CURRICULUM VITAE

Dr. Chanchal Biswas

PhD (Engineering),
M.E (Industrial Metallurgy),
B.Tech (Production Engineering),
Diploma (Mechanical Engineering)

PERSONAL DATA

ADDRESS FOR COMMUNICATION

Present Address
Kazi Nazrul University
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West Bengal, India
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Phone No: +919733587845
E-Mail Id: chanchal18@gmail.com

CAREER OBJECTIVE

I will be much pleased to work in a globally competitive environment on challenging assignments that shall yield the twin benefits of the job satisfaction and a steady-paced professional growth. My work ethic is founded on a 'what-ever-it-takes' attitude and diligent persistence to ensure all projects are completely fulfilled to the utmost. I shall be grateful if I'll work efficiently and effectively as well as grow with a prestigious organization in field of Process Metallurgy, Production & Mechanical engineering. Emboldened by such idea I crave the indulgence of requesting you to kindly consider my candidature in a suitable position in your esteemed company/ academic fields.

PERSONAL SKILL

I have profound knowledge in Process Metallurgy, Production & Mechanical Engineering. And also have good understanding in the field of Iron & Steel Technology, Energy Balance of Steel Plant, Welding

Technology, Casting Technology, Manufacturing process, Machine Design, Fluid Mechanics & Machines, Engineering Mechanics, Manufacturing Management, and Strength of material.

PROFILE SUMMARY

Total industrial experience.. 4 years 6 months
Total research experience.. 4 years 9 months

Dr. Chanchal Biswas is working as an Assistant Professor in the Department of Metallurgical Engineering, School of Mines and Metallurgy, Kazi Nazrul University, Asansol, West Bengal from February 2020. He has passed diploma in Mechanical engineering from Belur math ramkrishna mission shilpamandira in 2005. After that he has joined on heavy earth moving machinery as a Service Engineering under National Mineral Development Corporation (NMDC). He has passed B. Tech in production Engineering from Mallabhum institute of Technology (WBUT, 2010), after that he has joined Master of Engineering in Industrial Metallurgy in metallurgical and material engineering department, Jadavpur university (2012). Then he has completed doctorate in philosophy in Process Metallurgy in the year 2017. The tropic of his PhD thesis is "Optimization of the mechanical properties of iron ore nuggets & their possible use in a new alternative iron making process" in Metallurgical & Material Engineering Department, Jadavpur University, Kolkata, India. During his thesis work he has handled several characterization equipments like atomic absorption spectrophotometer, TGA, XRD, SEM & EDX, FESEM and gas chromatographer. Other than these he has knowledge in data analysis from X-Ray Diffractometer, X-Rey Fluorescence, DTA-TGA and Scanning Electron Microscopic. He has performed the classical as well as sophisticated chemical analysis of different metals, minerals and alloys. Also he is conversant with different ore dressing techniques like crushing, jigging & grinding of ore along with the up gradation processes like forth floatation, magnetic separation, gravity separation etc. He has design a typical coal gasification furnace with help of design software and heat transfer knowledge. He has served at Arcelormittal and Nippon Steel R&D, as a team member of process improvement area on June 2017 to February 2020. He has completed several projects for plant level implementation in the field of Characterization of Iron Ore, Agglomeration of Iron Ore (Sintering and Pelletizing), Improvement the process Area of Iron and Steel Making, Energy Balance of Steel Plant and Solid Waste Management. He has published 15 nos. of journals and 07 nos. of peer reviewed conference proceedings of repute. He has received Institute's Bronze Medal Award from The Mining, Geological and Metallurgical Institute of India (MGMI) in 2016-17. He has also received winner the best idea prize of Margin Improvement challenge 2019 at ESSAR Steel India Limited out of 1369 Idea. He has also received prestigious TEQIP Research Fellowship in 2012 to 2017 at

Jadavpur University. Dr. Biswas is serving as a reviewer the journal of Separation Science and Technology, Taylor and Francis (SCI Indexed).

❖ **INDUSTRIAL EXPERIENCE:**

Name of the Company: Titagrah Wagon LTD.

Duration: 02-11-2005 to 31-08-2007

Details of Job Responsibility & Experience:

1. Proper servicing and Maintenance of heavy earth moving machinery (Hydraulic Excavator)
2. Distribution of work load managements
3. Experience on

Welding, Sun Gear changing, hydraulic pump and valve maintenance, Engine problem, lubrication system, Engine lubrication system, hydraulic system, Hydraulic cylinder fitting and maintenance, filter problem, etc.

❖ Name of the Company: **Essar Steel India LTD and Arcelormittal and Nippon Steel R&D .**

Duration: 06-06-2017 to 18-02-2020

Details of Job Responsibility & Experience:

Improvement of pellet and Sinter quality (RDI & CCS)

Responsibility

- In-house developed pot grate indurations machine
- Optimization of process parameters, Mass balance and effect of high basicity by addition of limestone, dolomite and olivine etc are evaluated and also studied in Physical and metallurgical properties of green & fired pellets and Sinter.
- Optimization the process parameter based on quality of sinter product

Utilization of ultra-fines through hybrid sintering technology and decreasing sinter return fines

Responsibility

- Green growth study of micro pellets formation
- Optimization of process parameters Like Moisture Percentage, Granulation Index and coke fines
- Mass balance and effect of micro pellets as replacement of IBRM
- Physical and metallurgical properties of sinter

Utilization of plant waste & tailing

Responsibility

- Utilization of Blast furnace dust, HBI fines, Fume extraction sludge making micro Pelletization to charged in sinter Plant
- Flow sheet and mass balance solid waste in sinter plant
- Pellets and briquettes for solid wastes in different plant

- Coal Briquetting used as COREX plant
- Mill scale Brick to charged in Blast Furnace as IBRM
- Making COREX Sludge Briquettes to charged COREX Plant
- Utilization of Steel Making Slag in Different sector
- Recovery the metal from Steel Making Slag
- Making DRI Fines Composite Briquettes to charged SMP
- Making Dolime Briquettes to charged SMP

❖ **RESEARCH EXPERIENCE:**

Name of the Institution: JADAVPUR UNIVERSITY
Duration: 10 June 2012 to till date
My principal research experience in

- Process development and utilization of precious metals from low-grade minerals
- Characterization, mineralogical and petrological study of ores and minerals
- Utilization of low grade coal through devolatisation and blending techniques
- Mechanical properties study of iron ore nuggets and self reducing nuggets
- Reduction and Smelting low grade agglomerated for pig iron production
- Utilization of iron-bearing fines and slag.
- Aluminothermy reduction of concentrated vanadium and titanium bearing material for ferrovanadium and ferrotitanium production
- Design of coal devolatisation furnace

I also find interest in extraction of valuable metals through hydro & pyro metallurgical route and any industrial problem in field of metallurgical industry

EDUCATION

February 2017	PhD in Engineering, Metallurgical & Material Engineering Department, Faculty of & Engineering Technology, Jadavpur University.
	• Dissertation: ***" Optimization of the mechanical properties of iron ore nuggets & their possible use in a new alternative iron making process "***
June 2012	ME in Metallurgical Engineering, Jadavpur University. Dissertation: ***"Pre-reduction of iron ore briquettes by gasification of lean grade coals"***
June 2010	B.Tech. in Production Engineering, West Bengal University of Technology, Dissertation: ***" Solving some multi-criteria decision- making problems using copras, grey relation analysis methods, mcdm 23, range of value***

method and general topsis methods

"Determination of optimum pass schedule in hot rolling in Hindalco Industries Limited".

August 2005 Diploma in mechanical Engineering , W.B.S.C.T.E, India
Dissertation: ***"Analysis, Design & Manufacturing of Screw Jack"***

PAPER PUBLISHED

Paper Published in Journals-

1." *A Novel Devolatilization Technique of Pre-reduction of Iron Ore Using Lean Grade Coal*" Chanchal Biswas, Anrin Bhattacharyya, Gopes Chandra Das, Mahua Ghosh Choudhuri, and Rajib Dey, ***journal of BHM Berg- und Hüttenmännische Monatshefte, (BHM).*** BHM (2016) Vol. 161 (3): 95–101 DOI 10.1007/s00501-015-0401-2 Springer-Verlag Wien 2015

2. *"The Effect of Presence of SiO2, Al2O3 and P2O5 on the Reduction Behaviour of Fe2O3 Nuggets with Coke Fines"* Prithviraj Gupta, Arnab De, Chanchal Biswas, ***Arabian Journal Science and Engineering,*** DOI 10.1007/s13369-016-2212-5

3. *"Statistical optimization parameter for lean grade self-reducing nuggets by surface response modeling to produce pig iron"* Chanchal Biswas, Saikat Samanta, Anrin Bhattacharyya, Mahua Ghosh Chaudhuri, Rajib Dey, ***International journal of Mineral Processing and Extractive Metallurgy (Trans. Inst. Min. Metall. C),*** DOI: 10.1080/03719553.2016.1204083 pp. 1-10

4. "The effect of impurities on the calcinations behaviour of CaCO3 nuggets" Prithviraj Gupta, Arnab De, Chanchal Biswas, ***Journal of Engineering Research,*** 2017 pp(34-45)

5. *"Production of Pre-Reduction of Iron Ore Nuggets with Lesser Sulphur Intake by Devolatisation of Boiler Grade Coal"* Chanchal Biswas, Anrin Bhattacharyya, Gopes Chandra Das, Mahua Ghosh Chaudhuri, Rajib Dey, ***International Journal of Materials and Metallurgical Engineering*** Vol:3, No:8, 2016

6. "*Optimization of smelting process by surface response modeling for pig iron production"* Gopal Ghosh Roy, Chanchal Biswas, Arnab Swarnakar, Rajib Dey, Manoj Kumar Mitra, ***International Journal of Research in Engineering and Technology,*** Volume-05 Issue-07 2016

7. "Reduction Behavior of Agglomerated Iron Ore Nuggets by Devolatisation of High Ash High Volatile Lignite Coal for Pig Iron Production" Chanchal Biswas, Mahua Ghosh Chaudhuri, Rajib Dey, ***Journal of Ironmaking and Steelmaking: Processes, Products and Applications"*** DOI: 10.1080/03019233.2016.1232910 pp 1-11

8. *"Kinetic studies on the reduction of iron ore nuggets by devolatilization of lean grade coal"*

Chanchal Biswas Prithviraj Gupta, Arnab De, Mahua Ghosh Chaudhuri, Rajib Dey, ***International Journal of Minerals, Metallurgy and Materials*** Volume 23, Number 12, December 2016, Page 1360 DOI: 10.1007/s12613-016-1359-0

9.*"Use of Naphthalene for Betterment of Porosity and Reduction Behavior of the Agglomerated Iron Ore Nuggets by Devolatisation of Boiler Grade Coal"* Chanchal Biswas, Mahua Ghosh Choudhuri, and Rajib Dey, ***journal of MGMI,*** 2016 pp (33-49)

10. *Parametric Optimization Of Electroless Ni-P Coating Using L 9 Orthogonal Arrays,* Rishav Kumar Baranwal, Subhasish Sarkar, Sameer Lamichaney, Chanchal Biswas, Siddhartha Mukherjee, Gautam Majumdar***, International Journal of Mechanical and Production Engineering,*** pp 58-60, : 2321-2071 Volume- 7, Issue-1, 2019

11. *Optimization of process parameters for electroless Ni-Co-P coating deposition to maximize micro-hardness,* Subhasish Sarkar, Rishav Kumar Baranwal, Chanchal Biswas, Gautam Majumdar, Julfikar Haider, ***Journal of Materials Research Express,*** 2019 pp 1-12

12. *Study on the Effect of Pressure Variation on Mechanical Stability and Reduction Behavior of Iron Ore Nuggets Using Inferior Grade Fuel,* Chanchal Biswas, Arghya Majumder, Mahua Ghosh Chowdhari and Rajib Dey, ***Vizag Quest RINL in-house Journal*** 2019 pp 64-79

13. *Use of Mathematical Modeling to Optimize Coke Addition in Base Mix at Vizag Steel Sinter Plant,* Dr. A Majumder, JG Rao, YVR Srinivas, Sujoy Mukherjee, Dr. Chanchal Biswas, ***Vizag Quest RINL in-house Journal*** 2019 pp 52-63

14. *Prediction and parametric optimization of surface roughness of electroless Ni-Co-P coating using Box-Behnken design,* Subhasish Sarkar, Arghya Mukherjee, Rishav Kumar Baranwal, Jhumpa De, Chanchal Biswas, Gautam Majumdar, ***Journal of the Mechanical Behavior of Materials*** 28(1):153-161, DOI: 10.1515/jmbm-2019-0017

15. *Optimisation & minimisation of corrosion rate of electroless Ni-Co-P coating,* Subhasish Sarkar, Rishav Kumar Baranwal, Arghya Mukherjee, Ishita Koley, Chanchal Biswas, Julfikar Haider, Gautam Majumdar, ***Journal of Materials Processing Technology,*** 2020 PP 1-12 DOI: 10.1080/2374068X.2019.1709326

Paper Published in conference-

1. "*Pre-reduction of iron ore briquette by gasification of lean grade coal*" Chanchal Biswas, Mahua Ghosh Chowdhari and Rajib Dey ***MPT-2013,*** ISSN no 978-81-928552-0-2 vol.3 pp 712-718
2. *"Study of Mechanical Properties and Extent of Reduction of the Agglomerated Iron Ore Nuggets Utilizing Lean Grade Coal and Coke Dust Fine with Variation of Pressure"* Chanchal Biswas, Mahua Ghosh Chowdhari and Rajib Dey, ***NMD ATM-2014***

3. *Reduction of Iron Ore Fines using "SYNGAS" from Lean-Grade Coal,* Anrin Bhattacharyya, Chanchal Biswas, Johannes Schenk, Gopesh Chandra Das, Mahua Ghosh Choudhuri and Rajib Dey, ***OPMR2016 – Opportunities in Processing of Metal Resources*** in South East Europe Budapest, November 28-30, 2016, pp 112-124
4. *Microscopic studies on slag formations and parameters affecting the strength of fired pellet quality -A Case Study,* Karamjith Sharma, Gautam Banerjee, Chanchal Biswas, Sirshendu Chattopadhyay, Deepak Gupta, ***MPT-2018*** IIT-ISM DHANBAD
5. *Parametric Optimization Of Electroless Ni-P Coating Using L 9 Orthogonal Arrays*, Rishav Kumar Baranwal, Subhasish Sarkar, Sameer Lamichaney, Chanchal Biswas, Siddhartha Mukherjee, Gautam Majumdar, ***The IIER International Conference,*** 5 th -6 th October, 2018, Bangkok, Thailand
6. *Steel Plant Slag Utilization at Essar Steel,* Mr Ravindra & Dr. Chanchal Biswas , Essar Steel, Hazira, Nov15-16, ***JSPL Raigrah, 2018*** pp-1-16
7. *Cold briquetting of iron ore fines for DRI production: challenges, possibilities and solutions,* A Bhattacharyya, C Biswas, M K Mitra and R Dey, ***Iron ore 2019-Optimize Value,*** PERTH JUNE 22-24, 2019 pp 62-67

COLLABORATION WORK WITH RESEARCH ORGANIZATION & INSTITUTION

During my PhD I have collaborated with various research and government organization like:

- National Metallurgical laboratory, Jamshedpur, India
- Geological Society of India, Kolkata
- Rashtriya Ispet Nigam Limited, Vizag Steel Plant
- Tata Sponge Iron
- S.B. Steels Company

TRAINING & WORKSHOP

- Industrial visit to Tata Steel Limited, Rashtriya Ispat Nigam Limited, Rourkela Steel Plant, Tata sponge Iron, Tata Metaliks, Jindal Steel & Power Limited, Durgapur Steel Plat (DSP), etc.
- Industrial training to Hindalco Industries Limited, Tata project limited and Haldia dock complex etc
- Workshop on "**Ultrasonic testing & Other NDT techniques**" held during 04-05th February 2011 organized by Indian Institute of Metals, Kolkata chapter.
- Workshop on "**Heat treatments of steel**" held during 10-11 February 2012 organized by Indian

Institute of Metals, Kolkata chapter.

- Nation Workshop on "**Testing and Quality Control in Iron & Steel Industries**" held during 15-16 March 2013 organized by Indian Institute of Metals, Kolkata chapter
- India-Australia international workshop on "Nano **Technology in Materials and Energy Application**" IAWNT 2011 29-31 December 2011 organized by Jadavpur University

EXPERIENCE IN LABORATORY MANAGEMENT & OTHER ACTIVITIES

- Regular maintenance of extractive and chemical laboratory.
- Strong leadership skills and teamwork experience in various academic research environment.
- Active member of organization committee (finance, cultural and publication) in three international conferences.
- Active member of the organizational committee of two refresher courses for college teachers.

PROFESSION AWARD AND ACHIEVEMENTS

- The Mining, Geological and Metallurgical Institute of India (MGMI), Institute's Bronze Medal Award, 2016-17
- Margin Improvement challenge 2019 winner at ESSAR Steel India Limited out of 1369 Idea
- TEQIP Research Fellowship 2012-2017 at Jadavpur University

PROFESSIONAL MEMBERSHIPS

- Member of Indian Institute of Metals (IIM), Kolkata chapter.
- Member of Indian Foundry of Organization (IFO)

PROSONAL INFORMATION

FATHER'S NAME: Kamalesh Biswas
DATE OF BIRTH: 18th DEC 1983
SEX: Male
MARITAL STATUS: Married
NATIONALITY: Indian
LANGUAGE KNOWN: ENGLISH, BENGALI, HINDI

REFEREE'S

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DECLARATION

I hereby certify that to the best of my knowledge and belief this CV correctly describes my qualification and myself.

DATE:
PLACE: KOLKATA (Chanchal Biswas)