

ISSN: 0973-6875

Volume: 12, Issue: 1A, October (2025) - March (2026)

International Journal of HIT Transaction on ECCN

Published By

Haldia Institute of Technology, Haldia, West Bengal, India



International Journal HIT Transaction on ECCN

Technical Advisory Committee	
Dr. Lakshman Chandra Seth Chairman, ICARE, Haldia, West Bengal	
1. Prof. Chiranjib Bhattacharjee <i>Professor & Ex-HOD, Department of Chemical Engineering, Jadavpur University, Kolkata, India</i>	2. Prof. J. Paulo Davim <i>Department of Mechanical Engineering, University of Aveiro, Portugal</i>
3. Prof. Gautam Sanyal <i>M.Tech, Ph.D(Engg.), FIE, MIEEE Professor & Dean (Faculty Welfare) Department of Computer Science & Engineering, National Institute of Technology, Durgapur, India</i>	4. Prof. Kit Fai Pun <i>Professor of Industrial Engineering, Ex-Deputy Dean, Faculty of Engineering , Department of Mechanical & Manufacturing Engineering, University of the West Indies at St. Augustine Trinidad and Tobago</i>
5. Prof. Gautam Bhattacharya <i>Professor, Department of Civil Engineering, Indian Institute of Engineering Science and Technology, India</i>	6. Prof. Joseph McGeough <i>Senior Honorary Professorial Fellow School of Engineering, University of Edinburgh, UK</i>
7. Prof. B. Anuradha <i>Principal, AL Ameen Institute of Management, Bangalore, India</i>	8. Prof. Samrat Roy Choudhury <i>Director, Webster University, Thailand</i>
9. Prof. B. M. Zakir <i>Principal, Al Ameen Arts, Science & Commerce College, India</i>	10. Prof. Vijay Devabhaguni, <i>Professor, Department of Electrical Engineering, Toledo University, USA</i>
11. Prof. Gautam Banerjee <i>HOD, Dept. of Management, NIT, Durgapur, India</i>	12. Prof. Avijan Dutta <i>Professor, Department of Management, NIT, Durgapur, India</i>
13. Prof. Vishal Vishnoi <i>HOD, IMR, Gaziabad, India</i>	14. Prof. Rajnish Srivastava <i>Director, NIT, Hamirpur, India</i>
15. Prof. R. L. Sharma <i>Vice Chancellor, Himachal Pradesh Technical University, India</i>	16. Prof. Mrinalini Pandey <i>Department of Management Studies, IIT-ISM, Dhanbad, India</i>
17. Prof. Ram Naresh Sharma <i>Professor, Department of Electrical Engineering, NIT, Hamirpur, India</i>	18. Prof. Debasish Sur <i>Department of Commerce, The University of Burdwan, West Bengal, India</i>
19. Prof. J. N. Sharma <i>Professor, Department of Mathematics, NIT, Hamirpur, India</i>	20. Prof. Jeevanandan. S <i>Associate Prof & Campus head, Christ University, India</i>
21. Prof. Jesiah Selvam <i>Professor & Chief Coordinating Officer, SCAD Group of Institutions, India</i>	22. Prof. Debasish Giri <i>Head, Dept. of IT, Maulana Abul Kalam Azad University of Technology, West Bengal, India</i>

Editorial Details

1. Editor –in -Chief

Prof. Tarun Kanti Jana
Principal, Haldia Institute of Technology

2. Consulting Editor :

Sri Sayantan Seth
Vice-Chairman, Haldia Institute of Technology
Sri Asish Lahiri
Secretary, ICARE

3. Executive Editor:

Dr. Anjan Mishra
Registrar General, Haldia Institute of Technology
Prof. (Dr.) Asit Kumar Saha
Dept. of CHE

4 Technical Editor:

Prof.(Dr.) Subhankar Joardar
Dean, School of Computer Science, Electronics & Informatics
Prof.(Dr.) Dilip Dey
Dean, School of Engineering
Prof. (Dr.) Asit Baran Maity
Dean, School of Applied Science & Humanities

5. Editorial Team Members:

Prof. (Dr.) Bikash Bapari, *Dept. of ME*
Dr. Arunangshu Giri, *Dept. of MBA*
Dr. Sabyasachi Smanta, *Dept. of CSE*
(Cyber Security)

Prof. (Dr.) Chanchal Kumar Dey, *Dept. of ECE*
Dr. Anupam Dey, *SASH*
Dr. Avishek Das, *Dept. of ECE*

Copyright@2019 by the Haldia Institute of Technology, Haldia, West Bengal. All rights reserved. The views expressed in the articles are those of the authors and the Journal Technical Advisory Committee, Editor-in chief, other office bearers and committee members are not in any way responsible for such views and opinions. No part of this publication can be reproduced or transmitted in any form or by any means or sorted without the prior permission. Application or permission for other uses of copyright material includes permission to reproduce extracts in other published works shall be made to the publisher. However, full acknowledgement of author(s), publisher and source must be provided properly.

Published by:

Haldia Institute of Technology, Haldia, WB, INDIA

CONTENTS

<i>Sl. No.</i>	<i>Paper Title</i>	<i>Page No.</i>
1.	A Study on Breakdown Problems of High-Speed Diesel (HSD) Euro 6-Vehicles (Tata motors, Toyota, Hyundai, Mahindra, Eicher, Kia and Ashok Leyland) in BHUTAN T shering	1-13
2.	Revolutionizing Lung Disease Diagnosis in X-Ray Images: Multi-Stage Approach with WMF, FCM, and MCNN Integration Using YOLOV4 Sanjukta Rani Jena	14-25
3.	A Portable Biometric System for Student Verification in Exam Halls using ESP32 Shivam Seal, Dipayan Biswas and Moumita Basak Nath	26-31
4.	Design and Analysis of an Apple-Shaped Microstrip Patch Antenna for 2.4 GHz Applications Shyamala C, Shivakumar M, Vedha A S, Jayanth J, Ravikiran H K	32-39
5	The performance of a wearable antenna under bending conditions Designed on a Used Jeans for the ISM band Subhrashil Nanda, Tarit Sarkar, RajendraProsad Ghosh	40-48
6	Performance analysis of Modified 16-Channel WDM-RoF network for Efficient Long-Haul 5G Communication Suman Singh, Priyanka Dalal, Pravesh Kumari, Sanjeev Kumar Dhull	49-59

