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Experience (in Years): Industry- 4, Teaching-4, Research-3



1. Educational / Technical Qualifications:

Degree	Institute	Subject	Year
Ph. D	I.I.T. Bombay, Mumbai	Geotechnical Engineering	2013
M. Tech.	N.I.T. Warangal	Geotechnical Engineering	2009
B. Tech.	Sri Venkateshwara University, Tirupathi	Civil Engineering	2006

2. Teaching and Learning:

2.1 Teaching Interests:

Geotechnical Engineering-II, Geosynthetics and Soil Reinforcement, Design with Geosynthetics, Landfill Engineering, Tunnelling Technology, Solid waste management, Subsurface Investigations and Instrumentations

2.2 Novel Teaching & Learning Techniques adopted:

NPTEL Lectures & Videos, Wit & Wil, PPT's, Case Studies, Journal References

2.3 Involvement in curriculum updating / Design :

- Actively involved in the preparation of R18 Syllabi.
- BoS Member of Civil Engg. Dept.
- In-charge for Dept. Academic Committee

3 Experience:

3.1 Teaching Experience:

❖ VNR VJiet – Hyderabad: 2018 May – Till date

Associate Professor, Department of Civil Engineering

Courses: Geosynthetics and Soil Reinforcement, Design with Geosynthetics, Solid waste management, Subsurface Investigations and Instrumentations

❖ National Institute of Technology – Warangal: 2016 Jan – 2018 May

Courses: Design with Geosynthetics, Landfill Engineering, Engineering Mechanics, Tunnelling Technology.

3.2 Industrial Experience:

❖ Powerdeal Energy Systems (I) Pvt. Ltd. (Asst. General Manager – 2012 Dec to 2015 Aug) - Project Responsibilities.

• Proppant / Fracturing sand:

- ✓ Involved in development of High Strength Ceramic Proppants, for hydraulic fracturing of Oil and Gas extraction – Visits to China, preparations of layouts & designs, Standardization of process control parameters and Quality control.
- ✓ Adopting different techniques for Granulation.
- ✓ Characterization and certification of proppants from different organizations.

• Zeolite:

- ✓ Involved in development and technology demonstration for fly-ash based zeolites for environmental cleanup projects.
 - ✓ Project responsibilities: R&D studies, standardization of process control parameter, Quality control, Business visits to china.
 - **AAC Blocks:** As a Head of the Department involved in handling R&D studies to improve the material quality of Autoclaved Aerated Concrete Blocks (Mix design - Raw materials - Studies on thermal resistant cracks).
 - **EPS Sandwich Panels:** Development of new mix designs for Expanded Polystyrene Sandwich (EPS) panels by using calcium Silicate and fiber cement boards. Setting of new production line for increasing the manufacturing capacity of plant.
 - **Low cost house designs:** Foundation and super structure designs.
 - ✓ Construction of 1200 **pre-fabricated** Anganwadi's in 1year (Duration time of each building - 15 to 30 days for complete construction including finishing) - Integrated Child Development Scheme, Nashik.
 - ✓ Tribal Houses – Tribal Department, Govt. Maharashtra.
 - ✓ Certification of Building materials used in the construction.
 - **Coal Briquetting:** Development of suitable binders for Coal Briquetting, which is used in coal Gasifier.
 - **Bauxite, Bentonite, Kaolin:** Extensive survey (India) and study of various mining areas in finding out mineral based products.
 - **Extraction/Separation of Silica and Metals from Flyash**
 - ✓ To develop an economical process for the recovery of iron from flyash by Magnetic Separator. Corona Separation for recovery of value added products like Aluminum & Silica from flyash.
 - **Online Mobile Soil Testing Van:** Head of the department - Analysis of soil samples (Micro, macro Nutrients, soil texture, EC, pH, TDS) for agriculture lands to check the soil salinity and fertility. Feedback to the farmers with the help of Soil-Health Card, which is generated with Soil Software.
 - **Developing Testing Laboratory:** Involved in developing Zeolite and Proppant testing labs for conducting R&D studies.
 - **Edorsements for IFC, DSIR, & TDB:** Developing reports for International Financing Corporation (IFC), Department of Scientific and Industrial Research (DSIR), Technology Development Board (TDB) for fund raising and lab approvals.
 - **Foreign/Business Visits:** China, Australia, and Singapore
- ❖ **Aarvee Associates (Industrial Training - 2008):** Involved in design of retaining walls and report preparation, logging (soil/rock) and data interpretation from Geotechnical investigations and laboratory tests, bearing capacity.
- ❖ **L&t Infocity Gachibowli (Site Engineer - 2006):** As a site Engineer involved in handling materials and quality assurance of construction activity.

3.3 Experience with Consultancy Projects:

During PhD program at IIT Bombay actively involved in various consultancy projects, beside research work, as listed below.

Company	Studies Performed
➤ Fugro (India) Limited	Geotechnical characterization of soils
➤ Grasim Industries Ltd.	Physical, Chemical characteristics of white-cement
➤ CIDCO, Navi Mumbai	Geotechnical & Chemical analysis of soils, PVD'S,
➤ BMC	Mechanical strength characterization of soils

➤ Ashtek Fly-ash Ltd	Chemical characterization of fly-ash
➤ Niketana consultants	Thermal properties of soils
➤ Comeco (India) Pvt Ltd	Physical, chemical and geotechnical characterization of soils
➤ Board of Control for Cricket in India	Physical and geotechnical characteristics
➤ Secon India (Pvt.) Ltd	Physical, thermal and geotechnical properties
➤ Mahanagar Gas Limited, Mumbai	Trench Collapse Risk Assessment , Gas pipe line
➤ Reliance Infra- Dahanu	Flyash as a replacement of Sand in construction
➤ Lanco Solar Energy Pvt. Ltd, Gurgaon	Estimation of settlement for boiler foundations due to thermal loadings
➤ Preeti Petrochem Industries, Panvel	Characterization of Micro silica, Crushing Strength of Cynospheres
➤ Siemens, Pvt. Ltd	Thermal properties of soils for power transmission substation lines
➤ Bhagyam Pvt. Ltd.	Pipe line project : Thermal properties of soils
➤ Ajanta-Ellora Caves	Characterization of Ajanta & Ellora Cave samples
➤ JNPT- Boundary Wall Project	Geotechnical Properties of soils
➤ MHADA, Mumbai	Investigations of Landslide-prone Slum Areas in and around Mumbai City
➤ BARC, Mumbai	Determination of contaminant migration in soils
➤ Jaisu Shipping Company Pvt, Ltd., Mumbai	Examine the dredging operation for removal of sedimentation materials and their characterization for geotechnical purpose.

3.4 Proficiency in Sophisticated Analytical Instruments and Analysis for material characterization:

Instrument	Application
➤ X-Ray fluorescence spectrometer, XRF	Elemental composition of Materials
➤ X-Ray Diffraction, XRD	Minerals, Surface Stress, Lattice parameters
➤ Fourier Transform Infrared Analysis, FTIR	Chemical Bonds
➤ Laser Scanning Diffraction, LSD	Particle size, Shape
➤ Scanning Electron Microscopy, SEM	Morphologic features
➤ Nano Indentation	Hardness, stresses on surface of particles
➤ Atomic absorption spectroscopy, AAS	Elemental properties
➤ Inductively coupled plasma, ICP	Elemental properties
➤ Ultra gas pycnometer	True density of materials
➤ Mercury intrusion porosimetry, MIP	Pore structure of materials
➤ Zeta Potential	Charge holding capacity of particles
➤ CHN Analyzer	Organic content of soils
➤ Standard Dilatometer	Coefficient of linear expansion of materials
➤ Calorimeter	Determination of Heat of Hydration
➤ Pressure membrane extractor, PME	Extraction of pore solution of soils
➤ Impedance Analyzer, Novo Control and Agilent	Determination of Electrical Properties
➤ Flexible wall permeability apparatus	Hydraulic conductivity of soils

➤ TGA and DTA	Thermal properties of material, (Exothermic and Endothermic)
➤ Thermal Resistivity Probe	Thermal resistivity
➤ Time domain reflectometry (TDR), TRIME setup	Determination of volumetric moisture content
➤ Dew point potentiometer, WP-4, Aqua Sorp	Determination of suction of soils
➤ Data loggers (Amil, Pico logger)	Data logging
➤ Environmental test chamber	Environmental conditions on Soils
➤ Water quality analyzer, Elico, India Ltd	Determination of EC, pH, TDS

4 Industrial and Research Projects:

4.1 Experience in Industrial and Research Projects:

- 1. Ceramic proppants:** Development of ceramic proppants for oil and gas extraction companies, to keep an induced hydraulic fracture open to increase the productivity of natural gas and oil wells.
- 2. Synthetic sand:** Development of Synthetic sand as an alternative for natural sand.
- 3. Zeolites:** Synthesis of zeolite from flyash for Aqua and Agri Culture applications and animal husbandry, Ammonia filtration in fish hatcheries and Oil spill cleanups.
- 4. AAC:** Autoclaved Aerated Concrete blocks and panels for construction industry.
- 5. EPS Sandwich Panels:** Expanded Polystyrene sandwich panels for low cost houses.
- 6. Low cost house designs:** Low cost houses for Anganwadi's and Tribal's.
- 7. Beneficiation of Bauxite**
- 8. Coal Briquetting:** Development of suitable binders for Coal Briquetting.
- 9. Extraction/Separation metals from Flyash:** To develop economical process for the recovery of metals from flyash by Magnetic separator and Corona.
- 10. Study on the Effect of Heat Energy on Minerals Properties:** Study on the effect of heat energy on various minerals, especially Kaolin, Bauxite, Bentonite and various natural soils. To understand the phase transformation of material during processing by adopting state-of-art equipment's like XRD, XRF, Nano Indentations etc.
- 11. Study of Thermal Properties:** Determination of thermal resistivity, conductivity, diffusivity and specific heat capacity of materials.
- 12. Electrical Characterization of Materials:** Characterization of materials based on Impedance Spectroscopy.
- 13. Study on contaminant (Radioactive waste) migration through geomaterials, BARC, Mumbai:** This study basically deals with the determination of diffusion coefficient of geomaterials, which is an excellent way to determine contaminant migration through geomaterials.

4.2 Research Projects:

Ph.D: Laboratory Simulation of Soil-Contaminant Interaction

Attempts were made to study the changes undergone by the soils, when they interact with contaminants, by employing the state-of-the-art techniques. The utility of these techniques for establishing physical, chemical and mineralogical changes occurring in the soil, development of residual normal and shear stresses on the surface of their particles, changes in their hardness, residual modulus and resistance to indentation.

M.Tech: A study on mechanical properties of recycled aggregate with and without fiber reinforcement

The main objective of this study is to investigate the performance and material characteristics of recycled aggregate with and without fiber reinforcement by comparing with the natural aggregates

B.Tech: Design of barrage across Swarnamuki River at Vakadu

The project deals with design of cutoff walls, piers, divide walls, head regulator, stability of wing walls with the help of M/s G.V.R.Construction Company. Also estimated linear water way, high flood level, afflux, design discharge, hydraulic jump, exit gradient and uplift pressure.

5 Awards and Merits:

5.1 Awards and Merits:

- ❖ Stood among the top 3 percent of the candidates appeared for Graduate Aptitude Test in Engineering, GATE-2007.
- ❖ Teaching assistantship in the year 2007-2009 (to carry out research activities in department of civil engineering NIT Warangal while pursuing Master's Degree in Geotechnical Engineering).

6 Academic Contribution and Research & Consultancy

6.1 Conference Attended:

- ❖ 13th International Association for Computer Methods and Advances in Geomechanics Conference, May 2011, Melbourne, Australia.
- ❖ Indian Geotechnical Conference, 2011, Cochin University of Science and Technology, Cochin, Kerala.
- ❖ Indian Geotechnical Conference, 2010, IIT-Bombay.

6.2 Papers presented in Seminars:

1. Determination of Kd parameter for contaminant migration in geomaterials- IISc Bangalore.
2. Application of Geosynthetics in various civil engineering projects.
3. Participated in a one day workshop held on "Recent Advances in Civil Engineering".
4. Participated in All India Students conference on "Science and Spiritual Quest" in Tirupati.

6.3 Seminars Attended:

1. Gas hydrates a delineation and production technology, organized by ONGC and IEOT, Mumbai.
2. Techniques of testing cast-in-situ piles, organized by Indian Geotechnical Society, Mumbai.
3. Ground improvement techniques, Organized by Keller Ground Improvement Group, Mumbai.
4. Symposium on performance of Technical Textiles, Organized by BTRA
5. Implementation of O-Cell Load Testing for drilled shafts and augured-cast-in-place piles, Load Test.

6.4 Patent:

Method and System for Soil Classification

6.5 Research Contribution and Technical papers

Sl. No	Title	Name of the Journal	National/ International	Year / Vol./ Page No.
1	“Application of X-Ray Diffraction Analysis for Determining Residual Stresses on Soil Particles due to Thermal Treatment”	ASTM, Journal of Testing and Evaluation.	International	2014 Vol. 42, No.5
2	“Application of Nanoindentation to Establish Influence of Heat on Soils”	Engineering Geology	International	2013 Vol.162, pp. 14-21.
3	“Investigations to Establish Influence of Thermal Energy Field on Soil Properties”	Acta Geotechnica Slovenica,	International	2013 Vol.10, No.2, pp. 59-76.
4	“Characterization of Aeolian Sands from Indian Desert”	Engineering Geology	International	2012 Vol.139, No.140, pp.38-49. [SEP]
5	“Factors Influencing the Crushing Strength of some Aegean Sands”	Bulletin of Engineering Geology and Environment Jr.	International	2012 DOI 10.1007/s10064-012-0424-9. [SEP]
6	“A Novel Methodology for Measuring the Tensile Strength of Expansive Clays”	Geomechanics and Geoengineering	International	2012 Vol.7, No.1, pp.15-25. [SEP]
7	“Application of heat of wetting for determination of the Soil Specific Characteristics”	Journal of Testing and Evaluation	International	2015 Manuscript ID JTE-2015-0308
8	"Synthesis and characterization of Ca and Na zeolites (non-pozzolanic materials) obtained from fly ash-Characterization	ASTM	International	2014 Manuscript ID MPC-2014-0053
9	“Characterization of Na and Ca zeolites from flyash by three hydrothermal methods”	Advances in Civil Engineering Materials	International	2014 Manuscript ID is ACEM-0048
10	A Study on the Influence of Heavy Metals on Crack Intensity Factor and Hydraulic Conductivity of Locally Available Soils”	Indian Geotech Journal,		2018 https://doi.org/10.1007/s40098-018-0313-7
11	Influence Of Organic Chemicals on the Adsorption of Lead by Clayey Soil”	Springer Journal’s, Arabian Journal of Geosciences	International	2018 ID: AJGS-D-18-00690.

Conference Publications:

Sl.No.	Title and the Authors of the paper	Name of the Conference	National/ International	Year and Place
1	“Instrumentation for Modeling Geoenvironmental Engineering	13th International Association for Computer	International	2011 9-11,

	Problems”	Methods and Advances in Geomechanics		pp.472-477. Melbourne,
2	“Determination of Crystallinity of Alkali Activated Flyash by XRD and FTIR Studies”	Constitute Modeling of Geomaterials, Springer Series in Geomechanics and Geoengineerig,	International	2012, pp. 477-481. China
3	“Importance of distribution coefficient of the soil- contaminant system for studying various geo-environmental engineering problems”	Indian Geotechnical conference	National	2011 Kerala-India

6.6 Sponsored research projects:

S.No	Title	Agency	Period	Grant amount	Ongoing / Completed
1	Instrumentation for determination of thermal conductivity of geomaterials	JNTUH-TEQIP III Project	2 years	Rs. 3,00,000	Ongoing
2.	Geophysical Investigation to find the Potential Ground Water Recharge Points in VNR VJIET Campus	VNR VJIET	Jan to June 2019	Rs. 52,550	Completed
	Geophysical Investigation to find the Potential Ground Water Recharge Sites in Pragathinagar, Hyderabad	Awareness in Action (a NGO's body)	March 2019 to Feb 2020	Rs. 1,00,000	Ongoing

6.7 Projects Guided:

S.No	Title	Student	UG/PG	Year
1	Influence of soil specific characteristics on thermal conductivity of fine and coarse grained soils	Sai Ram	PG	2018
2.	Influence of soil density and frequency loading on wave propagation in fine-grained soils	Prithvi	PG	2018
3	Estimation of Mobilization of Shaft Resistance of Bored Piles from Pile Load Test	Gowthami	PG	Ongoing
4	Response of Granular Material at Low Normal stresses using Gravity Induced Shear Test	Kiranmai	PG	Ongoing
5	Development of Direct Simple Shear Box	Vamsi kalyan	PG	Ongoing
6.	Expanded polystyrene panels as green building material in low cost housing	Major Project	UG	2018

7.	Design of landfill liner systems	Major Project	UG	2018
8.	Instrumentation for determination of thermal conductivity for geomaterials	Major Project	UG	2019

7 Industrial Visits:

7.1 Technical and Industrial Visits

- ❖ **BARC:** Bhaba Atomic Research centre (BARC) visits to examine the ongoing waste immobilization techniques, Lysimetric studies on low level radioactive waste
- ❖ **MAERSK Sealand Transport Ltd.:** Site visits to understand the land reclamation process by using PVDs.
- ❖ **CONWOOD Pavers Pvt. Ltd.:** Visited the industry to learn the manufacturing process of pavers used at junctions or crossings of the roads.
- ❖ **JNPT:** Jawaharlal Nehru Port Trust (JNPT) visited to examine the dredging operation for removal sedimentation materials and their characterization for geotechnical purpose.
- ❖ **BPT, Mumbai:** Bombay Port Trust Reclamation of land by using dredged materials
- ❖ **Reliance Power Plant, Dahanu, Thane:** Visited a site of road embankment construction, where embankment has been laying with the blend of coarse grained materials and fly ash.
- ❖ **CIDCO, Mumbai:** Ground improvement Technique using PVDs in a Coastal road project, Mumbai
- ❖ **MHADA, Mumbai:** Investigations of Landslide-prone Slum Areas in and Around Mumbai City
- ❖ **MGL, Mumbai:** Investigations on collapse characteristics of the soils for laying underground Gas pipe lines around Mumbai.
- ❖ **Hospital, Mumbai:** Underground safe blasting of rocks for deep foundations for multistory buildings near populated area.
- ❖ **SATARA, Pune:** Analysis of stability of foundations for Windmills.
- ❖ **LAVASA, Pune:** Development of hill satellite city of India.
- ❖ **BTRA, Mumbai:** Testing and evaluation of geosynthetic material.
- ❖ **SHIMADZU, Mumbai:** Testing and research center for advanced material characterization.
- ❖ **ADITYA BIRLA, Talaja:** Corporate research centre for fundamental and research projects.

8 Software skills:

8.1 Software Skills

Expert High Score Software: Determination of Mineralogy, Surface stresses and Lattice parameters of materials

Civil Software: AutoCAD, Staad Pro, HED

Soil Vision: Modeling saturated and unsaturated soil properties.

Geostudio: Slope: Slope stability analysis

Seep : Ground water seepage analysis

Ctran: Contaminant transport analysis

Packages: Origin, DPlot, MS-Office, Open-Office

Languages known: Basic knowledge of C-programming language

Soil Software: To generate Soil-Health Card

Mathematica:

Special Contributions:

- ❖ Actively involved in the various research activities of **ENVIRONMENTAL GEOTECHNOLOGY RESEARCH LABORATORY** at IIT Bombay, in the Department of Civil Engineering.

9 Extra Curricular Activities

9.1 Extra- Curricular Activities

- ❖ Table Tennis Champion and University Player for SOUTH Zone Inter-University Tournaments (2004 - 2006).
- ❖ Winner at Inter Collegiate Cultural Youth Festival in Collage and Quiz.
- ❖ Participated in 12 Hours SWIM-MARATHON at IIT-Bombay, completed 10KM continuous swimming.
- ❖ Winner at Guinness World record and Limca Book records in solving RUBIKS CUBE at IIT-Bombay.