

Conference on Broad Exposure to Science and Technology (BEST 2021)

Exploring the Recent Advancements in
Science for Sustainable and Green
Technology

Advances in Engineering Research Volume 210

Online
31 August 2021

Editor:

Mekro Permana Pinem

ISBN: 978-1-7138-4400-6

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.

Copyright© (2022) by Atlantis Press
All rights reserved.
Copyright for individual electronic papers remains with the authors.

For permission requests, please contact the publisher:

Atlantis Press
Amsterdam / Paris

Email: contact@atlantis-press.com

Conference Website: <http://www.atlantis-press.com/php/pub.php?publication=best-21>

Printed with permission by Curran Associates, Inc. (2022)

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

SESSION: MECHANICAL

THE EFFECT OF AIR FLOW RATE ON OXYGEN PURITY LEVEL IN PRESSURE SWING ADSORPTION EQUIPMENT WITH ZEOLITE 13X AND NATURAL ZEOLITE BAYAH	1
<i>Dhimas Satria, Teguh Kurniawan, Imron Rosyadi, Rina Lusiani, Mekro Permana Pinem, Nidya Jullanar Salman</i>	
PERFORMANCE AND POLLUTION CONTROL ANALYSIS OF MUNICIPAL SOLID WASTE INCINERATOR TYPE FLUIDIZED BED.....	7
<i>Agung Sudrajad, Iman Syaefulloh</i>	
THE SIMULATION OF FLUID FLOW AND HEAT TRANSFER IN A FLUIDIZED BED SPRAY DRYER WITH A VORTEX GENERATOR 30° TOWARD THE Y AXIS	10
<i>Pratomo Setyadi, Nugroho Gama Yoga, Muhammad Rizqi, Fajar Nur Amsir</i>	
PRELIMINARY STUDY OF DOOR OPENER DESIGN IN AUTOMATIC AS A PREVENTION MEANS SPREAD OF CORONAVIRUS DISEASES	16
<i>Erny Listijorini, Cery Ahendyarti, Sidik Susilo, Gema Sinaga, Bintang Priambodo</i>	
A STUDY ON THE DESIGN OF VACCINE COOLING BOXES FOR REMOTE AND BORDER AREAS.....	19
<i>Imron Rosyadi, Haryadi, Dhimas Satria</i>	
EFFECT OF PARTICLE SIZE ON TENSILE STRENGTH CHARACTERISTICS OF RECYCLED HDPE PLASTIC	29
<i>Eko Arif Syaefudin, Siska Titik D, Ahamd Kholil, Iwan S</i>	
STATIC LINEAR STRESS ANALYSIS OF ROAD BIKE FRAME DESIGN USING FINITE ELEMENT METHOD	35
<i>Djoeli Satrijo, Ojo Kurdi, Satria Wijaya</i>	
A HEAT CONTROL MECHANISM ON THE EXTRUDER SYSTEM OF THE CHOCOLATE 3D PRINTER MACHINE.....	39
<i>Setyawan Wibowo, Mokhammad Samsudin, Soeadgihardo Siswantoro, Muhammad Musthofa, Reza Mahardika, Rafiq Aly Nurdin</i>	
PERFORMANCE INVESTIGATION OF LOW-SPEED WIND TUNNEL: STABILITY WIND SPEED IN TEST SECTION	44
<i>F A Alfahma, Erwin, Slamet Wiyono</i>	
COMPARATIVE STUDY OF DAMPER EFFECTS OF STEERING TAIL FIN SHAPES: PART I.....	49
<i>Erwin, Dhimas Satria, Adinda Julia Dwiputri</i>	
LOW WIND SPEED WIND TUNNEL PERFORMANCE TEST: UNIFORMITY WIND SPEED IN TEST SECTION	54
<i>Erwin, Wahyu Nur Hidayat, Slamet Wiyono</i>	
THE EFFECT OF VACUUM PRESSURE ON THE QUALITY OF LIQUID PALM SUGAR RESULTING FROM THE VACUUM EVAPORATION PROCESS.....	58
<i>Slamet Wiyono, M S Fachry, S Abdullah, Dwi Sidik, Erwin</i>	

COMPARATIVE STUDY OF DAMPER EFFECTS OF STEERING TAIL FIN SHAPES: PART II	61
<i>Lusiani, Dhimas Satria, A B Rismawan, Erwin</i>	
DOOR HANDLE OPENER CONTROLLER BASED ON ARDUINO TO PREVENT TRANSMISSION OF THE COVID-19 VIRUS IN PUBLIC SPACES	66
<i>Sidik Susilo, Erny Listijoriny, A Wisnuadji, Hendra, Dhimas Satria, Rina Lusiani, S Ula</i>	
ADHESION ENERGY AND ROUGHNESS OBSERVATION ON ALKALI TREATED NATURAL FIBER AS COMPOSITES REINFORCEMENT.....	69
<i>Dody Ariawan, Sunardi, H I Akbar</i>	

SESSION: CIVIL

SURVEY OF ACCREDITED CALIBRATION LABORATORIES IN INDONESIA TO ENSURE METROLOGICAL TRACEABILITY BASED ON ISO/IEC 17025:2017 (CASE STUDY: GAUGE BLOCK CALIBRATION SERVICE).....	75
<i>Muhammad Haekal Habibie, Ocka Hedrony</i>	
DESIGN CONCEPT OF AN AMPHITHEATRE BUILDING HIGH LAND BOROBUDUR THAT IS RESPONSIVE TO THE SURROUNDING ENVIRONMENT	80
<i>Andiyan Andiyan, Tita Cardiah, Tri Wahyu Handayani</i>	
A SUSTAINABLE SIMULATION MODEL BASED ON THE INDONESIA SEA TOLL WAY	86
<i>Muhammad Fakhururiza Pradana, Sriram Praneeth Vinjamuri, Bernd Noche</i>	
IMPLEMENTATION OF UNMANNED AERIAL VEHICLE (UAV) IN THE SAND MINE PROJECT	93
<i>Yackob Astor, Retno Utami, Farhan Arradzuma Gustaman, M A Ramdani, Y I Pangestu</i>	
THE PATHWAY TO DECARBONIZATION: FLETTNER ROTOR APPLICATION IN MARITIME LOGISTICS	99
<i>Muhammad Fakhururiza Pradana, Bernd Noche, Fikri Abdulhakim Ichsan</i>	
3D MODEL OF PAVEMENT DISTRESS BASED ON ROAD GRADIENT USING UNMANNED AERIAL VEHICLE	106
<i>Yackob Astor, Retno Utami, Sarah Nabilah Winata, F A Rahman, F A Gustaman, M R Firdaus</i>	
BIOASBUTON AS AN ALTERNATIVE BINDER FOR HOT MIX ASPHALT.....	113
<i>Atmy Verani Rouly Sihombing, Reza Phalevi Sihombing</i>	
IMPACT OF TRAFFIC AND CUSTOMER SWITCHING BEHAVIOR OF HINTERLAND REGION ON THE PATIMBAN PORT DEVELOPMENT	120
<i>Laurenzo Kansil, Arif Fadillah</i>	
DESIGN OF FLOATING TERMINAL FOR COAL TRANSPORTATION OPTIMIZATION	127
<i>Kukuh Izatullah, Arif Fadillah, D N Theresiana</i>	
ANALYSIS USER BUS RAPID TRANSIT (BRT) TRANSPORTATION IN CORRIDOR IV AS A SOLUTION TO REDUCE TRAFFIC CONGESTION IN THE SANGEGO, TANGERANG CITY.....	132
<i>Kencana Verawati, Lu'Luil Maknun, Henita Rahmayanti</i>	
OPTIMIZATION OF PARKING AREAS AT THE BINTARO MARKET-BEKASI CITY	140
<i>Dasa Aprisandi, Telly Rosdiyani</i>	

SELECTION ANALYSIS OF THE ROUTE FOR THE WIDENING OF THE PALIMA-BAROS ROAD SELECTION	146
<i>Nila Artiwi, Euis Amilia</i>	
UTILIZATION OF ECO-FRIENDLY BAMBOO LEAF WASTE AS SUBGRADE STABILIZER.....	152
<i>Woelandari Fathonah, Rama Indera Kusuma, Dwi Esti Intari, Eryani Siti Maryam, Enden Mina</i>	
THE FINITE ELEMENT MODELLING OF A RECTANGULAR SLAB LYING ON MULTILAYER ELASTIC SOIL	156
<i>Soelarso, Jean-Louis Batoz, E Antaluca, F Lamarque</i>	

SESSION: ELECTRICAL

PERSONAL STORAGE WITH A DUAL SECURITY SYSTEM BASED ON ARDUINO.....	164
<i>Andika Febriansyah Gunawan, Pitoyo Yuliatmojo, Muhammad Yusro</i>	
DETECTION AND MONITORING OF CARBON MONOXIDE (CO) TOXIC GASES IN OLD VEHICLE CABIN (ODOMETER> 300K KM) AND ITS RELATIONSHIP TO VEHICLE DENSITY USING FUZZY METHOD	169
<i>Suzuki Syofian, Aji Setiawan, Rolan Siregar, Muhamad Fathan</i>	
APPLICATION OF LOAD CELL SENSORS IN GALLON SIZE DETECTION FOR IOT-BASED REFILL DEPOT APPLICATIONS	173
<i>Pitoyo Yuliatmojo, Jusuf Bintoro, Yusuf Syani</i>	
A COMPARATIVE STRUCTURAL, OPTICAL AND ELECTRICAL PROPERTIES OF METAL–SEMICONDUCTOR–METAL BASED ON INALAS /INGAAS	177
<i>Benzeghda Sabah, Bouhadiche Adil, Benghorieb Soulef, Irma saraswati, F Hobar</i>	
1 X 1000 KVA TRANSFORMATOR MEASUREMENT ANALYSIS USING VECTOR GROUP DYN-11 AND OFF LOAD TAP CHANGER	182
<i>Setiyo Budiyanto, Imelda Uli Vistalina Simanjuntak, Lukman Medriavin Silalahi, Agus Dendi Rochendi, Freddy Artadima Silaban</i>	
SIMULATION OF X-RAY PLANE USING VISUAL BASIC APPLICATIONS	187
<i>Gunawan Osman, Lukman Medriavin Silalahi, Muhammad Agung Juhardi, Setiyo Budiyanto, Hendrana Tjahjadi, Agus Dendi Rochendi</i>	
ANALYSIS OF LTE 900 IMPLEMENTATION TO INCREASE COVERAGE AND CAPACITY OF 4G LTE NETWORK ON TELKOMSEL PROVIDER.....	193
<i>Lukman Medriavin Silalahi, Imelda Uli Vistalina Simanjuntak, Setiyo Budiyanto, Freddy Artadima Silaban, Agus Dendi Rochendi, Gunawan Osman</i>	
INITIAL PLANNING AND ESTIMATION OF 2.4 KW SOLAR POWER PLANT USING PVSYST SOFTWARE IN FACULTY OF ENGINEERING, SULTAN AGENG TIRTAYASA UNIVERSITY – CILEGON BANTEN PROVINCE.....	200
<i>Rocky Alfanz, M. Otong, Fulka Zaidan, Imron Rosadi, Putro F Ferdinant</i>	
A CASE-BASED REASONING FOR DETECTION CORONAVIRUS (COVID-19) USING COSINE SIMILARITY.....	205
<i>Murien Nugraheni, Widodo, Irma Permata Sari</i>	
IOT BASED SMART ENERGY METER USING MODBUS PROTOCOL AS ELECTRICITY SAVING EFFORT	211
<i>Syufrijal, R. Wicaksono, M. Rif'an, R. Anugerah</i>	

DESIGN OF CARBON MONOXIDE (CO) POLLUTANT GAS DETECTION AND MONITORING SYSTEM USING MOBILE DETECTION MODEL BASED ON INTERNET OF THINGS (IOT)	216
<i>Muhammad Yusro, Aodah Diamah, Ibnuh Sakti, Ridwan, Nurhaliza, Imam Firmansyah, Setia Budi</i>	

ELECTRONICALLY CONTROLLED PLASMA POWER DEVICES FOR SUSTAINABLE AND ENVIRONMENTALLY FRIENDLY ELECTRIC ENERGY TECHNOLOGIES.....	224
<i>M.V Dolgopolov, V.V Radenko, G.G Zanin, D.E Ovchinnikov, A.V Radenko, V.B Svirkov, A.S Chipura, A.V Gurskaya</i>	

DEVELOPMENT OF WATER TAP CONTROL SYSTEMS AND PDAM COST MONITORING BASED ON IOT	233
<i>Irma Saraswati, F Erwiza, AS Pramudyo, Suhendar, Yusraini Muharni</i>	

SESSION: INDUSTRIAL

ANALYSIS OF STUDENT SATISFACTION USING ONLINE VIDEO CONFERENCE APPLICATION BASED ON USABILITY CRITERIA.....	238
<i>Johan Patrick, Dyah Santhi Dewi</i>	

APPLICATION OF ARTIFICIAL NEURAL NETWORK FOR FORECASTING DEMAND BOTTLED DRINKING WATER BY USING BACK PROPAGATION ALGORITHM.....	243
<i>Prima Denny Sentia, Andriansyah, Ilyas Ishak, Albizzia Haura</i>	

FACTOR INFLUENCING CONSUMER'S PURCHASE INTENTION ON E-COMMERCE IN INDONESIA DURING PANDEMIC COVID-19 BASED ON GENDER MODERATION.....	250
<i>Riski Arifin, Andriansyah, Rizki Agam Syahputra, Awal Aflizal Zubir</i>	

SYSTEM ANALYSIS AND DESIGN OF FISHERY SUPPLY CHAIN RISK IN ACEH: A CASE STUDY.....	257
<i>Rizki Agam Syahputra, Prima Denny Sentia, Riski Arifin, Awal Aflizal Zubir</i>	

MEASUREMENT OF VALUE AT RISK (VAR) IN STOCK INVESTMENT USING MONTE CARLO SIMULATION METHOD.....	264
<i>Dwi Handayani, M. Nuha Alfian Thariq</i>	

RISK MITIGATION DESIGN AS A PROPOSED IMPROVEMENT OF BLOOD SUPPLY CHAIN DURING THE COVID-19 PANDEMIC USING HOUSE OF RISK AND SYSTEM DYNAMIC.....	271
<i>M. Alfatah Kalijaga, Dwi Handayani</i>	

BLOCKCHAIN-BASED SUGAR INBOUND LOGISTICS DESIGN BASED ON THE USER WALLET PLATFORM APPLICATION	282
<i>Ratna Ekawati, Yandra Arkeman, S Suprihatin, TC Sunarti</i>	

THE READINESS LEVEL OF SARAWAK DISASTER MANAGEMENT AGENCIES (SDMAS) IN MANAGING DISASTER IN THE ADVENT OF FOURTH INDUSTRIAL REVOLUTION (IR 4.0).....	288
<i>Nur Putri Najwa Mahmud, Noralfishah Sulaiman, Umber Nazir, Siti Kursiah Kamalia Abdul Latib, Fathini Muhammad Hafidz, Sheikh Kamran Abid</i>	

CHALLENGES FACED IN MANAGING COVID-19 PANDEMIC CASE STUDY: MALAYSIA.....	301
<i>Noor Yasmin Zainun, Nadiatul Nazleen Ajman, Noralfishah Sulaiman, Shabir Hussain Khahro</i>	

HOUSE OF RISK (HOR) ANALYSIS APPLICATION FOR SUPPLY CHAIN RISK MANAGEMENT (SCRM) IN MICRO SMALL AND MEDIUM – SIZED ENTERPRISES (MSMSS)	309
<i>Dyah Lintang Trenggonowati, Yusraini Muharni, Asep Ridwan, Alya Mustika Wardhani</i>	
DETERMINING OPTIMAL NEW WASTE DISPOSAL FACILITIES LOCATION BY USING SET COVERING PROBLEM ALGORITHM.....	322
<i>Rizki Agam Syahputra, Andriansyah, Prima Denny Sentia, Riski Arifin</i>	
LEAN IMPLEMENTATION FRAMEWORK FOR SMALL AND MEDIUM ENTERPRISES BASED ON SCIENCEDIRECT DATABASE: A SYSTEMATIC LITERATURE REVIEW	329
<i>Yuli Agusti Rochman, Muhammad Kusumawan Herliansyah, Andi Sudiarso</i>	
BIBLIOMETRIC ANALYSIS OF UNIVERSITY TIMETABLING USING PUBLISH AND PERISH	334
<i>Dyah Lintang Trenggonowati, Lely Herlina, Evi Febianti, Muhammad Adha Ilhami, Yusraini Muharni, Bobby Kurniawan, Kulsum, Ade Irman</i>	
TRAILER VENDOR SELECTION WITH FUZZY-QUALITY FUNCTION DEPLOYMENT (FUZZY-QFD) APPROACH AND GOAL PROGRAMMING (CASE STUDY: KRAKATAU ARGO LOGISTICS INC.)	339
<i>Asep Ridwan, Ade Irman, Ahmad Aji Abadi, Didi Suhendi, Fatah Sulaiman</i>	
OPTIMIZATION OF HEAVY EQUIPMENT COSTS IN COAL MINING OVERBURDEN PRODUCTION USING MATCH FACTOR AND LINEAR PROGRAMMING	350
<i>Rizkyah Erwanda, Ari Yanuar Ridwan, Prafajar Suksessannp Muttaqin</i>	
FEASIBILITY ANALYSIS OF FINANCIAL ASPECT IN DETERMINING OPTIMAL LAST MILE WAREHOUSE LOCATION USING P-MEDIAN METHOD	359
<i>Firlan Sbastian, Ari Yanuar Ridwan, Nia Novitasari</i>	
ANALYSIS OF FACTORS CAUSING DELAY IN UNLOADING IMPORTED GOODS	372
<i>Siti Sahara</i>	
IDENTIFICATION OF CRITICAL POINT IN THE DESIGN OF HALAL LOGISTICS SYSTEM FOR GRANULAR ORGANIC FERTILIZER.....	379
<i>Qurtubi, Andik Bagus Prasetyo, Melinska Ayu Febrianti, Nasruddin Faisol</i>	
MEASURING PERFORMANCE OF HALAL SUPPLY CHAIN USING ANALYTICAL HIERARCHY PROCESS (AHP) AND SUPPLY CHAIN OPERATIONS REFERENCE (SCOR) 12.0 APPROACH: A CASE STUDY	387
<i>Qurtubi, Bagas Swardhana Putra, Vembri Noor Helia, Nasruddin Faisol</i>	
THE ROLES OF NUTRITIONAL KNOWLEDGE ON CULINARY STUDENTS IN PANDEMIC COVID-19	395
<i>Mahdiyah, Mutiara Dahlia, S A Hakim, Kasyifaturrahmah, Fildzah Rudyah, Putri</i>	
DESIGN OF VENDOR SELECTION SYSTEM USING FAHP AND FTOPSIS IN ENGINEERING-TO-ORDER MANUFACTURING INDUSTRY.....	400
<i>M I Fatoni, A Y Ridwan, P S Muttaqin</i>	
 <u>SESSION: CHEMICAL</u>	
COMPREHENSIVE ANALYSIS OF SAFETY RISK ASSESSMENT HRSG: PT. “X” INDONESIA WITH THE COMBINATION METHOD OF HAZOP, LOPA AND SIL.....	408
<i>Anton Irawan, Indar Kustiningsih, Sayid Jakfar</i>	

PINCH BASED APPROACH GRAPHICAL TARGETING FOR MULTI PERIOD OF CARBON CAPTURE STORAGE AND UTILIZATION.....	415
<i>Annasit Muallim, Juwari Purwo Sutikno, Ali Altway, Renanto Handogo</i>	
A PERSPECTIVE TO COMBAT COVID-19 DISEASE: MANUFACTURING AND FORMULATING INHALABLE PHARMACEUTICALS	423
<i>Amilia Firman Kurniawansyah, Agung Kridoyono</i>	
A COMPARISON OF TWO DIFFERENT TUNING METHODS OF PID CONTROLLER FOR EVALUATION OF THE DYNAMICS PERFORMANCE DEODORIZING COLUMN OF THE CRUDE PALM OIL.....	428
<i>Renanto Handogo, Kevin, Juwari Purwo Sutikno, Vincentius Lukas Aria, Annasit Muallim</i>	
DATA ANALYSIS FOR HYALURONIC ACID PRODUCTION USING PRINCIPAL COMPONENT ANALYSIS	436
<i>Medyan Riza, Mukhlisnien, Andriansyah</i>	
CALCINED KILN ANALYSIS AND PROXIMATE SIMULATION OF HIGH-QUALITY COKE PRODUCTS USING ASPEN PLUS.....	441
<i>Atika Safitri, Ghiyar Ragil Alfath, Wara Dyah Pita Rengga, Nugroho Adi Sasongko, Immanuel Juan Safira</i>	
TERNARY LIQUID EQUILIBRIUM FOR EUGENOL + TERT-BUTANOL + WATER AND EUGENOL + 1-OCTANOL + WATER SYSTEM AT 303.15 K AND ATMOSPHERIC PRESSURE	448
<i>Retno Kumala, Gede Wibawa, Kuswandi</i>	

SESSION: MATERIAL

PHYSICAL AND MECHANICAL PROPERTIES OF ANTIMICROBIAL FILM FORM LEMONGRASS OIL INCORPORATED WITH CHITOSAN/ASCORBIC ACID.....	455
<i>Cuk Imawan, Retno Yunilawati, Vivi Fauzia, Dwinna Rahmi, Aminah Umar</i>	
PHYSICAL PROPERTIES EVALUATION OF CALCIUM SILICATE CEMENT BOARD BASED ON INDONESIA LOCAL KAOLIN.....	461
<i>Nurhidayati, R Y Lestari, I D G P Prabawa, N Nurmilatina, F E Hasfianti, S Hamdi</i>	
THE COMPRESSIVE STRENGTH CHARACTERISTICS OF GLASS FIBER REINFORCED CEMENT CONCRETE WITH SILICA SAND MATERIAL ADDED FROM SIDOARJO LAPINDO VOLCANO MUD.....	465
<i>Jafar Amiruddin, Wildan Ananta Firdaus, Himawan Hadi Sutrisno</i>	

Author Index