

Curriculum Vitae

Dr. PRABHANSU

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CURRENT AREA OF RESEARCH: Coal and Biomass Gasification, Solar thermal and PV systems, Heat transfer, Refrigeration and A.C systems, Water Purification and Portability, Clean & Green Technology

DATE OF BIRTH: 18th December 1985

QUALIFICATIONS

- 2013-2018 **Doctorate in Philosophy (Mechanical Engg.)** from National Institute of Technology Patna with thesis submitted on the topic “**Circulating Fluidized Bed System Analysis for Thermo-Chemical Gasification**”. A part of my Ph D work was carried out at Energy Research & Technology Department, CSIR-Central Mechanical Engineering Research Institute, Durgapur, West Bengal.
- 2009 -2011 **Master of Technology (Mechanical Engg.)** from National Institute of Technology Patna obtaining, **8.93** CGPA with specialization in Refrigeration A.C & Heat Transfer. M.Tech thesis was on “**Development of SOPOSTILL (Solar Pond cum Solar Still)**”.
- 2005-2009 **Bachelor of Technology (Mechanical Engg.)**, from Institute of Engineering and Technology, M. J. P. Rohilkhand University, Uttar Pradesh, obtaining **8.04** degree grade point. B.Tech thesis was on “**Testing and performance evaluation of ethanol blended petrol in S.I engine**”.

SOFTWARE PROFICIENCY:

- Auto-CAD
- CATIA
- Solid Works
- ANSYS Fluent
- MATLAB
- FORTRAN / C++.

EXPERIENCE SUMMARY:

1. Industrial Experience >Two years

June 2011 – July 2013: **Chargeman (Technical/Mechanical);** Indian Ordnance Factory (Itarsi), Ministry of Defence, Government of India.

The Indian Ordnance Factories organization - a family of 41 Ordnance Factories under the aegis of its corporate headquarters Ordnance Factory Board, Kolkata - possesses the unique distinction of over 200 years experience in Defense production. They are engaged in production, testing, logistics, research, development and marketing of a comprehensive product range in the area of land, sea and air systems. The ordnance factories form an integrated base for indigenous production of Defense hardware and equipment, with the primary objective of self reliance in equipping the armed forces with state of the art battlefield equipments.

RESPONSIBILITIES AT INDIAN ORDNANCE FACTORY (ITARSI):

- Responsible for work allocation to the industrial employees as a team leader for routine check of failures in the operating 31 refrigeration units across the various production sections at Ordnance Factory Itarsi.
- Development of new predictive maintenance with the help of my team to minimize the breakdown maintenance.
- Responsible for air conditioning maintenance of 168 units in Ordnance factory Itarsi with the help of my eminent team.
- Procurement of refrigeration and A.C spares as well as trials, commissioning and installments of new units and condemnation of old ones.
- Exposure to practical hydraulic systems and CNC machines.
- Use of statistical tools, such as 7 QC tools, statistical inference, designs of experiments.
- Problem solving with Kaizens, TPM, TQM, 5S, etc.
- Indirectly responsible for giving the reply of right to information (RTI) & procurement related tender queries.
- Responsible member of team for internal and external audit in the Central Mechanical Maintenance section (CMM).
- Responsible for calculating cost of installation of new projects and reply to DGM from maintenance side.
- Working in Daily works Management, Knowledge Management, Milestone Management, Risk Management, Deming, and TPM Culture.
- Responsible for improving quality maintenance.
- Responsible for coordinating with other maintenance groups like civil works, water supply, electrical maintenance etc for efficient use of the resources as per the requirement.
- Worked with Biazzini company, Switzerland in developing a new NG unit at Ordnance factory Itarsi.

2. **Teaching Experience** > Four months (one semester)

July 2017-Dec 2017: **Adhoc Faculty**, Mechanical Engineering Department, National Institute of Technology Calicut, Kozhikode-673601, Kerala

WORK CARRIED OUT AT INSTITUTE OF TECHNOLOGY CALICUT:

- Taught “Principles of Heat Transfer” subject to UG 5th Sem students comprising of 98 strength.
- Taught “Engineering Graphics” subject for two batch of UG 1st Sem students.
- Took “Mechanical Engineering Lab” for UG 5th Sem students.
- Took the charge as Assistant Warden/Resident tutor of MEGA hostel.
- Published conference paper entitled “Strategy for solid waste management at NIT Calicut” at International conference “RECYCLE 2018” held in between 22-24 February at IIT Guwahati. This was funded by Department of Mechanical Engineering, NIT Calicut.

3. **Teaching Experience** >1 year 9 months

Jan 2018-Sep 2019: Assistant Professor (on contract), TEQIP-III faculty through National Project Implementation Unit (NPIU), World Bank funded project, posted at Mechanical Engineering Department, Muzaffarpur Institute of Technology, Muzaffarpur- 842003, Bihar

WORK BEING CARRIED OUT AT MUZAFFARPUR INSTITUTE OF TECHNOLOGY:

- Taught “Sustainable Development” and “Management Information system” courses to UG 8th Sem students comprising of 70 strength.
- Taught “Engineering Graphics and Design” course for two batch of UG 1st Sem students.
- Taught “Conduction and Radiation-I” course for PG 1st Sem, Thermal Engineering branch students.
- Worked as Professor Incharge Post-Graduate/M.Tech courses of the Mechanical Engineering department of the Institute.
- Worked as Assistant Purchase Officer of the Core Purchase Committee of the institute.
- Worked as Assistant TEQIP Coordinator of the institute.
- Worked as Administrator of Online Grievance Redressal System of the institute.
- Guided 14 students in three groups for their B.Tech final year major projects.
- Four M.Tech students successfully completed their final year project under me.

Workshops organized:

S. No.	Name of the workshop	Role	Sponsor	Duration and year
1	Mechanical Design tools/software and their industrial applications	Coordinator	TEQIP-III	5-9 March 2019
2	Automation in Mechanical Engineering	Convener	TEQIP-III	2-6 September 2019

B.Tech Students Guided

S.No	Name of the student	Registration No.	Title of the project	Year of passing
1	Ms Kirty Ratan	14102107096	Consideration of treated sewage sludge as alternative fuel for gasifiers in Bihar	2018
2	Ms Sheetal Ranjan Sah	14102107055		2018
3	Mr. Preetam Kumar	14102107057		2018
4	Mr. Pranesh Kumar Singh	14102107054		2018
5	Ms. Aashna Raj	14102107086	Status of sewage treatment plant in Bihar and measures for improvement	2018
6	Mr. Manish Kumar	14102107099		2018
7	Mr. Rakesh Kumar	14102107068		2018
8	Mr. Satish Anand	14102107061		2018
9	Ms. Shivani Raj	14102107095		2018
10	Mr. Trishant Kumar	14102107074		2018
11	Mr. Abhishek Kumar	14102107100	Pre and post treatment of sewage sludge	2018
12	Mr. Amritansh Anand	14102107058		2018
13	Mr. Sharad Bhaskar	14102107065		2018
14	Ms. Ankita Kumari	14102107291		2018

M.Tech Students Guided:

S. No	Name of the student	Roll No	Title of the project	Year of passing
1	Mr. Anmol Kumar	17MT06	Study the effectiveness of flat plate collector in solar water heater	2019
2	Mr. Javed Akhtar	17MT05	Performance evaluation of Jatropa and sunflower oil derived bio-diesel on a 4-stroke single cylinder diesel engine	2019
3	Mr. Shivendra Kumar	17MT13	Decrease of Solar heat accumulation inside car cabin parked under sun	2019
4	Ms. Dipika Sinha	17MT09	Biomass gasification of sal wood particles in indigenous gasifier: Experimental method	2019

4. Current Profile:

Oct 2019-till date:

Assistant Professor (Level 10), Mechanical Engineering Department, S.V. National Institute of Technology Surat.

ONGOING RESEARCH PROJECTS

S. No.	Name of the project	Amount in Lac ₹	Funding agency
1	Optimization of tracking device for concentrating PV panel	17.75	CRS, TEQIP-III
2	Enhancement in solar powered air conditioners through better heat transfer techniques	7.31	CRS, TEQIP-III
3	Study of major water pollutants from the Ganga river and the rural vicinity	3.0	AKU, Patna

List of publications

Paper in Journals

- J1. **Prabhansu**, Malay Kr Karmakar, Prakash Chandra, Pradip Kr Chatterjee, “A review on the fuel gas cleaning technologies in gasification process”, Journal of Environmental Chemical Engineering, Elsevier publication, 3, 689–702, 2015, ISSN: 2213-3437, Doi: <https://doi.org/10.1016/j.jece.2015.02.011>
- J2. **Prabhansu**, Prakash Chandra, Malay Kr Karmakar, Pradip Kr Chatterjee, “Circulating fluidized bed gasification: status, challenges and prospects in Indian perspective”, Indian Journal of Science and Technology, 9 (48), 1-14, Dec 2016. DOI: 10.17485/ijst/2016/v9i48/98100.
- J3. **Prabhansu**, Shashank Rajmistry, Sourav Ganguli, Prakash Chandra, Malay Kr karmakar, Pradip Kr Chatterjee, “Numerical analysis of gas-solid behavior in a cyclone separator for circulating fluidized bed system”, Journal of applied fluid mechanics, 10 (4), 1167-1176, July 2017. Doi: 10.18869/acadpub.jafm.73.241.26951, ISSN:1735-3572.
- J4. Ashok Sarkar, **Prabhansu**, Abhijit Chatterjee, Anup Kumar Sadhukhan, Pradip Kumar Chatterjee, “Establishing correct coal quality for achieving optimum boiler efficiency & performance – a case study in the Indian utility industry”, International Journal of ChemTech Research, 10 (2), 121-131, 2017.
- J5. **Prabhansu**, Sovan Dey, Malay Kr Karmakar, Prakash Chandra, Pradip Kr Chatterjee, “Studies on various drag models in fluidized bed for abatement of environmental pollution”, International Journal of Environmental sciences, Integrated publishing association, , ISSN 0976 – 4402, 5 (5), 1011-1021, 2015.
- J6. Varanya Varad Bariyar, **Prabhansu**, Rajesh Kumar, Prakash Chandra, Malay Kumar Karmakar, CFD analysis of Loop seal in the circulating fluidized bed system, SYNERGY-2016, 4th June, 2016 at Jawahar Lal Nehru University (JNU) campus, New Delhi, published in Journal of Basic and Applied Engineering Research, Krishi Sanskriti Publications p-ISSN: 2350-0077; e-ISSN: 2350-0255; 3 (8), 697-700, April-June 2016.

- J7. Rajesh Kumar, **Prabhansu** and Prakash Chandra, An experimental investigation of natural convection heat transfer over outer surface of vertical helical coil condenser, Journal of Engineering Research, Kuwait, 5 (3), 162-173, Sep 2017.
- J8. Krishna Kant Dwivedi, **Prabhansu Shrivastav**, Malay Karmakar, Achintya Pramanik, Pradip Chatterjee, A comparative study on pyrolysis characteristics of bituminous coal and low rank coal using Thermo-Gravimetric Analysis (TGA), 01, 01-11, International journal of coal preparation and utilization, 2019, <https://doi.org/10.1080/19392699.2019.1566130>.
- J9. Gaurav Raj, **Dr Prabhansu**, Rajesh Kumar, Prakash Chandra, Sumit Saurabh, Experimental study of solar still augmented with low cost energy absorbing and releasing materials, Energy sources, Part A: Recovery, utilization and Environmental Effects, Taylor and Francis, DOI: <https://doi.org/10.1080/15567036.2019.1587054>.
- J10. Rajesh Kumar, Prakash Chandra, **Prabhansu**, Innovative method for heat transfer enhancement through shell side and coil side fluid flow in SHCHE, Accepted in Archives of Thermodynamics, 10 May 2019.

Paper in conference proceedings

- C1 M. K. Karmakar, C. Loha, P. K. Chatterjee and **Prabhansu** “Effect of heating rates on devolatilization behavior of Indian coals”, International Conference on NexGen Technologies for Mining and Fuel Industries (NxGnMiFu-2017), held at Vigyan Bhawan, New Delhi, between 15-17 February 2017.
- C2 **Prabhansu**, Malay Karmakar, Prakash Chandra and P.K. Chatterjee, “A study on the effective treatment of toxic emissions in coal gasification”, national conference on Environmental issues and food security in India, 10th August 2014, University of Calcutta, Kolkata, India.
- C3 **Prabhansu**, Malay Karmakar, Prakash Chandra and P.K. Chatterjee, “Technological advancement in circulating fluidized bed gasification: case study”, 67th annual session of Indian institute of chemical engineers, Indian chemical engineers congress, CHEMCON 2014, 27-30 December, 2014 at Chandigarh, India.
- C4 Sovan Dey, **Prabhansu**, Sourav Ganguli, Arijit Patra, M. K. Karmakar, P. K. Chatterjee, “A survey on various drag models in fluidized bed”, International conference on Environment & Ecology (ICEE-2015), 2-4th march 2015 at science city, Kolkata, India.
- C5 Sourav Ganguli, **Prabhansu**, Prakash Chandra, Malay Kr Karmakar and Pradip Kr Chatterjee, Hydrodynamic study of BFB using Energy Minimisation Multi-Scale model, ISME-T-008, 17th ISME Conference, ISME17, October 3-4, 2015, IIT Delhi, New Delhi.
- C6 Arijit Patra, **Prabhansu**, Malay Kr Karmakar, Pradip Kr Chatterjee, Development of a 2-d model of a circulating fluidized bed biomass gasifier, ISME-T-012, 17th ISME Conference, ISME17, October 3-4, 2015, IIT Delhi, New Delhi.

- C7 S. K. Verma, Sudarshan Singh and **Prabhansu**, Performance prediction of SOPOSTILL, proceedings of International conference on renewable energy 2011 (ICRE 2011), organized by: centre for non-conventional energy resources, university of Rajasthan, Jaipur, India, SO-08, 17-21 January 2011.
- C8 **Prabhansu**, S. K. Verma and Sudarshan Singh, Techno economic assessment of SOPOSTILL, proceedings of 5th International conference on advances in mechanical engineering 2011 (ICAME 2011), organized by Sardar Vallabhbhai National Institute of Technology, Surat, (India), 6-8 June 2011.
- C9 Anikesh Kumar, Piyush Tayal, Akash Karande, Parthasarathy R, Jayasurya R, Prabhakar, **Prabhansu**, Strategy for solid waste management at NIT Calicut, International conference, RECYCLE 2018, held between 22-24 February 2018 at IIT Guwahati.
- C10 **Prabhansu**, Jyoti B. Singh, Prakash Chandra, Malay K. Karmakar, Pradip K. Chatterjee, Effect of attrition on silica sand as bed material in circulating fluidized bed system, International conference, RECYCLE 2018, 22-24 February 2018 at IIT Guwahati. **(Accepted for publication as Scopus indexed book chapter)**
- C11 **Prabhansu**, N. Undralla , M. Chauhan, V. A. Kumar, B. P. Daniel , K. V. Surendra, Toxicity level of used chemicals waste water from chemical laboratories at NIT Calicut, National Conference on Energy & Environment, Bhagwant University, Ajmer International Journal of University Research (IJUR), NCEE-18/017, 24 February 2018.
- C12 **Prabhansu**, S. Ganguli , Krishna Kant Dwivedi , P. Chandra , M. K. Karmakar , P. K. Chatterjee, Hydrodynamics of a CFB gasifier with two different cross sections in the riser, International Conference on Recent Innovations and Developments in Mechanical Engineering NIT Meghalaya, Shillong, India, November 8 – 10, 2018, Paper No. IC-RIDME18: 091. **(Accepted for publication as Scopus indexed book chapter)**
- C13 Krishna Kant Dwivedi, **Prabhansu**, A.K.Pramanick, M.K.Karmakar, P.K.Chatterjee, Indian sub-bituminous and low rank coal gasification experiments in a circulating fluidized bed gasifier under air atmosphere, International Conference on Recent Innovations and Developments in Mechanical Engineering NIT Meghalaya, Shillong, India, November 8 – 10, 2018 Paper No. IC-RIDME18: 136. **(Accepted for publication as Scopus indexed book chapter)**
- C14 **Prabhansu**, Krishna Kant Dwivedi, Malay Kr Karmakar, Pradip kr Chatterjee, Status of sewage treatment plant in Bihar and needs for improvement, 8th International Conference on Solid waste management, ANU, Guntur, AP, India, November 22-24, 2018, paper Id-23 **(Accepted for publication as Scopus indexed book chapter)**
- C15 Krishna Kant Dwivedi, **Prabhansu**, P.K.Chatterjee, A.K.Pramanick, M.K.Karmakar. "Waste coal Utilization in India: a review". 8th International Conference on Solid waste management, ANU, Guntur, AP. Nov 2018. **(Accepted for publication as Scopus indexed book chapter)**

SHORT TERM COURSE / WORKSHOPS ATTENDED

- W1 Two day Workshop on “Advanced Biomass Thermal Conversion Processes”, on 18th & 19th December 2013, organized by Thermal Engineering Division, CSIR-CMERI Durgapur, India in collaboration with Cranfield University of UK, UCL of Belgium and IIT-Guwahati.
- W2 Two day MHRD sponsored workshop on “Awareness of National Mission on Education Technology through ICT (NMEICT)”, on 17th & 18th January 2014, organized by NIT Patna at Patna Women’s College, Patna University.
- W3 One week short term course (STC) on “Nanomaterials: Synthesis, Characterization and Applications”, between 04-08 March, 2014, organized under the aegis of TEQIP, NIT Patna by department of Physics & Electronics and communication Engineering, NIT Patna.
- W4 Two day RETScreen Workshop on “Assessing Clean Energy Technologies”, on 18th & 19th December 2014, organized by Mechanical Engineering Department, NIT Patna, India.
- W5 One week short term course on “Intellectual property rights” held between 12-16 April, 2016 organized by National Institute of Technology Patna.
- W6 One week short term course on “Recent advances in thermal-fluid science and engineering (RATFSE 2016)”, held between 26-30th September 2016, organized by Mechanical Engineering Department, National Institute of Technology Durgapur.
- W7 One week course on “Faculty Development Programme” held between 29th Jan-2nd Feb 2018, organized by Knowledge Incubation for TEQIP, IIT Kanpur.
- W8 TEQIP-III sponsored One week short term course on Advanced Pedagogies: Active Learning and Digital Tools during 24-28 June 2019, organized by Centre for Rural Development & Technology, IIT Delhi
- W9 AICTE Training and Learning (ATAL) Academy Sponsored One week Faculty Development Program (FDP) on Design of Experiment & Artificial Neural Network during 4-8 Nov 2019, organized by Chemical Engineering Department, SVNIT Surat.
- W10 TEQIP-III Sponsored One week Short Term Training Program (STTP) on Pedagogy & Research Methodology (PRM-2019) during 18-22 Nov 2019, organized by SVNIT Surat.
- W11 AICTE Training and Learning (ATAL) Academy Sponsored One week Faculty Development Program (FDP) on Fundamentals of Energy Management and Applications (FEMA 2019) during Nov 25-29 2019, organized by Mechanical Engineering Department, at SVNIT Surat.