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#  Dr. DHIMAN DUTTA

# c/o Assistant Professor, Department of Mathematics,

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# Educational Qualification:

* Ph.D. in Mathematics from National Institute of Technology (NIT) Silchar, Assam in 2019 with Ph.D. Thesis Title “**A Study of Type-2 Fuzzy Sets, Relations and their Applications**.”
* Master of Science in Mathematical Sciences from Tezpur University, Tezpur, Assam in 2014.
* Bachelor of Science in Mathematics from Karimganj College, Karimagnj (Affiliated to Assam University, Silchar), Assam in 2012.
* Higher Secondary in Science from Karimganj Junior College of Science, Karimganj, Assam, AHSEC (Board) in 2009.
* High School from Baby Land English High School, Karimganj, Assam, SEBA (Board) in 2007.

# Academic Experience:

* + Teaching Assistant, Department of Mathematics, National Institute of Technology (NIT) Silchar, Assam from 14th July 2014 to 28th December 2018.
	+ Assistant Professor, Department of General Engineering (Maths), Terna Engineering College, Nerul West, Navi Mumbai from 4th January 2019 to 31st December 2020.
	+ Assistant Professor, Department of Mathematics, The Assam Royal Global University, Guwahati, Assam from 22nd March 2021 to till date.

# Awards:

* Received *Anundoram Borooah Award for excellent academic performance in securing First Division with Star Marks* in HIGH SCHOOL LEAVING CERTIFICATE.
* Rank First Class Second Position in B.Sc. Mathematics Major.
* Undertaken of Minor project in the course of my M.Sc.

# Knowledge in Computer:

* Application Software and Languages known: C, Microsoft Word, Excel, Power Point, Latex, LINGO.

# Research Interest:

Type-2 Fuzzy Set, Type-2 Fuzzy Relation, Application of Type-2 Fuzzy Variables in the Solid Transportation Problem and Decision-making problems.

**M.Sc. Project Students Guided:**

1. Sikhamoni Deka, Project Title: *A New Method For Solving A Particular Real Life Application Problem Based On Ranking Of Triangular Fuzzy Numbers***.** (3rd Sem)
2. Sikhamoni Deka, Project Title: *A Study on Application of Fuzzy Relations in Medical Diagnosis***.** (4th Sem)
3. Abdul Rezzak, Project Title: *Neutrosophic Set and Its Application to Decision Making***.** (3rd Sem)
4. Tirthanker Dey Sarker Project Title:*A Study on Ranking of Trapezoidal Intuitionistic Fuzzy Numbers***.** (3rd Sem)
5. Abdul Rezzak, Project Title: *Neutrosophic Set and Its Application to Decision Making***.** (4th Sem)
6. Tirthanker Dey Sarker Project Title: *Ranking of Intuitionistic Fuzzy Numbers by New Distance Measure***.** (4th Sem)
7. Uma Tamang, Project Title: *THE GREATEST AND THE LEAST EIGEN FUZZY SETS IN EVALUATION OF THE DRUG EFFECTIVENESS LEVELS,* (4th Sem).
8. Pallabi Das, Project Title: *EIGEN FUZZY SETS OF FUZZY RELATION WITH APPLICATION,* (4th Sem).

**B.Sc. Project Students Guided:**

1. Souravjeet Sonowal, Project Title:*A New Method For Solving Fuzzy Transportation Problem Based On Ranking Of Triangular Fuzzy Numbers***.** (5th Sem)
2. Souravjeet Sonowal, Project Title:*Application Of Fuzzy Sets In Decision Making Process Using Max-Min Method And Minimization Of Regret Method***.** (6th Sem)
3. Dhiraj Jain, Project Title: *A Comparative Analysis of Assignment Problem (Hungarian Assignment Method)*. (5th Sem)
4. Dhiraj Jain, Project Title: *Fuzzy Relations*. (6th Sem)
5. Rafiqul Islam, Project Title: *A new technique for solving Fuzzy Transportation Problem using Trapezoidal Fuzzy Numbers*, (5th Sem).
6. Rafiqul Islam, Project Title: *Solution of Differential Equations with Applications to Engineering Problems*, (6th Sem).

# Publication Highlights \*Corresponding author:

## **Journal Articles:**

* \*M. Sen, D. Dutta, A. Deshpande. Type-2 fuzzy G-tolerance relation and its properties, *International Journal of Analysis and Applications*, 15(2), 172–178, 2017. (**ESCI and SCOPUS** *indexed*) ISSN 2291-8639 (http://etamaths.com/index.php/ijaa/article/view/1448)
* \*D. Dutta, M. Sen. A new method for solving multi-item multi-objective solid fixed charged shipment model with type-2 fuzzy variables. *Global and Stochastic Analysis*, 4(1), 35-47, 2017. (**SCOPUS** *indexed*) ISSN: 2248-9444 ([https://www.mukpublications.com/resources/vol.\_3\_no.\_3/4\_Dhiman\_GSA\_format%20(1).pdf)](https://www.mukpublications.com/resources/vol._3_no._3/4_Dhiman_GSA_format%20%281%29.pdf%29)
* \*D. Dutta, M. Sen. Type-2 fuzzy equivalence relation on a groupoid under balanced and semibalanced maps. *Journal of Informatics and Mathematical Sciences*, 10(1 & 2), 133-151, 2018. ISSN 0975-5748 (online); 0974-875X (print) (<https://www.rgnpublications.com/journals/index.php/jims/article/view/535>)
* \*D. Dutta, M. Sen, B. Singha. Multi-item multi-objective fixed charged solid transportation problem with type-2 fuzzy variables. Proyecciones Journal of Mathematics, 39, n.3, 621-637, 2020. (**SCOPUS** *indexed*) ISSN-0717-6279 (https://www.scielo.cl/scielo.php?pid=S0716-09172020000300621&script=sci\_arttext)
* \*D. Dutta, M. Sen, A. Deshpande. Generalized type-2 fuzzy equivalence relation, *Proceedings of the National Academy of Sciences, India Section A: Physical Sciences,* 92, 129–136, 2020. (**SCIE** and **SCOPUS**) [ISSN](https://www.google.com/search?rlz=1C1SQJL_enIN877IN877&sxsrf=ALeKk0172QRmd5R320rlapB5pn1RxTP2fw%3A1597570137154&q=proceedings%2Bof%2Bthe%2Bnational%2Bacademy%2Bof%2Bsciences%2C%2Bindia%2Bsection%2Ba%2Bissn&sa=X&ved=2ahUKEwjbi53EtJ_rAhUYdCsKHeiBC5MQ6BMoADAVegQIDxAC)**:** 0369-8203 (https://link.springer.com/article/10.1007/s40010-020-00707-8)
* \*D. Dutta, M. Sen, A. Deshpande, B. Singha. A new method for solving multi-criteria multi- attribute decision-making based on the ranking of type-2 fuzzy variables. *International Journal of Fuzzy System Applications*, 10(1), 20-45, 2021. (**SCOPUS** indexed) ISSN: 2156-177X (https://www.igi-global.com/article/a-new-method-for-solving-multi-criteria-multi-attributes-decision-making-based-on-the-ranking-of-type-2-fuzzy-variables/274884)
* B. Singha, M. Sen, N. Singha, \*D. Dutta. A new Hesitant Fuzzy Rule Base system for ranking hydro power plant site selection, *New Mathematics and Natural Computation*, 18(2), 449-467, 2022. (**SCOPUS** and **ESCI** *indexed)* (https://www.worldscientific.com/doi/abs/10.1142/S1793005722500223)
* B. Singha, M. Sen, N. Singha, \*D. Dutta. Power Transformer Failure Analysis using Hesitant Fuzzy Set Theory Based Fault Tree Analysis, 2023. (**SCOPUS** *indexed Communicated*)
* M. Sen, \*D. Dutta, S. Ghosh, B.C. Tripathy. Statistical convergence of complex uncertain sequence of order ($α, β$), 2023. (**SCOPUS** *indexed Communicated*)

## **Conference Proceedings:**

* \*D. Dutta, M. Sen. Multi-item fixed charged solid shipment problem with type-2 fuzzy variables. *Soft Computing: Theories and Applications, Advances in Intelligent Systems and Computing*, 689-702, Springer, 2018. (**SCOPUS *indexed***) ISBN 978-981-10-5687-1
* \*D. Dutta, M. Sen. Multi-item solid fixed charged transportation problem with type-2 fuzzy variables. *International Conference on Quality, Productivity, Reliability, Optimization, and Modeling*, 258-265, IEEE Xplore, 2017.

## **Book Chapter:**

* \*D. Dutta, M. Sen. Fixed Charged Solid Transportation Problem with Budget Constraints in Type-2 Fuzzy Variables: Multi-Objective Solid Transportation Problem. *Soft Computing Techniques and Applications in Mechanical Engineering, Advances in Mechatronics and Mechanical Engineering (AMME), Book Series*, 35-71, IGI Global Publisher, 2018. *(***Web of Science Book Citation *Indexed****)* ISBN**-**10**:** 1522530355

# Workshop/Faculty Development Programme (FDP) Attended:

* Workshop on *Advanced Fuzzy Logic* organized by *Soft Computing Club, National Institute of Technology (NIT) Silchar* from 1-8 February 2016.
* Self-financed course on *Applications of Statistical Methods and Optimisation Techniques in Science and Engineering (SMOT-2016)* organized by the *Department of Mathematics, NIT Silchar* from 18-23 March 2016.
* Workshop on *Recent Advances in Fuzzy Optimization (RAFO-2018)* organized by the *Department of Mathematics, NIT Silchar* from 21-25 May 2018.
* National Symposium on *Applications of Mathematics in Science and Engineering* organized by the Department of Mathematics and Mechanical Engineering of Veermata Jijabai Technological Institute (VJTI) from 29-30th March 2019.
* Workshop on *Digital Image Processing, Wavelet and Image Processing* organized by the Department of Computer Engineering at Terna Engineering College from 10-22th June 2019.
* Attended a Webinar on *“The Art of Counting in the Strange World of Infiity”* conducted by the School on *05/06/2020* at Adamas University, Kolkata.
* Attended an *International Webinar Series on Applications of Mathematics* organized by the Department of Mathematics, Gurucharan College, Silchar, Assamfrom 20-22 August 2020.
* Attended *Five Days e-Workshop on LaTeX*, organised by the Department of Mathematics, School of Science, GITAM, Bengaluru, India from 5-9 July 2021.
* Attended a *Three-day National level Workshop on MATLAB for Beginners* organized by the Department of Mathematics, Srimad Andavan Arts and Science College, Trichy from 28-30 July 2021.
* Attended *National Level Workshop on Artificial Intelligence and Machine Learning* organized by the Department of Mathematics, The Assam Royal Global University, Guwahati from 7-11 March 2022.
* Attended FDP on *A Mindful Approach to Holistic Health & Well Being* organized by Sikkim Manipal Institute of Technology from 17-19 May 2022.
* Attended *International FDP on Mathematical Modelling of Biosystems with Special Focus on Epidemiology* organized by Mizoram University from 22-27 August 2022.
* Attended *a 5-day Workshop On Research, Academic Writing, And Latex* organized by The Assam Royal Global University Guwahati from 20-24 February 2023.
* Attended A six Day Online Faculty Development Program on “*Mathematics And Its Applications*” Organized by the Basic Science & Humanities Department organized by JD College of Engineering and Management from 01-06-2023 to 06-06-2023.
* Attended A one-week Online FDP on “*Mathematics and its Application in Technology and Science*” Organized by the Basic Science & Humanities Department organized by Madanapalle Institute of Technology and Science from 05-06-2023 to 09-06-2023.
* Attended A five-day Online FDP on “*Operation Research and Optimization Techniques*” organized by VIT Chennai from 21-06-2023 to 25-06-2023.
* Attended A five-day Online FDP on “*Application of Artificial Intelligence in Solving Various Engineering Problems*” organized by VIT Chennai from 23-06-2023 to 27-06-2023.
* Attended A one-week Online National Level FDP on “*Research Awareness: Publication Database and Journal Selection*” organized by Gokul Global University, Siddhpur, Gujarat from 24-06-2023 to 30-06-2023.
* Attended an Online Short-Term Course On Mathematical Modelling And Numerical Simulation organized by Dr B R Ambedkar National Institute of Technology, Jalandhar Punjab 144027, India from 24-07-2023 to 28-07-2023.
* Attended an Online Short-Term Course Mathematics with Computational Learning for Engineering and Technological Applications (MCET 2023) organized by Dr B R Ambedkar National Institute of Technology, Jalandhar Punjab 144027, India from 20-11-2023 to 24-11-2023.
* Attended a five-day Online FDP on “*Mathematics in Engineering and Science -*

*Importance and Applications*” organized by VIT AP from 02-01-2024 to 06-01-2024.

* Attended a two-day Online Workshop on “*MATLAB and Simulink for Beginners*”organized by Human Resource Development Centre, The Assam Royal Global University, Guwahati from 18-01-2024 to 19-01-2024.
* Attended 7 days Online Faculty Development Programme on “Recent Trends in Biomathematics & Dynamical Systems with Bifurcation, Chaos & Simulation Methods” organised by Department of Mathematics, Mahadevananda Mahavidyalaya, West Bengal from 07-02-2k24 to 13-02-2k24.
* Attended a five-day Online FDP on “*Research Methodology, AI Tools in Research and*

*Intellectual Property Rights*”organized by Bharathians Alumni Trust, Coimbatore, Tamil Nadu and Sri Venkateswara College of Computer Applications and Management, Coimbatore, Tamil Nadu from 22-01-2024 to 26-01-2024.

* Attended a five-day Online FDP (Hybrid Mode) on “Employing Industrial Quality Management Systems for Quality Assurance in Outcome-Based Education (OBE)-2024”organized by Department of Mechanical Engineering, SVERI’s College of Engineering, Pandharpur., Maharashtra, Indiafrom 19-06-2024 to 24-06-2024.

**Membership of Professional / Scientific Societies:**

* Assam Academy of Mathematics from 5th December 2022 with enrolment number 223206**.**
* The Indian Mathematical Society from June 2023 with membership number L/2023/089.
* The Tripura Mathematical Society from June 2023.

**Journal Reviewer:**

* TWMS Journal of Applied and Engineering Mathematics, Işık University, 34980, Şile, Istanbul, Turkey. Tel: +90 216 712 14 60, Fax: +90 216 710 2873, (**SCOPUS** and **ESCI** *indexed)* E-Mail: jaem@isikun.edu.tr

# References:

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I hereby declare that the data given above are correct and complete to the best of my knowledge.

Place: Guwahati, Assam

 Thanking You.

 Dr. Dhiman Dutta