



Government of India
Ministry of Human Resource
Development (MHRD)



Global Seismology

Overview

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:

- i) Building a basic theoretical foundation for elastic wave propagation.
- ii) Understanding wave propagation as it applies to the earth: surface and body waves, reflection and transmission, normal modes, etc.
- iii) Using free tools to download and process seismic data.
- iv) Students will learn to compute receiver functions, dispersion curves and their modeling and inversion using real data.
- v) Hands on experience working with Linux, bash shell scripting, MATLAB, Seismic Analysis Code, etc.

Course participants will learn these topics through lectures and hands-on experiments. Also case studies and assignments will be shared to stimulate research motivation of participants.

Course Schedule	December 6-15, 2020								
You Should Attend If...	<p>Number of participants for the course will be limited to fifty.</p> <ul style="list-style-type: none"> ▪ You are geophysicists, geologists, engineers & researchers from all private and public enterprises with an interest in learning the theoretical and computational aspects in Seismology. ▪ Student at all levels (BSc/BTech/BS/MSc/MS/MTech/M.Sc.Tech./PhD) and faculty from academic and technical institutions. 								
Fees	<p>One-time GIAN Registration: Please visit http://www.gian.iitkgp.ac.in/GREGN/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 registration tab and save. After completing this process please inform to the course coordinator by e-mail. The participation fees for taking the course is as follows:</p> <table style="width: 100%; border: none;"> <tr> <td>Participants from abroad :</td> <td>US \$300</td> </tr> <tr> <td>Industry/ Research Organizations:</td> <td>Rs. 8000/-</td> </tr> <tr> <td>Academic Institutions (Faculty):</td> <td>Rs. 5000/-</td> </tr> <tr> <td>Academic Institutions (Students):</td> <td>Rs. 2000/-</td> </tr> </table> <p>The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. Participants are encouraged to bring their personal laptops with Linux installed in it. The participants will be provided with accommodation on payment basis.</p>	Participants from abroad :	US \$300	Industry/ Research Organizations:	Rs. 8000/-	Academic Institutions (Faculty):	Rs. 5000/-	Academic Institutions (Students):	Rs. 2000/-
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Academic Institutions (Faculty):	Rs. 5000/-								
Academic Institutions (Students):	Rs. 2000/-								

The Faculty



Dr. Derek Schutt is an associate professor of geosciences at Colorado State University. His research interests involve using seismology and geophysics to infer lithospheric and asthenospheric temperatures, compositions, fabrics, and velocity structures.

Currently he is part of two \$1M+ funded multi-institution collaborations. Dr. Schutt received his Ph.D in 2000 at the University of Oregon, working with Eugene Humphreys. He was a Harry Wood postdoctoral fellow at the Carnegie Institution of Washington, working with Drs. David James and Paul Silver, then moved to a postdoctoral fellowship and research scientist position at the University of Wyoming, where he worked with Dr. Ken Dueker. Next, he took a position as a geophysics program director at the U.S. National Science Foundation. Dr. Schutt became an assistant professor at Colorado State University in 2008. Dr. Schutt also has a B.S. in math and a B.A. in physics. Most importantly, he is excited to visit IIT and get to know the students and faculty.



Dr. Mohit Agrawal is an assistant professor in the department of Applied Geophysics at Indian Institute of Technology (Indian School of Mines), Dhanbad, India. He obtained his PhD in Earthquake Seismology from Baylor University, USA. He is interested in solving the unresolved tectonic mysteries of earth using the tools in seismology. His research group deploys

seismographs in the regions of interest to collect earthquake data for several years. These seismological data are processed using new as well as conventional modelling and inversion techniques. Dr. Agrawal has attended several international and national conferences including those of the American Geophysical Union, Society of Exploration Geophysicists, Seismological Society of America, U.S. National Nuclear Security Agency (NNSA) in Albuquerque (New Mexico), and the Indian Geophysical Union Meeting (India). Agrawal has engaged in geoscience research at the University of Texas at Austin in Austin, TX; University of Wyoming in Laramie, WY; Colorado State University in Fort Collins, CO; and Baylor University in Waco, TX.

Heritage Building



Course registration fee can be paid either by NEFT (Account holder name: The Registrar, Indian Institute of Technology (ISM) Dhanbad; Account No. 0986101009746; IFSC Code: CNRB0000986; Bank: CANARA BANK; Branch Name: Saraidhela Dhanbad) or by sending a demand draft in favour of "Registrar, IIT(ISM) Dhanbad" payable at Dhanbad – 826004 on or before November 30, 2020. The course fee is non-refundable. For further clarification, please contact the course co-ordinator.

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Course ID: 191058C01

Course Credits: 02
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Course Co-ordinator

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Indian Institute of Technology
(ISM) Dhanbad



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REGISTRATION FORM

Global Seismology [Course ID: 191058C01]

(December 06-15, 2020)

1. GIAN Registration/Application Number: _____
 2. Full Name: _____
 3. Date of Birth: _____ Category (SC/ST/OBC) _____
 4. Participation type (Industry/Academic/Student): _____
 5. Qualification/Degree Programme: _____
 6. Organization: _____
 7. Address: _____

 8. E-mail ID: _____ Mobile No.: _____
 9. **Fee Detail:** Payable to "Registrar, IIT(ISM) Dhanbad", CANARA BANK , Saraidhela, Dhanbad
 - i) Transaction No. (e-transfer/RTGS/NEFT): _____ Date: _____ Amount: _____
 - ii) Demand Draft No. (If paid by Demand Draft): _____ Date: _____ Amount: _____
 10. **Accommodation Required:** Yes/No: _____ in Hostel/Guest House _____
(Rent of Hostel Rs 50/-day and Guest House Rs 400/- day on sharing basis)
- Place : _____
- Date : _____ Signature of the Applicant: _____

Paste your soft
copy of recent
photograph

Welcome to

Department of Applied Geophysics, Indian Institute of Technology (ISM) Dhanbad, India