Seismology is the study of energy propagation within the earth. As such, it relates to a number of important natural processes. It examines the source of energy, from earthquakes to nuclear tests, and provides a means to assess natural hazards. It also uses the energy from natural or manmade sources to investigate the 99% of the earth that is not directly accessible from the surface, from identifying buried natural resources to mapping out structures hundreds of miles below the surface.

The primary objectives of the course are as follows:

- Building a basic theoretical foundation for elastic wave propagation.
- Understanding wave propagation as it applies to the earth: surface and body waves, reflection and transmission, normal modes, etc.
- Using free tools to download and process seismic data such as Standing Order of Data and JWEED.
- Students will learn to compute receiver functions, dispersion curves and their modeling and inversion using real data.
- Hands on experience working with Linux, Bash Shell scripting, MATLAB, Seismic Analysis Code etc.

Course participants will learn these topics through online lectures and tutorials. Also case studies and assignments will be shared to stimulate research motivation of participants.

You should attend if...

- You are geophysicists, geologists, engineers & researchers from all private and public enterprises with an interest in learning the theoretical and computational aspects in Seismology.
- Students (BSc/BTech/BS/SmSc/MS/MTech./M.Sc./PhD) and faculty from academic and technical institutions.

Course Registration

Step 1: One Time GIAN Registration

Visit [http://www.gian.iitkgp.ac.in/GRECN/index](http://www.gian.iitkgp.ac.in/GRECN/index) and register by paying Rs 500/- (those who have already been registered and paid, need not pay again) then opt the course under course (Course ID: 191058CO1) registration tab and save. After completing this process please inform to the course coordinator by e-mail. Course coordinator will confirm your attendance and then you must proceed to step 2 to pay the course fee.

Step 2: Participation Fee

- Participants from abroad: US $300/-
- Industry/ Research Organizations: Rs. 3000/-
- Academic Institutions (Faculty): Rs. 2000/-
- Academic Institutions (Students): Rs. 1000/-
- The above fee is towards participation in the course, and the course material. Participants are encouraged to use their personal laptops with Linux installed in it.

Step 3: Course Fee Payment

By NEFT (Account holder name: The Registrar, Indian Institute of Technology (ISM) Dhanbad; Account No. 0986101009746; IFSC Code: CNRB000986; Bank: CANARA BANK; Branch Name: Saraidhela Dhanbad) OR by sending a demand draft in favour of “Registrar, IIT(ISM) Dhanbad” payable at Dhanbad – 826004 OR you may use our following online payment option of Canara Bank to deposit the course fees on or before April 30, 2022. 

https://eps.eshiksa.net/ Direct Fee 3/ IIT Dhanbad/index
## GLOBAL SEISMOLOGY
May 09 – 18, 2022

### Course Coordinator

**Prof. Mohit Agrawal**  
Assistant Professor, Department of Applied Geophysics, Indian Institute of Technology (Indian School of Mines), Dhanbad-826004, INDIA.  
**Phone:** 0326-223-5957, +918804172323  
**Email:** mohit@iitism.ac.in

### Local GIAN Coordinator

**Prof. Ravi Kumar Gangwar**  
Associate Dean (Sponsored Research), Indian Institute of Technology (Indian School of Mines), Dhanbad-826004, INDIA.  
**Email:** adsr@iitism.ac.in

### Important

- Participants for the course will be selected on first come first served basis.
- **Timings (IST):** Lectures (07:30 AM–09:30 AM) | Tutorials and Homework (19:30 PM-21:30 PM).
- All registered participants must fill this google form: [Click here]
- This is an online course. Nonetheless all participants will be provided physical certificates.

### Schedule

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<td>Displacement potential and Unix basics.</td>
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<td>Day-1</td>
<td>Inaugural Function</td>
<td>Structure and composition of the earth</td>
<td>Attenuation and anelasticity</td>
<td>Seismic Analysis Code (SAC)</td>
<td>Attenuation, composition, and SAC.</td>
<td>Earthquakes and Focal Mechanisms</td>
<td>GMT I</td>
<td>GMT and Anisotropy</td>
<td>Earthquakes and focal mechanisms</td>
<td>The seismic source</td>
<td>GMT-II</td>
<td>Receiver Functions computation and Analysis</td>
<td>H-x stacking and Common conversion point stacking</td>
<td>MATLAB exercise for computation of receiver functions</td>
<td>Ambient Noise Processing-I</td>
<td>Ambient Noise Processing-II</td>
<td>Computation of Green’s Functions and extraction of dispersion curves</td>
<td>Day of Examination</td>
<td>May 18, 2022</td>
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