OFFICE OF THE REGISTRAR :: DIBRUGARH UNIVERSITY :: DIBRUGARH

Ref. No. DU/DR-A/8-1/22/753 Date: 20.07.2022

NOTIFICATION

As recommended by the meeting of the Departmental Managing Committee (DMC), Department of Applied Geology, Dibrugarh University held on 20.05.2022, Hon'ble Vice-Chancellor i/c, Dibrugarh University is pleased to approve introduction of an optional paper in the Ph.D. pre-registration course work in Applied Geology with effect from the batch admitted in 2022 as given below -

- Geophysics as an optional paper under Course III

The above is notified under report to the next meeting of the Academic Council, Dibrugarh University.

The syllabus of the afore-mentioned optional paper is attached as **Annexure – I**.

Issued with due approval.

20/7/2022

(Dr. B.C. Borah)
Joint Registrar (Academic)
Dibrugarh University.

Copy to:

1. The Hon'ble Vice-Chancellor i/c, Dibrugarh University for favour of information.
2. The Deans, Dibrugarh University, for favour of information.
3. The Registrar, Dibrugarh University for favour of information.
4. The Head, Department of Applied Geology, Dibrugarh University, for information and needful.
5. The Controller of Examinations, Dibrugarh University for information and needful.
6. The Joint / Deputy Controller of Examinations 'C', 'A' and 'B'i/c, Dibrugarh University for information and needful.
7. The Academic Officer, Dibrugarh University, for information.
8. The Programmer, Dibrugarh University for kind information and with a request to upload the Notification in the University website.
9. File.

20/7/2022

(Dr. B.C. Borah)
Joint Registrar (Academic)
Dibrugarh University

Annexure – I.

Syllabus for PhD course work: Geophysics

Unit	Topic
Unit - I	**Geophysical Inversion:** Model space and data space; Definition of the forward and inverse problems; Formulation of linear inverse problems; Least squares method: steepest descent and conjugate gradient; Norms; Misfit; Gradient and Hessian; Overdetermined and underdetermined; Existence, uniqueness and stability.
Unit - II	**Geostatistics:** Basics of geostatistics; Concept of stationarity; Variograms; Kriging; Geostatistical simulation of reservoir properties: facies, porosity, permeability; Two-point algorithms: sequential Gaussian simulation (SGSIM).
Unit - III	**Rock physics:** Stress and strain; Elasticity; Theoretical models; Contact theories and inclusion models; Bounding methods; Voigt and Reuss bounds; Bounding average method; Fluid substitution; Gassmann's relations.
Unit - IV	**Seismic reservoir characterization:** Exploratory data analysis; Lithofacies identification from well logs; Derived distributions of seismic attributes; Seismic well tie; Calibration of seismic data with well data; Seismic attributes: P-wave impedance, S-wave impedance, Vp/Vs ratio.
Unit - V	**Seismic modeling:** Synthetic seismogram from well log data; Normal incidence 2D seismic time sections: effect of frequency and depth.

Geetartha Dutta
07.07.22
Dr. Geetartha Dutta