5th Engineering Science & Technology International Conference 2020

Held online due to COVID-19

IOP Conference Series: Materials Science and Engineering Volume 990

Padang, Indonesia 5 - 6 August 2020

ISBN: 978-1-7138-3302-4

ISSN: 1757-8981

Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

This work is licensed under a Creative Commons Attribution 3.0 International Licence. Licence details: http://creativecommons.org/licenses/by/3.0/.

No changes have been made to the content of these proceedings. There may be changes to pagination and minor adjustments for aesthetics.

Printed with permission by Curran Associates, Inc. (2021)

For permission requests, please contact the Institute of Physics at the address below.

Institute of Physics Dirac House, Temple Back Bristol BS1 6BE UK

Phone: 44 1 17 929 7481 Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 USA Phone: 845-758-0400

Fax: 845-758-2633

Email: curran@proceedings.com Web: www.proceedings.com

TABLE OF CONTENTS

INFORMATION SYSTEMS	
DEVELOPMENT OF MACHINE LEARNING APPLICATIONS FOR CHEMICAL OBJECTS	1
DEVELOPMENT OF WEB-BASED TOEFL LEARNING MEDIA (E-TOEFL) USING MOODLE AT UNIVERSITAS BUNG HATTA	6
WEBGIS OF PARTICIPANTS IN THE WEBINAR ON COMMUNICATION AND LEARNING MOTIVATION DURING THE COVID-19 PANDEMIC	12
ARCHITECTURE	
DECAY PERFORMANCE MODELINGOF HISTORIC TIMBER ROOF STRUCTURES OF AMANTUBILLAH PALACE IN MEMPAWAH, INDONESIA	18
ELECTRICAL ENGINEERING	
LOAD SHEDDING SIMULATION USING A FREQUENCY RELAY IN LAMPUNG ELECTRICAL SYSTEM	24
I Darmana, A R Salvayer, Erliwati	
EFFECT OF THICKNESS AND TYPE OF MAGNET AGAINST EMF BACK PMSG 12S8P WITH FEM	29
Liliana, Zulfatri Aini, Alex Wenda, Tahlil Darmiayu Putri	
DESIGN AND IMPLEMENTATION OF VENTILATOR FOR BREATHING APPARATUS	34
PRELIMINARY STUDY OF HARMONIC GENERATED BY HOUSEHOLD APPLIANCES I Nisja, S. Hardi, Mirzazoni, Hidayat	40
INDUSTRIAL ENGINEERING	
PRODUCTIVITY IMPROVEMENT THROUGH INNOVATION OF PRODUCTION FACILITIES IN MSMES	46
D Mufti, Y Mahjoedin, A Iksan	
THE HERITAGE TOURISM DEVELOPMENT AS THE SUSTAINABLE DEVELOPMENT GOAL OF THE ENCLAVE SETTLEMENT: A PRELIMINARY RESEARCH	53

CHEMICAL ENGINEERING

COMBINATION OF OIL PALM EMPTY FRUIT BUNCH AND MULTI MEDIA LAYER COIR	
FILTER TO TREAT WATER IN MENDALO DARAT, JAMBI	57
R Safita, F Kurniawan, Deliza	
UTILIZATION STUDY OF CARBONIZED COAL BRIQUETTE AS BEEF RENDANG	
COOKING FUEL.	67
Pasymi, E Sari, E D Rahman	
DESIGN OF BIOMASS BRIQUETTE STOVES: PERFORMANCE BASED ON MIXED OF	
DURIAN BARK, COCONUT SHELL AND PALM SHELLS AS MATERIALS OF BIO	
BRIQUETTE	74
E Sari, Burmawi, U Khatab, ED Rahman, A P Anindi, E Andriyati, I Amri	
CHARACTERISTIC OF TOURIM SOLID WASTE OF HARAU VALLEY, WEST SUMATRA	81
R Aziz, Mahmuda, Y Ruslinda, Y Dewilda	01
A COMPANICON OF DAY MEATERY A CID DIGITAL ATTE (DEAD) ECTEDIFICATION MICHAEL	
A COMPARISON OF PALM FATTY ACID DISTILLATE (PFAD) ESTERIFICATION USING SULPHATED ALUMINA VERSUS SULPHURIC ACID CATALYST	96
M Ulfah, Firdaus, E Sundari, E Praputri	80
19 Ogan, I mans, E Saman, E Frapani	
WATERDISTRIBUTION IN THE FLOW FIELD OF THE BIPOLARPLATE ON THE	
CATHODESIDE OF THE PEM FUELCELL	93
Mulyazmi, M Marthynis, F R Safitri, N G Sari	
LINEAR AND NON-LINEAR REGRESSION ANALYSIS FOR THE KINETICS OF [AUCL4]-	
REMOVAL BY P-HYDROXYBENZOATE INTERCALATED MG/AL-HYDROTALCITE	100
L A Hasnowo, S J Santosa, B Rusdiarso	
PHYSICO-MECHANICAL PROPERTIES OF LOW-DENSITY	
GEOPOLYMERMORTARSYNTHESIZED USING INEXPENSIVE FOAM AGENT	107
A Amri, M Reski, Z Helwani, Aman, Y B Hendri, H Maizir, S Saputro, J Wahyuadi	107
DRINKING WATER PRODUCTION FROM RAINWATER USING RADIO FREQUENCY	
PLASMA SYSTEM	112
R Desmiarti, E Sari, R R Vallepi, F S Wahyeni, M Y Rosadi, A Hazmi	
DEVELOPMENT OF ELECTRICALLY CONDUCTIVE CELLULOSE NANOFIBER	
FILMCOMPOSITED WITH CARBON NANOTUBES USING A SPRAY METHOD	119
M Tominaga, K Kuwahara, M Tsushida, K Shida	
MECHANICAL ENGINEERING	
SCORE LEVEL FUSION TECHNIQUE FOR HUMAN IDENTIFICATION	124
M H Hamd, Rabab A Rasool	
PREDICTING SURFACE HARDNESS OF COMMERCIALLY PURE TITANIUM UNDER	
PLASMA NITROCARBURIZING BASED ON EXPERIMENTAL DATA	130
A S Darmawan, W A Siswanto, P I Purboputro, B W Febriantoko, T Sujitno, A Hamid	
ANALYSIS OF CHARACTERISTICS OF ACTIVATED CARBON FROM CACAO	
(THEOBROMA CACAO) SKIN WASTE FOR SUPERCAPASITOR ELECTRODES	136
Y Yetri, Mursida, D Dahlan, Muldarisnur, E Taer, Febrielviyenti	130

MATERIAL DENSITY OF COMPOSITE HYDROXYAPATITE BOVINE BONE- BOROSILICATE FORMED BY COMPACTION AND SINTERING TECHNIQUES	144
THE INFLUENCE OF SHOT PENNING ON FATIGUE CRACK GROWTH RATE OF CHEMICAL MILLING PRODUCT AL-2524-T3 ALLOYS WHICH HAS BEEN STRETCHED Yovial, Jamasri, Yos Nofendri, W Marthiana, Duskiardi	148
PERFORMANCE EXPERIMENTAL STUDY ON STEPPED TYPE BASIN SOLAR STILL TO PRODUCE SALT AND FRESH WATER	155
PERFORMANCE STUDY FF INCREASING POWER PLANT EFFICIENCY BY REDUCING CONDENSER PRESSURE IN TELUKSIRIH POWER PLANT	160
NUMERICAL STUDY FOR COMPARISON OF PSEUDO MODAL AND DIRECT METHOD IN PREDICTING CRITICAL SPEED OF COAXIAL DUAL ROTOR SYSTEM	166
KINEMATIC ANALYSIS ON FOUR-BAR MECHANISM MODEL USING PID CONTROLLER	176
CIVIL ENGINEERING	
THE UTILIZATION OF HYDRODINAMICS MODELS IN VALIDATING THE EAST JAVA RIP CURRENT IN THE ERA OF INDUSTRIAL REVOLUTION 4.0	182

Author Index