

CV
of
Prof. A S Venkatesh, Professor (Higher Academic Grade)-retd.
&
Emeritus Professor
Department of Applied Geology
Indian Institute of Technology (Indian School of Mines), Dhanbad, India
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Summary of CV

1	Name	Prof. (Dr.) A S Venkatesh
2	Date of Birth	01.05.1958
3	Current Position and Year of Joining in ISM and scale of pay	Professor (HAG) 2023 (Retd.) -PB 15 Govt. of India scale and currently working as an Emeritus Professor.
4	Qualifications;	M. Sc (AU); Ph. D (National Geophysical Research Institute, Hyderabad) and post-doc (ISM, Dhanbad).
5	Subjects Expertise:	Ore/Economic Geology, Mineral Characterization with implications for beneficiation (including Critical minerals), Environmental Geology, Mining Geology, Medical Geology and related subjects.
6	Field of Specialization	Metallogeny, Characterization of critical minerals, coal and environmental aspects and Characterization for amenability for Beneficiation. Ground water contamination of fluoride etc.
7	Current research thrust areas	Gold-PGE, Iron, Cu, Cr (Ni), V, Ti allied critical mineral ore metallogeny and implications for beneficiation, environmental geological aspects.
8	Research Projects handled/ Research Publications (R &D)	DST, CSIR, DST FIST Level-II, Co-Coordinator (Rs. 2, 38, 00, 000 +) for others PI see Annexure.
9	M. Sc. Tech, M Tech and Ph. D guidance	M.Sc Tech > 60; M Tech: ~20; Ph. D: 16 (+)
10	Foreign visits/assignments	USA (Water-Rock interaction conference), Netherlands, U. K. (lectured at Southampton on lode gold deposits of India), Australia (BHP Billiton Sponsored technology visit and resource person for low grade Fe etc, Mn and ores and coal), International Geological Conf., Cape Town, South Africa (official deputations). Belgium, France, Singapore, Thailand, Malaysia etc.

11	Distinctions/Awards/Fellowships/Honours	- CSIR Fellowship/Ph.D. and RA - Geohost award 2000 - Contact member for India: Intl Liaison group on gold mineralization (ILGGM), UK - Member: IGCP-540 Project - Elsevier/ most downloaded paper for J Asian Earth Sci. Q1 - National Recruitment process (confidential) - Editorial board member: Intl J Earth Sci & Engg. Jharkhand spl issue. - Journal of ISM. - Frontiers of Earth Science - Asia-Oceania Geoscience AOGC-Session Co- Convener (AOGS-Singapore) - Convener- Nat. conf. on Frontiers in Geological and Technological aspects of Fuel and Mineral resources (GTFM-2010). - Member, Exploration and Research Advisory Committee, Eastern Region, (ERAC), AMD, Dept of Atomic Energy, 2011-2014. - Resource Person-BARC Training School,(AMD), Hyderabad, 2014-2015 - Organizing committee Member-Asian Current Research on Fluid Inclusions VI (ACROFI-VI), 2016 held at IITB. - National Geosciences Award Committee Member (Confidential), 2017. - Best paper award given to my co-author- Dr (Ms) Abhyarthana Patnaik- Indra Mohan Thapar Research Award (IMTR award for best paper for student) for our multi-disciplinary work along with FMME dept. 2019 - Steering Committee Member, National Center for Mineral Targeting (NCMT), MOM, Ministry of Mines, Govt of India
12	National and International committees	-Chairman- IIT (ISM) Regional Center to be set up in Andhra Pradesh (2015-Did't materialize though). - Member- National Council for Cement and Building Materials (NCCB) - Member- National Committee for Mineral Targeting (NCMT), Ministry of Mines, Govt. of India; 2019-2020. - BOCS, Nagaland University, Manipur University and Sikkim University 2021- contg. - PMRF selection committee, 2020-2021. - Pan-IIT JAM Syllabus Revision committee Member 2021. - IIT-JAM confidential committee for Earth Science, 2022. Conducted by IITB. - Faculty scrutiny member: Anna Univ, IITB, IITKGP - Ph D examiner: AU, OU, NIT Jamshedpur, Gitam Univ., Jammu Univ, Utkal Univ, NGRI, IITM, IITR, BHU etc - Selection committee Member: IEST, JNU, IIPE etc
13	Industry-Academic interaction/Industrial consultancies	-BHP Billiton sponsored Australia trip and visited for tech discussions and as a resource person; - International EDP course for, IMMM, BCSIR, Bangladesh scientists on Ore Mineralogy and Mining (CO-CI) along with Mining Engg. - INFOSYS- Off campus EDP course in Hyderabad along with Mining - Off campus course on fundamentals of Mining and exploration to iGATE Professionals at Pune in 2013. - Industrial consultancies conducted ~ 60 (Tata Steel, Mumbai Customs, SAIL, NTPC, CIL, MOIL, L & T, SAIL, Jindal Power, SGS Ltd, etc.) on various ore/coal/environmental related problems
14	Administrative/Managerial responsibilities	- Advisor, NSME/Start Up, PTRE (contg.) - Head of the Department of Applied Geology, IIT (ISM) Dhanbad. - Chairman, JEE (Adv) Entrance Exam-2019-2021 Chairman (Professor-in-Charge) Career Development Center, IIT (ISM) - Chairman: M.Sc/M.Sc Tech/M.Phil EE-2013 &2014 Vice Chairman: M Sc Tech Entrance Exam-2011 &2012 Course Coordinator: M Tech Mineral Exploration (1996-1998); - Faculty-in-Charge: Placement/Applied Geology; - Conf. Organizing Secretary etc, Advisory Member for national and international conferences
15	Lab Development	Lab In-Charge : Ore Geology and Mining Geology
16	Career Development courses/Executive Development courses/Short courses/Conferences conducted	06 (1 Intl. +1 UGC Refresher Course+ 2 Off-campus)+ Tata Steel Executives for their senior executives-Coordinator+ 1 Intl. course for Bangladesh geologists/mining engg./scientists (BCSIR)

17	Committees of External bodies	National: - Assessor: HAG professor- IIT, Kharagpur - Evaluator: Assoc. Prof/IIT- Bombay and assessor- HAG-IITB - Member: M3 - Member, Exploration and Research Advisory Committee, Eastern Region, AMD, Dept of Atomic Energy, Govt of India, Jamshedpur, Dec. 2011-2014. - Member, Selection Committee for Faculty selection of some universities/institutes (confidential) - Member: Selection committee- Associate Professor- July 2025, JNU, Delhi - Member: Selection Committee Faculty- IEST, Shibpur, W Bengal 2025 - Member- National Committee for Mineral Targeting (NCMT), MOM, Govt of India - Paper setter and evaluator- UPSC for geologists exam, IFS, IAS etc. - Member, Selection Committee for Asst and Associate Professors - Advisory Board Member, UGC SAP Committee, Madras University, Chennai appointed by UGC, since 2013. - Member, Board of Studies, Sikkim University, Gangtok, since 2013. - Member, Selection Committee, A CSIR institute - Member Selection Process, A public sector coal company - Chairman, Microscope purchase Committee, CIMFR, 2013. - Member, IGCP- 540 National Working Group on Lode Gold Deposits. - Resource Person, Geological Survey of India and AMD/BARC - Project Reviewer- Ministry of Earth Sciences, DST, CSIR & South Africa. - Invited Speaker, “Geoscience Education in India at crossroads: Bridging Industry Needs and Advancing Sustainable Development Goals” in the subsequent during 18-19 October 2024, held at IIT, Bombay. Delivered invited talk on “ Framework of geoscience education focusing on critical minerals and sustainable development” - Advisory Board Member & A session chair on critical minerals, Conf on Magmatism, Metamorphism and Metallogeny held at NCESS. Trivandrum, 16-18 Feb, 2025. - Distinguished Speaker: on the occasion of “National Science Day” on 28.02.2025 @ IEST, Shibpur, Kolkata. Delivered an invited talk on Earth System Science: Mineral resources and applications. - Member: Vetting of DMG Report on A concise study report on the iron ore deposits of leasehold areas of SAIL in west Singhbhum Dist. 2011-2012 - Member: Geological Survey of India, Kolkata, Evaluation of the XI Plan schemes of GSI continuing to XII Plan Period; (CONS/2011/2012-13). - Member: Vetting of Coal India (CIL) Projects
18		International: - CO- CI: Bangladesh Council of Scientific and Industrial Research scientists EDP course on Ore Mineralogy and Mining (along with Mining Engg. Dept). - Resource Person, BHP Billiton, Australia, 2004. - Co-Convener, Asia Oceania Geosciences Society, 2010. - Reviewer of International journal papers of Elsevier and Springer Verlag journal publishers. - Reviewed a Scientific project- Invisible gold Mineralization in sulfide ores in the Witwatersrand basin for a joint research grant under the National Research Foundation (NRF) (South Africa) /JSPS (Japan) Scientific cooperation agreement. (07-08-2008). - Active collaboration with Cameroon Univ, Univ College of London etc. - Editorial Board Member: Frontiers in Earth Science.
19	Patent	Submitted for filing of Two Patent Applications in July & Aug, 2025 on Fe & V
20	Additional information	Reviewer of several external Ph. D theses, UPSC, Intl and national journals, DST, CSIR project reviews and faculty selection committees.

Academic Qualification (Undergraduate Onwards)

S.No.	Degree	Year	Subjects	University/Institution	Class
1.	B.Sc.	1978	Geology Major	Andhra University, Visakhapatnam, AP	First
2.	M.Sc.	1980	Geology	Andhra University, Visakhapatnam, AP	First
3.	Ph.D.	1987	Geology	National Geophysical Research Institute, Hyderabad and submitted to Andhra University	-
4.	Post-Doctoral Studies (PDF/RA)	1987-1990	Geology	Indian School of Mines, Dhanbad	-

Work Experience (in chronological order)

S. No.	Positions held	Name of the Institute	From	To	Pay Scale & Basic Pay
1.	Advisor	PTRE Startup/MSME https://ptre.in	2024	Contd.	-
2.	Emeritus Professor	IIT(ISM) Dhanbad	2023 (May) cont.	Contd.	Pension –last pay + fixed DA in the scale of PB –V (Maximum scale of Govt. of India reached)
3.	Professor (Higher Academic Grade)	IIT(ISM) Dhanbad	2021	2023	PB-V- Scale-15
4.	Professor	IIT(ISM) Dhanbad	01.01.2010	2021	PB-14 A
5.	Associate Professor	Indian School of Mines, Dhanbad	01.01 2006	-	PB-14
6.	Assistant Professor	Indian School of Mines, Dhanbad	22.02-2000	31.12.2005 (As per MHRD notification.)	Rs.12, 000-420-18, 300/-
7.	Lecturer (Sr. Scale)	Indian School of Mines, Dhanbad	16.01.1996	21.02.2000	Rs. 3000-100-5000), (unrevised, equivalent to Rs. 10,000/- basic in the revised scale)
8.	Lecturer	Indian School of Mines, Dhanbad	16.01.1991	15.01.1996	Rs. 2200-75-4000 (unrevised, equivalent to Rs. 8000/- basic in the revised scale)

Details of Administrative/Managerial experience (IIT-ISM)

S. No.	Name of the Position hold	Duration		Years of Experience
		From	To	
1	Coordinator, 2 yr. M Tech Mineral Exploration programme.	2008	2009	2
1	Vice Chairman- M. Sc. /M. Sc. Tech Entrance Examination, IIT (ISM).	2011	2012	2
2	Chairman- M. Sc./M.Sc. Tech/ M. Phil Entrance Examination, IIT (ISM).	2013	2014	2
3	Prof-in-Charge (Chairman-CDC), Training and Placement, IIT (ISM), now CDC.	2014	2016	2
4	Chairman-JEE Advanced IIT (ISM).	2016	2018	2
5	Head of the Department	2018	2021	3+

Professional Recognition/ Award/ Prize/ Certificate, Fellowships received

S. No.	Name of Award	Awarding Agency	Year
1	Geohost award	IGC	-
2	ISM Post-Doctoral Fellowship	Indian School of Mines, Dhanbad	1987
3	CSIR Fellowship (JRF and SRF)	Govt. of India	1982-1987

Year	Name of Award/Honors	Name of Organization
2010	Asia-Oceania Geoscience AOGC-Session Co-Convener-	Asia Oceania Geoscience Conference (AOGC) Singapore

2011-2014	Member, Exploration and Research Advisory Committee, Eastern Region (ERAC), AMD, Dept of Atomic Energy, Jamshedpur	Atomic Minerals Directorate for Research and Exploration (AMD), Ministry of Atomic Energy, Govt. of India
2014-2015	Resource Person-BARC Training School,(AMD), Hyderabad	BARC Training School, Hyderabad, Ministry of Atomic Energy, Govt. of India
2016	Organizing committee Member-Asian Current Research on Fluid Inclusions VI (ACROFI-VI)	IIT Bombay
2017	National Geosciences Award Committee Member (Confidential)	MoM, Govt. of India
2016-2018	UPSC Paper setter (confidential assignment as subject expert)	UPSC, Govt. of India
2017-2018	UCG SAP Advisory Board Member, Madras University	UGC, Delhi
2019	Best paper award given to my co-author- Dr (Ms) Abhyarthana Patnaik- Indra Mohan Thapar Research Award (IMTR award for best paper for student) for our multi-disciplinary work along with FMME dept.	IIT (ISM) Dhanbad
2019-contg	Steering Committee Member, National Center for Mineral Targeting (NCMT), Ministry of Mines, Govt. of India	Ministry of Mines, Govt. of India, Delhi
2019	BOCS, Nagaland University and Sikkim University	
2019-2021	PMRF selection committee	
2021	JAM Syllabus Revision committee Member	Other members from IITKGP, IISC IITB,(Chair) IITR
2022	JAM confidential committee	Pan IITs and IISC
2022	Malviya Postdoc selection committee	BHU, Varanasi
2022-cont.	Member-NCCB	Delhi
2024-cont	Member- Magmatism-Metamorphism-Metallogeny (M ³) Society	Thiruvananthapuram

Membership of Professional Bodies

Name of the Body	Status of Membership: Life / Annual
Geological Society of America	Annual
Resource Geology, Japan	Annual
Geological Society of India	Annual

Lab Development

Faculty- in- charge of Ore Geology, Mining Geology and Fluid Inclusion Laboratory. Developed substantial microscopy facilities for the students and for research purpose. As HOD, overseen the development of Petrology, geochemistry, Engineering Geology, Remote Sensing & GIS, Micropaleontology and Petroleum Geology, Economic Geology, Museum and other labs of the Dept of Applied Geology including DST FIST equipment as coordinator.

Ph.D. Guidance

S. No	Name of the Student	Title of the Ph. D. thesis	Guides	Year of Award/submission
1	Dr. Indranil Saha, Full Time, ISM JRF	Metallogenetic modeling of the Gold deposits at Hutti-maski schist belt, Karnataka.	Sole Guide	2001
2	Dr. Sahendra Singh , Professor/AGL, IIT (ISM)	Metallogenetic studies of Gold Mineralization in Sonakhan greenstone belt, Central India.	Sole Guide	2007
3	Dr Subrata Roy, NML , Jamshedpur	Mineralogical characteristics and their effects on the beneficiation performance Of iron ores from Jilling-Langalata ironore deposits, eastern India.	Sole Guide from ISM	2010
4	Dr. R K Upadhyay, Chief Geologist, Tata Steel and currently Director, GRM Resources, Indonesia	Ore Geological aspects of Iron and Manganese mineralization	Sole Guide from ISM	2011

5	Dr. Prabodha R Sahoo, Full Time, SRF, ISM , currently Assoc. Prof/AGL., IIT (ISM)	Metallogenetic aspects of gold mineralization in and around Kundarkocha area of the Singhbhum orogenic belt, eastern India.	Sole Guide	2012
6	Dr. Ajay Kumar, Scientist-G, Atomic Minerals Directorate and Exploration , Jamshedpur	Geological, petrological and geochemical characterisation of radioactive quartz-pebble conglomerates (QPC) along western margin of Bonai granite, Sundergarh district, Orissa.	Sole Guide from ISM	2013
7	Dr. Sanjoy. K. Sarkar, Deputy General Manager, Manganese Ore (India) Limited (MOIL)	Manganese Ore Deposit of Balaghat Mines, Central India: Evolution Model and its implication for exploration	Co-Guide	2014.
8	Dr. Rahul Mukherjee, ISM SRF - Full Time & currently working as Asst. Prof, Central Univ, Punjab.	Controls and genesis of gold mineralization, Bhukia, Western India	Sole Guide from IIT(ISM)	2017
9	Dr. Rambabu Singh, Sr. Manager (Geology), CMPDI	Environmental impact of coal mining on hydrogeological regime in parts of Korba Coal field, Central India and possible remedial measures	Prof A S Venkatesh, Guide & Co-guide, Dr T H Syed Prof/IIT(ISM)	2017
10	Dr. Jitendra Prasad, Manager (Geol), SAIL & currently Dy Chief Geologist, DGM, Govt. of Jharkhand	Ore Geological aspects of Iron mineralization in and around Kiriburu-Meghahatuburu and Bolani regions, Singhbhum orogenic belt, India with emphasis on metallogenetic controls and Exploration.	Prof A S Venkatesh	2018
11	Dr. Suresh Kumar, CGWB, Delhi	Geochemical behavior of Fluoride contamination in Groundwater, its distribution and mobilization in and around Jamui, indo - gangetic alluvial plains, Bihar, India	Guide from AGL and Prof G Udayabhanu is Guide from App Chemistry	Ph.D. Nov, 2020
12	Dr. Vivek K Sengar, JRF, Indian Institute of Remote Sensing, Dehradun	Multispectral remote sensing and reflectance spectroscopy for exploration targeting around Mundiawas-Khera copper Deposit in Alwar basin, Rajasthan, India	Sole Guide from IIT (ISM)	2020
13	Dr. Israil Khan, Director, GSI, Odisha	Metallogenetic significance and exploration strategies of copper-gold mineralization near Mundiawas-Khera area, Alwar Basin, Rajasthan, western India	Prof A S Venkatesh, Co-guide	2021
14	Dr Janmejaya Sahoo, Sr Geologist, GSI, Hyderabad	Evolution of base metal and precious metal mineralization in parts of Alwar Basin, Rajasthan, western India	Guide: Dr P R Sahoo, Asst.Prof/ISM & Prof A S Venkatesh, Co-guide	2022
15	Dr. Hrishikesh Kumar, Scientist, Space Application Center, Ahmedabad.	Analysis of Earth Surface Dynamics for monitoring Land Water Storage Variations using Space Based Observations	Guide: Prof A S Venkatesh, Co-guide- Dr T. H. Syed, IIT Kanpur	2024
16	Mr. Chitaranjan Mohanta Geologist, Indian Bureau of Mines, Nagpur	Mineralogical characterization of iron ores and geometallurgical aspects for beneficiation	Co-guide; Guide: Prof P R Sahoo/AGL	submitted in 2025
17	Mr. Yudhishtir Mohanta	Geology and mineralogical aspects of chromite mineralization in Sukinda, Odisha and its amenability for beneficiation.	Co-guide; Guide: Prof P R Sahoo/AGL	To be submitted in 2025

18	Mr. Amit Kumar, Asst. Prof, Ranchi University	Ore geological aspects of Au-U hosted QPC from Southern India	Sole guide	Contg.
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Details of Post-Doctoral Mentoring

S. No	Name of the Student	Title of the PDF project	Mentorship	Year of Joining
1	Dr. Shayantani Ghosal, Ph.D., IIT, KGP.	Mineralogical characterization and provenance studies for REE Minerals along Odisha and A.P. coast: Implications for exploration.	Sole	2021-2022

Dissertation Project Guidance: Ph. D. guidance (15+ details as given above); M Tech (~15) and M. Sc. Tech. and Int. M. Sc. Tech. (~60+)

Details of Sponsored Externally funded Projects (R & D)

S.No	Project Title	PI/Co-PI	Funding Agency/Sanctioned amount- Duration	Status
1	Geochemical, petrogenetic and metallogenitic study of Malanjkhand and Dongargarh Supergroup volcanics and plutonic rocks-Insight from relict magmatic minerals including critical minerals (V, Ti, Cu etc.)	Co-PI, Prof Sunil Khare, UPES, Dehradun- PI	DST –CRG (SERB) Rs. 23,38,000/-	2023-2026 June
2	Metallogenetic Evolution of Gold (+PGE) Mineralization with implications for crust-mantle processes, invisible gold and the role of organic matter linked to mineralization events in parts of Archean Singhbhum orogenic belts.	PI- Prof Prabodha R Sahoo/AGL – Co-PI	DST-SERB- CRG/2019/005503(DST(SERB)(251)/20 19- 2020/700/AGL) Rs. 51, 80,240.00/-	2020-2023
3	Evaluation study of the Central Sector Schemes for their continuation beyond 2019-2020	3 Co-PIs and PI from Dept. of Mining Engg./IIT(ISM)	Rs. 33,30, 000.00/- Ministry of Coal MoC(3)/201-2020/693/ME	21-10-2019 to 2021
4	Financial Assistance as FIST programme – Augmentation of rock/ore/coal/kerogen characterization and processing facility	Co-PI/AGL Coordinator as HOD	DST FIST LEVEL-II Rs. 2, 38, 000, 00/-	23-08-2013- 22- 08-2019
5	Geological CO ₂ removal.CO ₂ - Geological storage: Research in to monitoring and verification technology (CO ₂ Remove)	Team Member, Dr. Emily F.M. Elewaut, Netherlands, Prof A K Varma/AGL and Prof. A S Venkatesh	European Commission Funded Project Euros- ~73000/-	2009-2013
6	Fluid inclusions in orogenic Gold deposits	Dr. Paulo, S. Garafalo, Univ. of Bologna, Italy –PI along with Prof B Mishra, IITKGP and Prof A S Venkatesh as team member	International Project- IGCP Geological Correlation Programme (IGCP-540)	2009-2012
6	Metallogenic Evolution of Gold-Copper mineralization in the Sakoli Group. .	Sole PI	DST –DCS (Deep Crustal Scheme) ESS/16/112/98, Rs. 11, 99, 000/-	1999-2013
7	Geochemical Characteristics of Dongargarh volcanics and its implications for the crust-mantle process: Perspectives from relict clinopyroxene chemistry.	Co-PI and One PI from AGL	CSIR -CSIR.24(0215) 92/ EMR-II	1993-1995

Details of Outreach Programs (PDPs/MDPs/EDP/Conference/Seminars organized

S.No.	EDP/PDP/Training Programme Title	Funding Agency and sanctioned amount	Role and duration	Status
1	Two weeks Professional Development Programme on Advanced Geological Technology for the Tata Steel Executives	Tata Steel, Rs. 22, 00, 000/-	CI- 2 weeks	2020
2	Professional Development (PDP) Course on Rock mechanics in hard rock mining/geological aspects	Hindustan Zinc (Vedanta) Rs. 1,52,92,800/-	Co-CI PI is from Dept of Mining Engg/IIT (ISM)- 24 weeks in two batches.	201-2019
3	Off campus course for iGATE executives on geological aspects for mining and mineral industry at their Pune campus	iGATE Rs. 1,68, 540/-	One week training – CI along with Dept of Mining and FMME	2013-2014

Besides these, conducted the following programs/seminars:

- i) Coordinator of UGC Refresher course for Univ. teachers- on Coal and Mineral Expln.- 15-3-1998-4-4-1998
- ii) Jointly conducted International EDP programme with the Dept. of Mining Engg. for Scientist/Geologists/Engineers of Bangladesh Council of Scientific and Industrial Research (BCSIR) on “ Ore Mineralogy and Mining
- iii) Jointly conducted off-campus course on Fundamentals of Mining to INFOSYS Technologies, Hyderabad along with Dept. of Mining Engg.

Details of Industry Academic Interaction (Industrial Consultancy Projects, Industrial Applications) since 2010 (older industrial consultancies are not given here and mentioned in our official IIT (ISM) website

S.No.	Name of Consultancy	Amount (Rs)	Role (PI/ Co-PI)	No. of Co-PIs	Funding Agency	Duration	Status (Completed/Ongoing)	Innovation, Product Developed, New Knowledge, Industrial Applications
1	Comprehensive Hydrological Study of the Gare Palma Sector-I Coal Mine (3020 ha), JPL Tamnar- Raigarh (C.G) (CONS/ 7396 C)	89,77,777.48/-	Co - PI	1+1	Jindal Power Ltd., Chhattisgarh	6 months	Ongoing	Hydrological modelling, pumping tests and environmental aspects
2	Mineralogical characterization, bulk density measurements, tumbler index studies of Chromite (Nickel) and recovery tests CONS/7284/2024-25	26, 35, 000	Co- PI	1PI	Tata Steel	04 months	Completed in May, 2025	Recovery of Chromite for IBM regulation
3	Resource Estimation for Titanium and Vanadium in Beach and Dune Samples of Sindhudurg District, Maharashtra (CONS/7403 C)	4, 00, 020/-	Co- PI	1PI	M/s Geo Marine Solutions Pvt. Ltd., Mangalore	03 months	Completed in April, 2025	Reserve estimation and ore body modelling of critical minerals (Ti, V along with Fe) from beach sand deposit
3	Determination of specialized rock tests for Tunnel Boring Machine application in Pakaldul Hydel Project	1, 11, 000/-	Co-PI	1 PI	L&T Construction	6 months+ 6 months	Completed	Determination of TBM related specialized tests (Rock Characterization)
4	Mineralogical characterization & transmissivity properties of altered and unaltered Khondalite rock and bauxite (CONS/4078/2018-19)	2,21,840.00	Co-PI	1	Utkal Alumina Ltd.	3 months	Completed	Product development process and industrial application
5	Mineralogical characterization and determination of UCS of iron samples and implication for mineral beneficiation (CONS/4037/2018- 19)	2,20,000.00	PI	2	SGS Pvt. Ltd	04 months	Completed	Product development process and industrial application

6.	Mineralogical characterization of heavy mineral concentrate of beach placers with special reference to monazite content concentration (CONS/3857/2018- 19)	2,36,000.00	PI	1	SGS Pvt. Ltd	3 months	Completed	Product development process and industrial application
7.	Mineralogical Characterization of Bauxite ore from Utkal Alumina International Ltd. (CONS/3577/2017- 18)	1,99,420.00	Co-PI	1	Utkal Alumina Ltd.	2 months	Completed	Product development process and industrial application
8	Detailed mineralogical Characterization of Managers Ores of MOIL Ltd (CONS/3581/2017- 18)	3,22,000.00	PI	1	MOIL Ltd.	4 months	Completed	Industrial application
9	Detailed Mineralogical Characterization of Manganese Ores of MOIL (CONS/3388/2016- 17)	80,500.00	Co-PI	1	MOIL Ltd	3 months	Completed	Product development process and industrial application
10	Reserve estimation of material available at Khanak stone mines, Bhiwani district, Haryana (CONS/3419/2016- 17)	5,25,000.00	PI	2	HSIIDC, Govt. of Haryana	6 months	Completed	New Knowledge and industrial application
11	Moh's Hardness test determination for garnet sand (CONS/3388/2016- 17)	57,500.00	Co-PI	1	SGS Pvt. Ltd	1 month	Completed	Industrial applications
12	Bulk density estimation and characterization of iron ores (CONS/3341/2016- 17)	9,99,350.00	PI	1	Tata Steel Ltd.	12 months	Completed	New Knowledge and industrial application IBM requirement
13	Mohs Hardness experimental determination for garnet sand (CONS/3284/2016- 17)	57,500.00	Co-PI	1	SGS Pvt. Ltd	1 month	Completed	Product development process and industrial applications
14	Characterization of Iron Ore samples (CONS/3172/2016- 17)	85,875.00	Co-PI	1	SGS Pvt. Ltd	2 months	Completed	Industrial applications/ explorations/ beneficiation
15	Characterization of Chromite Ores (CONS/3070/2015- 16)	9,12,000.00	PI	1	Tata Steel Ltd.	1 year	Completed	Industrial application
16	Mineralogical characterization of low grade Iron Ore samples and Implication for Liberation studies (CONS/2977/2015- 16)	1,14, 000.00	PI	1	SGS Pvt. Ltd	1 month	Completed	Product development/ industrial application
17	Mineralogical Characterization of Chromite ore samples with a view to beneficiation. (CONS/2935/2015- 16)	4,27,500.00	PI	1	Tata Steel Ltd	6 months	Completed	Product development and industrial application
18	Mineralogical characterization of Manganese ore Fines (CONS/2506/2014-15)	1,14,607.00	PI	1	SGS Pvt. Ltd	1 month	Completed	Industrial application and product development
19	Mineralogical/ Petrographic Studies on Zinc concentrate and Rock Phosphate ores (CONS/2329/2013- 14)	1,50,000.00	CI	0	M/S Vimta Labs, Hyderabad	3 months	Completed	Product development/ industrial applications
20	Mining and Mining Geological aspects of , Bharatpur OCP, Talchir coal mine, MCL ; Cons/2208/2013-14	22,00,000.00	Co-CI	2	MCL, Bharatpur OCP, Talchir	1 year	Completed	Industrial applications/ new knowledge
21	Ore Characterization of low-grade iron ores, BHJ and Laterite; (CONS/1903/2012- 2013)	1 50, 000/-	CI	0	SGS Pvt. Ltd	3 months	Completed	Industrial application
22	Geological Survey of India, Kolkata, Evaluation of the XI Plan schemes of GSI continuing to XII Plan Period; (CONS/2011/2012- 13)	22,47,200/-	Co-CI	2	Geological Survey of India, MoM, Govt. of India	1 year	Completed	New knowledge for exploration
23	Slake Durability study to be used in ash dyke bund/embankments	22,060.00	Co-CI	1	NTPC	1 month	Completed	Product development/ New knowledge

24	Size analyses and Jigging of iron ore fines from Barbil	22,060.00	Co-CI	1	Bengal Energy Pvt. Ltd, Kolkata	1 month	Completed	Product development
25	Vetting of DMG Report on A concise study report on the iron ore deposits of leasehold areas of SAIL in west Singhbhum Dist	03,86,050/-	Co-CI	2	DMG, Govt. of Jharkhand	3 months	Completed	New knowledge and industrial application for exploration
26.	CONS/1079/10-11 (Mineralogical study free silica in iron ore mines)	040, 000/-	CI	2	Tata Steel	1 month	Completed	Product development/ Industrial applications

Adoption of Innovation in teaching practices

Significant contributions in Teaching:

The significant contributions of my teaching at IIT (ISM) involves design and development of some key courses viz., ore geology in which a) the fluid inclusion thermometry practical classes have been added, b) the process mineralogy as applied for the beneficiation of ores have also been incorporated in the course structure, c) Mass balance calculations for monitoring the gains/losses of hydrothermal alterations and their utility in the water-rock interactions have also been developed. I have also been teaching environmental geology to the postgraduate applied geology students in which the evaluation of acid-base accounting resulting from mine waste has been developed.

Courses developed/taught for UG/PG:

- I. **M. Tech (Mineral Exploration)** intake of students through GATE, Exploration Techniques and Environmental Planning for Mining
- II. **M. Tech (Engineering Geology)** intake of students through GATE, Environmental Geo Technology for Engg Geologists
- III. **M. Sc. Tech (Applied Geology)** (intake of students through JAM and **Integrated M. Tech Applied Geology** (intake of students through JEE Adv.) Ore Geology, Environmental Geology, Geochemical Analytical Techniques, Petroleum Geology, Precambrian Stratigraphy etc.
- IV. **M. Sc. (Tech) Applied Geophysics, Stratigraphy, Introductory Physical Geology course. Economic Geology and Fuel Geology**
- V. **B. Tech (Petroleum Engineering, Mining and Mineral Engg. and all first year B Tech students.), Economic Geology, Physical Geology, Introductory Mineralogy, Petrology, Structural Geology, Petroleum and Fuel Geology., Earth System Science etc.**
- VI. **Ph. D. course work: Geology of Natural Resources 2022.**

Research and Technology Development

Planning and execution of mineral exploration projects, managerial aspects in the Earth systems and mining, beneficiation and mineral development projects, Managerial roles in the higher educational institutions, setting up of labs, liaising with Govt. bodies.

Studies on concept based exploration for critical minerals, characterization and their amenability for beneficiation.

Characterization of Cr ores (+ critical component- Ni) – Bulk density, Tumbler Index, and recovery applications.

Conceptualized plans for orienting research studies in the areas of mineralogical and geochemical characterization of mine waste and evaluation. Conducting empirical studies on some of Archean gold + PGE deposits in an ongoing DST SERB-CRG research project granted in 2019 to investigate on the Au and PGE deposits. Intend design new courses on environmental aspects, exploration geochemistry, industrial mineral resources etc. Work towards the Institute- industry interaction and develop the labs. International collaborative research study on Primordial Life and Banded Iron Formations/Cherts is planned in association with University College of London with Prof Dominic Papinaeu and submitted a research proposal as a part of a team member to NERC, Canada to unravel the history of primordial life evolution, organic matter vis-a-vis mineralization. Intend to develop some new courses in exploration techniques using remote sensing (hyper spectral data) and ground based data, ore systems modelling, mass balance calculations for alteration zone mapping, low temperature environmental and medical geological problems associated with fluoride contamination of ground water are some of the planned teaching components. Modern techniques in geochemical exploration using hyperspectral remote sensing and GIS on water and mineral exploration using deep learning methods.

Salient Aspects of my Research Highlights

Invisible gold and multi-stage evolution of gold mineralization in wide-ranging environments: This work focused on the fundamental concepts of source, transport and deposition of gold from Archean Hutti-Maski gold deposit and the lattice-bound gold within sulphides from Sakoli Au mineralized belt, central India as first reports. Mesothermal gold mineralization occurs in Hutti-Maski within smoky quartz-sulfide veins as i) lattice-bound

invisible gold restricted to shear fractures as part of the primary gold depositional history in the first stage and ii) native gold as refractory substrates and as the main lode in the later stages

Role of Carbon vis-à-vis gold mineralization from Kundarkocha gold deposit, Singhbhum orogenic belt, eastern India: Lithological, EPMA, Laser Raman Spectroscopy on fluid inclusions associated with gold mineralization, Total Carbon (TC), Total Organic Carbon (TOC) and FTIR results suggest that the gold mineralization is spatially and genetically associated with carbon-rich material like graphitic schist, carbonaceous phyllite/black shale that are constituted of immature organic carbon (OC). At least part of the organic material acted as a possible source for reduction which aided in the precipitation of gold.

Mineralogical and geochemical constraints on the formation of blue dust and iron ores from Banded Iron Formations from eastern India and implications for beneficiation of low-grade ores: Different types of iron ores including the hard massive ores and blue are intimately associated with BHJ. Geochemical and field observations indicate that the Blue Dust in these deposits is regarded to be of supergene-modified hydrothermal origin. In the first stage, the early hydrothermal process affects the primary unaltered Banded Iron Formation by simultaneously oxidizing magnetite to martite and replacing quartz with hydrous iron oxides. In the second stage, the supergene processes upgrade the hydrous iron oxides to fine grain microplaty hematite. Mineralogical characterization of low-grade iron ores with deleterious elements like phosphorous and alumina yielded iron enrichment after suitable beneficiation experiments after a careful process mineralogical study

QPC Hosted Uranium Mineralization: Besides, my research has also been focused on the QPC-hosted uranium deposits along Bonai granite, eastern India. These studies have been substantiated by publications from time to time. The studies conducted are of both basic/fundamental scientific attributes as well applied aspects related to economic/ore geology by guiding students and supporting industry as when required as currently working in an Applied Geology Department, IIT (ISM).

Other information: Prof A S Venkatesh is working as an Emeritus Professor in the Department of Applied Geology, Indian Institute of Technology (Indian School of Mines), Dhanbad since 1991. Prof Venkatesh completed Ph. D from National Geophysical Research Institute, Hyderabad/Andhra University, Visakhapatnam in 1987 and later joined ISM as a research associate (did post-doctoral study on Malanjkhand Cu-Mo±Au deposit at ISM), subsequently joined as a faculty member. His current research interests are ore/economic geology (Lode gold deposits in particular, the refractory lattice-bound invisible gold, origin and evolution of BIF and iron ores, base metals, exploration and characterization of low-grade ores and amenability of ores for beneficiation) and environmental geological aspects (low temperature geochemistry of coal mine dumps/arsenic/fluoride contamination of ground water-medical geology and carbon dioxide sequestration, mining geology and geological aspects of slope failure in coal mines).

Prof Venkatesh teaches ore geology, exploration techniques, geochemical exploration and environmental geology subjects to post graduate (M. Sc. Tech and M. Tech and undergraduate students (B. Tech- Mining, Petroleum and Mineral Engineering students). Dr. Venkatesh handled DST, CSIR sponsored research projects and participated in International projects such as UNESCO-IGCP-540 and European Commission as a team member representing India. Dr. Venkatesh has travelled to several countries (USA, UK, Netherlands, Australia etc.) to present his work and has been a resource person to BHP Billiton to deliver lectures as a Resource Person by a special invitation and entire support by BHP in Australia, besides delivered lectures at Southampton University, UK and USA for a presentation on DST sponsored work on Sakoli gold mineralization in New York state in Water-Rock Interaction conference. Prof Venkatesh is having an active collaboration with several researchers abroad and with Prof Dominc Papinuaea, Univ. College of London submitted a research proposal to NERC Canada as a team member. Besides he also handles several industrial consultancy projects as part of Academia-Industry interaction as part of economic geological obligations to serve the industry problems He is a member of several national committees including Board of studies and Faculty selection committee member, Sikkim University, faculty selection committee member, Sambalpur University, resource person to Geological Survey of India, UGC SAP advisory expert to Madras University on SAP programme and Exploratory and Research Advisory Committee (ERAC) Member of Atomic Minerals Directorate and Exploration, Eastern India and resource persons to newly recruited scientists of BARC school, AMD and in selection committee of PMRF. Prof. Venkatesh is a steering committee member of National Center for Mineral Targeting, Ministry of Mines, and Government of India. He is evaluator of a project on refractory gold from Govt. of South Africa.

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- f. Vidwan Database: <http://vidwan.inflibnet.ac.in/searchr.php?id=44324>

Details of Publications of Prof A S Venkatesh	
Refereed Journals (* Corresponding author)	
Research Publications	
S No	2025
1a	Mukherjee, R. and Venkatesh, A.S. (2025) . Unveiling the interaction between carbonate-organic carbon and role of ultrasaline brine in the IOCG-IOA system: Insights from gold-sulfide-graphite mineralization of Bhukia deposit, Rajasthan, western India. Lithos, Q1 (under review)
1b	Khare, S.K. and Venkatesh, A.S. (2025) . U-Pb geochronology and petrogenesis of Dongargarh Granite, Bastar Craton, Central India: Insights into crustal growth and critical metals mineralization near Archean-Proterozoic transition. Geological Journal, Q2 (Reviews completed).
1c	Roy, S. and Venkatesh, A.S. (2025) . "Microstructural Evolution and Coating Mechanism in Magnesite-Spinel Bricks from the Burning Zone of a Cement Rotary Kiln" Journal of the Australian Ceramic Society, Q2 (Submitted)
2	Roy, S. and Venkatesh A.S., (2025) Optimization of Fine Coal Beneficiation for Liquefaction: Applications Using Enhanced-Gravity Techniques. International Journal of Coal Preparation and Utilization , https://doi.org/10.1080/19392699.2025.2526564 . Q2
3	Mukherjee. R. and Venkatesh A.S., (2025) Evolution of carbon systems vis-à-vis Natural Graphene-graphite-gold interface. Journal of Earth System Science , 134:148, https://doi.org/10.1007/s12040-025-02619-w .
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8	Mahanta, C.R., Sahoo, P.R. Mohanta, M K., Rath, R K., Dey, S., Tripathy, S K. and Venkatesh, A. S (2024). Mineralogical Characteristics of Hematitic Iron Ore: A Geometallurgical Study on Ore from Eastern India, Minerals 13 (9), 1194. Q2
9	Khare, S K., Asthana, D. and Venkatesh, A.S. (2024). Tectonomagmatic evolution of Khairagarh Group in Sitagota syncline, Dongargarh Supergroup, Bastar Craton: Insight into Paleoproterozoic crust mantle processes. J Earth System Science .
2022 and in descending years	
10	Chakravarti., R., Frimmel, H. E., Singh, S., Barla, A., Venkatesh, A. S and Balakrishnan, S. (2022). A geochemical and mineral chemical assessment of sediment provenance and post-depositional alteration of auriferous conglomerates in the Singhbhum Craton. J. Geochemical Exploration . https://doi.org/10.1016/j.oregeorev.2022.105125 . Impact Factor. 4 166. Q1 .

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23	Sengar, V., Venkatesh, A.S.* , Champati Ray P.K, Sahoo, P. R., Khan I and Chatteraj, S. L. (2020) Spaceborne mapping of hydrothermal alteration zones associated with the Mundiawawas-Khera copper deposit, Rajasthan, India, using SWIR bands of ASTER: Implications for exploration targeting. Ore Geology Reviews , 118, 103327, DOI NO: https://doi.org/10.1016/j.oregeorev.2020.103327 , SCI, Impact Factor: 3.387, Q1
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29	Majumdar, S., Singh, S., Sahoo, P. R. and Venkatesh, A. S. (2019) . Trace-element systematics of pyrite and its implications for refractory gold mineralisation within the carbonaceous metasedimentary units of Palaeoproterozoic South Purulia shear zone, eastern India. J Earth System Science , DOI: https://doi.org/10.1007/s12040-019-1256-9 . SCI, Impact Factor: 1.423. Q4
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37	Kanouo, N. S, Ngueutchoua, G, Kouske, A. P, Yongue, R F and Venkatesh, A. S. (2018) . Trace Element and U–Pb Core Age for Zircons from Western Meiganga Gold Placer, Cameroon: Their Genesis and Archean-Proterozoic Sources. Minerals , 8, 194; doi: 10.3390/min8050194. SCI. Impact Factor. 2.088. Q2
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Patents filed:

3. **Filing of Patent Applications:** Two (02) patents as co-author on Vanadium and Iron in July, 2025 and Vanadium related patent is filed and Iron related patent is submitted.

Conferences/Seminars conducted: as Organizing Secretary

4. Conducted a National conference on "Frontier Areas in Geological and Technological aspects of Fossil Fuel and Mineral Resources (GTFM-2006) 2-4, November, 2006. and conf. volume published as mentioned above.



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