

M.Sc., Geoinformatics

PG Dip. Spatial Technologies



INFORMATION BROCHURE



Centre for Geoinformatics

The Gandhigram Rural Institute

(Deemed to be University)

Ministry of Education (Shiksha Mantralaya), Government of India.

Accredited by NAAC with 'A' Grade (3rd Cycle)

Gandhigram – 624 302, Dindigul Dist, Tamil Nadu.



THE INSTITUTE

Gandhigram was founded in 1947 by a team of dedicated Gandhians led by Dr.T.S.Soundaram and Dr.G.Ramachandran. The Gandhigram Rural Institute (GRI) one of the premier Rural Institutes under Ministry of Education, Government of India was started in 1956. It attained the status of a Deemed to be University in 1976 and the National Assessment and Accreditation Council (NAAC) conferred FIVE STAR status on GRI in 2002. The Institute was reaccredited by NAAC with “A” Grade in 2010 (2nd Cycle) and in 2016 (3rd Cycle). **The Institute is governed by the Ministry of Education, Government of India, New Delhi.**

GRI has a campus of nearly 200 acres located in a serene rural setting, nestling in one of the enclaves of the beautiful Sirumalai Hill range. Lying north of Madurai city, Gandhigram is easily accessible by rail and road. The nearest railway station is Ambathurai. It currently houses 8 Schools, 18 Departments and 9 Centres Outfits implementing 61 variegated Campus Programmes.

CENTRE FOR GEOINFORMATICS

The School of Health Sciences and Rural Development in the Institute has three departments viz., Rural Health and Development Studies, Rural Health and Sanitation and Lifelong Learning & Extension. Centre for Geoinformatics functions under the Department of Rural Health and Development Studies. The Centre for Geoinformatics offers M.Sc in Geoinformatics and PG Diploma in Spatial Technologies Programmes. The Centre is managed by well qualified team of Professors and has all state-of-the-art facilities for achieving excellence in education.

Eligibility

For both the two year M.Sc.Geoinformatics and one year P.G.Diploma in Spatial Technologies programmes the eligibility is A pass in UG degree in Sciences, Engineering and Technology disciplines.

Those who are awaiting final semester results can also apply. Admission to the programmes is based purely on merit, i.e., on the basis of marks scored in an entrance test.

Admission Procedure

Students seeking admission to the M.Sc.Geoinformatics programme have to apply through CUET [Common University Entrance Test] during April /May. For P.G.Diploma in Spatial Technologies programme GRI releases an advertisement in leading national and regional dailies with details of the application fee and the last date for submission of application by Online. These details can also be accessed from the Institute's Website, www.ruraluniv.ac.in. (Application can be submitted only by Online)

M.Sc. in Geoinformatics

The courses of the programme are designed to provide adequate theoretical and practical knowledge about Geoinformatics and its applications. The programme is specifically designed for students who aspire for lucrative jobs as well as avenues of research/ advanced studies. The programme is offered on self-financing basis.





Objectives of the Programme

The objectives are to

- Impart knowledge in Digital Cartography, Geographic Information System (GIS), Remote Sensing, Watershed Management, OOPS, Programming Languages for Geoinformatics, Web Technology, Global Positioning System (GPS)
- Train students in the use of software in Computer Cartography, GIS, GPS and Remote Sensing.

Programme Design and Curriculum

This multi-disciplinary programme offers students the opportunity to use a computer constantly, enabling them to master the latest software packages available in the fields of GIS, Digital Image Processing, GPS and Computer Science. The aim is to make the students master in both theory and practical. The curriculum includes comprehensive and state-of-the-art courses in Geoinformatics.

Theory Courses

Introduction to Geoinformatics
Cartography
Geographical Information System
Programming Languages for Geoinformatics
Remote Sensing & Photogrammetry
Digital Image Processing
Spatial Data Science
Global Navigation Satellite System
Geoinformatics in Resource Management
Geoinformatics in Disaster Management
Research Methods and Statistics

Practical Courses

Geographical Information System
Programming Languages for Geoinformatics
RS, DIP & Photogrammetry
Spatial Data Science
Geoinformatics in Resources and Disaster
Management
Case Study in GIS / RS/Web GIS

Electives

Java Programming
Computer Graphics
Earth, Atmospheric, Ocean and Planetary
Sciences
Geoinformatics for Watershed Management
Web Technology for Geoinformatics
Google Earth Engine for Remote Sensing
Applications

Modular Courses

Spatial Decision Support System
Open Source Software
LiDAR and its Applications
Drone Image Processing

Value Added Courses

Advanced Surveying
Planetary Remote Sensing
Satellite Meteorology
Land Use / Land Cover Mapping using
Google Earth Engine.

Case Study

During the third semester, the students are required to do a Case Study in GIS, Image Processing or GPS in order to enable them to gain intensive practical knowledge. In addition, the students are required to do small projects in practical applications as part of the practical courses. They are encouraged to make presentations of seminar papers as part of theory courses. All this enables the students to realize their full potential.

Dissertation

This programme has a dissertation component also. In this component, the students are required to select a suitable research topic in any field of Geoinformatics and submit a dissertation. The Centre guides them in finding suitable topics and institutions for their dissertation work.

Internship

During the final semester they have to undergo internship in Geoinformatics Companies/ Institutions. This helps the students to learn the latest trends in the field of Geoinformatics and enrich their knowledge in working functions of companies to place them in the market successfully.





PG Diploma in Spatial Technologies

The courses of this programme are aimed at training students in the use of Spatial Technologies. The programme provides students practical training and field knowledge so as to give them sufficient industry orientation and practical skills. The programme is specifically designed for students who aspire to land lucrative jobs in a short period.

Objectives of the Programme

The objectives of the programme are to:

- Impart knowledge in GIS, Remote Sensing, Digital Image Processing, GNSS etc.,
- Train students in the use of software packages in Digital Cartography, GIS, and Digital Image Processing.



Programme Design and Curriculum

This multi-disciplinary programme is so designed that the students will have an opportunity to use a computer constantly, enabling them to master the latest software packages available in the field of Spatial Technologies. The programme is handled by a qualified team of dedicated faculty with all state-of-the-art facilities for achieving excellence in the subject. The curriculum is comprehensive and extensive. The practical classes include off-campus industry orientation programmes besides laboratory exercises and research sessions.

Theory Courses

Introduction to Spatial Technologies
Remote Sensing & DIP
Principles of Cartography
Geographical Information System
Global Navigation Satellite System
IT for Spatial Technologies
Spatial Technologies in Resource
Management
Spatial Decision Support System

Practical Courses

Geographical Information System
Remote Sensing and Digital Image
Processing

Elective Courses

Earth, Atmospheric, Ocean and Planetary
Sciences
Spatial Technologies for Watershed
Management
Open Source Data and Software

Modular Courses

Spatial Modeling
Spatial Decision Support System
LiDAR and its Applications
Drone Image Processing

Dissertation

During the second semester the students are required to do a dissertation in any one of the fields of Spatial Technologies and submit a report. The Centre helps in the selection of the topic of the dissertation.

Employment Potential

All are students trained in the use of various software packages related to Geoinformatics and are placed in government organisations and and private companies even before the completion of their academic programme.

Placement Details

The department has an exclusive placement cell for the benefit of the students. It arranges campus interviews / recruitment for the students of M.Sc Geoinformatics and PG Diploma in Spatial Technologies. The alumni of these programmes are employed in the following organizations:

PLACEMENTS IN PLACES

AGS Pvt. Ltd., Noida

Apex knowledge Technology Pvt. Ltd., Chennai

Bellissimo Ventures Pvt. Ltd., Gurgaon

Cognizant, Bangalore

Cyber Tech, Pune

Darashaw & Consultancy Pvt. Ltd., Chennai

Data Collection Infotech Ltd., Bangalore

Deduce Technologies Pvt. Ltd., Bangalore

Edgemap Software Pvt.Ltd., Chennai

EDR Continuous Informatics, Chennai

EGIS, Bangalore

Genesys International Corporation Ltd., Bangalore

Geo Adithiya, Chennai

Geoedge Technologies Pvt. Ltd., Coimbatore

Geofiny Technology, Chennai

Geoid Consultancy Pvt. Ltd., Chennai

Geomatiques Aero Tech, Madurai

Geospectrum, Bangalore

GESA Pvt. Ltd., Chennai

GIS Consortium Pvt. Ltd., Pondicherry
GISBIZ, Chennai
Gosoft E Solution Pvt.Ltd., Chennai
Good Land Survey Pvt. Ltd., Dindigul
Hathway cable datacom Ltd., Chennai
HCL Software Ltd, Bangalore
Hexamap, Chennai
Hexagon Geosystem Services India Pvt.Ltd.,
Bangalore
IndiGEO, Bangalore
Infinium Pvt.Ltd., Chennai
Info Maps, Chennai
Institute of Remote Sensing, Chennai
Institute of Water Studies, Chennai
Kavin Care, Bangalore
Larson & Tubro, Chennai
Layer Informatics, Bangalore
Lotus, Bangalore
Magnasoft, Bangalore
Mailsoft Solution Pvt.Ltd., Chennai
Mape Solutions Geo Designs Pvt. Ltd., Chennai
MIT, Chennai
National Informatics Centre, Chatishgarh
National Informatics Centre, Chennai
National Transportation Planning & Research Centre,
Thiruvananthapuram
Navayuga Systems, Bangalore
Navtech India Pvt. Ltd., Chennai
NIRD, Hyderabad
Nokia Maps, Chennai
Paradigm IT Pvt Ltd., Cochin
Prime Meridian Pvt. Ltd., Chennai
Profizio IT Solutions, Madurai
Regional Remote Sensing Service Centre, Kharagpur
Remote Sensing Instruments, Hyderabad
Robert Bosch, Coimbatore
Rolta India, Mumbai
SCE- Creoccean (India) Pvt Ltd., Bangalore
SECON Private Ltd, Bangalore
SGS Infotech Pvt. Ltd., Gurgaon
SKY Group, Bangalore
Spatial Decisions, New Delhi
Sri Sakthi Global Infra survey Pvt. Ltd., Chennai
Trimble Solutions Pvt. Ltd., Chennai
VIRAUGRAIT Pvt. Ltd., Kerala
Vmaps, Bangalore
Wipro, Bangalore
Yahoo, Bangalore

Infrastructure Facilities

The Centre has a laboratory adequately equipped with the hardware and the latest software required for the effective teaching and practice of these emerging technologies.

Software available in the laboratory

GIS

ArcGIS

IDRISI, Geoda

Digital Image Processing

ERDAS

Leica Photogrammetry Suite

GPS Software

Map Source

Programming Languages

Python

R Programming

MySQL

Java Programming

HTML, CSS, Java Script



Hardware apart from the RS,DIP & GIS Computer Lab

DGPS

Total Station Leica Specifications

ANGULAR MEASUREMENT

Accuracy

- 1.Display resolution: 0.1" (0.1 mgon)
- 2.Dual axis compensation with Hz collimation and V index correction
- 3.Compensator range: +/- 8'
- 4.Longitudinal level sensitivity: 2'/2 mm

DISTANCE MEASUREMENT

Range'

- 1.Prism (GPR1, GPH1P): 1.5m to 3,000m
- 2.Non-Prism: up to 500m2

Accuracy

- 1.Single prism: 2 mm + 2 ppm
- 2.Non-Prism: 3 mm + 2 ppm3

Internet Facility

The Institute has a Internet Browsing Centre with 10 mbps bandwidth through OFC from BSNL and Railtel.

The Geoinformatics Laboratory is well-equipped with high-end computers that are connected in a Local Area Network [LAN] with high speed internet the laboratory operates on the latest Windows 11 operating systems and each system is installed with the basic and necessary required softwares.

Library

The Institute Library has a rich collection of reference books, back volumes, research periodicals, journals, magazines and project reports. It has INFLIBNET (INformation LIBrary NETwork) connectivity with 10 mbps, which enables the student to access thousands of e-journals. In addition, the Centre library has a good collection of books on Cartography, Remote Sensing, GIS, GPS, Computer Science and Information Technology.

Other Facilities

Separate hostels with adequate facilities are available for boys and girls. Cell for Culture and Art, Media Center, Yoga Center, Gym, Health Centre etc., are also available.



Address for Communication:-

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Director i/c, Centre for Geoinformatics

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(Deemed to be University)**

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