Curriculum vitae

Dr. Archana



Assistant Professor
Department of Petroleum Engineering
Indian Institute of Technology (Indian School of Mines)
Dhanbad-826004, Jharkhand, India

Personal Information

Name	Archana
Date of Birth	06-Dec-1981
Mobile number	+91-9471191527
E-mail contact	archanabalikram@iitism.ac.in balikram.archana@gmail.com

I have altogether 19+ years of working experience in teaching, research and software industry.

Educational Qualification:

PhD, Department of Petroleum Engineering, IIT(ISM), Dhanbad, India, Dec 2018
M.Tech from IIT Guwahati, India, May 2006
B.Sc Engineering in Chemical Engg from BIT Sindri, Dhanbad India, July 2004

Work Experience:

- Worked as Assistant Professor in Department of Petroleum Engineering in Indian Institute of Technology (Indian School of Mines), Dhanbad since 25th Oct 2010 till date
- Worked as Project Engineer, Software Developer, System Tester, Team Lead, Business Analyst and Solution Delivery Analyst in Wipro Technologies, Bangalore since August 2006 till Oct 2010

Publication, Conferences & Workshop:

PUBLICATION

1. Lichinga, Kevin N.; Balikram, Archana; Ojha, Keka. "Interfacial and bulk stabilization mechanisms of thermally stable anionic–zwitterionic foam fracturing fluids for unconventional-reservoir applications". Energy & Fuels. Manuscript No.: ef-2026-03565m (10.1021/acs.energyfuels.6c03565)
2. Vinod Kumar Madem, Sayantan Ghosh and Archana Balikram "Prediction of Critical Drawdown Pressures for the Onset of Sand Production Using Conventional Triaxial Tests: A Case Study of Himmatnagar Sandstone". Petroleum & Petrochemical Engineering Journal. Article ID: PPEJ-RA-26-491 | Article Type: Research Article | Review Cycle: 2026

3. Anand, A., Mandal, M., Balikram, A. and Ojha, K., **2025**. ***Stability and Spontaneity Analyses of CO2 Sequestration in Cambay Shale, India: An Insight into the Sorption Thermodynamics and Pore Distribution***. Energy & Fuels, 40(1), pp.283-295.
4. Anand, A., Balikram, A. and Ojha, K., 2023. ***Evaluation of Pore Characteristics of Deeper Cambay Shale under Simulated Pre/Postsorption Conditions by CH4 and CO2 Gases***. *Energy & Fuels*, *37*(21), pp.16536-16550.
5. Raj, K.A., Balikram, A. and Ojha, K., 2022. ***Impact assessment of nanoparticles on microstructure and rheological behaviour of VES fracturing fluid formulated with mixed surfactant system***. *Journal of Molecular Liquids*, *345*, p.118241.
6. Kumar, A., Balikram, A. and Ojha, K., 2021. ***Deep transient testing methodology: An integrated approach to redefine the real-time reservoir complexities and well deliverability***. *Journal of Petroleum Science and Engineering*, *207*, p.109179.
7. Balikram, A., Sinha, S., Kumar, N.D. and Ojha, K., 2019. ***Characterization of porous media by chemical tracers using time-of-flight and residence time distribution concept***. *Asia-Pacific Journal of Chemical Engineering*, *14*(3), p.e2306.
8. Balikram, A. and Ojha, K., 2016. ***Studies on kinetics and thermodynamics of Cr (VI) adsorption onto sand to check feasibility of its use as tracer in oilfields***. *Asia-Pacific Journal of Chemical Engineering*, *11*(6), pp.1060-1068.

CONFERENCES & WORKSHOP

1. Attending International Conference on Carbon Capture, Storage & Utilization 2026: Pathways to Net-Zero as ***keynote speaker***, 23-24th Feb 2026, Dubai, UAE, title " ***Reservoir Simulation using synthetic data for CO2 Sequestration in saline aquifers using CMG simulator***"
2. **Paper Presented** by Mithu Prasad, Renu V, Archana Balikram, title "***Numerical Simulation of Long-Term Post-Injection Migration of Fully Dissolved CO_2 in a Homogeneous Saline Aquifer***" in HYDRO International 2025, Dec 18-20, **2025**, NIT Rourkela, Odisha, India
3. **Poster Presentation** : Harsh Deo Choubey & Archana Balikram, 17th July **2025**, in Urja Varta, New Delhi title "***CO_2 Storage and CH_4 Recovery Potential in Shale Formations: A Simulation Study***"
4. **Poster Presentation**: Kollapu ManuIswarya, Kevin Nsolloh Lichinga,,Archana Balikram and Keka Ojha, on title "***A Critical review on the development of foam fracturing fluid for deep shale gas reservoirs***" at *International Conference on Petroleum, Hydrogen, and Decarbonisation (*ICPHD-*2024)*, 12th to 14th December **2024** at IIT (ISM) Dhanbad.
5. **Poster Presentation**: Kollapu ManuIswarya, Kevin Nsolloh Lichinga,,Archana Balikram and Keka Ojha, title "***Enhancing rheological properties and proppant carrying capacity of foam as a fracturing fluid for shale gas reservoirs***" at *International Conference on Petroleum, Hydrogen, and Decarbonisation (*ICPHD-*2024)*, 12th to 14th December **2024** at IIT (ISM) Dhanbad.
6. **Paper Presented** by Kevin Nsolloh Lichinga, Archana Balikram, Keka Ojha title "***Investigating the Impact of Temperature on the Stability of Foam Fracturing Fluids in Tight Reservoirs: An Experimental Analysis***" in

International Conference on Transforming Upstream: Breakthrough Technologies and Sustainability", 30th September and 1st October **2024** at Rajiv Gandhi Institute of Petroleum Technology (RGIPT), Jais.

7. **Paper presented** entitled "***Simulation of trapping indexes for CO2 Sequestration in heterogeneous saline aquifers***" in International Conference on Petroleum,

Hydrogen and Decarbonization (ICPHD) 2023 conference, Nov 03-05, 2023 at IIT Guwahati, India.

8. **Paper presented** By Archana Balikram titled "***Method of moment (MoM) concept in characterizing the porous media using tracer application***" in virtual conference "2nd Edition of World Congress on Geology and Earth Science (GeoEarth-2021)", Oct 04-06, 2021 at Osaka, Japan.
9. **Paper presented** By Lokesh Bagri & Archana Balikram titled "***Review on uses of Tracers in Oil and Gas Industr***y" in virtual conference "3rd International Oil & Gas Chemistry, Chemicals and Additives Conference & Exhibition (IOGCA 2020)" on 24-26th September, 2020.
10. **Paper Presented** on "***Comparative study on adsorption of chloride and salicylic acid for their preferable application as tracer in sand and shale formation***" on International conference International Conference on Chemical Engineering and Advanced Polymeric Material", Birla Institute of Technology, Mesra, Ranchi, 18-20 August 2016
11. SHASTRI conference and lecture series grant (SCLSG) for 2021-22 lecture/workshop/seminar on "Insight into non-thermal to thermal EOR and Environmental Impact of Modern Petroleum & Chemical Industry" for IIT (ISM) Dhanbad by Shastri Indo-Canadian Institute, Co-ordinator: Prof. Tarun K Naiya & Prof. Archana
12. Organized the International Conference On "Challenges & Prospects of Petroleum Production & Processing Industries" 12-14th January, 2017, IIT(ISM), Dhanbad
13. Attended Conference on "International Shale Gas & Oil Workshop", 28-29 Jan 2016 in New Delhi
14. Attended Conference on "International Vision Zero Conference on Occupational Safety & Health" 15-17 March, 2017, New Delhi
15. Attended Workshop the 7th Proficiency Course on "Modern Practices On Petroleum Exploration" In KDMIPE, ONGC, Dehradun, 5th -9th Sep 2011.
16. Attended the training on "Overview of Drilling Technology" in IDT, ONGC, 21st-24th Dec 201

Certified online Courses & NPTEL Courses

NPTEL Courses

1. Instructor for certified 12-week Swayam-NPTEL Course on ***"Fundamental of Carbon Capture, Utilization and Storage***, Jan-Apr, 2026.
2. Instructor for certified 12-week Swayam-NPTEL Course on "***Introduction to Python and Petroleum Data Analytics***", Jul-Nov, 2025.

Certified online Courses

1. Certified 5-day (30 Hour) FDP on 'AI/ML Fundamentals and its Application in Oil and Gas Industry' organized by "The School of Petroleum Engineering in association with TCS-Research and AlgoAsylum, India, From 27.06.2022-01.07.2022
2. Certified '30-Hours Live online instructed-led training | Faculty Development Program' on "Applied Machine Learning, AI & Its Applications using Python" organized by Eduxlabs, India from 1st June to 13th June 2021.
3. Certified online training on "Introduction to Thermal EOR Modelling" organized by CMG, Computer Modelling Group Ltd on Jun 9, 2021
4. Certified online training on "CO2 Sequestration" organized by CMG, Computer Modelling Group Ltd on May 26, 2021
5. Certified online training on "Modelling of Low Salinity Water Flooding using STARS & GEM" organized by CMG, Computer Modelling Group Ltd on Mar 24, 2021
6. Certified online training on "Modelling of Carbonate Naturally Fractured Reservoirs" organized by CMG, Computer Modelling Group Ltd on Mar 10, 2021
7. Certified online training on "Introduction to CMG's Modelling Workflows" organized by CMG, Computer Modelling Group Ltd on Feb 24, 2021
8. Certified online training on "Modelling Unconventional Reservoirs with GEM and IMEX" organized by CMG, Computer Modelling Group Ltd on Jan 27, 2021
9. Certified online training on "Geomechanics Modelling in CMG" organized by CMG, Computer Modelling Group Ltd on Nov 25, 2020
10. Certified online training on "Geomodelling for Reservoir Engineers" organized by CMG, Computer Modelling Group Ltd on Nov 10, 2020
11. Certified online training on "Hydraulic Fracture Creation Modelling" organized by CMG, Computer Modelling Group Ltd on Oct 28, 2020.
12. Certified online training on "Well Testing & Tracers" organized by CMG, Computer Modelling Group Ltd on Oct 13-14 30, 2020.
13. Certified online training on "Acid Gas Injection and Hydrate Modelling" organized by CMG, Computer Modelling Group Ltd on Oct 08, 2020.
14. Certified online training on "Polymer Injection" organized by CMG, Computer Modelling Group Ltd on Sep 30, 2020
15. Certified online training on "Solvents - Additives EOR Modelling using STARS" organized by CMG, Computer Modelling Group Ltd on July 29, 2020
16. Certified online training on "Advanced Wellbore Modelling using STARS" organized by CMG, Computer Modelling Group Ltd on July 22, 2020

17. Certified online training on “Integrated Reservoir and Production Systems Modelling in CoFlow” organized by CMG, Computer Modelling Group Ltd on July 15, 2020
18. Certified online training on “Artificial Intelligence (AI)” organized by MSME-Technology Development Centre (PPDC) duration 25.05.2020-29.05.2020
19. Certified online training on “Machine Learning & Data Analysis” organized by MSME-Technology Development Centre (PPDC)- duration 14.05.2020 to 17.05.2020

Project & Consultancy:

1. Archana (Co-PI) Essar Oil and Gas Limited Prospect Evaluation of Deep Coal Seams in the CBM Field under the Raniganj East Block REF:.EOGL/RG(EAST)-CBM-2001/1/2026-27/14, Dt: 26.09.2026 Institute Project No.: CSSR0001I Rs. 95,61,530

2. Archana(PI) Essar Oil and Gas Limited Study of the Impact of Injection Fluids on the Performance of a Producing Coal Bed Methane (CBM) Reservoir in the Raniganj East Block REF:.EOGL/RG(EAST)-CBM-2001/1/2026-27/08, Dt: 19.08.2026 Institute Project No.: SRDP140 4I Rs. 16,44,000

3. Archana(Co-PI) Anusandhan National Research Foundation A Novel Modeling Approach for Selecting Suitable Intrinsic Bioremediation Strategies for Attenuating Oil Spills in Coastal Aquifers CRG/2023/003777 dated 08.05.2024 Institute Project No.: SERB(CRG)/2024-2025/1108/CE 28,85,720

4. Archana (Co-PI) Shastri Indo-Canadian Institute (Shastri Mobility Programme) Insight into non-thermal to thermal EOR and Environmental Impact of Modern Petroleum & Chemical Industry SICI(SCLSG)/2021-2022/882/PE Rs. 25,000

5. Archana (PI) IIT(ISM), Dhanbad Development of passive and partitioning tracers for characterization of oil and gas FRS(130)/2019-20/PE Under FRS Scheme at IIT(ISM), Dhanbad Rs. 10,000,00

6. Archana (PI) TEQIP-II Adsorption Study & Determination of Physiochemical Properties of Porous Media Using Tracer Technique TEQIP-II Rs. 1,50,000

7. Three Days Workshop on "***Application of AI/ML in Oil Industry***" Feb 26-28, 2026. Venue: IIT(ISM), Dhanbad. Budget: Rs.7.20 lakh, CI- Prof. Keka Ojha, Convenor: Prof. Keka Ojha, Co-Convenor: Prof. Archana & Prof. Sayantan Ghosh
8. National Academic Immersion Program (NAIP) in EDP mode titled “***Hand on Training in Reservoir Engineering and Drilling Technology***" for 3rd year’s students of MIT-World Peace University, Pune. Duration: 22nd Dec, 2025 to 2nd

Jan, 2026.Budget: Rs. 7.59/-lakh.

9. Six days Short Term Programme title "***Petroleum Production- Operational Challenges and its mitigation***" under aegis of Malaviya Mission Teacher Training Programme (MMTTP) during July 14th -19th , 2025, Coordinator: Prof. Archana & Co-coordinator: Prof. Tarun K Naiya
10. M/S GTS Coal Sales, Dhanbad Consultancy project titled "***Quantitative Analysis and assessment on Suitability of Diesel Used for Heavy machinery Operations***", Aug 2025 for 3 years, Budget : Rs. 54.16 lakh, CI: Prof. Tarun K Naiya & CO-CI: Prof. Archana
11. M/s Devprabha Construction Pvt. Ltd., Dhanbad , Consultancy Project titled "***Technical Assessment of Diesel Samples of Heavy Duty Machineries used by Devprabha Construction Pvt. Ltd***.", for 3 years from Oct 2024. Budget: Rs. 1,18,00,000/-, CI: Prof. Tarun K Naiya, Co-CI: Prof. Keka Ojha, Prof. Ajay Mandal, Prof. Archana, Prof. Chandan Sahu
12. Project entitled "***A Novel Modeling Approach for Selecting Suitable Intrinsic Bioremediation Strategies for Attenuating Oil Spills in Coastal Aquifers***" awarded by Core Research Grant (CRG), SERB on Jan 2024, Role : Co-PI, Budget: Rs. 28.85 lakhs
13. Consultancy entitled "***Adsorption Isotherm Analysis & Lab Studies of Coal & Shale Samples for CBM & Shale Gas***" Client: M/s Essar Oil and Gas Exploration and Production Limited, Durgapur Role as Co-PI, Budget: Rs. 41,77,220/-
14. Consultancy entitled "***Core Flooding Experiment on Trial Basis***" Client: M/s Essar Oil and Gas Exploration and Production Limited, Durgapur Role as PI, Budget: Rs. 1,77,000/-
15. Project entitled "***Development of passive and partitioning tracers for characterization of oil and gas***" Sponsored by IIT(ISM), Dhanbad under FRS scheme Budget: Rs. 10lakh duration June 2019- June 2022.
16. Minor Research Project entitled "***Adsorption Study & Determination of Physiochemical Properties of Porous Media Using Tracer Techniques***" Sponsored by TEQIP-II, duration Oct 2015-Jun 2016.

Foreign Visit:

17. Attending International Conference on Carbon Capture, Storage & Utilization 2026: Pathways to Net-Zero as ***keynote speaker***, **23-24th Feb 2026, Dubai, UAE**, title " ***Reservoir Simulation using synthetic data for CO2 Sequestration in saline aquifers using CMG simulator***"

- Presented Paper on "Advancement in sand Control" in 3rd BIT's annual congress, on Well stimulation and EOR (WSEOR) during April 25-27, 2012 held in **Xi'an, China**
- Worked as Business Analyst/Lead Developer In Wipro Technologies for Client National Grid during Jul 2009 to Mar 2010 in Hinckley, **Leicestershire, UK**
- Worked as Business Analyst/Lead Developer In Wipro Technologies for Client National Grid during Feb 2009 to Mar 2009 in Hinckley, **Leicestershire, UK**

Area of specialization in the following subject during 2010-2024

Course Specialization
Introduction to Python and Petroleum Data Analysis
Reservoir Simulation (CMG)
Carbon capture, storage and Utilization
Unconventional Resources (CBM, Gas Hydrates & Shale Gas)
Natural Gas Engineering
Petroleum Drilling and Production
Unit Operations for Petroleum Industry
Petroleum Reservoir Modeling and Simulation
Oil and Gas Property Evaluation, Economics and Risk Analysis
Oil and Gas Processing Plant Design
Integrated Reservoir Management
Advanced Petroleum Formation Evaluation
Research Methodology

Other Information:

- Member of Society of Petroleum Engineering (SPE) since Jan 2012, Membership No. 3585057
- Member of Indian Institute of Chemical Engineers since May 2015, Membership No. LM-56562