Journal of Engineering and Technological Sciences

Journal of Engineering and Technological Sciences welcomes full research articles in the area of Engineering Sciences from the following subject areas: Aerospace Engineering, Biotechnology, Chemical Engineering, Civil Engineering, Electrical Engineering, Engineering Physics, Environmental Engineering, Industrial Engineering, Information Engineering, Mechanical Engineering, Materials Science and Engineering, Manufacturing Processes, Microelectronics, Mining Engineering, Petroleum Engineering, and other application of physical, biological, chemical and mathematical sciences in engineering. Authors are invited to submit articles that have not been published previously and are not under consideration elsewhere.

Starting from Vol. 35, No. 1, 2003, full articles published are available online at http://journals.itb.ac.id/ index.php/jets, and indexed by Scopus, Web of Science (Emerging Source Citation Index)-Clarivate Analysis, Ei Compendex, Google Scholar, Index Copernicus, DOAJ, ASEAN Citation Index, The Elektronische Zeitschriftenbibliothek EZB by University Library of Regensburg, EBSCO Open Science Directory, Chemical Abstract Service (CAS), Zurich Open Repository and Archive Journal Database, Indonesian Publication Index(IPI) and Science and Technology Index (SINTA).

Publication History

Currently known as:

Journal of Engineering and Technological Sciences

Formerly known as:

- ITB Journal of Engineering Science (2007 2012)
- Proceedings ITB on Engineering Science (2003 2006)
- Proceedings ITB (1961 2002)

Editorial board of Journal of Engineering and Technological Sciences

Chief Editor			
Endra Gunawan	Masyhur Irsyam	M Akbar Rhamdhani	Bayu Jayawardhana
Faculty Mining and	Faculty of Civil and	FPD Group, FSET, Swinburne	FSE, University of
Petroleum Engineering, ITB,	Environmental Engineering,	University of Technology,	Groningen, Netherlands
Indonesia	ITB, Indonesia	Australia	
			Walter Timo de Vries
Associate Editor	Tatacipta Dirgantara	Jeong-Guon Ih	SED, Technical University of
Afriyanti Sumboja	Faculty of Mechanical and	Korea Advanced Institute of	Munich, Germany
Faculty of Mechanical and	Aerospace Engineering, ITB,	Science and Technology,	
Aerospace Engineering, ITB,	Indonesia	South Korea	Yusaku Ohta
Indonesia			Graduate School of Science,
machesia	Yuniati	Mark van Loosdrecht	Tohoku University, Japan
Khoiruddin	Faculty of Civil and	FAD, Delft University of	
Faculty of Industrial	Environmental Engineering,	Technology, The Netherlands	Massoud Sofi
Technology, ITB, Indonesia	ITB, Indonesia		Departement of
		Ramaraj Boopathy	Infrastructure Engineering,
Editorial Board	Heri Andreas,	Department of Biological	The University of
Tjandra Setiadi	Faculty of Earth Science and	Sciences, Nicholls State	Melbourne, Australia
Faculty of Industrial	Technology, ITB, Indonesia	University, United States	
Technology, ITB, Indonesia			
, , , , , , , , , , , , , , , , , , , ,	Suprijanto	Prakash Thamburaja	
Suwarno	Faculty of Industrial	Universiti Kebangsaan	
School of Electrical	Technology, ITB, Indonesia	Malaysia, Malaysia	
Engineering and Informatics,			
0 0			

Publication assistant: Yuliah Qotimah. Address: *ITB Journal Secretariat*, LPPM ITB, Center for Research and Community Services (CRCS) Building 7th Floor, Jl. Ganesha No. 10 Bandung 40132, Indonesia, Tel. +62-22-86010080, Fax.: +62-22-86010051; e-mail: jets@lppm.itb.ac.id.

Distribution: Distributed to other universities and research institutions for exchange publications, and to regular subscribers. Subscription per issue: Rp 100.000,- (domestic) and \$50 (overseas). Order form for subscription should be sent to the editorial office.

Reg. No. 691-SIC-UPPGT-SIT-1963, Accreditation No. 225/E/KPT/2022 (Vol. 54 No.4, 2022 - Vol. 59 No.3, 2027)

Published by The Institute for Research and Community Services, Institut Teknologi Bandung.

Cover Design by Chandra Tresnadi.

ITB, Indonesia

Table of Contents

1.	Physical and Chemical Properties of Indonesian Coffee Beans for Different Postharvest Processing Methods Elin Yusibani, Peter Lloyd Woodfield, Adi Rahwanto, Muhammad Syukri Surbakti, Rajibussalim Rajibussalim & Rahmi Rahmi	1-11
2.	Structure Simulation on Portable Commuter Bike Considering Frame Design and Materials Alternatives Bambang Iskandriawan	12-21
3.	Investigation on Neutronic Parameters of the KLT-40S Reactor Core with $\rm U_3Si_2$ -FeCrAl using SCALE Code Alif Al Mahfudz, Alexander Agung & Andang Widi Harto	22-30
4.	Physicothermal and Topography Analysis of Polyurethane Modified Bitumen with Rediset for WMA Application Faridah Hanim Khairuddin, Siti Zubaidah Mohd Asri, Noor Aina Misnon, Nur Izzi Md Yusoff, Auni Diyana Fadzil & Ku Zarina Ku Ahmad	31-39
5.	An Enhanced Dynamic Spectrum Allocation Method on Throughput Maximization in Urban 5G FBMC Heterogeneous Network Nurzati Iwani Othman, Ahmad Fadzil Ismail, Khairayu Badron, Wahidah Hashim, Mohammad Kamrul Hasan & Sofia Pinardi	40-51
6.	Pixel Value Graphical Password Scheme: Analysis on Time Complexity Performance of Clustering Algorithm for Passpix Segmentation Mohd Sidek Fadhil Mohd Yunus, Mohd Rizal Mohd Isa, Mohd Afizi Mohd Shukran, Norshahriah Wahab, Syarifah Bahiyah Rahayu & Amalina Farhi Ahmad Fadzlah	52-59
7.	Design of a Novel Efficient High-Gain Ultra-Wide-Band Slotted H-Shaped Printed 2×1 Array Antenna for Millimeter-Wave Applications with Improvement of Bandwidth and Gain via the Feed Line and Elliptical Edges Tibermacine Badreddine, Hamaizia Zahra & Guesbaya Tahar	60-78
8.	Progress and Challenges of Biological Leaching of Heavy Metal in Coal Ash from a Power Plant Yuni Lisafitri & Edwan Kardena	79-90
9.	Applying Eco Enzyme to Reduce Chemical Oxygen Demand (COD) Content of Artificial River Water Yonik Meilawati Yustiani, Fadjari Lucia Nugroho, Fauzi Zaki Murtadho & Achmad Teguh Djayadisastra	91-97
10.	Rapid Flood Mapping Using Statistical Sampling Threshold Based on Sentinel-1 Imagery in the Barito Watershed, South Kalimantan Province, Indonesia Muhammad Priyatna, Muhammad Rokhis Khomarudin, Sastra Kusuma Wijaya, Fajar Yulianto, Gatot Nugroho, Pingkan Mayestika Afgatiani, Anisa Rarasati & Muhammad Arfin Hussein	98-107