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://journal.itb.ac.id, and indexed by Scopus, Index Copernicus, Google Scholar, DOAJ, GetCITED, NewJour, Open J-Gate, The Elektronische Zeitschriftenbibliothek EZB by University Library of Regensburg, EBSCO Open Science Directory, Ei Compendex, Chemical Abstract Service (CAS) and Zurich Open Repository and Archive Journal Database.

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

Editorial board of Journal of Engineering and Technological Sciences					
Chief Editor Ismunandar Faculty of Mathematics and Natural Sciences ITB, Indonesia	Graeme Fairweather Mathematical Reviewss American Mathematical Society, USA	Masaaki Ookuma Structural Dynamics Titech, Tokyo, Japan Indah Rachmatiah S. Salami Faculty of Civil and	Suwarno School of Electrical Engineering and Informatics, ITB, Indonesia		
Editorial Board Tjandra Setiadi (Executive Editor) Faculty of Industrial	Masyhur Irsyam Faculty of Civil and Environmental Engineering ITB,	Environmental Engineering ITB, Indonesia Andrew F. Seybert	El Sayed Youssef Geology Department, Faculty of Science, Cairo University, Giza, Egypt		
Technology ITB, Indonesia	Indonesia Louis Jezequel	Dept. Mechanical Eng., Univ. Kentucky, USA	Sigit Sukmono Faculty of Mining and		
Hasanuddin Z. Abidin Faculty of Earth Sciences and Technology ITB, Indonesia	Structural and System Dynamics and Control, Ecole Centrale de Lyon, LTDS, Ecully, France	Tatacipta Dirgantara Faculty of Mechanical and Aerospace Engineering, ITB, Indonesia	Petroleum Engineering ITB, Indonesia Aigin Wang		
Hermawan K. Dipojono Faculty of Industrial	Teruyuki Kato Earthquake Research	Pekik Argo Dahono Indonesian Engineering	Center for Eco-material and Green Chemistry, Lanzhou Institute of		
Technology ITB, Indonesia	Institute, Univ. of Tokyo, Japan	Association (PII), Indonesia	Chemical Physics, Chinese Academy of Sciences , P.R. China		

Publication assistant: Dini Sofiani Permatasari & Yuliah Qotimah. Address: *ITB Journal Publisher*, LPPM ITB, Jalan Tamansari 64, Bandung 40116, Indonesia, Tel. (022) 2501759 ext. 115, Fax.: (022) 2504010; e-mail: journal@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. 81/DIKTI/Kep/2011 (Nov 2011-Nov 2016)

Published by *ITB Journal Publisher*, The Institute for Research and Community Services, Institut Teknologi Bandung, in collaboration with Indonesian Engineering Association (Persatuan Insinyur Indonesia - PII).

Cover Design by Chandra Tresnadi.

i

Table of Contents

1.	Characterization of Chemical and Physical Properties of Hydroxypropylated and Cross-linked Arrowroot (Marantha arundinacea) Starch Rijanti Rahaju Maulani, Dedi Fardiaz, Feri Kusnandar & Titi Candra Sunarti	207
2.	Nonlinear Finite Element Modeling of Red Meranti Compression at an Angle to the Grain Yosafat A. Pranata & Bambang Suryoatmono	222
3.	Feasibility of Recovering Energy from Municipal Solid Waste to Generate Electricity Ari Darmawan Pasek, Kilbergen W. Gultom & Aryadi Suwono	241
4.	Performance Evaluation of Steel Fibres in Rice Husk Ash Substituted Concretes A. Sivakumar & V.M. Sounthararajan	257
5.	New Correlations for Coal and Biomass Pyrolysis Performances with Coal-Biomass Type Number and Temperature Yazid Bindar	275
6.	The Effects of Cr and Mo on the Microstructure and Mechanical Properties of As-Cast TiAl Alloys Husni, Ahmad Fauzi Mohd. Noor & Rizal Astrawinata	294
7.	Two-Dimensional Model of Ciliwung River Flood in DKI Jakart for Development of the Regional Flood Index Map Adam Formánek, Rasmiaditya Silasari, M. Syahril Badri Kusuma & Hadi Kardhana	a 307
	Index	iii
	List of Reviewers	vii