

Saptaparna Patra

LinkedIn

Email : saptaparna.patra[at]gmail.com

WORK EXPERIENCE

ITC Limited, Foods Business Division (FBD)

Assistant Manager – Engineering

Multiple Locations, India

July 2023 – July 2024

- Led process improvement and engineering projects at a 1500+ TPM powdered spices manufacturing unit
- Leveraged statistical process control and lean six-sigma techniques to reduce excess material giveaway in retail packs, leading to savings of \$50k in Q1 of 2024. Extended the same to two other factories, and coordinated with cross-functional teams
- Coordinated manufacturing trials for 2 new products through machine modifications
- Led the development of Long Term Open-Access (LTOA) for the unit, to shift to solar energy (through power-billing). Led the construction and capitalization of a new HT Breaker room to house ABT meter, CT-PT, and RMU panel. Ensured compliance with EHS guidelines, including fire-doors and two-hour fire-rated walls. Coordinated with government officials for the commissioning of the new panel and LTOA approval
- Digitized the engineering data reporting of the factory and ensured 100% compliance to monthly reporting.
- Coordinated the installation and commissioning of VFFS packaging machines: 8 twin-head machines, 2 six-track machines, 2 BIB box-packing machines
- Improved the efficiency of the existing compressed-air line of the factory by 8% through routine leak tests and reduction of the unloading running
- Coordinated a centrally-led project to revamp the air-compression system of the unit: Commissioning of one 55kW 350 CFM compressor and shifting of 3 existing compressors (2*45kW 250 CFM, 1*55kW 350 CFM), commissioning of air-receivers (2*5000 cu.m), commissioning of heatless air-dryers and pipelines, identified relevant snag points, conducted leak tests, and pump-up tests
- Ensured GMP, GHP, and compliance with relevant Food Safety and Standards Authority of India (FSSAI) norms

EDUCATION

- **National Institute of Technology (NIT), Durgapur** Durgapur, West Bengal, India
B.Tech in Mechanical Engineering; Passed with GPA: 9.15/10 July 2019 - May 2023
- **St. James' School, Kolkata** Kolkata, West Bengal, India
Higher Secondary (ISC); Passed with 90.8% 2016 - 2018
- **St. James' School, Kolkata** Kolkata, West Bengal, India
Secondary (ICSE); Passed with 90.66% 2006 - 2016

RESEARCH PROJECTS

- **Indian Institute of Technology (IIT), Kharagpur** Kharagpur, India
Supervisor : Dr. Chirodeep Bakli March 2021 - April 2023
 - **Modeling two phase flow in porous media:** Created COMSOL applications to study mixing of fluids in a confined microchannel. Created CAD models using CATIA for the microchannels and ran rigorous numerical steps to observe the effects of various geometrical parameters. Used dimensionless variables to quantify the mixing of the fluids and compared the mixing performances of the microchannels for various porous obstacles. Studied drag force caused by porous structures in a fluid stream.
- **Indian Institute of Technology (IIT), Roorkee** Roorkee, India
Supervisor - Dr. Arup Kumar Das May 2022 - July 2022

- **Multiscale Modeling of Two-phase Flow:** Studied impact of a droplet on hydrophobic surfaces, on macro (CFD) and molecular (MD) scales. Numerical simulations were performed on OpenFOAM (for CFD) and LAMMPS (for MD). Spreading and splashing of the droplet, rebound characteristics, energy dissipation, and momentum transfer was investigated.

• **National Institute of Technology (NIT), Durgapur**

Durgapur, India

Supervisor - Dr. Subhas Chandra Rana

September 2022 - May 2023

- **Design and Manufacturing of a Rotating Viscometer:** Designed and analysed computationally the parts of a rotating concentric cylinder viscometer. Parts were manufactured using Lathe, Boring, Drilling and Hacksaw machines. The completed viscometer is being used as an experimental apparatus in the undergraduate lab of Fluid Mechanics in the department of Mechanical Engineering at NIT Durgapur

PUBLICATIONS

- **Patra, S., Saha, A., Das, A.K. (2024). Effect of Surface Structures on Droplet Impact Over Flat and Cylindrical Surfaces.** In: Singh, K.M., Dutta, S., Subudhi, S., Singh, N.K. (eds) Fluid Mechanics and Fluid Power, Volume 5. FMFP 2022. Lecture Notes in Mechanical Engineering. Springer, Singapore:

TRAININGS

• **Haldia Energy Limited (HEL)**

Haldia, India

Winter Intern

December 2021

- Observed and learnt the working of a 600MW coal-based thermal power-plant. Reported on the main plant and auxiliary plant operations : boilers, turbines, pumps, condenser, air-compressors, ash-handling plant, coal-handling plant, water-treatment plant.:

• **Central Tool Room and Training Centre (CTTC)**

Bhubaneswar, India

Supervisor - Mr. Aditya Pratap Mahakud, Mr. Sujai Vasa

December 2019

- Trained on the CAD Software CATIA. Used the training to lead a team of five members for a project titled : "Design of a Bench Vice using CATIA":

TEST SCORES

- **TOEFL iBT:** 112/120 (29-Reading, 27-Listening, 27-Speaking, 29-Writing)

SKILLS SUMMARY

- Project Management, Project Planning, Lean Six-Sigma, Production Planning
- CATIA, COMSOL, MATLAB, ORIGIN, OpenFOAM, LAMMPS, MS Suite

HONORS AND AWARDS

- Selected among 10000 applicants for the SPARK Summer Internship Programme 2022 at the Indian Institute of Technology (IIT) Roorkee, India
- Ranked second among 165 undergraduates in the Mechanical Engineering Department of NIT Durgapur

EXTRA-CURRICULAR ACTIVITIES

- President of QuizInc, the official quiz club of National Institute of Technology (NIT), Durgapur, India for the 2022-23 session. Led a team of 40 members to conduct events year-round
- Organised Quizzitch Cup 2020, 2021, 2022, 2023, Eastern India's second largest quizzing festival as a part of the organizing committee. Led the organizing committee as President for the 2023 edition
- Vice-President of Quizobean, the quiz club of St. James' School Kolkata, India for the 2017-18 session,
- Volunteered for the NIT Durgapur chapter of National Service Scheme (NSS) a community service association from 2019-2020