

# **DHEEMAN BHUYAN**

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## **MECHANICAL DESIGN ENGINEER**

- A quality driven engineer, with over 5 years of experience in teaching and research with prior industrial experience.
  - Adept at teaching courses in Mechanical Engineering, including Engineering Graphics, Applied Mechanics, Mechanics of Materials (Solid Mechanics), Materials Science, Manufacturing Sciences, Automobile Engineering, Production, Planning and Control.
  - Ability to communicate effectively with students and explain concepts related to subject matter.
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## **PROFESSIONAL EXPERIENCE**

- Assistant Professor, Department of Mechanical Engineering, Girijananda Chowdhury Institute of Management and Technology from 14 September 2016 to August 2018  
Teaching Mechanical Engineering to Undergraduate students; Evaluation of answer scripts, Setting of question papers, Course design, Mentoring students
- Visiting Faculty, Department of Mechanical Engineering, University Polytechnic, Birla Institute of Technology, Mesra, Ranchi from August 2015 to May 2016.  
Teaching Engineering drawing to first year students; Teaching Strength of Materials to fourth semester Automobile Engineering, Mechanical Engineering and Manufacturing Engineering students; Setting of question papers; Evaluation of answer scripts
- Engineer (mechanical maintenance) at RNB Cements Pvt. Ltd. From 8 November 2013 to 3 May 2014.  
Mechanical maintenance of packaging section, grinding section, raw meal section, pyro section, limestone grinder, weight feeder belts, conveyor belts, bucket elevators, classifiers, compressors, blowers, hammer crusher, ball mills, trolley belts, cyclone separators, bag filters, rotary locks, vibrating membranes.
- Officiating teacher of Physics for classes 11 and 12 at St. Margaret's School Shillong during the month of July 2013

## **RESEARCH EXPERIENCE**

### **• PATENTS**

#### **Process and Product Patents**

1. Indian Patent application no. 201631009267 dated 17.03.2016 (Title “Prosthetic Heart Valve”) reviewed, accepted and published (Official Journal of The Patent Office; Issue 38 / 2017 Dated 22/09/2017 Page No. 33179)
2. Indian Patent application no. 1318/KOL/2015 dated 22.12.2015 (Title “Method of Synthesis of Functionally Graded Composite Materials Using a Magnetic Setup”) reviewed, accepted and published (Official Journal of The Patent Office; Issue 25/2017 dated 23/06/2017 Page No. 21700)
3. Indian Patent application no. 1319/KOL/2015 dated 22.12.2015 (Title “Use of Dampers in Prosthetic Ankle”) reviewed, accepted and published (Official Journal of The Patent Office; Issue 25/2017 dated 23/06/2017 Page No. 21709)
4. Indian Patent application no. 201831004404 (Title “Range of Motion Prosthetic Foot”) reviewed, accepted and published (Official Journal of The Patent Office; Issue 32/2019 dated 09/08/2019 Page No. 36587)
5. Indian Patent application no. 201831028467, (Title “Ergonomic Binder”) reviewed, accepted, and published (Official Journal of The Patent Office; Issue 06/2020 dated 07/02/2020 Page No. 8045)
6. Indian Patent application no. 202131008654, (Title “Method and Apparatus for Suspending Personal Radiation Protection”) reviewed, accepted, and published (Official Journal of The Patent Office; Issue 46/2022 Dated 18/11/2022 Page No. 73551)

#### **Designs registered**

1. PROSTHETIC ANKLE JOINT; Design Number 278564; Granted: 07/03/2019
2. PROSTHETIC HEART VALVE; Design Number 281607; Granted: 27/03/2019

### **• PUBLICATIONS**

#### **Papers**

1. **Dheeman Bhuyan** and Kaushik Kumar; *Design and Analysis of Base Valve of Twin Tube Dampers*; **Applied Mechanics and Materials**; ISSN: 1662-7482, Vol. 852, pp 504-510; doi: 10.4028/www.scientific.net/AMM.852.504
2. **Dheeman Bhuyan** and Kaushik Kumar; *Computational Fluid Flow Analysis of Base Valve for Twin Tube Shock Absorbers*; **Materials Today: Proceedings**, Vol4(2017), pp 2308-2313, ISSN: 2214-7853; doi: 10.1016/j.matpr.2017.02.079
3. **Dheeman Bhuyan** and Kaushik Kumar; *3D CAD Modelling and Computational Fluid Analysis of Piston Valve of Twin Tube Shock Absorbers*; **Materials Today: Proceedings**, Volume 4, Issue 8(2017), pp 7420-7425, ISSN: 2214-7853; doi: <https://doi.org/10.1016/j.matpr.2017.07.073>
4. **Dheeman Bhuyan** and Kaushik Kumar; *Static Structural Analysis of Piston Valve of Twin Tube Dampers*; **IEEE; 2017 2nd International Conference for Convergence in Technology (I2CT)**, Pune, India, 2017, pp. 9-11. doi: 10.1109/I2CT.2017.8226085
5. Anakshi Das, Jahnabi Baruah, **Dheeman Bhuyan**; *The Anatomy of the Foot-Ankle Complex and The Mechanics of Walking: A Brief Review*; **Asian Journal of Convergence in Technology** Vol 4 (1) (2018)
6. **Dheeman Bhuyan**, P. Ramesh Babu, Jyoti Prasad Kalita; *Numerical Investigation of Blood Flow Characteristics Through Cannulated Aorta*; **Journal of Biomimetics, Biomaterials and Biomedical Engineering**; Vol. 43 (2019), pp 28-38, doi: 10.4028/www.scientific.net/jbbbe.43.28
7. **Bhuyan, D.**, Pallekonda, R. B., & Kalita, J. P.; *Flow Patterns of Blood Post-Application of Cross-Clamp During Cardiopulmonary Bypass*. **Physics of Fluids**; 34(12) (2022). doi: <https://doi.org/10.1063/5.0119748>

#### **Book chapters**

1. **Dheeman Bhuyan**.(2018).Designing of a Twin Tube Shock Absorber: A Study in Reverse Engineering. In K. Kumar and P. Davim (Eds.) *Design and Optimization of Mechanical Engineering Products*, pp. 83 – 104; IGI Global; DOI: 10.4018/978-1-5225-3401-3.ch005
2. **Dheeman Bhuyan**, &Kaushik Kumar (2019). A Brief History of Prosthetics and Orthotics of the Lower Body and Their Types. In K. Kumar, & J. Davim (Eds.), *Design, Development, and Optimization of Bio-Mechatronic Engineering*

*Products* (pp. 36-56). Hershey, PA: IGI Global. doi:10.4018/978-1-5225-8235-9.ch002

3. **Dheeman Bhuyan** & Kaushik Kumar (2019). Design of a Prosthetic Ankle Complex: A Study in Biomimetic System Design. In K. Kumar, & J. Davim (Eds.), *Design, Development, and Optimization of Bio-Mechatronic Engineering Products* (pp. 101-125). Hershey, PA: IGI Global. doi:10.4018/978-1-5225-8235-9.ch005
4. **Dheeman Bhuyan**. (2019). Design of Prosthetic Heart Valve and Application of Additive Manufacturing. In K. Kumar, D. Zindani, & J. Davim (Eds.), *Additive Manufacturing Technologies from an Optimization Perspective* (pp. 120-133). Hershey, PA: IGI Global. doi:10.4018/978-1-5225-9167-2.ch006

- **CONFERENCES**

1. 5th International Conference on Material Processing and Characterization (ICMPC2016), March 2016 Gokaraju Rangaraju Institute of Engineering and Technology, Hyderabad
2. International Conference on Mechanical Engineering Design (ICMED 2016), April 2016 SSN College of Engineering, Chennai
3. International Conference on Advances in Aeromechanical Materials for Manufacturing (ICAAMM 2016) MLR Institute of Technology, Hyderabad
4. IEEE sponsored 2nd International Conference for Convergence of Technology (I2CT) 2017, April 2017, Pune
5. National Conference on Recent Advances in Science and Technology (NCRASST-2018), March 2018 Assam Science and Technology University, Guwahati
6. IEEE sponsored 3rd International Conference for Convergence of Technology (I2CT) 2018, April 2018, Pune

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**TRAINING PROGRAMS, SEMINARS, FDPs**

- **As resource person**

1. ANSYS and Its Applications in Engineering, a Faculty Development Program conducted by the Department of Mechanical Engineering, Girijananda Chowdhury Institute of Management and Technology.

- **As participant**

1. Short term training program on *Estimating and Costing of Non-Conventional Energies*. Organized by National Institute of Technical Teachers Training and Research, Kolkata.
2. *Samantrana – Bridging the Gap*, a national level seminar on industry – academia collaboration. Organized by Girijananda Chowdhury Institute of Management and Technology.
3. AICTE sponsored workshop *Technology Enablement of North East: Water, Energy and Communication Solutions (TENE – WECS)*. Organized by CSIR NEIST, Jorhat in collaboration with CSIR NISTADS, New Delhi.

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## **SUBJECTS TAUGHT**

Engineering drawing, Strength of Materials, Applied Mechanics, Machine Drawing, Production and Project Management, Control Engineering, Machine Design

## **EQUIPMENTS, MACHINERY HANDLED**

- Universal Testing Machine (INSTRON), Vibration Testing Rig, Whirling Test Rig, all lab equipment related to mechanical engineering education
  - Gas cutting, Arc welding, Lathe machines, Grinding machines, Power hacksaw and other machine tools associated with mechanical maintenance
  - Ball mills, hammer crushers, belt conveyers, bucket elevators, pneumatic slides, pneumatic gates, weight feeder belts, hoppers, cyclone separator, rotary kiln, pre-heater, classifier, rotary packer and other associated equipment in the cement industry.
  - Centrifugal and reciprocating pumps, centrifugal and reciprocating compressors, boilers, pre-heaters, superheater, de-superheater, steam turbine, alternator, fractionating column, oil pipelines, petroleum product storage and movement related equipments and other associated equipment in the petrochemical industry, specifically in refineries.
  - Valves, turbines, gates, alternators, transformer, quenchers, circuit breakers and other related equipments used in power generation, transmission and distribution.
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## SOFTWARE PROFICIENCY

- **Languages known**  
C++
  - **Operating Systems**  
Windows releases; Linux
  - **Applications**  
ProEngineer/CREO; ANSYS; MATLAB; Photoshop; Cakewalk/Sonar
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## EDUCATIONAL QUALIFICATIONS AND INDUSTRIAL TRAINING

1. **Doctor of Philosophy** in Mechanical Engineering from National Institute of Technology Meghalaya  
(PURSUING)
2. **Master of Engineering** in Mechanical Engineering from Birla Institute of Technology, Mesra. (2016)  
Specialization: Design of Mechanical Equipments  
Thesis Title: Design Modification for Performance Enhancement of Base Valve Assembly in Twin Tube Shock Absorbers  
Result: 8.37 SGPA
3. **Bachelor of Engineering** in Mechanical Engineering from Chhattisgarh Swami Vivekananda Technical University (CSVТУ), Bilai. (2013)  
College: Disha Institute of Management and Technology, Raipur  
Project title: Minor Project: Motion analysis of cam follower mechanism using MATLAB 7.5  
Major Project: Fabrication of Stirling Engine  
Training: 1. Industrial training from Meghalaya Energy Corporation Ltd. during year 2011  
2. Internship at Guwahati Refinery, Indian Oil Corporation Ltd. During year 2012  
Result: 63.9%
4. **All India Senior Secondary Certificate Examination (AISSCE)** conducted by Central Board of Secondary Education (CBSE) from Army School Shillong, HQ 101 Area. (2009)

Result: 69.8%

5. **Indian Certificate of Secondary Education (ICSE)** conducted by the Council for Indian School Certificate Examinations (CISCE) from St. Edmund's School, Shillong.(2007)

Result: 83%

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## PERSONAL PROFILE

- Father's name** : Dr. Rabindra Nath Bhuyan
- Mother's name** : Dr. Indrani Bora Bhuyan
- Permanent address** : "HORIZON"  
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Shillong-793003
- Address for communication** : "HORIZON"  
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- Date of birth** : 21 November 1990
- Languages Known** : English, Assamese, Hindi, Bengali
- References** : 1. Dr. Debarshi Mallick  
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2. Dr. Bhaskor Jyoti Bora  
Assistant Professor,  
Rajiv Gandhi Institute of Petroleum Technology  
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