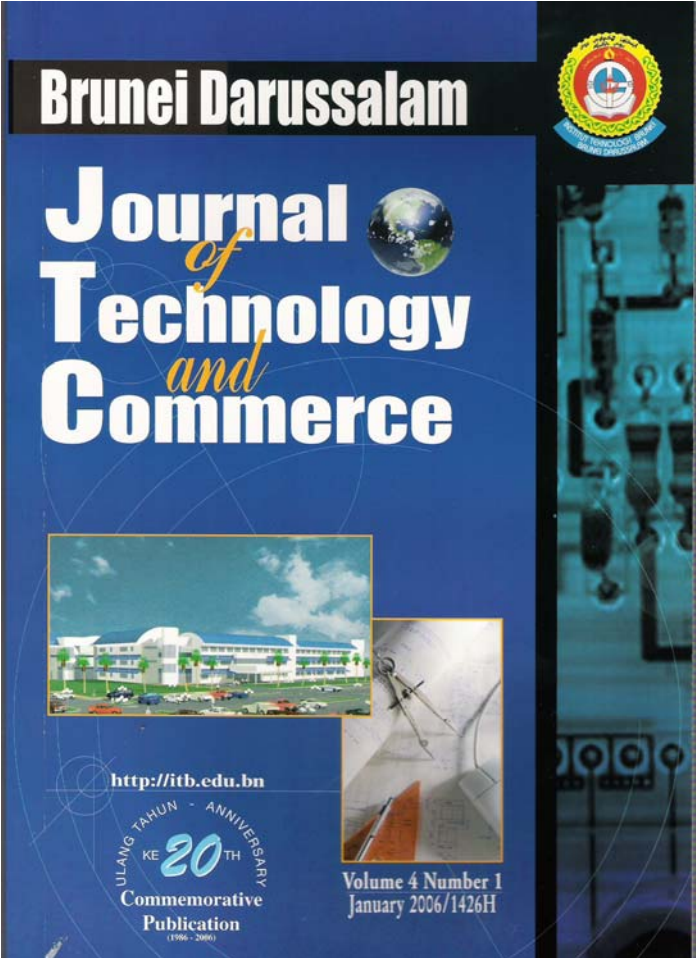


Brunei Darussalam Journal of Technology and Commerce
Front Cover



**Brunei Darussalam Journal of
Technology and Commerce**

Aims and Scope

The Brunei Darussalam Journal of Technology and Commerce will cover all aspects of the practice of engineering, computer technology and commerce. It is intended to provide the community of engineers, technologists, entrepreneurs and researchers in government, industry and academia with a forum for discussion and exchange of information relating to recent advances and applications in the fields of technology and commerce. The Journal will be published annually.

Patron

Yang Berhormat Pehin Orang Kaya Seri Lela Dato Seri Setia Dato Dr. Awang Haji Abdul Rahman bin Dato Setia Haji Mohammad Taib,
Minister of Education, Negara Brunei Darussalam.

Editor-in-Chief

Dr.Hj Kassim bin Haji Daud [PSB PIKB BSc Hon (Bradford) MSc (London) PhD (Liverpool)]
Director, Institut Teknologi Brunei

Assistant Editor-in-Chief

Dr Hajah Naemah binti Haji Basir[DMS MSc PhD (UK)]
Deputy Director, Institut Teknologi Brunei

Secretary Editor

Dr Nabil M Abdul Kadir
[BSc.Eng(Mosul), PhD(Southampton), CEng, MIEE, MIEEE]

Publishing Committee

Zainidi bin Hj Abdul Hamid
[BEng(Anglia), MSc(Brunel), AMIEE]

DK Rafidah Pg Haji Petra[BEng (Glasgow)]

Dr Hjh Noralam Pg Tuah [BEng (Glasgow)]

Editorial Members:

Dr Faqir Gul
Dr Sophiana Chuaa Abdullah

Dr Hakim Abass
Dr Ifzaal H Seyal
Hjh Rose binti Abdullah
Hj Mosidi Hj Kassim
Hj KBM Shafiuddin

Subscriptions

For subscriptions, please contact,

Institut Teknologi Brunei
JalanTungku Link Gadong
BE1410
Brunei Darussalam

Tel: 00 (673) 246-1020

Fax: 00 (673) 246-1036

Email: journal@itb.edu.bn

Subscription Rate

B\$10 (10 Brunei Dollars) for those resident in Brunei Darussalam and B\$15 (15 Brunei Dollars) for overseas subscribers including postage.

Copyright

ISSN 1605-2285

Copyright of Institut Teknologi Brunei.

This publication may only be reproduced, stored or transmitted with prior permission in writing from the publishers.

Under the copyright designs and patent regulations to uphold fair dealing, copying is only permitted for private study, review or criticism.

Disclaimer

Statements and opinions expressed in the articles and correspondences are those of the authors and do not reflect the opinion of the Editors or Publisher. The Editors and Publisher disclaim any responsibility or liability for such material and do not guarantee, warrant or endorse any product or service advertised in this publication nor do they guarantee any claim made by the manufacturer of such product or service.

Sponsors/ Advertisers

Brunei LNG Sendirian Berhad,
Datastream Technology (B) Sendirian
Berhad, Processta Printing & Trading
Compan

Contents of Volume 4
Brunei Darussalam Journal of Technology and Commerce

		Page
1	Institute Teknologi Brunei; Twenty Years of Excellence in Technical Education; Dr Hj Naemah binti Hj Basir	1
2	Porous Media Utilizations in Energy Systems Professor AA Mohamed	6
3	Hydraulic modelling of the effects of tidal flows and Sediment transport on channel geometry and flow in Klang river estuary Suleyman Aremu Muyibi	14
4	Prediction for the Thermal Performance of Flat Plate Collector Using Expert System Bashria A. A. Yousef, Adam N. M.	26
5	High-speed Data Access for Medical Applications M. Poulouse, Sarah Paul, and Winny Jose	38
6	New Technique in Fingerprint Matching based on An-AVL tree Search Algorithm Ahmed Baba Elmadani, Veeraraghavan Prakash,	48
7	Implementation of Resonant Frequency and H Bridge Inverters in Induction Heating Nabil Abdul Kadir, Ahmed Maliki, Ferry Syafrizal	54
8	Changes in Carbon, Nitrogen and the Carbon /Nitrogen Ratio during composting of sewage sludge Kabbashi, N. A, Fakhru'l-Razi Ahmadun	64
9	Towards Implementing Multimedia Technologies for Classroom Learning in Brunei Darussalam M M Poulouse, Zainidi bin Hj Abdul Hamid and Joffry Hj. Bungsu	72
10	Protocol Conversion FROM HDLC TO IEC 870 Communication Protocol Standards Laith Ihsan Khalil, Sarkout N. Abdullah	79

11	Student’s Perception of English Language Programs: A Comparative Study at two Technical Colleges Afzaal H. Seyal, Anthony Phillips , and Abbas Zaidi	86
12	Performance comparison of Gray-coded M- quadrature amplitude modulation in coded and uncoded orthogonal frequency division multiplexing techniques over additive white Gaussian noise Nor K. Noordin, Borhanuddin M. Ali, S. S. Jamuar,	93
13	El-Nino and la-Nina – in the context of Brunei Darussalam Dr Sikandar Khan Khatri	99
14	Aircraft Family Concepts for High Subsonic Regional Aircraft Ir. Prasetyo Edi	104
15	Clustering Location of Forest Fires Using Self-organizing Map Ali Selamat and Md. Hafiz Selamat	113
16	Trademark Matching Based on Robust Features Using Counter Propagations Neural Network Muhammad Faisal Zafar and Dulkifli Mohmad	121
17	Impact And Bending Properties of Pineapple Leaf Fibre (PALF) Reinforced Polypropylene (PP) Laminated Composites; R. M. N. Arib, S. M. Sapuan, M. A. M. M. Hamdan	130
18	Strengthening ATM Authentication Protocols L. A. Mohammed, Abdul Rahman Ramli, and M. Daud	136
19	A Quasi-Analytic Method for Calculating Photon and Carrier Densities in Super Luminescent Light-Emitting Diodes S. Yunus and T.J. Fairclough	143
20	Caution Required to Interpret Results of Experimental Studies –A Botto Friction Case Study Dr Sikandar Khan Khatri	148