

# CURRICULUM VITAE

## **Name and Address:**

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## **Present Position:**

Professor of Applied Geophysics,  
Indian School of Mines,  
DHANBAD - 826004 (India).

**Date of Birth:** August 25, 1946.

**Martial Status:** Married;

**No. of children:** one (31 year)

## **Education:**

[1] M.Sc. (Geophysics) 1967, Banaras Hindu University, Varanasi.

[2] Ph.D. (Geophysics) 1975, Indian School of Mines, Dhanbad.

Title: "Some Interpretation Techniques For Gravity Field Measurements"

## **Specializations:**

[1] Development of interpretation techniques for potential fields using integral transforms, optimisation techniques, energy spectrum using MEM, MLM, ARMA.

[2] Delineation of crustal structures from analyses of gravity and magnetic fields.

## **Recipient of Fellowships:**

[1] Research Fellow - Technische Hogeschool Delft, The Netherlands, 1976-77.

[2] Academic Staff Exchange Fellow-Academy of Mining & Metallurgy, Krakow, Poland, May - June 1987.

[3] Visiting Professor, University of Rennes, Institute of Geology, Laboratory of Tectonophysics, Rennes, France, Dec.1992 - May 1993 and May-June 1997, May- June, 2000.

## **Professional Background:**

[1] Professor, Department of Applied Geophysics, Indian School of Mines, Dhanbad 826004 from 28.1.93 - continuing.

[2] Head of the Department of Applied Geophysics, Indian School of Mines, Dhanbad 826004 from 1.1.1998 to 7.1.2001.

[3] Assistant Professor, Department of Applied Geophysics, Indian School of Mines, Dhanbad, India, 1983 - 1993.

[4] Principal Scientific Officer, Department of Science and Technology, New Delhi, India, 1982.

[5] Lecturer, Department of Applied Geophysics, Indian School of Mines, Dhanbad, India, 1974-83.

[6] Assistant Research Officer, Central Water & Power Research Station, Poona, India, 1972-74.

[7] Senior Research Fellow, Department of Applied Geophysics, Indian School of Mines, Dhanbad, India, 1971-72.

[8] Research Scholar, Dept. of Geophysics, Banaras Hindu University, Varanasi, India, 1970-71.

[9] Junior Research Fellow, National Geophysical Research Institute, Hyderabad, India, 1967-70.

**Teaching experience:**

<u>Courses taught</u>	<u>Academic Degree</u>
[1] Petroleum Exploration Geophysics	Master of Tech.(Petroleum Exp.)
[2] Geophysical Exploration and Instrumentation	M Tech(Geophysical & Techniques, Pt - II
[3] Interpretation Technique for gravity and Magnetic Methods	M Tech (Mining Geophysics)
[4] Formation Evaluation and Production logging	M Tech (Petroleum Exploration)
[5] Well Logging	M Sc Tech & M Tech (Pet.Exp)
[6] Communication Theory	M Sc Tech (Applied Geophysics)
[7] Potential Field Theory	M Sc Tec (Applied Geophysics)

**Academic Achievements:**

[1] Acted as reviewer for journals like Geophysical Prospecting (EAGE), Geophysical Research Letters, Pure & Applied Geophysics, The Journal of University Kuwait (Science), Proceedings of the Earth and Planetary Sciences - Indian Academy Sciences, Bangalore (India), Geophysical Journal International, U.K., Geophysical Research Letters

[2] Assistant Editor for the Proceedings of the Diamond Jubilee National Seminar on "Frontiers in Exploration Geophysics organised by the Department of Applied Geophysics, Indian School of Mines, Dhanbad, July 14-16, 1986.

[3] Eleven Ph.D.'s Supervised and awarded.

## **Innovations:**

Developed a variety of software packages to process one and two dimensional potential field data based on latest state-of-the-art in the interpretation techniques. Some of these include:

- a. Separation of regional-residual anomalies
- b. Wavelength filtering.
- c. Power density spectrum for computing ensemble average depths.
- d. Direct determination of depth and location of the causative source and their identification.
- e. Basement configuration mapping.
- f. Compilation and gridding of aeromagnetic field.
- g. Special filtering operations like pole reduction, pseudogravity transformation etc.
- h. Calculation of model anomaly fields.
- i. Development of optimisation techniques for analysing gravity anomalies

## **Sponsored Research Projects Handled:**

[1] Three research projects supported by the Department of Science and Technology, (DST) Government of India, New-Delhi, from 1988 have been completed as Principal Investigator. The titles of these projects are:

(a) Digital techniques for interpretation of potential field data in Deep Continental Studies: Final Report Submitted, 1994, pp 134.

(b) Development of software for determining crustal structure and its application in analysing gravity field of Aravalli region: Final report submitted, 1995, pp111.

(c) Development of techniques to interpret gravity data for deep continental studies” Final Report Submitted, 1999, 125.

[2] Development of Global Optimisation Strategies to interpret Gravity Anomaly” by the Department of Science and Technology, Govt. of India, New Delhi with one post of Research Associate (Final Report submitted 2004.

### **Ongoing Research Program:**

- [1] Estimation of power spectrum of gravity field data by MEM, MLM & ARMA.
- [2] Design of matched filters to analyze gravity anomaly over rift valley.
- [3] Identification of shape of causative sources from analyses of potential field data.
- [4] Inversion of gravity field using simulated annealing and genetic algorithms.
- [5] Direct determination of depth and location of source using two dimensional gravity data.
- [6] Application of wavelength filtering in analyses of gravity field for crustal structures.
- [7] Density mapping in lithosphere and asthenosphere from gravity anomalies.

### **Publications:**

83 (Eighty three) research papers published in the national and international journals.

(Please see Appendix 1 for complete list of research contributions)

### **Countries Visited:**

The Netherlands, Poland, Germany, U.S.A., France (Thrice), Spain, China, and Denmark.