Post Graduate Diploma in Spatial Data Science

Course Duration
July 2020 to June 2021

Indian Institute of Remote Sensing
Indian Space Research Organisation
Department of Space, Government of India
4- Kalidas Road, Dehradun, India
Tel- +91- 135-2524110
Email- pgdsds@iirs.gov.in
Understanding the concept of spatial data science, spatial data acquisition, analysis, modelling and geo-visualization in large data environments;

- Understand how artificial intelligence, machine learning, and data mining techniques can be used in knowledge discovery to provide solutions for geographical or location specific problems;
- Understand the concept of seamless data access from online data repositories, Web services and APIs for data analytics, processing, modelling and simulations;
- Applying the data science skills for solving real world problems.

**LEARNING OBJECTIVES**

**SKILLS YOU WILL GAIN**

- GIS Engineer/Developer;
- Market Analyst;
- Defence and strategic planner; and
- Many more challenging job profiles

**CAREER IN SPATIAL DATA SCIENCE**

Carrier opportunities are as follows:

- Data Scientists;
- Researcher;
- Spatial data analyst;
- Spatial data modeller;
- GIS Engineer/Developer;
- Market Analyst;
- Defence and strategic planner; and
- Many more challenging job profiles

**ELIGIBILITY CRITERIA**

- M.Sc./M.Tech. in Comp. Sci./ IT/ Computer Application or equivalent with Bachelor’s degree in Science (with Science & Maths subjects) or Engg. (OR)
- M.Sc. in Phy./ Maths/ Stat./ Geoinform. or equivalent) with Bachelor’s degree in Science (with Science & Maths subjects) or Engg. (OR)
- B.E./B.Tech. in Comp. Sci./ IT/ Civil/ Electron./ Geoinform. or equivalent

**WHO SHOULD ATTEND?**

- Students, researchers and professionals from engineering in computer science and information technology, Physics, mathematics and statistics looking for a career opportunity in spatial data science
Module II

Paper-1: Big Data Analytics:
- Understand the concept of big data and its dimensions;
- Understand the challenges in handling and processing the big geo-data;
- Understand the distributed processing framework in cluster computing (Ex. Hadoop ecosystem) for big data analytics;
- Apply spatial data mining techniques for geographical problems;
- Understand the importance of spatial data cube concept and its applications;
- Describe the uses of big data analytics in various thematic areas.

Paper-2: Machine Learning:
- Understand linear algebra, information theory and numerical computation for machine learning;
- Understand the concept of various machine learning approaches for Earth observation data and unconventional sensor data;
- Understand and apply regression and tree based approaches, Unsupervised learning, Supervised learning and Fuzzy Algorithms and Reinforced learning for classification, prediction and identification of classes and objects.

Paper-3: Programming Skills Development for Geo-Processing:
- Develop complex Python code;
- Solve analytical problems using code in basic python programming;
- Understand usefulness of Numpy, Matplotlib, and geospatial packages to undertake geospatial tasks using Python and its libraries;
- Implement machine-learning algorithms using Python.

Paper-4: Spatial Modeling and Data Assimilation:
- To understand the concepts of spatial modeling and their architectures;
- To understand the process and procedures in application of spatial models for real world problems;
- To understand the concepts and techniques of data assimilation and its application in spatial models;
- To understand the concepts of global and regional models, their configuration, components & applications.

PROJECT WORK
- Three months project work.
Course Duration & Fee

- **Course Start Date:** Jul 16, 2020
- **Course End Date:** Jun 26, 2021
- **Course Fee for Self Financed candidates (INR):** ₹72000
- **Course Fee for Govt. sponsored candidates (INR):** NIL
- **Course Fee for foreign candidates(USD):** $7200 (USD)
- **Application Fee:** ₹1,000/- (Rupees One Thousand only)

How to Apply?

- The candidate can apply through [https://admissions.iirs.gov.in](https://admissions.iirs.gov.in)
- Only online applications are accepted.
- **Last Date to apply:** 27.03.2020 [17:30 hrs]