



## DEPARTMENT OF GEOLOGY AND ENVIRONMENTAL SCIENCE CERTIFICATE COURSE DETAILS

**NAME OF THE COURSE**

**CERTIFICATE COURSE IN GIS AND REMOTE SENSING**

**COURSE CODE**

**GEO01RSGIS**

**PARTNERSHIP WITH**

**PAN ENVIRON GEO-SPATIAL ACADEMY**

**OFFERED BY**

**DEPARTMENT OF GEOLOGY AND ENVIRONMENTAL SCIENCE**

**COURSE COORDINATOR**

**Linto Alappat**

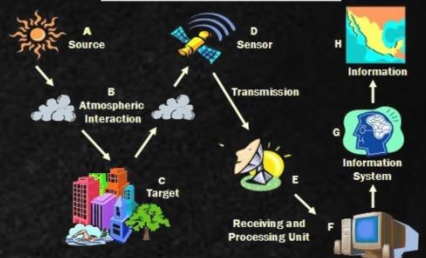
**ABOUT COLLEGE**

Christ College (Autonomous), Irinjalakuda established in the year 1956 by CMI fathers has always been a place where young generations are moulded towards a bright future. College has excellent infrastructure, with state of the art laboratories, seminar rooms and lecture halls. The campus is Wi-Fi enabled. Presently College is home for 4500+ students, 200 teaching staff and 45 supporting staff. The strength of the College lies in its hardworking and tech savvy teachers who are eager to involve in all matters of students. The lush green campus with gardens and open gym is moving towards the next phase on education both offline and online.

**WHAT IS THE COURSE?**

The Certificate course in Geographic Information Systems and Remote Sensing (GIS/RS) offered by Department of Geology and Environmental Science, Christ College aims at providing critical understanding of the geo-information science in using geospatial technologies to address analytical problems where location is an essential parameter. All environmental issues are place-based and require data on the location of features on the surface of the earth (e.g., wetlands, aquifers, land use, people, sources of pollution, coasts, etc.). The Department of Geology and Environmental Science, Christ College, Irinjalakuda was established in 1981 and offers two undergraduate programs in Geology and two postgraduate programs in Applied Geology and Environmental Science. The Department also offers an Integrated MSc (five years) program in Geology and a PhD program in Geology and Environmental Science under the University of Calicut.

Steps in remote sensing



The Department has a dedicated GIS laboratory and licenced/ open source software packages including ArcGIS.

PAN Environ India is one of the competent environmental and geo-spatial companies in India. It's broad experience and multidisciplinary approach provides PAN Environ India with the expertise and flexibility to meet a wide range of GIS, Environmental, Remote Sensing, Mapping, Mobile and Web application development project needs. Our worldwide reputation is a direct result of an ability to work with clients to successfully implement innovative and complex solutions to solve difficult problems.

As Geographic Information Systems (GIS) and Remote Sensing have evolved as a key technology in framing the modern world, its professional value has increased exponentially. It has been a key tool for project planning, execution and monitoring in various industries like agriculture, forestry, mining, market research, environmental analysis as well as the social and medical sciences. By considering the relevance and industrial demand, Department of Geology and Env. Sc., Christ College and PAN Environ India has jointly proposed to organize a certificate program, intended to provide quality education and skill oriented training in geo-spatial sector to help young aspirants and professionals in learning latest concepts and advancements relevant to the geo-spatial industry.

## SCOPE OF THE COURSE

The course is designed to suit the requirements of mid-career professionals and bright students interested in choosing geo-informatics as their career.

The course will be useful in understanding the concept of spatial data and its utilities in many industrial as well as research applications.

The technology is widely used in the mitigation and management of natural disasters, resource estimation, urban planning, environmental applications, etc.

## LEARNING OUTCOMES

The participants will be competent in accessing geospatial data from many sources, creating a cartographically uniform database of geospatial information, performing spatial analysis, and tabulating results quantitatively and cartographically.

Participants will gain skills in formulating and carrying out independent research/pilot project in the general field of geo-informatics, possibly a part of a multi-disciplinary research and development project.

Participants may find better job/ research prospects in rapidly growing field of geo-informatics.

## COURSE OUTLINE

The duration of the course is 60 hours spanning across two months. The course will be generally organized from 14.00 am to 16.00 hours in the week days, after the regular teaching hours at Department of Geology and Environmental Science, Christ College Autonomous, Irinjalakuda. However, flexibility in the timings may be made without compromising the total hours of transaction, with the mutual discussion between the learners and faculty members of the Program. The course shall include both theory and practical classes by faculty from both host department and PAN Environ on the topics in GIS and Remote Sensing.

### PROJECT

The participant has to complete an independent project for the fulfillment of the requirements of the Certificate course in GIS and Remote Sensing. The project report will be evaluated by an expert committee comprising members from specialized organizations.

### ASSESSMENT

The level of acquisition of the skill by the learners will be monitored through number of class tests and practical assignments. A terminal written examination and viva-voce will be conducted after the completion of the course of study.

## COURSE MODULES

Syllabus in detail:

Theory Section

- Introduction to GIS - 6 Hrs.
    - o Concept of GIS
    - o Data models
    - o Projection
    - o GPS concept
  - Cartography and GIS - 6 Hrs.
    - o Introduction to Map
    - o Types of Maps
    - o Map & Globe
    - o Map Scale & Layout
  - Remote Sensing- 6 Hrs.
    - o Basics of Remote Sensing
    - o Photogrammetry and Cartography
    - o Digital Image Processing
    - o Satellite Image
  - Applications of GIS -3 Hrs.
  - Introduction to GIS Software-3 Hrs.
  - Theory Exam (Maximum Score 100)- 2 Hrs.
- Total Hours - 26 Hrs.

Practical Section (Software Training)

- QGIS- 20 Hrs.
    - o Digitizing and Editing of Spatial Data
    - o Data base creation and Management
    - o Spatial Analysis of Data
    - o Map Preparation
    - o Arc GIS (Hands on training and demonstration)
    - o Group project- 10 hrs
  - GPS Training (Hand Held) - 2 Hrs.
  - Individual Presentation - 2 Hrs.
- Total Practical hours: 34

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