

Bio-Data

1. Name : Dr. Partha Pratim Dutta (Professor, Mechanical Engineering, Tezpur (Central) University, Napaam, Dist: Sonitpur, PIN:784028, Assam, India [(Tel:03712275858, +919678401587 (M), E-mail ID: ppdutta06@gmail.com

2. Gender : Male

3. Date of Birth : 11/01/1977

4. Area of Interest : Heat and Mass Transfer, Automobile Engineering / Farm Machinery, Power Plant Engineering, Solar Energy including Gasification and Tea Drying Technology.

5. Qualifications

S. No.	Degree	Institution	Year	Division/Class
01	B.E. (Mechanical Engineering)	Jorhat Engg. College	1999	I
02	M. Tech (Energy Technology)	Tezpur University	2001	I
03	PhD (Tea Dying Technology with intervention of Renewable Thermal Energy)	Tezpur University	2014	Research work

6. Employments / Experiences

Designation	Name of Institution	Nature of job	Period	
			From	To
Works Manager	PVPL	Workshop maintenance	01/01/02	31/12/02
SRF	AAU, Jorhat	Food Processing engineering	01/01/03	20/07/03
Research Associate	ICAR, Barapani	Farm Machinery development	21/07/03	07/10/04
Head of Department (Automobile Engineering)	Jowai Polytechnic	Teaching	08/10/04	28/06/06
Assistant Professor (Stage-1)	NIT, Silchar	Teaching / Research	29/06/06	27/06/07
Assistant Professor (Stage-1)	Tezpur University	Teaching / Research	28/06/07	20/07/08

Assistant Professor (Stage-2)	Tezpur University	Teaching / Research	21/07/08	20/07/13
Assistant Professor (Stage-3)	Tezpur University	Teaching / Research	21/07/13	25/11/2014
Associate Professor	Tezpur University	Teaching / Research	26/11/14	25/11/2017
Professor	Tezpur University	Teaching / Research	26/11/17	To the date

7. Selected List of Journal Publications

- (1) Singh R.K.P., Sathapathy K.K. Dutta P.P., Sharma P.T. (2005). Study of agricultural implements manufacturing in Assam. *Journal of Assam Science Society* 45(2); 25-32.
- (2) Das R., Dutta P. P. (2012). Application of simulated annealing for simultaneous estimation of parameters of cylindrical fin. *Numerical Heat Transfer: part A* .61:699-716), Taylor and Francis.
- (3) Dutta P.P., Pandey V., Sen S., Das A.R., Nath A., Baruah D.C. (2013). Fuel characteristics of some indigenous plant. *International Journal of Emerging Technology and Advanced in Engineering*; 3(3): 570-576.
- (4) Dutta P.P., Keot A, Gogoi A, Bhattacharjee A., Saharia J., Sharma N., Baruah D.C. (2013). A study on some techniques for improving thermo-hydraulic performance of solar air heater. *International Journal of Emerging Technology and Advanced Engineering*; 3(3): 225-233.
- (5) Dutta P.P., Pandey V., Das A.R., Sen, S., Baruah D.C. (2014). Downdraft Gasification Modelling and Experimentation of Indigenous Biomass for Thermal Application. *Energy Procedia*, 54: 21-36.
- (6) Dutta P.P, Baruah D.C. (2014) Modeling and Experimental Studies of Black Tea Using Producer Gas as Fuel. *Applied Thermal Engineering* 63: 495-502.
- (7) Dutta, P.P. Baruah D.C. (2014). Gasification of up rooted Tea Shrubs for Process Heat generation in Tea Manufacturing. *Biomass and Bioenergy*. 66; 27-38.
- (8) Dutta P.P, Baruah, D.C. (2014). Possibility of Biomass gasification in Tea Manufacturing Industries. *International Journal of Renewable Energy Technology*, 5(4); 310-322.
- (9) Dutta P.P., Das, A., Pandey V. (2014). Fuel characteristics of some locally available biomass as a potential gasification feed stock for thermal application. *Industrial and Engineering Chemistry Research Journal*, 53 (51), 19806-19813 (American Chemical Society).
- (10) M. Devi, P.P. Dutta and D. Mahanta (2015). Analytical calculation of chain length of ferro fluid. *Bulletin of Material Science Research* 31(1); 221-226.

- (11) Dutta, P.P, Konwar, A, Baruah A, Kumar,V (2016) A technical review of lawn mower technology. *ADBU Journal of Engineering Technology* 4 (1), 179-182.
- (12) Dutta, P.P., Saharia J., Kumar T., Gupta A., Singh A.K. (2016). Fuel characterization of some indigenous biomass. *Journal of Biofuel and Bioenergy* 1(2), 184-192.
- (13) Dutta, P.P., Saharia J., Kumar T., Gupta A., Singh A.K. (2016). Gasification of some locally available biomass using a downdraft gasifier. *Journal of Biofuel and Bioenergy* 1(2), 208-217.
- (14) Sharma, A., Dutta, P. P. (2017) A review of biomass gasification in processing industries. *Journal of Energy Research and Environmental Technology* 3(4), 268-271.
- (15) Dutta P. P., Kalita, N., Sagar, S., Kumar, J., Das, C., Goswami, N., Bora, J., Pathak, M. (2017). Design of a coil tube heat exchanger for preheating of biodiesel. *Advanced Research in Electrical and Electronics Engineering* 3(5), 381-386.
- (16) Sharma, D., Dutta, P.P. (2017) Numerical investigations of flow and heat transfer in a wavy corrugated channel. *Journal of Material Science and Mechanical Engineering* 3(8), 506-510.
- (17) Sharma, A., Dutta, P.P. (2018) Scientific and technological aspects of tea drying and withering: a review. *Agricultural Engineering International: CIGR Journal*. 20, 210-220.

8. Conferences:

- (1) Dutta P.P., Jain B.C., Knowar D., Baruah D.C. (2008). Experimental Heat Transfer Study of a Woody Biomass Gasifier at Variable Loads. International Conference on Renewable Energy Asia, IITD, 12/12/2008-14/12/2008.
- (2) Dutta P.P., Jain B.C., Das R., Mahapatra S. (2010). Modification and Performance Testing of a Slow Speed Diesel Engine for Purely Producer Gas Operation. National Conference on Renewable Energy Technology Issues and Prospects. 24-15/09/2010 at NERIST, AP.
- (3) Dutta P.P., Baruah D.C. (2011). Performance Testing of a Renewable Energy Based Tea Dryer. National Conference on Water, Energy and Biodiversity, 20-22/08/2011 at Institution of Engineers, Tripura State Centre.
- (4) Dutta P.P., Baruah D.C. (2011). Thermal Analysis of a Fluid Bed Tea Dryer. ICORE, Tezpur University, 02- 04/11/2011.
- (5) Dutta P.P. Sharma S. (2011). Design and development of a CVT Based Transmission for a Hybrid Electric Vehicle. ICORE, Tezpur University, 02-04/11/2011

- (6) Dutta, P.P., Baruah D.C. (2012). Design and Fabrication of Some Solar Thermal Energy Absorber for Hot Air Generation. National Seminar on Renewable Energy at Environmental Watch Management Committee, Guwahati, 21-22/03/2012.
- (7) Dutta P.P., Saharia J., Sarmah N., Baruah D.C., Dutta B. (2012). Studies on Some Solar Thermal Collectors. International Seminar and Workshop on Energy, Sustainability, and Development, 12-14/10/2012, Sibsagar College.
- (8) Dutta P.P., Baruah D.C. (2012). A Fluidized Bed Tea Dryer Power with Producer Gas. International Seminar and Workshop on Energy, Sustainability, and Development, 12-14/10/2012, Sibsagar College.
- (9) Dutta P.P., Saikia N., De S., Sharma S. (2012). Development of a Low-Cost Dynamometer for Performance Testing of an Electric Vehicle. 57th Annual Technical Session of Assam Science Society
- (10) Dutta P.P., Saharia J., Sarmah N., Baruah D.C. (2013). Thermal Performance Studies of a Rectangular Duct Solar Air Heater. 22nd National and 11th International Conference of ISHMT, ASME, Heat and Mass Transfer Conference, IITKgp. (28-31/12/2013)
- (11) Dutta P.P., Pandey V., Das A.R., Sen, S., Baruah D.C. (2013). Downdraft Gasification Modelling of Indigenous Biomass for Thermal Application. IVth International Conference on Advances Energy Research, IIT Bombay, 10/12/2013-12/12/2013.
- (12) Dutta P.P., Das A., Pandey V. (2013). Fuel Characteristics of Some Locally Available Biomass as a Potential Gasification Feedstock for Thermal Applications. Energy System Modelling, NIT, Durgapur.
- (13) Dutta P.P., Sharma S, Gogoi., R. (2013). Design of Compact Tricycle. National Conference on Recent Advances in Mechanical Engineering, 08-09/11/2013, NERIST, Itanagar.
- (14) Dutta P.P., Kumar B, Das A. (2013). Development of a plate heat exchanger. National Conference on Recent Advances in Mechanical Engineering, 08-09/11/2013 NERIST, Itanagar.
- (15) Dutta P.P., Keot A., Gogoi, A., Bhattachajee, A. (2014). Fluid Flow and Thermal Performance Study of a Pin Fin Solar Air Heater, FMFP 2014: IIT Kanpur: 13-15/12/2014
- (16) Dutta, P.P, Das, D, Dutta, M, Sukla, G. (2014) studies on green design and manufacture of hybrid vehicle. (5th International and 26th All India Manufacturing Technology Design and Research, IITG, 12-14 December 2014)

- (17) Dutta. P.P., Sarmah S., Mahanta, A, Choudhury, A, Gupta S., Gogoi R, Baruah D. (2014). Development of an efficient hybrid tricycle. (2014) studies on green design and manufacture of hybrid vehicle. (International and 26th All India Manufacturing Technology Design and Research, IITG, 12-14 December 2014.)
- (18) Pandey V.: Garg V., Singh N., Dutta, P.P. (2014) Potential of Indian for ethanol as Transportation Fuel. International conference on Innovative Trend in Applied Physical, Chemical, Mathematical Sciences and Emerging Energy Technology for Sustainable Development; 19-20/04/2014, JNU, India.
- (19) Dutta. P P, Sarmah S, Mahanta, A, Choudhury, A, Gupta S, Gogoi R, Baruah D, Gogoi, T K & Das, A. (2014) Design and development of an improved hybrid tricycle. In: International conference on Recent Advances in Mechanical Engineering at NERIST, Itanagar, December 2014.
- (20) Dutta, P P, Das, A, Mishra A, Kumar, B, Singh, D K. (2014) Some studies on a plate type heat exchanger. In: International conference on Recent Advances in Mechanical Engineering at NERIST, Itanagar, December 2014.
- (21) Dutta, P P & Baruah, N. (2015) Food drying opportunity from waste heat recovery. National Seminar cum workshop IPFP: IBES:2015, March 2015.
- (22) Dutta P P & Baruah N. (2015) Fluid flow studies of a rotary compact air preheater. In: Proceedings of ICFM2015 International Conference on Frontiers in Mathematics: March: 2015, Guwahati University.
- (23) Dutta, P. P., Dutta P., Das, A., Kalita, P. (2016) Heat transfer and pressure drop in V corrugated channel s of different heights applicable to a waste heat recovery compact heat exchanger. In: 5th Annual international conference on Sustainability, Inspiration, Innovation, and Inclusion, IIM Shillong (17/03/2016 to 19/03/2016).
- (24) Dutta, P.P , Konwar , A, Kumar ,V, Baruah A. (2016) Design ,Fabrication and analysis of a hybrid lawn mower. In: 5th Annual international conference on Sustainability, Inspiration, Innovation, and Inclusion, IIM Shillong (17/03/2016 to 19/03/2016).
- (25) Dutta, P.P., Saharia J., Kumar T., Gupta A., Singh A.K. (2016) Gasification of some locally available biomass using downdraft gasifier. In: Second International Conference on Recent Advances in Bioenergy Research, SSSNIB (25/02/2016 to 27/02/2016).
- (26) Dutta, P., Das, A., Dutta, P. P. (2016) Thermo-hydraulic study of a V corrugated heat exchanger. In: Sixth International congress on computational mechanics and simulation IITB: 27 June to 01 July 2016.

- (27) Sharma, A. Dutta, P. P. (2016) Biomass gasification in tea industries: A Review. In Proceeding of All India Seminar on Recent Trends in Mechanical Engineering 21-22 October 2016 at Institution of Engineers (India), Guwahati State Centre.
- (28) Sharma, D. Dutta, P.P. (2016) Experimental and numerical investigation of heat and flow characteristics in a corrugated channel. In Proceeding of All India Seminar on Recent Trends in Mechanical Engineering 21-22 October 2016 at Institution of Engineers (India), Guwahati State Centre.
- (29) Sharma, D., Dutta, P.P., Kakati H., Sharma, A. (2017) Heat transfer study of corrugated plate heat exchanger. In Proceeding of 2nd Energy System Modeling and Optimization Conference 11/12/2017 to 13/12/2017 at NIT Durgapur.
- (30) Barpatra Gohain R.J., Dutta, P.P. (2017) Modelling thermal performance of an improved biomass cook stove for rural area. In Proceeding of 2nd International Conference in New Frontiers in Engineering Science and Technology at NIT Kurushetra, 18/02/2019 to 22/02/2019.
- (31) Goswami, P., Dutta, P.P. (2019) Thermal performance study of a perforated plate and a double pass flat plate solar air heater using CFD. In Proceeding of 2nd International Conference in New Frontiers in Engineering Science and Technology at NIT Kurushetra, 18/02/2019 to 22/02/2019.
- (32) Sharma, A., Dutta, P.P. (2019) Mathematical modelling of withering characteristics of tea leaves in Assam, India. In: Proceeding of National Conference on Recent Advances in Science and Technology 2019 from 15/05/2019 to 17/05/2019 at ASTU, Guwahati.
- (33) Dutta, P, Dutta, P.P., Kalita, P. (2019) Experimental investigation of thin layer drying kinetics *Garcinia pedunculata* dried in a forced convection environmental chamber. In: Proceeding of National Conference on Recent Advances in Science and Technology 2019 from 15/05/2019 to 17/05/2019 at ASTU, Guwahati.
- (34) Borpatra Gohain, R.J., Dutta, P.P. (2019) Modelling and experimental study of an improved biomass cook-stove. In: Proceeding of National Conference on Recent Advances in Science and Technology 2019 from 15/05/2019 to 17/05/2019 at ASTU, Guwahati.
- (35) Goswami, P., Dutta, P.P. (2019) A comparative thermal study between two thermal configuration absorber plate of a double pass solar air heater using CFD and experimental analysis. In: Proceeding of National Conference on Recent Advances in Science and Technology 2019 from 15/05/2019 to 17/05/2019 at ASTU, Guwahati.

- (36) Begum, S.S., Goswami, A.P., Jangid, H., Dutta, P.P. (2019) Design and modelling of a parabolic trough solar collector. In: Proceeding of National Conference on Recent Advances in Science and Technology 2019 from 15/05/2019 to 17/05/2019 at ASTU, Guwahati.
- (37) Sharma, A., Dutta, P., Goswami, P., Dutta, P.P., Das, H. (2019). Possibility of Waste Aluminium Can for Solar Air Heater through Thermal Performance Studies. In: Proceeding of International Conference on Waste management towards circular Economy from 27/11/2019 to 30/11/2019 at KIIT University.
- (38) Dutta, T., Roy, P.K., Kumar, P.K., Dutta, P.P., Nath, B., Dutta, H., Das, H. (2019). Design and Development of a Hostel Wash Basin Waste Trap for Appropriate Food Solid Waste Management. In: Proceeding of International Conference on Waste management towards circular Economy from 27/11/2019 to 30/11/2019 at KIIT University.
- (39) Saikia, P.J, Dutta, P.P., and Kalita, P. (2020). Simulation and Experimental Performance Studies of a Computerized Spark Ignition Engine. (Accepted: ICRAE: 2020 at NIT Silchar.)
- (40) Dutta, P.P. Das A., Chutia, L. (2020). Thermal Performance Studies of an Artificially Roughen Corrugated Solar Air Heater. (Accepted: ICRAE: 2020 at NIT Silchar.)

8. Book chapters:

- (1) Dutta, P.P., Konwar, A., Baruah, A., Kumar, V. (2017) Design, fabrication, analysis of a lawn mower. Sustainability, Inspiration, Innovation and Inclusion (Proceeding of 5th annual international conference on sustainability - SUSCON V: 113-123: ISBN: 978-1-78635-414-3): Editors (Giri T.K., Jaipuria, S., Das, K.C., Mukhopodhay, A., Gogoi, B. J., Bhattacharya, M.), Emerald, New Delhi.
- (2) Dutta, P.P., Kumar, A. (2017) Development and performance study of a solar air heater for solar drying application. In: Solar Drying Technology, Concept, Design, Modeling, Economics and Environment: Editors: Prakash, O., Kumar, A. ISBN 978-981-10-3832-7), Springer, Singapore, 579-602
- (3) Sharma, A., Bora, M.K., Dutta, A.K., Dutta, P.P. (2019) Study of energy management in a tea processing industry in Assam, India. AIP Conference Proceeding <https://doi.org/10.1063/1.5096503>
- (4) Dutta, P., Dutta, P.P., Kalita, P. (2019) Thermohydraulic investigation of different channel height on a corrugated heat exchanger. AIP Conference Proceeding <https://doi.org/10.1063/1.5096502>

- (5) Gohain R.J., Bharali N., Dutta, P.P (2020). Thermal Performance Evaluation of an Improved Biomass Furnace for Domestic Applications. (Accepted In : KIIT Thermo 2020: Springer Book Chapter).

9. Sponsored Research Projects (last five years)

S. No	Title	Sponsoring Agency	Period	Amount (lakh)	Achievements
01	<i>Development of an innovative model of Combined Heat and Power from Purely Producer Gas Based Engine Alternator System for Partial Conventional Energy Substitution of Tea Processing Industries in North-East India</i>	SERB	2012-2015	18.45	02 journal + 05 Int. Conf.
02	<i>Characterization of producer gas generated from different locally available woody and non woody biomass through gasification by using Gas Chromatograph analysis and their potential application as renewable energy to supplement thermal energy requirement for tea processing industries in Assam</i>	UGC	2012-2015	14.90	03 journal + 03 Int. Conf.
03	Development of a hybrid electric tricycle (Co-PI)	TU	2012-2014	1.5 lakh	Prototype developed
04	Development of green Fuel Powered Vehicle	MSME	2014-2016	6.25 lakh	Completed
05	Design Development and Performance Testing of Solar Dryer for Drying <i>Garcinia pedunculata</i> with Thermal energy Storage	AICTE (RPS)	2018-2021	17.00 lakh	Ongoing
06	Development of IC Engine /Automobile laboratory	AICTE (MODROB)	2018-2020	13.45 lakh	Ongoing

10. Awards and Honours:

- i. NEC merit Scholarship during entire M.Tech programme.
- ii. Life Member, Assam Science Society, Guwahati, Assam.
- iii. Chartered Engineer [Institution of Engineers (India): December 2012].
- iv. DST Fast Track Young Scientist Scheme (FAST) in Engineering Science (2012).
- v. Life Member, Indian Society of Technical Education, New Delhi.
- vi. Life Member, Institution of Engineers (India), Kolkata.
- vii. Life Member, Solar Energy Society of India, New Delhi.
- viii. Life Member, Indian Society of Heat and Mass Transfer, Chennai.
- ix. Life Member, International Association of Engineers.
- x. Member, SAE India, Chennai
- xi. Life Member, National Society of Fluid Mechanics and Fluid Power, Bombay.

11. Reviewers of international Journals

- i. Energy (Elsevier)
- ii. Energy Conversion and Management (Elsevier)
- iii. Solar Energy (Elsevier)
- iv. Energy Science and Engineering (Wiley)
- v. International Journal of Green Energy, (Taylor, & Francis).
- vi. Journal of Food Processing and Preservation (Wiley)

12. Conference / Workshop organized

- i. Three days skill development programme on **Fabrication of Aluminium Building Structures** (Coordinator: CIIE, TU from 20/03/2015 to 22/03/2015)
- ii. **Advances in Mechanical Engineering and Industrial Applications** (Joint coordinator, Department of Mechanical Engineering, Tezpur University from 20/07/2015 to 24/07/2015)

13. M.Tech /PhD guided

Six M.Tech students got degrees and two PhD students continuing.

14. Additional responsibilities / administrative duties

- i. Founder Head of Department, Automobile Engineering, Jowai Polytechnic, Jaintia Hill, Meghalaya from 08/10/2004 to 28/06/2006
- ii. Warden, Hostel No: IV, National Institute of Technology, Silchar, Assam.

- iii. Faculty Advisor, Volleyball and Basketball, National Institute of Technology, Silchar, Assam (2006-2007).
- iv. Joint Secretary, Officer Clubs, National Institute of Technology, Silchar, Assam (2006-2007).
- v. Founder Faculty Coordinator, TechXetra: 2008: The Annual technical Festival of Tezpur University.
- vi. Faculty in-charge, Central Workshop, Department of Mechanical Engineering, Tezpur University.
- vii. Warden, CHM, Tezpur University (2009-2013).
- viii. Faculty Advisor, SAE (India) Tezpur University Collegiate Club.
- ix. National Innovation Club Member (Presentation of Tezpur University Innovation at Rashtrapati Bhaban on 15/03/2016 in Festival of Innovation)
- x. Head of Department, Mechanical Engineering, Tezpur University from 05/06/2016 to 04/06/2019
- xi. External member DRC, Department of Electrical Engineering, Tezpur University from 22/03/2019 to 21/03/2021.
- xii. Member, Committee for Making Regulation for GATE qualified M.Tech students leave, attendance, workload(21/05/2019) etc.
- xiii. Member, Committee for establishment of KAUSHAL Kendra at TU (07/01/2015)
- xiv. Member, expert committee for UGC_MRP proposal from department of Civil Engineering “Water quality monitoring and modelling for drinking water contamination in six districts of Brahmaputra Valley, Assam, India (12/12/2014).
- xv. Joint Coordinator, Technology Enabling Centre, funded by DST at TU from 2019-2024.
- xvi. Faculty in-charge, CIIE/TU/TBI wing from October 2019.

Date: 03/02/2020

(Partha Pratim Dutta)
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