

# Ananta Kumar Das

## Professor & Dean (Academic)



### Key Research Areas:

- Instrumentation & Process Control
- Environmental Engineering
- Fluid Mechanics
- Ceramic Technology

### Contact:

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**Mobile:** +91-9433828272 (M)

**Location:** Room No. – **CH 102** (Chemical Engineering Building)

### Education:

**Doctor of Philosophy** (Ceramic Engineering), Calcutta University, Kolkata, India, 2006

**M. Tech.** (Chemical Engineering), Calcutta University, Kolkata, India, 1987

**B. Tech.** (Chemical Engineering), Calcutta University, Kolkata, India, 1984

**B.Sc. (Hons.)** (Chemistry), Calcutta University, Kolkata, India, 1981

### Major Research Interest (s):

- Instrumentation & Process Control
- Environmental Engineering
- Fluid Mechanics
- Ceramic Technology

### Publication (s):

#### Peer Reviewed Journals:

- *'Change in properties of Fly ash- sand - lime bricks with the change of certain process parameters'*, Chemcon, 2000. ISSN: 0019-4506.
- *'Some studies on steam cured lime-fly ash bricks'*, Inter. Ceram., 54, (5), 2005, ISSN: 002052, H index: 10, Germany.
- *'Some studies on the reaction between fly ash and lime'*, Bull. Mater. Sci. 28, (2), 2005, ISSN: 0250 4707, Springer.
- *'Effects of heat treatment on properties of steam cured fly ash-lime compacts'*, Bull. Mater. Sci., 28, (7), 2005, ISSN: 0250 4707, Springer.
- *'Modeling the interaction between fly ash and lime under water curing by an Artificial Neural Network'*, J. Am. Ceram. Soc. 90, (11), 2007, ISSN: 0002 7820.
- *'Use of Artificial Neural Network for Modeling the Interaction between fly ash and lime under steam curing'*, Ind. Ceram. Soc. 66, (4), 2007, ISSN:0371-750x

- *'Role of different process parameters on the strength development in chemically bonded fly ash-lime compacts'*, Chemcon, 2007, ISSN:2019-4506
- *'Effect of curing conditions and ionic additives on properties of fly ash- lime compacts'*, Bull. Mater. Sci., 33(1-6), 2010, ISSN: 0250 4707, Springer.
- *'Numerical Investigation of flow through annular curved diffuser'*, IJMET, V-2, Issue-2, May-July 2011, ISSN: 0976 6340.
- *'Numerical investigation of flow annular diffuser duct'*, IJMIE, V-1, Issue -1, 2011, (62-63) ISSN: 2231 6477.
- *'Numerical Investigation of Flow through annular diffuser duct'*, IJAER, Vol-6, No.9, 2011, pp 1177-1188, ISSN: 0973-4562.
- *'Numerical Investigation of Flow through annular diffuser duct'*, IJET-IJENS, Vol. 11, 2012, No.3 (186-196) ISSN: 1793-8236'.
- *'studies on the interaction of fly ash with lime in presence of varying quantity of sand'*, IRJET, Vol. 02 No. 09, 2015, ISSN: 2395-0072
- *'A review on treatment methods to salvage of valuable substances from leather industry wastewater'*, Environmental Science and Pollution Research, Springer, 21 Dec 2017. (Under review).
- *'Constraints in utilization of fly ash'*, Science Tech Entrepreneur, 9, (5), 2001.
- *'Effects of fly ash on strength development in cement- sand mortars'*, Indo. Ceram. 40, (4), 2004. AIPMA.
- *'Some Studies on Strength Development in Fly Ash - Lime based Building Bricks'*, 15<sup>th</sup> West Bengal State Science & Technology Congress, Bengal Engineering & Science University, B - 10, Feb 2008.
- *'Studies on Fly Ash- Lime- Sand composites: Effect of Compositional Variation on the Mechanical properties'*, Indo. Ceram. 44 (4), 2007.
- *'Physico-Mechanical behavior of the fly ash - lime - sand based building materials in relation to fly ash/ sand ratio'*, Indo. Ceram.
- *'Study of phase formation in the interaction of fly ash and lime'*, Indo. Ceram. of AIPMA, Jan-March 2016, vol 4 no.1, page 13-18.

#### National Conferences:

- *'Effect of Different Process Parameter on the properties of Fly ash-sand-lime bricks'*, C F R I, Dhanbad, held on 15 -16 Nov, 1999.
- *'PAPL's experience with Ash bricks'*– seminars on MOEF Notification regarding use of coal ash in Brick field and its impacts, CESC, Birla Planetarium.
- *'Some studies on the strength Development in Fly ash Lime based building Bricks'*, 15<sup>th</sup> West Bengal State Science & Technology Congress, 28 – 29 Feb, 2008; Bengal Engineering & Science University, Shibpur, Howrah.
- *'Fly ash Bricks and the reason for non-acceptability in the market in spite of wide advantages'*, 17<sup>th</sup> West Bengal State Science & Technology Congress, 4-5 May 2010, University of Animal & Fisheries Sciences, Kolkata.
- *'Regulation and enforcement of environment pollution norms for handling hazardous effluents for safety, health and environment'*, all India Seminar on Green Business in Chemical Industries, IEI Kolkata in held on 30 Sep - 1 Oct, 2010.
- *Role of Clean Development Mechanism (CDM) in the field of utilization of fly ash*, Ripples 2010.

- The reasons of non-acceptability of fly ash bricks in spite of wide advantages, Bijnan Mela, The Science Association of Bengal, Jan-Feb 2011, Vol 1-2, pp 19-21, R.N. 37306/81.
- ‘Quantum theoretic investigation of the role of amines in the stabilization of atmospheric pre-nucleation clusters’, APCS-EM, 9-10, 2011 Apr, DIATM.
- ‘Coal ash handling system in a power plant and the utilization of coal ash for greater environmental management: a case study’, APCS-EM, 9-10, 2011 Apr, DIATM.
- ‘A review-on non-acceptability of fly ash green bricks, an eco-friendly product, despite having a wide range of merits’, APCS-EM, 9-10 Apr, 2011, DIATM.
- ‘Modern Coal Ash Handling System in a Power Plant for better Coal Ash Management – A Case Study’, SCHEMCON 2011, 23 - 24 Sep, 2011.
- ‘Numerical Investigation of Flow Structure through Curved Subsonic Duct’, RTASH, DIATM, 30-31 Oct, 2013.
- ‘Manufacturing and use of fly ash bricks-some observations’, on Waste Management, CGCRI, Jadavpur, 13-14 Feb, 2015.
- ‘Management of Climate Change by Geologic sequestration of CO<sub>2</sub>’, RTASAI, IEI, DLC, 22-23 Feb 2014.
- ‘Responsibilities of engineers and challenges ahead in the advent of modernization’, RTASH, DIATM, 5-6 Nov, 2014.
- ‘Manufacturing of fly ash bricks - a solution to save our environment from the threat of air pollution’, IATESS-15, IE (I), DLC, 14-15 March 2015.
- ‘Science and technology in the interaction of fly ash with lime’, RTASH 16, 19-20 Feb 2016, DIATM
- ‘Coal ash, a resource material and its scope in enormous high valued applications’, RTASH 17, March 7-9, 2017, DIATM.
- ‘Optimization of process parameters for the manufacturing of quality fly ash bricks’, RTASH 18, April 10-12, 2018.
- ‘Effects of fine cut pieces of waste plastic in physico-mechanical behavior change of Fly ash based compacts’, All India students’ conference on Innovative Technical Education, April 20-21, 2018, DIATM.
- ‘Characteristics of water and its treatment technologies for Thermal Power Plant’, All India Seminar on Sustainable Development in Manufacturing Process & Impact on Environment, SDMPIE 2018, May 3-4, 2018, DIATM.

### International Conferences:

- ‘A Multi Layered feed forward Neural Network Approach for modeling the interaction of Fly ash & lime in water cured compacts’, Asia Pacific Conclave on coal combustion Products: Technology and Management at Taj Bengal, Kolkata, on 23 – 25 Feb, 2007.
- ‘Flow investigation through annular curved diffuser in subsonic flow regime’, INCRAME 2011, Chennai, 21–23 Apr, 2011.
- ‘Numerical Investigation of flow through annular diffuser duct’, ICARME 2011, Bhubaneswar, 5-6 Jun, 2011.
- ‘Numerical Investigation through a 36° turn annular diffuser’, ICDAAME2011, Tiruvannamalai, Tamil Nadu, 16-17 Dec, 2011.
- ‘Effect of steam curing period in strength development of fly ash-sand-lime composites’, E2NC2012, SKFGI, Mankundu, 3-4 Feb, 2012.

- *'Analysis of fluid flow through annular diffusing duct using CFD'*, E2NC2012, SKFGL, Mankundu, 3-4 Feb, 2012.
- *'Studies on the effect of steam curing period in CaO reduction vis-a-vis compressive strength development of fly ash-sand-lime composites'*, CHEMCON 2012, NIT Jalandhar, 27-30 Dec, 2012.
- *'The Role of fly ash bricks in the causes of cracks in Buildings and their Remedies'* in International Conference on Fly ash utilization (ICFAU-2013), WBPCB, Kolkata, 10-11 Jan, 2013.
- *'Remote Sensing in Earth Observation for oil spill detection'*, International conference on advanced trends in Engg. & Technology (ICATET-2018), Jaipur, 19-20 Jan 2018.

### Awards & Recognition:

- Chartered Engineer
- Consultant Engineer of MSME

### Present and Positions Held:

- **Professor:** Durgapur Institute of Advanced Technology and Management, 2012-present
- **Associate Professor:** Durgapur Institute of Advanced Technology and Management (2009-2012)

### Industrial Experience:

- **Resident Manager:** DCIPS Ltd., 2004-2009
- **Works Manager:** PAP Ltd.( WBSIDC), 2000-2004
- **Production Manager:** PAP Ltd.( WBSIDC), 1993-2000
- **Superintendent-Production:** Dunlop India Ltd., 1991-1993
- **Plant Officer:** Hindustan Unilever, 1985-1991

### Professional Affiliation (s):

- Fellow Member, (F-121407-8), IE (I), Durgapur Local Centre
- Life Associate Member of Indian Institute of Chemical Engineers (IChE), (LM-07935), India\
- Life-Member, Coal Ash Institute of India. CAII/L/01/240
- Member, International Association of Engineers (IAENG) No.125008

### Other Activity:

- Founder President, IChE Student Chapter, DIATM.
- Organizer, Seminar on Water Treatment in plants –Role of Chemical Engineers, 29 Sep, 2009, DIATM.
- Organizer, Seminar on Role of Engineers in Power Sectors, 18 Feb, 2011
- Organizer, Seminar on Water Resource Development & Management, 2011
- Convener, Seminar & workshop on Fire & Safety management in chemical, steel & manufacturing industries, DIATM, 21 Feb, 2015
- Convener, Seminar on 'Role of Engineers in the successful Implementation of Swachh Bharat Programme', DIATM, 3March, 2017
- Director (acting), DIATM, 14 - 30 Apr, 2012
- Co-coordinator, EDC-DIATM

- Session Chair in National Seminar on Recent Trends in Applied Sciences & Humanities, RTASH2013 DIATM, 30-31 Oct, 2013.
- Coordinator, Seminar Committee, Scimantek'10, 28-31 Oct, 2010.
- Organizing Secretary, National Conference (APCS-EM, 2011), 9-10 Apr, 2011.
- Coordinator, 3-Day Entrepreneurship Awareness Camp, 17-19 Aug, 2011 sponsored by DST, Govt. of WB.
- Secretary, Organizing Committee, Scimantek13, 8-10 Mar, 2013.
- Secretary, Organizing Committee, Scimantek14, 28-30 Jan, 2014.
- Session Chair in National Seminar on Recent Trends in Applied Sciences & Humanities, RTASH 2017, DIATM, 7-9 March 2017.
- Attending Member, Syllabus committee for Chemical Engineering (UG) Courses of MAKAUT
- Doctoral Expert in the department of Chemical Technology (Ceramic Engineering), University of Calcutta and National Institute of Technology, Durgapur.
- External Examiner for Department of Chemical Engineering, University of Calcutta.
- Chairperson, International Conference on Sustainable Technologies for Energy and Environment/Indo-US joint International Conference on Energy and Environment, CHEMCON 2012, IICChE, Doaba regional Centre & NIT Jalandhar, 27-30 Dec, 2012
- Convener, National seminar on 'Water and waste water Management and treatment technologies-challenges and opportunities', DIATM. 27 Feb 2016.
- Coordinator, Internal Research Conference April 6, 2018
- Coordinator, Workshop on Human Rights Commission Feb 10, 2018
- Session Chair, All India Seminar on Sustainable Development in Manufacturing Process & Impact on Environment, SDMPIE 2018, May 3-4, 2018, DIATM.
- Session Chair, Characteristics of water and its treatment technologies for Thermal Power Plant', All India Seminar on Sustainable Development in Manufacturing Process & Impact on Environment, SDMPIE 2018, May 3-4, 2018, DIATM.
- Invitee Member of Executive Committee, Calcutta Regional Centre, IICChE, Kolkata, WB, India.
- External Examiner for the assessment of M.Tech Projects of Chemical Engineering students of NIT Durgapur
- Advisory Committee Member, IE (I), Durgapur Local Centre.
- Editor & Member of Program Committee of "International Conference of Manufacturing Science and Engineering", IRNET (<http://interscience.ac.in/Kolkata/ICMSE/programme.html>)
- Editor of "International Journal of Mechanical and Industrial Engineering", IRNET (<http://interscience.in/ijmie.html>)

### **Workshop/Short Term courses Attended/Organized:**

- *Indo-polish Workshop on Fly ash management*, 03 - 04 Feb, 2000, venue- CGCRI Auditorium, Kolkata, India.
- *High volume Fly ash Concrete Technology* organized by Confederation of Indian Institute(CII) at Taj Bengal, Kolkata, India on 1 Dec, 2003.
- *Application of coal ash in Value added products* - CAII, at 31, J L Nehru Road (1<sup>st</sup>floor) – Kolkata, India - 16 on 31 Jan, 2004.
- *Green Energy and Environment*, Department of Chemical Engineering, University of Calcutta, Kolkata, India. 16 Jan, 2010.
- *Waste water treatment technologies*, IICChE, Jadavpur, 2Nov, 2011.

- *Indian Science Congress (Centenary session)*, inaugurated by Honbl'e Prime Minister of India, Dr. Manmohan Singh at University of Calcutta, Kolkata, India ,2 Jun, 2012.
- *Workshop on NBA Accreditation Processes* at WBUT.
- Attended invited talk on *Power Plant Engineering* at DIATM, 31Jan, 2015.
- Seminar on *Emerging Technologies*, DIATM, 25 Feb2015.
- International Conference on '*Smart Material and Chemical Engineering*,'23 Dec2015,CU
- Seminar on '*Role of Engineers in the successful Implementation of Swachh Bharat Programme*', 3March 2017.
- 4th *National Seminar on Recent Trends in Applied Sciences & Humanities*, RTASH2017, DIATM, 7-9 March2017.
- Workshop on '*Simulation & analysis of Chemical Processes*' 8-9 August2017.
- '*AQIS Schemes Workshop*' and '*Master Trainer Workshop in the revamped AICTE Website and Web-Portal*', organized by AICTE at HIT Kolkata, 22.11.2017

### Lecture Delivered:

- '*Advanced research and projects on Coal ash utilization and future scope*', National Workshop on Coal combustion residues of thermal power plants as sustainable industrial, GCERT, 6 April16.
- '*Coal Fly Ash – A Precious Potential Resource Material for Future*' in the Short Term Program entitled '*Emerging Trends of Waste Management and Valorization (ETWMV-2016)*' during July 8-12, 2016, NIT Durgapur.

### Students Guided:

- No. of PhD students guided: 02 (ongoing)
- No. of B.Tech students guided: 72 (completed)

### Courses Taught:

#### UG Course (s)

Fluid Mechanics  
 Mechanical Operation  
 Process Instrumentation & Control  
 Economics for Engineers  
 Project Engineering

#### UG Laboratory

Fluid Mechanics  
 Mechanical Operation  
 Process Control