भारतीय प्रौद्योगिकी संस्थान कानपुर
Indian Institute of Technology Kanpur
Department of Earth Sciences

Placement Brochure

Earth Sciences 2025-2026

DR. DEBAJYOTI PAUL
PROFESSOR AND HEAD,
DEPARTMENT OF EARTH SCIENCES

Our Vision

“The BS-MS and M Tech. students of the Department of Earth Sciences, IIT Kanpur get through academic training that includes course works on fundamental and applied Earth Sciences as well as hands-on training on analytical techniques relevant to our society. Particularly, they learn about natural resources (identification and exploration techniques), Solid earth geology, Quaternary geology, Sedimentology and Basin analysis, Natural Hazards, and Applied geochemistry, etc. Our students are well-trained with the theoretical aspects of hydrocarbon exploration from the basic to advanced stages, theoretical and practical Rock Mechanics, Rock Physics, and different geophysical exploration techniques with laboratory-based components. They visit several exploration industries, their mining sites, and beneficiary plants. In our teaching program, field geology is one of the essential components with emphasis on geological mapping and interpreting geological structures. IIT Kanpur campus environment encourages students to develop as better human beings, leaders, and team members.”

Department of Earth Sciences

IIT Kanpur

About us

The Department of Earth Sciences at IIT Kanpur focuses on the comprehensive study of the Earth, including its evolution, internal dynamics, surface and subsurface processes. It emphasizes understanding both natural and human-induced transformations of the terrestrial environment in the context of sustainable development—especially in light of the growing challenges posed by rapid population growth.

Our DNA

Lead Educators

Dr. Debajyoti Paul

HEAD OF THE DEPARTMENT

Ph.D., Cornell University, USA, 2002
[Homepage]

Dr. Javed N. Malik

Professor

Ph.D., M. S. University of Baroda, India, 1998
[Homepage]

Dr. Rajiv Sinha

Professor

Ph.D., University of Cambridge, UK, 1992
[Homepage]

Dr. Shantanu Mishra

Professor

Ph.D., Jadavpur University, India, 2007
[Homepage]

Dr. Tajdarul Hasan Syed

Professor

Ph.D., University of California, Irvine, USA, 2007
[Homepage]

Dr. Deepak Dhingra

Associate Professor

Ph.D., Brown University, USA, 2014
[Homepage]

Dr. Dibakar Ghosal

Associate Professor

Ph.D., Institut de Physique du Globe de Paris, France, 2013
[Homepage]

Dr. Animesh Mandal

Associate Professor

Ph.D., IIT Kharagpur, India, 2013
[Homepage]

Dr. Inder Shekhar Sen

Associate Professor

Ph.D., Florida International University, USA, 2010
[Homepage]

Dr. Ishwar Kumar C.

Assistant Professor

Ph.D., Indian Institute of Science, 2015
[Homepage]

Dr. Amar Agarwal

Assistant Professor

Ph.D., IIT-Roorkee and KIT-Germany, 2015 (DAAD Sandwich model)
[Homepage]

Dr. Hiranya Sahoo

Assistant Professor

Ph. D., University of New Orleans, USA, 2013
[Homepage]

Dr. Rabiul Haque Biswas

Assistant Professor

Ph.D., PRL Ahmedabad, India, 2012
[Homepage]

Dr. Anupam Banerjee

Assistant Professor

Ph. D., Indian Institute of Science Bangalore, India (2018)
[Homepage]

Dr. Boddepalli Govindarao

Assistant Professor

Ph. D., IIT Kharagpur, India, 2019
[Homepage]

Dr. Deepa Mele Veedu

Assistant Professor

Ph.D., (Nanyang Technological University, Singapore, 2019)
[Homepage]

Dr. Thupstan Angchuk

Assistant Professor

Ph.D., (Jawaharlal Nehru University, New Delhi, India, 2020)
[Homepage]

Dr. Sumit Chakraborty

Distinguished Visiting Faculty

ALUMNI

Guiding Alumni

Our Alumni have been constant source of support and inspiration comprising highly knowledgeable and skilled individual of their field

Ashee Shukla

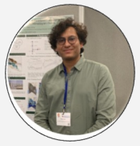
ESG,
SES Satellites, Luxembourg

Abhinav Uniyal

Project Manager,
GSI, India

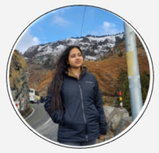
Vaibhav Jain

Executive Geologist
ONGC, India



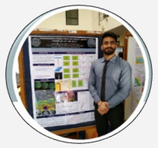
Shobit Singh

Co-Founder & Director,
Terraqua UAV solutions pvt ltd



Prabhati Sen

Geoscientist,
Schlumberger Limited

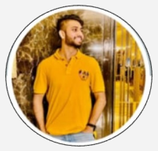


Saket Patidar

Petrophysicist,
Schlumberger Limited

Aditya Parasramka

Product Manger,
INDmoney



Nishant Jain

Data Engineer,
Mastercard

Pranjal Pratap Dubey

Associate Product Manager
Pine Labs

Vani Chaturvedi

Assistant Manager Officer,
Bank of America

Tanmaya Naik

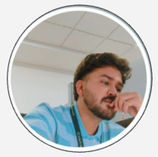
Analytics Manager,
Ola

Sudhanshu Pandey

Associate
JPMorgan Chase & Co.

Abhishek Kumar

Sr. Data Scientist Analyst,
Accenture



Hammad Zubair

Geoscientist,
Baker Hughes

Harshajit Borah

Geospatial Consultant,
ICF, India

Prateek Chougule

Project manager,
Mati Carbon

Vinay Joshi

Geoscientist,
IMC limited

Vedanth Venkatakrishnan

Consultant,
Bain & Company

We

The Department of Earth Sciences blends rigorous field research with cutting-edge technical training. Students gain hands-on experience through geological fieldwork and advanced data analysis.

Thesis and project-based research is introduced early for both M.Tech and BS-MS students. This integrated approach prepares them for impactful careers in academia, research, and industry

Integrating Advanced Technical Skills into Research Excellence

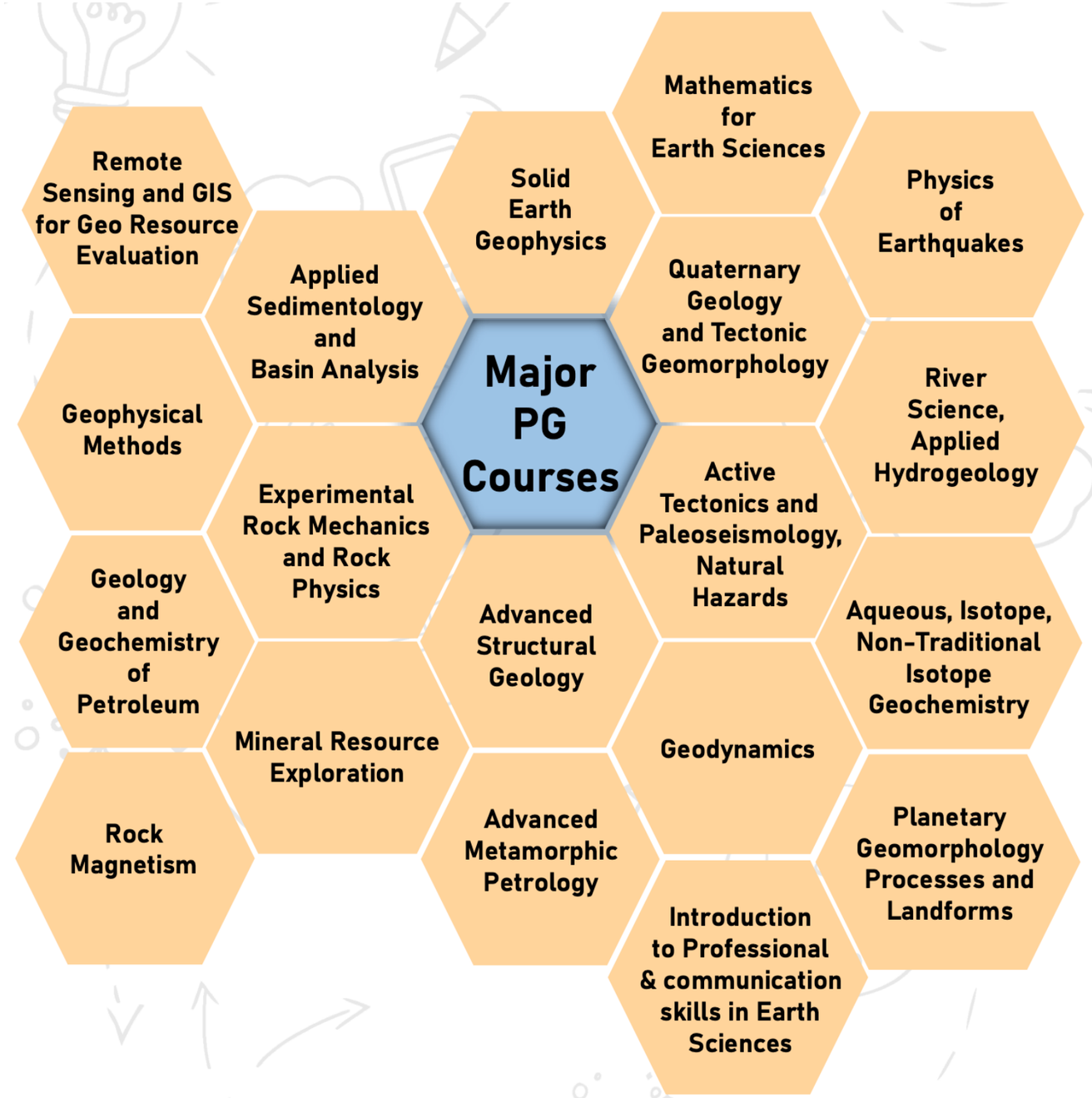
- **Technical :** Python, MATLAB, Machine Learning, SQL, Power BI, Tableau
- **Data Visualization**
- **GIS & Remote Sensing**: ArcGIS, QGIS, ENVI
- **Seismic & Geophysical Tools**: Move Suite Petrel, OpendTect
- **Geostatistics & Modeling**: MATLAB, Python

PG
Course Curriculum

M.Tech Batch Strength: 14

Institute-level Courses Open to Earth Sciences Students

- Fluid Mechanics and Rate processes
- Thermodynamics
- Probability and Statistics
- Fundamental of Computing
- Data Structure & Algorithm
- Introduction to Machine Learning
- Image Processing

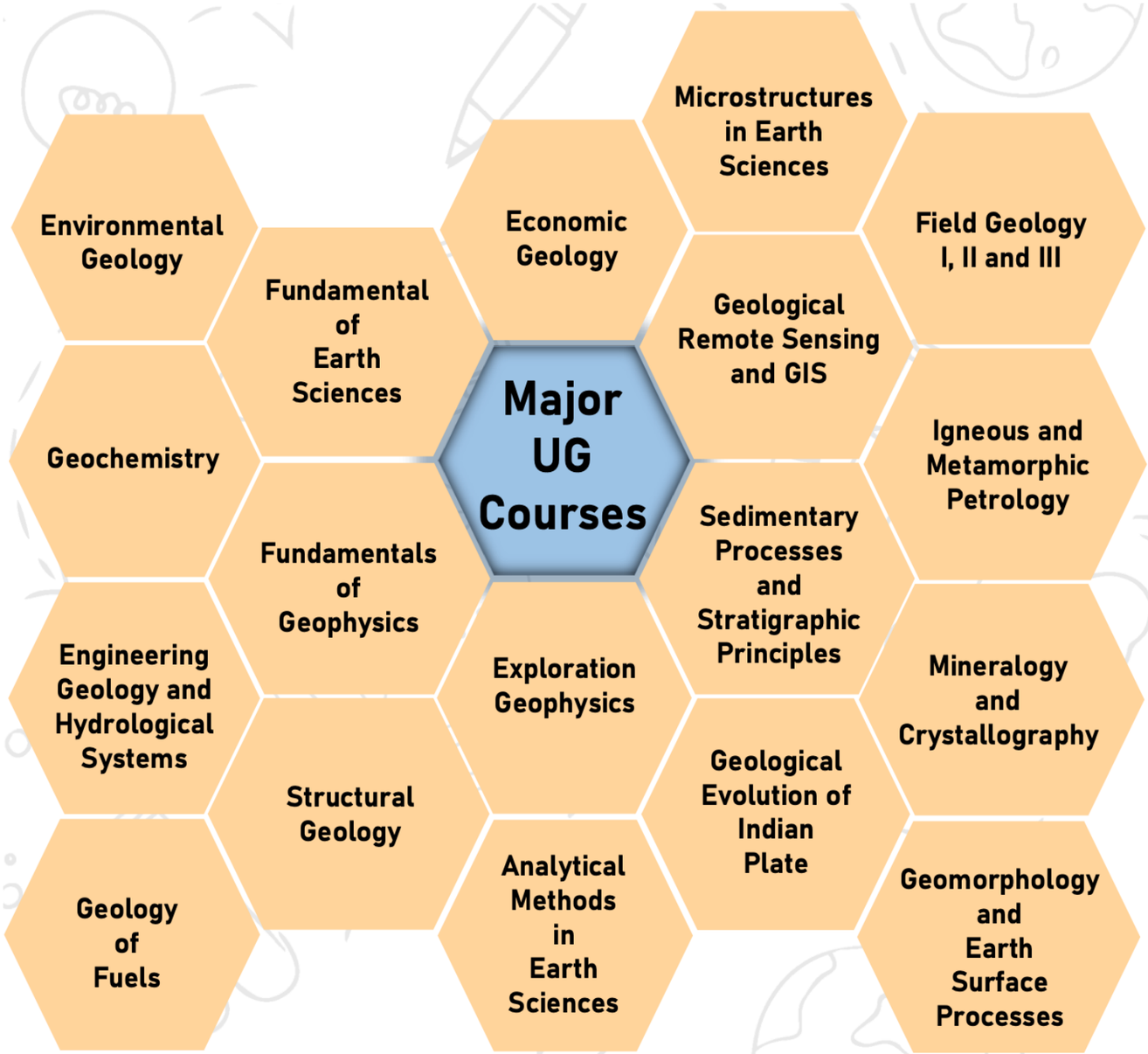


UG
Course Curriculum

BS Batch Strength: 33
BS-MS Batch Strength: 5

Institute-level Courses Open to Earth Sciences Students

- Fluid Mechanics and Rate processes
- Thermodynamics
- Probability and Statistics
- Data Mining and Knowledge Discovery
- Fundamental of Computing
- Data Structure & Algorithm
- Introduction to Machine Learning
- Image Processing
- Macroeconomics
- Engineering Graphics



Hands-On

Instructions

Workshops

Advanced Instrumentation & Industry-Ready Skills

Workshop on WD-XRF and Stable Isotope Ratio Mass Spectrometry (IRMS), '25

Workshop Coordinator: *Prof. Debajyoti Paul*
(Faculty Coordinator, XRF-IRMS Lab, ACMS, Department of Earth Sciences, IIT Kanpur)

Mastering Advanced Techniques:

Participants gained practical expertise in high-precision analytical techniques such as **Wavelength Dispersive X-Ray Fluorescence (WD-XRF)** and **Stable Isotope Ratio Mass Spectrometry (IRMS)**. The sessions were designed to bridge the gap between academic learning and industrial application.

Access to Elite Equipment:

Hands-on training was provided using cutting-edge instruments including the **Rigaku Primus IV XRF** and the **Thermo Fisher DELTA Q IRMS**, housed at the **XRF-IRMS Lab, ACMS, IIT Kanpur**. These tools are crucial for advanced elemental and isotopic analysis across geoscience and environmental domains.

Solving Real-World Problems:

The workshop addressed impactful research areas such as **groundwater contamination** and **material composition analysis**, through expert sessions by **Prof. Abhas Singh** (Department of Civil Engineering, IIT Kanpur) and case studies rooted in real-world environmental challenges.
Forging Industry Partnerships:

With collaborative support from **Rigaku** and **Thermo Fisher Scientific**, the workshop featured specialized talks and live demonstrations by **Mr. B.K. Srivastava** (IR Tech, Rigaku) and **Dr. Piyush Deokar** (Thermo Fisher). These sessions ensured participants received industry-aligned technical exposure and insights into current instrumentation trends.

Guest Lectures '25 – EAGE IIT Kanpur Student Chapter

As part of our mission to foster technical growth and industry awareness, EAGE IITK SC organized a series of insightful guest lectures featuring leading experts from academia and the energy sector. These sessions enriched students with knowledge of emerging geoscience techniques, reservoir evaluation, and real-world career perspectives.

Campus Visit

❑ **Magmatism, Hydrothermal Circulation, and Crustal Accretion at Ocean Spreading Centres**
Prof. Satish Singh – Professor, IPGP France
In a highly engaging and research-driven session, Prof. Singh highlighted the power of **Seismic Full Waveform Inversion** in revealing subsurface processes beneath mid-ocean ridges. Students gained insights into crustal formation, hydrothermal fluid circulation, and how these regions—covering over 60,000 km of oceanic plate boundaries—may hold clues to the origin of life on Earth. The lecture emphasized the importance of geophysical innovation in decoding deep-sea geological systems.

❑ **Geoscience in the Energy Sector: Scope, Challenges, and Career Paths**
Dr. Satya Narayan – Senior Geophysicist, ONGC Dehradun
This multi-faceted session explored:
- The scope and future of geoscience, including new technologies and trends
- The role of geoscience in fossil fuel exploration and evolving techniques
- An interactive discussion on internships, job roles, and career opportunities in the geoscience domain

Hands-On

❑ **Well Logging and Formation Evaluation: Providing Insights for E&P Industry and Beyond**
Dr. Ilius Mondal – Petrophysicist, bp Technical Solutions India (TSI)
This hands-on technical lecture introduced students to the fundamentals of **well logging** and its indispensable role in subsurface exploration. Dr. Mondal elaborated on various logging tools and techniques used to estimate **porosity, permeability, and fluid saturation**, as well as interpret **log responses** to identify hydrocarbon-bearing zones. The session bridged the gap between theoretical geoscience and its high-impact industrial applications in exploration and production (E&P).

Gathering

Presenting

Research Scholars' Day '25

Research Scholars' Day '25 was a vibrant celebration of innovation, where scholars from the Department of Earth Sciences presented frontier research spanning seismology, geochemistry, tectonics, and environmental science. Held on February 8 at ESB-3 Auditorium, the event fostered dynamic exchanges between students, faculty, and distinguished guests from academia and industry, including **Dr. Vineet Kumar Gahalaut** (WIHG) and **Mr. Sushil Kumar** (ONGC). **Research Scholars' Day '25** exemplified the department's commitment to research excellence, interdisciplinary collaboration, and industry-relevant problem solving.

Workshop on Petroleum Seismics '23

Dr. D. M. Nathaniel, Nate Petroleum Development & Research LLP, Navi Mumbai delivered a two-day talk series on *'Petroleum Seismics'* in a workshop that was held on 17–18th April '23. The participants were exposed to: concepts of plate tectonics; petroleum geology and geochemistry; petroleum systems and play concepts; qualitative interpretation of well log data; structural and stratigraphic analysis of seismic data in conjunction with well logs and other subsurface data; prospect generation and evaluation. This interactive session emphasized hands-on interpretation of seismic data (hard copies) for basin analysis, prospect generation, and its evaluation.

Schlumberger Day

The Department of Earth Sciences, IIT Kanpur, celebrated **Schlumberger Day** in both **2018 and 2019**, offering students a unique opportunity to engage in technical events such as geoscience-focused case study presentations. These events not only encouraged academic-industry interaction but also highlighted the department's commitment to industry-relevant learning. Looking ahead, the department aims to further strengthen its ties and foster long-term collaborations with major oil and gas companies, both in India and globally

Events

Field Geology

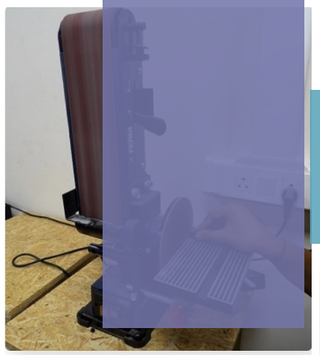
Field geology is vital for geologists as it directly gives them experience (evidence) of both endogenic and exogenic processes. It allows them to observe present and past geological processes, collect first-hand data to interpret the dynamic processes of the Earth to uncover valuable insights about its history, and to evaluate prospectivity of natural resources.

Field Planning

Tool use

Evidence

Field Photos



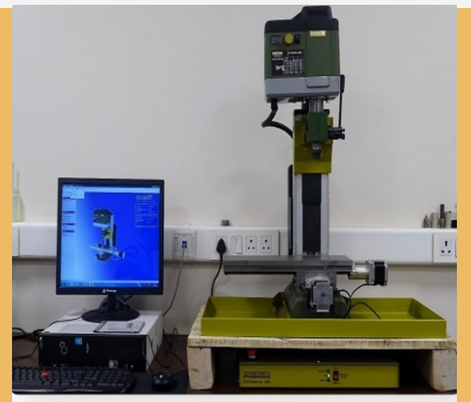
Research Facilities

Sample preparation

Rock Cutting Machine, Abrismet 250, Bhuler USA

Desktop precision diamond wire saw with touch screen control NST-202A

Hot plate, Bain Geo Heat, METCO



High precision CNC PROXXON

Mounting Press

Low speed diamond saw, EQ-SYJ-150, MTI Corporation

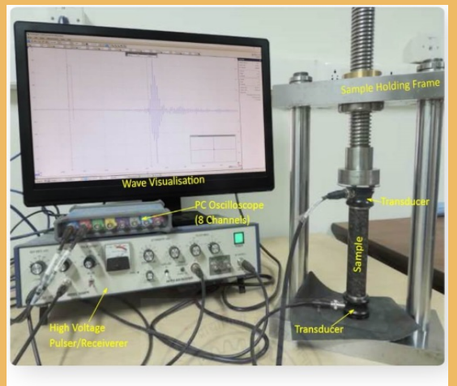
Grinder, BOSCH

Vacuum oven Max temp. 300°C., LABTRO INC

Vaccum Impregnation Unit

Thin Section preparation unit, PetroThin, Bhuler USA

Microwave sample preparator, Titan MPS, Parkin Elmer, Singapore



Longitudinal wave transducers, Blue Star Engg

Vibratory polisher, BUEHLER VibroMet 2

Double disc fully automatic grinder/polisher Bainpol PMV037, MATCO

Sanders, FERM

Research facilities

Physical/Mechanical Characterization

Compression Testing machine, Heico Engg

ESS1000 WITH 950-1000 Pound hammer (seismic energy source)

GEOPHONES, SG-10, Sercel S.A. France

RAU (CABLE FREE SEIMIC ACQUISITION UNIT), RAUeX, Sercel S.A. France

Portable magnetic Susceptibility meter SM30, ZH Instruments

Portable magnetometer, MagDrone R3, SENSYS

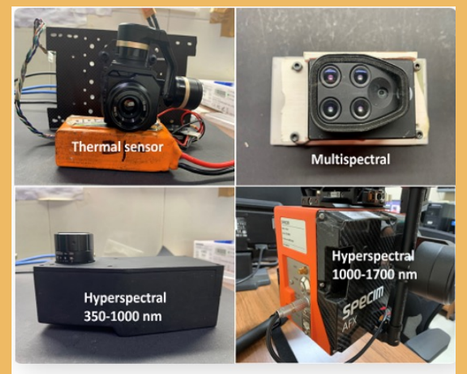
VLF Instrument, GSMV 19 GEM Systems Inc. Canada

Quadcopter

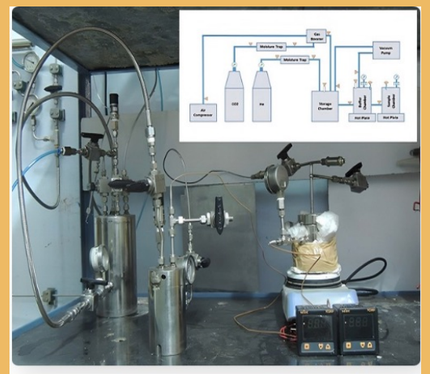
Fixed wing drone. UX5 Arial Imaging rover, Trimble Europe

TX 8 scanner, Trimble Europe

Grain Size analyser, Sedigraph III-5120, Micromerits Instruments



Thermal, multispectral, hyperspectral sensors



High pressure temperature Adsorption Desorption setup

Triaxial load frame, WILLE GEOTECHNIK

Porosimeter-Permeameter, LP100A-GP101A, Porus Material Inc.

Chemical/Mineralogical/Petrographic

Polypropylene Fume Hood, Polypropylene, Nano Clean Contamination control solutions

Vertical Laminar Airflow Fume Hood, NU-164-424E, Medispec Limited

Nutrient Analyser, XY-2 Sampler, M/s Seal Analytical

Atomic Absorption Spectrometer, AAYLST 400, Parkin Elmer, Singapore

X Ray Diffraction, Panlytical X-PERT3, Panalytical

Cathode Luminscence MK5 electron gun, CITL MK5, Cambridge Image tech

ICPMS, iCAPQc, ThermoFisher Scientific

Agilent® 8900 Triple Quad ICP-MS

Ion Chromatography, 930 Compact IC Flex, Metrohm

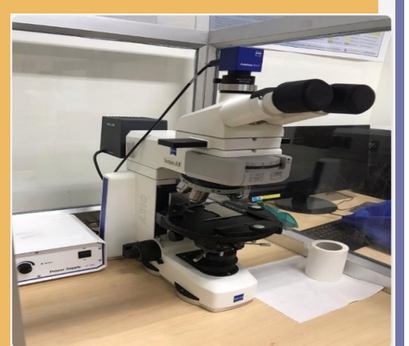
Gamma Spectroscopy ORTEC DSPEC jr 2.0

Liquid Water Isotope Analyzer(LGR), LWIA-45-EP, Los Getos Research, CA

Sunlight simulator, Honle Evacube

Petrological microscope Leica

Scanning Electron Microscope EM, JSM-6010PLUS/LA, JEOL Asia Pte



Research grade polarising microscopes from Leica and Zeiss

Hire Us

For more information, please visit Students Placement Office page.

1

Register

Register as an recruiter by Signing Up on the Recruitment Automation System Portal (RAS) by **Clicking here.**

2

Fill Form

Complete the Job **Announcement Form (JAF) / Internship Proforma (IP)** on the afformentioned RAS portal.

3

Shortlist for Interviews

After reviewing resumes & portfolios - The company submits the list of **shortlisted students for the interview** process.

4

Select Students

Companies provide the list of **selected and wait-listed students** at the end of their interview slot.

5

Receive Acceptance

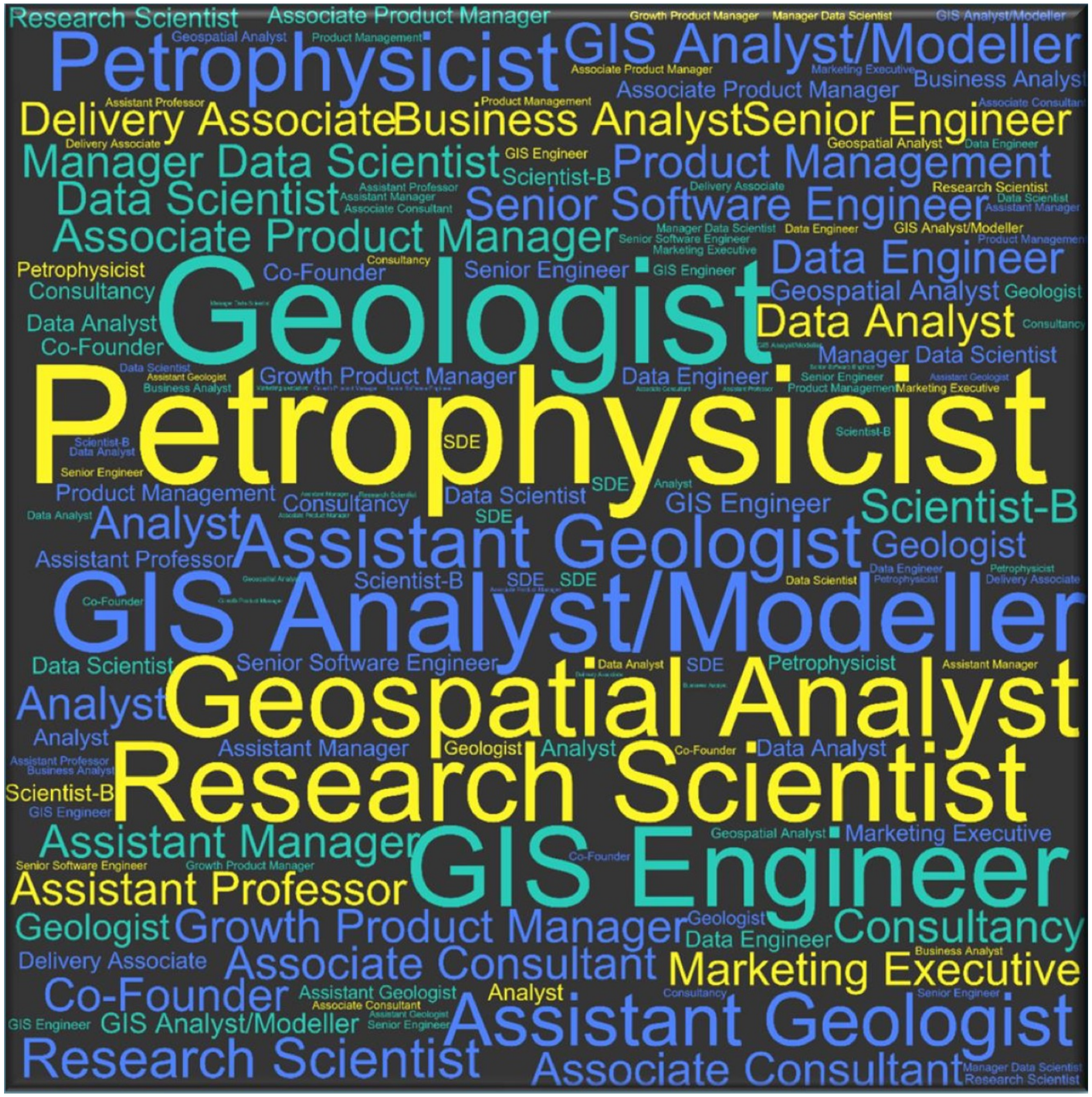
The Placement office notifies the companies regarding the **acceptance of selected students.**

6

Offer Letter

The company sends the **offer letter** to the selected candidates consistent with JAF or IP.

Alumni Roles



Placement

On & Off Campus

slb
Verisk
Shree Cement
ओएनजीसी ONGC
Central Ground Water Board
Geological Survey of India
TerrAqua UAV
IMC
Piramal
EXL
CyberTech
Madhav Institute of Technology & Science — Work is Worship — Estd. 1957
CNCB
GALGOTIAS EDUCATIONAL INSTITUTIONS
CATAPULT Connected Places
Builtx
JPMorgan Chase & Co.
Mati
pwc
Microsoft
SHREE CEMENT LIMITED
BRIDGEi2i Part of Accenture
TIGER ANALYTICS
mastercard
Flipkart
accenture
cleartax
genpact
SPINNY
OLA
BAIN & COMPANY
HSBC The world's local bank
Bank of America
Indian Mine Planners & Consultants (A Geological, Mining & Environmental Consultants)
shadowfax
ICICI Bank
citibank

Contact

Student Placement Coordinators

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malikhan24@iitk.ac.in

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