Geophysics

Introduction

Geophysics, a major branch of the Earth sciences and a sub discipline of Physics, is the study of the Earth by quantitative physical methods, especially by seismic, electromagnetic, and radioactivity methods. As the name implies, geophysics involves the application of physical theories and measurements to discover the properties of the earth. Geophysics is the term used to describe the study of the Earth's surface, core, geological levels and anything impacting the planet such as gravity, electric and magnetic forces. Geophysics is applied to societal needs, such as mineral resources, mitigation of natural hazards and environmental protection. Career fields in geophysics include working in magnetic, seismology and geodesy.A geophysicist is someone who studies the Earth using gravity, magnetic, electrical, and seismic methods.

Some geophysicists spend most of their time outdoors studying various features of the Earth, and others spend most of their time indoors using computers for modelling and calculations. Some geophysicists use these methods to find oil, iron, copper, and many other minerals. Some evaluate earth properties for environmental hazards and evaluate areas for dams or construction sites. Research geophysicists study the internal structure and evolution of the earth, earthquakes, the ocean and other physical features using these methods.

What are the types of geophysicists?

Seismic Surveys

Ground Penetrating Radar

Magnetic Surveys

Radiometric Surveys

Gravity Surveys

Induced Polarity (IP) Survey

Electromagnetic (EM) Surveys.

Skill Set-:

Enjoy technical and engineering work.

Alert and analytical mind.

Enjoy applying physics and mathematics in practical ways.

Good oral and written communication skills.

Able to work independently or as part of a team.

Willing to work in remote areas.

Top Colleges:-

- **IIT Kharagpur**
  Course – EXPLORATION GEOPHYSICS (M.SC. 5Y)
  Eligibility – 10+2 with PCM
  Admission Mode – JEE-Main and JEE Advance

- **IIT Dhanbad**
  Course – M.Tech in Applied Geophysics (5 Years)
  Eligibility - 10+2 PCM
  Admission Mode - JEE-Main and JEE Advance

- **Top Colleges Which Offer Geophysics at Master Level**

  Indian Institute of Technology (IIT Kharagpur) – West Bengal

  Banaras Hindu University (BHU) – Uttar Pradesh

Faculty of Science – Kurukshetra

SGN Khalsa College

Ganpat University

Andhra University - Vishakhapatnam

Indian Institute of Technology (IIT Bombay) – Mumbai

➢ Eligibility

- Candidates should have completed their B.Sc. in Physics along with either subject of Chemistry/ Mathematics/ Electronic Science/ Geology with a minimum aggregate of 60% and above from a recognized university.
- They should have passed the entrance examination conducted by various state and national universities such as AUCET, JEE Advanced, BHU PET, and much more

Job Prospects

- **Marine geophysics** is a scientific discipline that uses the quantitative observation of physical properties to understand the seafloor and sub-seafloor geology.
- **Petroleum geophysicists** include the exploration and recovery of oil and gas. Hydrocarbons are formed through geological processes in the underground.
- **Environmental geophysicists** is a relatively new field. It is primarily used to identify, map or predict the presence and potential movement of surface water and groundwater and to identify contaminants in the soil within the upper 10 to 50 m of the Earth's surface.
- **Advisor Geophysicist** Role includes providing sound and valuable advice about the ways to conduct the study on the physical aspects of earth and the dimensions related to it.
- **Geoscientist** Role includes studying the different aspects of Earth which includes its composition, structure, process, carbon dating, seismography and much more.
- **Exploration Geoscientist** Roles include studying and investigating the earth's structure, evolution process, planning and conducting exploration activities.
- **Associate Professor** Assisting in creating a learning environment using different tools and techniques.

- **Oceanographers** study the oceans and the marine environment.

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