IIUM ENGINEERING JOURNAL

Volume 6 Number 2 2005



IIUM JOURNALS

Devoted to the Idea of Integration, Islamization, Internationalization and Comprehensive Excellence (IIICE)

INTELLECTUAL DISCOURSE

of the Kulliyyah of Islamic Revealed Knowledge and Human Sciences

JOURNAL OF ISLAM IN ASIA

of the Kulliyyah of Islamic Revealed Knowledge and Human Sciences

IIUM JOURNAL OF ECONOMICS AND MANAGEMENT

of the Kulliyyah of Economics and Management Sciences

HUM LAW JOURNAL

of the Ahmad Ibrahim Kulliyyah of Laws

IIUM ENGINEERING JOURNAL

of the Kulliyyah of Engineering

EDUCATIONAL AWAKENING:

Journal of the Educational Sciences of the Institute of Education

and

AT-TAJDĪD

the University Journal in Arabic

All published by the International Islamic University Malaysia twice a year

For further information please contact:

Research Centre

International Islamic University Malaysia
P. O. Box 10, 50728 Kuala Lumpur, Malaysia.

Tel: 603-6196 5010; Fax: 603-6196 4862; E-Mail: rescentre@iiu.edu.my



IIUM (INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA)

ENGINEERING JOURNAL

CHIEF EDITOR

Ahmad Faris Ismail

EXECUTIVE EDITOR

Ahmed S. Ashour

ASSOCIATE EDITOR

Hamzah Mohd. Salleh

EDITORIAL BOARD

Asad Abdullah Khalid

Khalid Al-Khateeb

Md Zahangir Alam

Mohamed Hassan M.Hassan

Momoh Salami

Shahjahan Mridha

AIMS & SCOPE OF HUM ENGINEERING JOURNAL

The IIUM Engineering Journal, published biannually, is a carefully refereed international publication of International Islamic University Malaysia (IIUM). Contributions of high technical merit are to span the breadth of engineering disciplines; covering the main areas of engineering: Electrical and Computer Engineering; Mechanical and Manufacturing Engineering; Automation and Mechatronics Engineering; Material and Chemical Engineering; Environmental, and Civil Engineering; Biotechnology and Bioengineering; Engineering Mathematics and Physics; and Computer Science and Information Technology. Contributions from other areas of Engineering and Applied Science are also welcome. The IIUM Engineering Journal publishes contributions under Regular papers, Invited review papers, Short communications, Technical notes, and Letters to the editor (no page charge). Book reviews, reports of and/or call for papers of conferences, symposia and meetings, and advances in research equipment could also be published in IIUM Engineering Journal with minimum charges.

REFEREES NETWORK

All papers submitted to IIUM Engineering Journal will be subjected to a rigorous reviewing process through a worldwide network of specialized and competent referees. Each accepted paper should have at least two positive referee's assessments.

SUBMISSION OF A MANUSCRIPT

An original and two copies of the original manuscript should be sent to: Editor, IIUM-Engineering Journal, www.eng.iiu.edu.my/~iium-ej, e-mail: iium-ej@iiu.edu.my Faculty of Engineering, International Islamic University Malaysia (IIUM), P.O. Box 10, 50728, 53100 Kuala Lumpur, Malaysia. *Phone:* (603) 6196 4506, Fax: (603) 6196 4853

CHIEF EDITOR

IIUM ENGINEERING JOURNAL

Ahmad Faris Ismail

A Biannual publication of the International Islamic University Malaysia

EXECUTIVE EDITOR

Ahmed S. Ashour

Vol. 6, No. 2, 2005

Articles

ASSOCIATE EDITOR

Hamzah Mohd. Salleh

EDITORIAL BOARD

Asad Abdullah Khalid

Khalid Al-Khateeb

Md Zahangir Alam

Mohamed H. M. Hassan

Momoh Salami

Shahjahan Mridha

Fuzzy Logic Based Controller for Maintaining Human Comfort within Intelligent Building System
Nasrodin .T. Mustapha, Momoh J. E. Salami, Nazim and M. Nasiri 1
Behaviour based Mobile Robot Navigation Technique using AI System: Experimental Investigation on Active Media Pioneer Robot
S. Parasuraman1, V.Ganapathy, Bijan Shirinzadeh13
An AT89C52 Microcontroller Based High Resolution PWM Controller for 3-Phase Voltage Source Inverters
K. M. Rahman And S. J. M. Idrus27
Investigation on Laf ₃ /Si Structure as Light-Addressable Potentiometric Fluoride (F ⁻) Sensor
Abu Bakar Md. Ismail, Rezaul Islam., Koji Furuich, T. Yoshinobu and Hiroshi Iwasaki
Mems Electromagnetic Micro Relays Overview and Design Considerations
Zuraini Dahari, Thurai Vinay and Dinesh Sood
Thermal Shock In Periodic Edge-Cracked Plate Supported By Elastic Foundation
Abd El-Fattah A. Rizk

IIUM (INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA)

ENGINEERING JOURNAL

INTERNATIONAL ADVISORY COMMITTEE

Anwarul Azim, BUET, Bangladesh
Amr Baz, University of Maryland, USA
Ashraf Jawaid, Coventry University, UK
Bassam Jubran, University of Jordan, Jordan
Ebrahim Mamdani, I.C, University of London, UK
El-Sayed A. El-Badawy, Alexandria University, Egypt
Essamddin Badreddin, Mannheim University, Germany
Mohd Ridzuan B. Hj. Salleh, IIUM, Malaysia
Mohamed Mansour, ETH, Zurich, Switzerland
Mohamed I. Elmasry, University of Waterloo, Canada
Mohamed Kamel, University of Waterloo, Canada
Tengku Mohd Azzman Shariffadeen,
President and CEO, MIMOS, Malaysia
Mustafa Abushagur, University of Alabama, USA
Said I. El-Khamy, Alexandria University, Egypt
Shaker A. Meguid, University of Toronto, Canada