materials:
Technical Coordinator, CERED
E-mail: info.cered@gmail.com
Contact: +91 8388091239

USEFUL DATES AND LINKS

Starting of Registration: 26th January 2022
Closing of Registration: 15th March 2022
Class Starting Date: 19th March 2022

Registration Link:
https://forms.gle/Y7sskakafxKzdDMU7
Payment Link:
https://cered.mojo.page/occ-agmq

Contact Us

occagmq.cered@gmail.com

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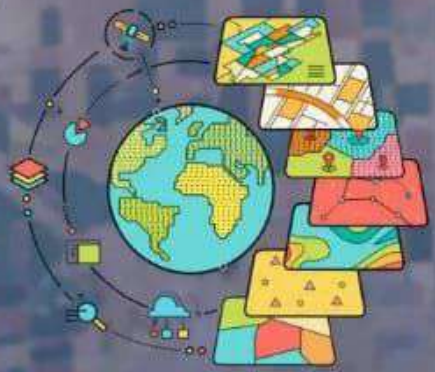

For more information view or Download Course Guide: https://bit.ly/3u06apE

For Regular Updates Join WhatsApp: https://chat.whatsapp.com/Hu1r3seTcJL2DlEik3eKAX

Registration form Link: https://forms.gle/Y7sskakafxKzdDMU7

Payment Link: https://cered.mojo.page/occ-agmq

For more information contact us: +91 7557885703 or

WhatsApp us: +91 83880 91239