IOP Conference Series: Materials Science and Engineering • *Open Access* • Volume 598 • 2019 • Article number 012004 • Joint Conference of the 6th Annual Conference of Industrial and System Engineering 2019, ACISE 2019 and 1st International Conference on Risk Management as an Interdisciplinary Approach 2019, ICRMIA 2019 • Semarang, Central Java • 23 April 2019 through 24 April 2019 • Code 152221

Document type
Conference Paper • *Bronze Open Access*

Source type
Conference Proceedings

ISSN
17578981

DOI
10.1088/1757-899X/598/1/012004

Safety climate assessment of furniture industry: A case study

Susanto N.[a], Prastawa H.[a], Oktaningrum D.D.[a]

Save all to author list

[a] Industrial Engineering Department, Faculty of Engineering, Diponegoro University, Indonesia

Abstract

Lack of safety awareness has caused many losses including accidents cost, insurance cost as well as indirect costs. Most of work accidents occurred due low perception of work safety. A measurement of safety climate for workers and head department should be considered to figure the condition of safety climate out. The assessment of safety climate is using Nordic Safety Climate Questionnaire (NOSACQ-50). The significance of differences in the safety climate between workers and head department is

Source details

IOP Conference Series: Materials Science and Engineering

Scopus coverage years: from 2009 to 2021
(coverage discontinued in Scopus)
ISSN: 1757-8981 E-ISSN: 1757-899X
Subject area: Engineering: General Engineering | Materials Science: General Materials Science
Source type: Conference Proceeding

View all documents > | Set document alert | Save to source list | Source Homepage

CiteScore 2021
1.1

SJR 2021
0.249

SNIP 2021
0.344

CiteScore | CiteScore rank & trend | Scopus content coverage

¡ Improved CiteScore methodology
CiteScore 2021 counts the citations received in 2018-2021 to articles, reviews, conference papers, book chapters and data papers published in 2018-2021, and divides this by the number of publications published in 2018-2021. Learn more >

CiteScore 2021

$$1.1 = \frac{68{,}488 \text{ Citations } 2018 - 2021}{62{,}140 \text{ Documents } 2018 - 2021}$$

Calculated on 05 May, 2022

CiteScore rank 2021

Category	Rank	Percentile
Engineering └ General Engineering	#194/300	35th
Materials Science └ General Materials Science	#362/455	20th

View CiteScore methodology > | CiteScore FAQ > | Add CiteScore to your site

6th Annual Conference on Industrial and System Engineering (6th ACISE 2019)

IOP Conference Series: Materials Science and Engineering
Volume 598

Semarang, Indonesia
23 – 24 April 2019

Part 1 of 2

ISBN: 978-1-5108-9468-6
ISSN: 1757-8981

IOP Conf. Series: Materials Science and Engineering **598** (2019) 011001 doi:10.1088/1757-899X/598/1/011001

Foreword from Conference Chair

Welcome to Joint Conference 6th Annual Conference of Industrial and System Engineering 2019 (6th ACISE 2019) and 1st International Conference on Risk Management as an Interdisciplinary Approach 2019 (1st ICRMIA 2019), held 23-24 April 2019 at the Gumaya Hotel, Semarang, Central Java – Indonesia. The conference is organized by the INDUSTRIAL ENGINEERING DEPARTMENT, DIPONEGORO UNIVERSITY as a host, Sebelas Maret University, Centre for Risk Management Studies (CRMS), and National Agency for Standardization (BSN) as a co-host.

The conference is intended on providing a discussion, for exchanging of knowledge, researches and of recent solutions for many researchers and experts in the field of risk, industry 4.0, and industrial and system engineering. The theme of the conference is "Risk Engineering in Industry 4.0: Protecting and Creating Value in Industrial and System Engineering". This event will strengthen the collaboration and provide a forum for industry professionals, academicians, researchers, and scientists to discuss and exchange their research results, innovative ideas, and experiences in all aspects of intelligent and technologies, as well as to identify emerging research topics and define the future directions to achieve sustainable development in the era of industry 4.0.

The papers accepted and presented in this conference will be forwarded for consideration to be published in the IOP conference series: Materials Science and Engineering (proceedings indexed by SCOPUS). The selected papers will be published on International Journal of Applied Science and Engineering – IJASE and (indexed by SCOPUS), Operations and Supply Chain Management: An International Journal –OSCM, Journal TEKNIK UNDIP (accredited national journal), and Jurnal Ilmiah Teknik Industri (accredited national journal).

Thanks to the Ministry of Research, Technology, and Higher Education, Prof. H. Mohammad Nasir Ph.D., Ak for coming and supporting this conference. Thanks are due to Speakers, Sha'ri M. Yusof (Professor, Razak Faculty of Technology and Informatics (FTIR), Universiti Teknologi. Malaysia), Hui-Ming Wee (Distinguished Professor, Department of Industrial and Systems Engineering, Chung Yuan Christian University, Taiwan), Chaung-Chun Chiou (Professor, Department of Industrial Engineering and Enterprise Information, Tunghai University, Taiwan), Benny Tjahjono (Professor, Sustainable Production and Consumption Centre, Coventry University, United Kingdom), Dr. I-Jan Wang (Assoc. Professor, Department of Industrial Engineering and Enterprise Information, Tunghai University, Taiwan), Prof. Dr. Ir. Bambang Prasetyo, MSc. (Head of The National Standardization Agency of Indonesia, Indonesia), and Dr.Antonius Alijoyo, SE., MM., ERMCP., CERG.(Head of Indonesia Risk Management Professional Association (IRMAPA))

This year, the 6th ACISE 2019 and 1st ICRMIA received 180 papers submissions from six countries such as Indonesia, Malaysia, Taiwan, Inggris, Swedia, and Jepang. But only 147 papers were accepted for presentations for oral sessions (the acceptance ratio is 80%). We are very grateful for the extensive efforts of many individuals who worked diligently to ensure a successful and high-quality conference.

We would like to say thank you to RistekDikti, DIPONEGORO University, CRMS, and BSN for supporting this event. Once again we would like to say Welcome to Semarang for all. Congratulations for your papers have been accepted. We invite all participants to actively participate in the conference activities and the city tours and to enjoy the opportunity to learn from one another. Thank you for choosing 6th ACISE and 1st ICRMIA as your conference references. We hope to have your pleasant supports and participation in the next year 2020, the 7th ACISE.

Thank you
Chair of the conference
Dr. Aries Susanty, ST. MT
Faculty of Engineering, Industrial Engineering
DIPONEGORO University, Semarang, Central Java - Indonesia

Aries Susanty

ariessusanty@gmail.com

08112205563

4. Engineering Economy and Cost Analysis
5. Healthcare Systems
6. Human factors and Ergonomics
7. Information Processing and Engineering
8. Intelligent Systems
9. Logistic and Supply Chain
10. Manufacturing Systems
11. Operation Research
12. Product Design and Innovation
13. Production Planning and Control
14. Project Analysis and Control
15. Quality Control System
16. Reliability and Maintenance Engineering
17. Safety, Security and Risk Engineering
18. Service Innovation
19. Systems Modeling and Simulation
20. Technology and Knowledge Engineering
21. Supply Chain Management and Agro Supply Chain

Committee

Committees

Advisory Committee:

Dean of Engineering Faculty, Diponegoro University, Semarang, Indonesia
Head of Industrial Engineering Department, Faculty of Engineering – Diponegoro University, Indonesia

Steering Committee:

Prof. Dr. Ir. Bambang Prasetyo, MSc.
Dr. Antonius Alijoyo, SE, MM, ERMCP, CERG.
Prof. D.S. Priyarsono, Ph.D, ERMCP, CERG.
Dr. Ir. Bambang Purwanggono, M.Eng

Organizing Committee

Dr. Aries Susanty, ST.MT (Chairman)
Dr. Ing Novie Susanto, ST. M.Eng (Secretary)
Dr. Singgih Saptadi, ST.MT
Dr. Purnawan Wicaksono ST.MT
Dr. Denny Nurkertamanda ST.MT
Dr. Manik Mahachandra, ST.MT
Dr. Hery Suliantoro, ST.MT
Diana Puspitasari ST MT
Wiwik Budiawan ST MT

International Scientific Committee:

Prof. Dr. Ir. Bambang Prasetyo, MSc. (BSN, Indonesia)
Prof. S-J. Wang (Tunghai University, Taiwan)
Prof. Chaung-Chun Chiou (Tunghai University, Taiwan)
Prof. Yasunobu Maeda (University of Shizuoka, Japan)
Prof. Dr. Ir. Sha'ri M. Yusof (RAZAK School of Engineering and Advanced Technology, University of Technology, Malaysia)
Prof. Song Mingshun (Ji Liang University, China)
Dr. Benny Tjahjono (Coventry University, United Kingdom)
Dr. Naniek Utami Handayani, ST MT (Diponegoro University, Indonesia)
Dr. Wahyudi Sutopo (Universitas Sebelas Maret, Indonesia)

TABLE OF CONTENTS

PART 1

THE DIFFERENCE OF TRADITIONAL FISHING BOATS IN BLIMBING AND BRONDONG SUB-DISTRICTS, LAMONGAN, INDONESIA 1
Y Praharsi, M A Jami'in, G Suhardjito, H M Wee

INTEGRATING IMPORTANCE-PERFORMANCE ANALYSIS INTO E-S-QUAL AND E-RECS-QUAL SCALES FOR ASSESSING ELECTRONIC SERVICE QUALITY 7
M M Ulkhaq, M Rabbani, B A Rachmania, A T Wibowo, F Ardi

AN ASSESMENT OF SEBELAS MARET UNIVERSITY READINESS TO ESTABLISH PRODUCT CERTIFICATION BODIES (LSPRO) FOR BOTTLED DRINKING WATER (AMDK) PRODUCTS BASED ON SNI ISO/IEC 17065:2012 15
S R Fauziyah, F Fahma, R Zakaria

SAFETY CLIMATE ASSESSMENT OF FURNITURE INDUSTRY: A CASE STUDY 23
N Susanto, H Prastawa, D D Oktaningrum

RE-DESIGN PRODUCTION PROCESS USING LEAN MANUFACTURING APPROACH FOR PRESSURE VESSEL 421 PSI 30
A N Alifiya, M L Singgih

SUSTAINABLE CRITERIA IN SUPPLIER EVALUATION OF THE FOOD INDUSTRY 36
I Nugraha, M Hisjam, W Sutopo

THE EFFECT OF COMPETENCE, MOTIVATION, AND ENVIRONMENT ON BUSINESS PERFORMANCE OF WOMEN ENTREPRENEURS RUNNING SMALL AND MEDIUM ENTERPRISES IN JAKARTA 44
M Simanjuntak, H Sarjono

ANALYZING MENTAL WORKLOAD OF REMOTE WORKER BY USING SWAT METHODOLOGY (CASE STUDY: REMOTE SOFTWARE ENGINEER) 50
A H Zulfany, R S Dewi, S G Partiwi

MEASUREMENT OF INTERMEDIARY TRADER EFFICIENCY IN POULTRY DISTRIBUTION USING DATA ENVELOPMENT ANALYSIS METHOD 59
R Purwaningsih, C G Pratiwi, N Susanto, H Santosa

CAMPUS SUSTAINABILITY PRACTICE ASSESSMENT: AN EMPIRICAL FINDING FROM JÖNKÖPING UNIVERSITY, SWEDEN 67
M M Ulkhaq, R S George Joseph, B Javed, N R Nadekar

MODELLING RAW MATERIAL POLICY IN THE PALM SUGAR INDUSTRY WHILE CONSIDERING SUSTAINABILITY ASPECTS: A DYNAMIC SYSTEM APPROACH 75
M Krisnawati, A Mustikasari, N S Uletika, T P Adhiana, E Sutrisno

MULTIPLE CORRESPONDENCE ANALYSIS USING BURT MATRIX: A STUDY OF BANDUNG INSTITUTE OF TECHNOLOGY STUDENT CHARACTERISTICS 83
A W Mahdiyasa, U S Pasaribu

FACTORS SUPPORTING THE IMPLEMENTATION OF MASS TRANSPORT SYSTEM IN INDONESIA 90
L Lady, M S Ardani, P F Ferdinant

SEVEN MANAGEMENT AND PLANNING TOOLS IN MEGAPROJECT MANAGEMENT: A LITERATURE REVIEW 99
R W Damayanti, Subagyo, A R Wijaya, B Hartono

RISK ANALYSIS OF SUPPLY CHAIN CULTIVATION OF JOPER 106
T Immawan, A Puruhita, W N Cahyo

DESIGN OF ERGONOMIC ASSAULT VEST FOR INDONESIAN ARMY WITH MODULAR CONCEPT 112
A D Prayogi, D S Dewi, A Sudiarno

INTEGRATION ASSESSMENT AND EVALUATION OF SUPPLIER PERFORMANCE SYSTEM IN ELECTRICITY GENERATION COMPANY 120
B Musyahidah, I Vanany

SUPPLIER SELECTION WITH GRAY BASED ROUGH SET THEORY METHOD (A CASE STUDY: PHARMACEUTICAL INSTALLATION OF RSU GRAND MEDICA TANJUNG ANOM, MEDAN) 125
A Bakhtiar, Y S T Siahaan, A Susanty

VALUE CHAIN ANALYSIS TO IMPLEMENTATION OF INDONESIAN NATIONAL STANDARD (SNI) BATIK WITH ISO METHODOLOGY APPROACH 133
F Fahma, D Pratiwi, R Zakaria

VEHICLE ROUTING PROBLEM WITH SPLIT SERVICE, TIME WINDOW AND INTERMEDIATE FACILITY FOR MUNICIPAL SOLID WASTE COLLECTION IN SURABAYA CITY WITH ANT COLONY OPTIMIZATION ALGORITHM 142
D H Dayanara, N I Arvitrida, N Siswanto

DEVELOPING INDICATORS OF GREEN CONSTRUCTION OF GREEN SUPPLY CHAIN MANAGEMENT IN CONSTRUCTION INDUSTRY: A LITERATURE REVIEW 149
N. Farida, N.U. Handayani, M.A. Wibowo

PROCUREMENT STRATEGY IN POWER PLANT COMPANIES (CASE STUDY IN THE SUPPLY OF WATER GENERATOR ENGINE PARTS) 158
D Pujotomo, H Suliantoro, A F Huseina

A NEW METAHEURISTICS FOR SOLVING VEHICLE ROUTING PROBLEM: PARTIAL COMPARISON OPTIMIZATION 166
A Adhi, B Santosa, N Siswanto

A SYSTEMATIC LITERATURE REVIEW: FRAMEWORK DESIGN OF STUDENT PERFORMANCE MONITORING SYSTEM IN HIGHER EDUCATION 173
R A Finata, L Andrawina

AN ANALYSIS OF CORRELATION OF THE DISTANCES BETWEEN TURBINES IN A TURBINE FARM WITH THEIR POWER AND COST 180
J S Habiby, A Triwiyatno, T Andromeda

SINGLE MINUTE EXCHANGE OF DIES AS THE SOLUTION ON SETUP PROCESSES OPTIMIZATION BY DECREASING CHANGEOVER TIME, A CASE STUDY IN AUTOMOTIVE PART INDUSTRY 187
M Sugarindra, M Ikhwan, M R Suryoputro

THE ASSESSMENT OF COLLEGE STUDENTS KNOWLEDGE AND PRACTICE REGARDING THE APPLICATION OF SUSTAINABLE CONSUMPTION PATTERNS IN YOGYAKARTA, INDONESIA 195
H Purnomo, W I Kurnia

MACHINES MAINTENANCE INTERVAL ON FILLING LITHOS LUBRICANT PRODUCTION LINE: A CASE STUDY 203
C N Rosyidi, M A E Suryono, P W Laksono

THE RISK ASSESSMENT OF REPETITIVE STRAIN INJURY (RSI) DISORDER USING OCCUPATIONAL REPETITIVE ACTION (OCRA) INDEX METHOD 210
D P Restuputri, Eriko, I Masudin

AN EFFORT TO INCREASE THE POTENTIAL OF VIRGIN COCONUT OIL WITH PENDAWA TECHNIQUE 219
E F Sapatra, I Yuniarti, R A S Imamsyah

DESIGN AND MANUFACTURE OF A LOW-COST DATA ACQUISITION BASED MEASUREMENT SYSTEM FOR DUAL FUEL ENGINE RESEARCHES 225
N Sinaga, B Yunianto, D Purba, Syaiful, A Nugroho

COMPARATIVE STUDY OF THE PERFORMANCE AND ECONOMIC VALUE OF A SMALL ENGINE FUELED WITH B20 AND B20-LPG AS AN EFFORT TO REDUCE THE OPERATING COST OF DIESEL ENGINES IN REMOTE AREAS 233
N Sinaga, M Mel, D Purba, Syaiful, Paridawati

INNOVATIVE DESIGN OF ERGONOMIC WHEELCHAIR FOR DISABLED PEOPLE 241
H Soewardi, M K A Afgani

INTERRELATIONSHIP OF GREEN SUPPLY CHAIN MANAGEMENT (GSCM) PERFORMANCE INDICATORS FOR PALM OIL INDUSTRY IN INDONESIA 248
R Primadasa, A Sokhibi, D Tauhida

APPLICATION OF BAYESIAN ADDITIVE REGRESSION TREES TO ANALYZE THE GROWTH OF UNITED STATES ELECTRIC AUTOMOBILE INDUSTRY 256
P Ajidarma, D Irianto

THE LITERATURE REVIEW OF CLOUD-BASED ENTERPRISE RESOURCE PLANNING 262
R Aulia, A N Putri, M F Raihan, M Ayub, J Sulistio

REVISITING SUPPLY CHAIN SYSTEM WITH DETERIORATING ITEMS AND TRANSPORTATION COST 270
C V Huang, Y D Huang, H M Wee

APPLICATION QUALITY FUNCTION DEPLOYMENT TO IMPROVE QUALITY OF PATIENT SERVICE IN HEMODIALYSIS INSTALLATION 277
I Siregar

THE DESIGN OF AUXILIARY TOOL FOR FLAT MOTORCYCLE TIRES USING THE AXIOMATIC DESIGN METHOD 281
H Purnomo, F Kurnia, R I Virdyanawaty

PILOT FATIGUE RISK ANALYSIS: CONCEPTUAL STUDY AT FLIGHT OPERATION OF GARUDA INDONESIA'S BOEING 737 PILOTS 288
M Hamsal, F A Zein

A SIMPLE BUTTERFLY LIFECYCLE ALGORITHM FOR MEASURING COMPANY'S GROWTH PERFORMANCE 295
D N Utama, A Mitchell, B Fieri, H Richard

DESIGN KEY PERFORMANCE INDICATOR FOR SUSTAINABLE WAREHOUSE: A CASE STUDY IN A LEATHER MANUFACTURER 303
E Kusrini, A Ahmad, W Murniati

ASSESSING THE EFFICIENCY OF SMALL AND MEDIUM INDUSTRY: AN APPLICATION OF DATA ENVELOPMENT ANALYSIS 311
S N W Pramono, M M Ulkhaq, D Pujotomo, M A Ardhini

INTEGRATING HOUSE OF RISK METHOD WITH PESTLE AND CIMOSA FOR RISK ASSESSMENT OF JAVA-BALI I POWER PLANT CONSTRUCTION PROJECT 318
A Muntoha, A Sudiarno

ANALYSIS AND CHARACTERIZATION HELM BASED ON HYACINT WATER COMPOSITES 326
S A Albab, Sulistyo, S Nugroho

RELATIONSHIP ANALYSIS BETWEEN COMPANY STANDARD, SNI, AND INTERNATIONAL STANDARD IN WASHING MACHINE: A CASE STUDY AT AN ELECTRONIC COMPANY 333
A Bakhtiar, Y Widharto, D I Rinawati, M Nurfajrianti

DETERMINING THE IMPORTANCE FACTORS OF FINANCIAL TECHNOLOGY ADOPTION IN HOSPITAL USING FUZZY ANALYTICAL NETWORK PROCESS (FANP) 340
M. Dachyar, E N Ilahiyyah, Farizal

PROJECT SCHEDULING OF NEW PRODUCT DEVELOPMENT PROCESS IN AUTOMOTIVE INDUSTRY IN INDONESIA USING DESIGN STRUCTURE MATRIX (DSM) 348
C M Reza, M Dachyar, R Nurcahyo

CAMISOLE MODIFICATION BASED ON HUMAN PHYSIOLOGY AND FASHION ASPECT FOR DIPONEGORO UNIVERSITY STUDENTS 356
D Nurkertamanda, A S Utami, Sriyanto, Y Widharto

ANALYSIS OF DIVE INDUSTRY MINIMUM REQUIREMENT CRITERIA BASED ON RISK MANAGEMENT 364
A T Setyoko, E Kristiningrum

MODELLING AND ANALYSIS OF MANUFACTURING PROCESS LAYOUT 369
I Siregar, J B Saedon, M S Adenan, S Shawal, M F Othman

THE PREDICTION OF LOGISTIC NEEDS OF EMERGENCY RESPONSE FOR VICTIMS OF MERAPI VOLCANO ERUPTION IN REGENCY SLEMAN, YOGYAKARTA 374
N U Handayani, D I Rinawati, D P Sari, P M Rifa'i

IMPROVING THE PERFORMANCE OF AN ASSEMBLY LINE TO INCREASE PRODUCTION CAPACITY USING VALUE STREAM MAPPING: A STUDY CASE 383
W N Cahyo, W A Khaeruzzaman, F W Hasibuan

STRATEGY FOR MINIMIZING RISK OF ELECTRONIC WASTE MANAGEMENT USING THE ANALYTICAL HIERARCHY PROCESS (AHP) 391
D Rimantho, E Noor, Eriyatno, H Effendi

IMPROVING THE PERFORMANCE OF PROCUREMENT AND INVENTORY MANAGEMENT OF HOSPITAL MATERIALS (CASE OF A TAIWANESE MEDICAL CENTRE) 399
Y C Liu, M B Chiu, C C Chiou

THE DESIGN OF SHOE SIZES FOR BOYS AGED 4-6 YEARS OLD BASED ON FOOT ANTHROPOMETRIC DATA: LENGTH FOOT, WIDTH FOOT, AND FOOT BALL CIRCUMFERENCE 408
G F Waluyono, B Suhardi, E Pujiyanto

SIX SIGMA BASED PERFORMANCE MEASUREMENT OF TAX RETURN PROCESSING IMPROVEMENT (CASE STUDY: DIRECTORATE GENERAL OF TAXES FOR REPUBLIC OF INDONESIA) 416
A D Yuliyono, Baehaki, D Luqman, D N Utama, A Wibowo

APPLICATION OF SMED METHODOLOGY AND SCHEDULING IN HIGH-MIX LOW VOLUME PRODUCTION MODEL TO REDUCE SETUP TIME: A CASE OF S COMPANY 424
S S Wang, C C Chiou, H T Luong

EXTENDED-RSA FOR ENCRYPTION PROCESS TO IMPROVE APPLICATION SERVER AVAILABILITY 432
A Susanto, Herman, M I Putranto, D N Utama, A Wibowo
HOUSE OF RISK APPROACH FOR ASSESSING SUPPLY CHAIN RISK MANAGEMENT OF MATERIAL PROCUREMENT IN CONSTRUCTION INDUSTRY 438
T L Ahmad, A Susanty
THE RELIABILITY OF CRASH CAR PROTECTION LEVEL BASED ON THE CIRCLE CONFIDENCE REGION ON THE CORRESPONDENCE PLOT 445
K E Lestari, U S Pasaribu, S W Indratno, H Garminia
MANUFACTURING EFFICIENCY IMPROVEMENT THROUGH LEAN MANUFACTURING APPROACH: A CASE STUDY IN A STEEL PROCESSING INDUSTRY 452
S Indrawati, A Azzam, A C Ramdani
PRODUCT SEGMENTATION OF WOODEN HANDICRAFT MICRO, SMALL AND MEDIUM ENTERPRISES (MSMES) IN INDONESIA 459
M G F Christine, M Dachyar, R Nurcahyo
SUPPLIER SELECTION MODEL BASED ON RISK IN AN INDONESIAN HEALTHCARE SERVICE INDUSTRY 467
S Indrawati, A 'Azzam, H I Cahaya
COMPREHENSIVE FRAMEWORK OF E-COMMERCE ADOPTION IN INDONESIAN SMES 474
I Hayati, L Andrawina
PRODUCTION SCHEDULING TO MINIMIZE MAKESPAN USING SEQUENCING TOTAL WORK (TWK) METHOD AND CAMPBELL DUDEK SMITH (CDS) ALGORITHM 481
D Setiawan, A Ramadhani, W N Cahyo
DESIGN OF E-COMMERCE COMPETENCY IMPROVEMENT PROGRAM FOR BATIK SMES IN SURAKARTA 488
A R T Putri, Y Priyandari, E Liquiddanu

PART 2

AN ANALYSIS OF VARIABLES AFFECTING THE IMPLEMENTATION OF PATIENT SAFETY IN BUDI SEHAT HOSPITAL PURWOREJO USING PARTIAL LEAST SQUARE 494
R I Buwono, B Suhardi, E Pujiyanto
APPLICATION OF RISK IDENTIFICATION, RISK ANALYSIS, AND RISK ASSESSMENT IN THE UNIVERSITY LABORATORY 502
M A Budihardjo, F I Muhammad, A R Rizaldianto
SCOR: BUSINESS PROCESS ANALYSIS AND SUPPLY CHAIN PERFORMANCE IN BUILDING MATERIALS INDUSTRY 507
I Rizkya, K Syahputri, R M Sari, I Siregar, J Utaminingrum
AUTOREGRESSIVE INTEGRATED MOVING AVERAGE (ARIMA) MODEL OF FORECAST DEMAND IN DISTRIBUTION CENTRE 512
I Rizkya, K Syahputri, R M Sari, I Siregar, J Utaminingrum
ANALYSIS OF CHANGING WORKING PATTERNS ON AN OVERHAUL ACTIVITY IN A POWER PLANT INDUSTRY USING LEAN MANUFACTURING CONCEPT 518
A A Fattah, A Sudiarno
HEALTH STATE INDICATOR-BASED VIBRATION SIGNATURE FOR GEARBOX CONDITION MONITORING AND MAINTENANCE 525
A Widodo, Dj Satrijo, T Prahasto, I Haryanto
PRODUCTIVITY EVALUATION THROUGH AMERICAN PRODUCTIVITY CENTER APPROACH AT PT SEJAHTERA FURNINDO 532
Ahmudi, M Mahachandra, N U Handayani
PROJECT SCHEDULE EVALUATION USING PROJECT MANEGEMENT SOFTWARE: A CASE STUDY IN AN ELECTRIC STEAM POWER PLANT IN INDONESIA 541
S Miranda, V N Helia
THE INFLUENCE OF GREEN SUPPLY CHAIN MANAGEMENT ON COMPANY'S PERFORMANCE AND COMPETITIVENESS IN WOOD FURNITURE INDUSTRY: AN OVERVIEW OF CONCEPTUAL MODEL 549
F M Likumahwa, R Purwaningsih, N U Handayani
THE MUNDEL AND OBJECTIVE MATRIX MODEL OF PRODUCTIVITY MEASUREMENT AT PT ADI PERKAPALAN 555
R Yahya, M Mahachandra, N U Handayani

THE ENVIRONMENTAL IMPACT ASSESSMENT OF FURNITURE PRODUCTION PROCESS USING THE LIFE CYCLE ASSESSMENT 564
S Hartini, P A Wicaksono, H Prastawa, A F Hadyan, Sriyanto

SCOR-BSC INTEGRATED MODEL FOR A SMALL MEDIUM ENTERPRISE CLOTHING INDUSTRY USING MTS-BASED PRODUCTION STRATEGY IN INDONESIA 572
B W Permadi, A Y Ridwan, W Juliani

MATERIAL HANDLING PERFORMANCE MEASUREMENT AND METRICS FOR INTERNAL MILK-RUN AREA USING OVERALL TRANSPORTATION EFFECTIVENESS. CASE STUDY: AUTOMOTIVE INDUSTRY 580
F M A M Putra, A Y Ridwan, M D Astuti

THE MAIN CRITICAL RISK IN THE SUPPLY CHAIN OF COMPONENT AUTOMOTIVE INDUSTRY: A CASE STUDY 589
F Alitosa, L H Kusumah

LEAN ASSESSMENT MATRIX: A PROPOSED SUPPORTING TOOL FOR LEAN MANUFACTURING IMPLEMENTATION 596
P D Karningsih, A T Pangesti, M Suef

INTEGRATED BATCH PRODUCTION AND MULTIPLE PREVENTIVE MAINTENANCE SCHEDULING ON A SINGLE MACHINE TO MINIMIZE TOTAL ACTUAL FLOW TIME 605
R Yusriski, B Astuti, M Ilham, Zahedi

ENVIRONMENTAL PERFORMANCE IN INDONESIA AUTOMOTIVE INDUSTRY 613
G A Bintang, R Nurcahyo, D S Gabriel

BUSINESS INTELLIGENT IN AN E-COMMERCE INDUSTRY 619
A M Purnamasari, C E A Pah, M D I Yoga, A S Girsang, S M Isa

DETERMINANTS OF INNOVATION STRATEGY IN INDONESIA TELECOMMUNICATION INDUSTRY 627
D R Pramudita, R Nurcahyo, M Dachyar

PRODUCT DESIGN FOR POST-STROKE REHABILITATION BICYCLE WITH KANSEI ENGINEERING APPROACH 635
D S Dewi, A Rakhmawati, I M L Batan, N A Wessiani

FEATURE EXTRACTION O CONDITION MONITORING DATA ON HEAVY EQUIPMENT'S COMPONENT USING PRINCIPAL COMPONENT ANALYSIS (PCA) 643
M A Yudha, I Surjandari, Zulkarnain

TRAFFIC ACCIDENT SEVERITY PREDICTION USING NAIVE BAYES ALGORITHM - A CASE STUDY OF SEMARANG TOLL ROAD 651
W Budiawan, S Saptadi, Sriyanto, C Tjioe, T Phommachak

ORIGINAL EQUIPMENT MANUFACTURER (OEM) SITE SELECTION OF TRADITIONAL MEDICINE COMPANIES IN INDONESIA USING ANALYTIC HIERARCHY PROCESS (AHP) METHOD 659
M. Dachyar, A.T. Tjiptadi, Farizal

DESCRIPTIVE RELATIONSHIP ANALYSIS BETWEEN THE PROGRAM FOR POLLUTION CONTROL EVALUATION AND RATING (PROPER) AND ISO 14001 667
F R Nurkhaeriyah, R Nurcahyo, M Dachyar

IMPLEMENTATION FUGL MEYER ASSESSMENT OF LOWER EXTREMITY METHOD TO DEVELOP A POST-STROKE REHABILITATION PROCEDURE USING ITS TRICYCLE 675
R Febritasari, I M L Batan

APPLICATION OF SPATIAL ANALYSIS FOR DELINEATING GROUNDWATER RECHARGE ZONE FOR INDUSTRIAL USAGE IN TANAH BUMBU REGENCY, SOUTH BORNEO/INDONESIA 684
T T Putranto, S Purba

A PROTOTYPE DECISION SUPPORT SYSTEM FOR SUSTAINABILITY PERFORMANCE MEASUREMENT IN FURNITURE INDUSTRY 692
Sriyanto, D Pujotomo, S Hartini

MAPPING DELAY RISKS OF EPC PROJECTS: A CASE STUDY OF A PLATFORM AND SUBSEA PIPELINE OF AN OIL AND GAS PROJECT 699
J.U.D. Hatmoko, R.R. Khasani

CONCEPTUAL MODEL IN IMPROVING INTERNAL PERFORMANCE OF A COMPANY 708
E Megawati, P A Wicaksono

ANALYSING THE SUCCESS FACTORS OF SMES ON PUBLIC PROCUREMENT 715
H Suliantoro, B A Winarno, N U Handayani

MANAGING BLOOD SAFETY AND AVAILABILITY: A PRELIMINARY INVESTIGATION OF THE BLOOD SUPPLY CHAIN DYNAMICS IN INDONESIA 729
L. Lusiantoro, B. Tjahjono

AN INTEGRATED RELATIVE IMPORTANCE INDEX, RISK ALLOCATION AND BOW TIE ANALYSIS FOR ANALYZING RISKS OF THE AMARTHA VIEW APARTMENT DEVELOPMENT PROJECT 734
D P Sari, D Pujotomo, P A Wicaksono, K H R Yunanto

GREEN LOGISTICS APPROACH IN BIOETHANOL CONVERSION FROM POTATO STARCH IN CENTRAL JAVA 742
R Yusianto, Marimin, Suprihatin, H Hardjomidjojo

INTEGRATION OF SERVQUAL, KANO MODEL, AND QFD TO DESIGN IMPROVEMENT ON PUBLIC SERVICE SYSTEM 750
A Mansur, A N Farah, W N Cahyo

ANTHROPOMETRIC AND BIOMECHANICS ANALYSIS OF LOWER LIMB EXOSKELETON FOR INDONESIAN POPULATION 757
Z F Rosyada, Sulardjaka, Munadi, E Muslim

INDIVIDUAL-BASED SIMULATION FOR ONLINE MARKETPLACE DIFFUSION AMONG BATIK SMALL MEDIUM ENTERPRISES (SMES) IN INDONESIA 764
S Saptadi, Sriyanto, B M Pangaribuan

SIMULATION OF MITSUBISHI RV-M1 ROBOTIC ARMS BY USING MATLAB® FOR HIGH SCHOOL TEACHING 774
D Prabowo, M Wiannastiti, R Hedwig

THE IDENTIFICATION OF VARIABLES OF QUALITY INFLUENCE MOBILE LOCATION-BASED SERVICE (M-LBS) (A CASE STUDY: GO-FOOD SERVICES IN SEMARANG CITY) 783
N B Puspitasari, W Budiawan, V Hurisandi

SERVICE ORIENTED DESIGN FOR INDONESIAN E-GOVERNMENT SYSTEM USING SOA 790
A N Fajar, I M Shofi

STARTING THE IMPLEMENTATION OF RISK MANAGEMENT IN A HIGHER EDUCATION INSTITUTION: THE CASE OF IPB UNIVERSITY 795
D S Priyarsono, A P Widhiani, D L Sari

IMPLEMENTATION OF PDCA CYCLE IN CALIBRATION AND TESTING LABORATORY BASED ON ISO/IEC 17025:2017 802
M H Habibie, R H Kresiani

LOCATION SELECTION ANALYSIS FOR NEW SHIPYARD USING INTEGRATION OF DEMATEL AND ANP: A CASE STUDY (PT IKI) 809
Sukisno, M L Singgih

MODIFIED DOUBLE SAMPLING CONTROL CHART FOR MONITORING THE COEFFICIENT OF VARIATION 815
F Rozi, U S Pasaribu, U Mukhaiyar, D Irianto

DESIGNING OF RAW MATERIAL SCHEDULING SUPPLY MULTI ON SUPPLIER STRATEGIES WITH PRICE, LEAD TIME, AND STOCHASTIC DEMAND VARIATIONS. CASE STUDY: ELECTRICITY MANUFACTURER 823
P Amelia, A Y Ridwan, B Santosa

PSYCHOSOCIAL RISK FACTORS FOR MUSCULOSKELETAL SYMPTOMS OF CONSTRUCTION WORKERS 830
W Kusmasari, Yassierli

EVALUATION OF BABY CARRIERS IN INDONESIA: PHYSIOLOGICAL AND BIOMECHANICAL APPROACH 836
B Fista, A Widyanti, K Muslim, S A Salma

AN INVENTORY MANAGEMENT MODEL FOR PRODUCT-SERVICE SYSTEM IN DUAL-CHANNEL SUPPLY CHAIN 841
E Widodo, E A G Sitohang, I Vanany

CRITICAL SUCCESS FACTORS EVALUATION OF THE ISO 50001 ENERGY MANAGEMENT SYSTEM IMPLEMENTATION (CASE STUDY: PT. APAC INTI CORPORA, BAWEN, SEMARANG INDONESIA) 851
B Purwanggono, K Ferastra, A Bachtiar

LOYALTY IMPROVEMENT OF INDONESIAN LOCAL BRAND FASHION CUSTOMER BASED ON CUSTOMER LIFETIME VALUE (CLV) SEGMENTATION 861
M Dachyar, F M Esperanca, R Nurcahyo

BUSINESS INTELLIGENCE FOR PRODUCT DEFECT ANALYSIS 869
A S Girsang, S M Isa, A L Haris, Arwan, K Mandagie, L R Ariana, V Ardinda

FINANCIAL STRATEGY MODEL FOR SOCIAL HEALTH INSURANCE IN INDONESIA USING SIMULATION 877
D Kurnianingtyas, B Santosa, N Siswanto

MUSLIM ABLUTION ECO WATER TAP: FROM FIRST DESIGN ALPHA PROTOTYPE TO SECOND DESIGN 885
W Trusaji, M 'A A Rafsanjani, A R Irhamna, D Irianto
AN EMPIRICAL STUDY OF VEHICLE ROUTING PROBLEM FOR MEDICAL CONSUMABLE MATERIALS BY USING CLUSTERING APPROACH: TAKING ZUELING PHARMA CORPORATE AS AN EXAMPLE 891
W-H Ouyang, T-Y Lin, C-C Chiou
USER CENTERED DESIGN: DESIGN AND DEVELOPMENT METHODOLOGY OF SEED PLANTING TOOLS 899
H Purnomo, O Achmadi, I Hasan, M Mardijanto
A SIMULATION-BASED APPROACH TO ASSESS ECO-PROCESS INNOVATION PERFORMANCE 906
S M Dahan, S M Yusof
HAZARD IDENTIFICATION, RISK ASSESSMENT, AND RISK CONTROLLING USING HAZARD IDENTIFICATION AND RISK ASSESSMENT METHOD 915
R Aulia, Qurtubi
PRIORITY PROPOSAL IN SELECTING FRESH FRUIT BUNCH SUPPLIERS USING ANALYTICAL HIERARCHY PROCESS (AHP) AND WEIGHTED SCORING MODEL 923
M F Alfaris, Qurtubi
CHANGES IN LAYOUT AND HANDLING METHOD FOR RAW MATERIALS TO REDUCE PUT AWAY AND PICKING TIME: A PLASTIC PACKAGING MANUFACTURER CASE STUDY 932
Z Parameswari, I N Pujawan
SUPPLY CHAIN PERFORMANCE MEASUREMENT SYSTEM DEVELOPMENT FOR SHOES SME USING SUBCONTRACT PRODUCTION STRATEGY BASED ON INTEGRATED SCOR-BSC MODEL 940
A R Fauzi, A Y Ridwan, W Juliani
WATER HYACINTH (ECENG GONDOK) AS FIBRE REINFORCEMENT COMPOSITE FOR PROSTHETICS SOCKET 949
D Widhata, R Ismail, Sulardjaka
A LITERATURE REVIEW OF SUSTAIN ENTERPRISE RESOURCE PLANNING 958
M F Alfaris, G Y Edikuncoro, A L Savitri, D Yogiari, J Sulistio
READINESS FOR IMPLEMENTING INDUSTRY 4.0 IN FOOD AND BEVERAGE MANUFACTURER IN INDONESIA 965
M Ichsan, M Dachyar, Farizal
LEADERSHIP STYLE AND CAPABILITY ON THE FORMULATION OF BUSINESS STRATEGY IN THE STATE-OWNED ENTERPRISES IN INDONESIA 972
B Arif, E T Sule
REVIEW OF COGNITIVE ERGONOMIC MEASUREMENT TOOLS 980
B Fista, H A Azis, T Aprilya, S Saidatul, M K Sinaga, J Pratama, F A Syalfinaf, Steven, S Amalia
Author Index

IOP Conf. Series: Materials Science and Engineering **598** (2019) 012004 doi:10.1088/1757-899X/598/1/012004

Safety Climate Assessment of Furniture Industry: A Case Study

N Susanto[1], H Prastawa[1], D D Oktaningrum[1]

[1] Industrial Engineering Department, Faculty of Engineering, Diponegoro University

nophie.susanto@gmail.com

Abstract. Lack of safety awareness has caused many losses including accidents cost, insurance cost as well as indirect costs. Most of work accidents occurred due low perception of work safety. A measurement of safety climate for workers and head department should be considered to figure the condition of safety climate out. The assessment of safety climate is using Nordic Safety Climate Questionnaire (NOSACQ-50). The significance of differences in the safety climate between workers and head department is determined by Mann-Whitney test. The study was conducted on 100 worker samples spread across 10 production departments and 10 head departments in a furniture manufacture. The result shows that the safety climate level is quite low at the management safety justice, workers' safety priority and risk non-acceptance dimensions. The safety climate of head departments shows a good enough result on the 4 dimensions and need an improvement on the 3 other dimensions. There are differences in perceptions between workers and head departments on commitment and competence of management, the management safety justice, workers' safety priority and risk non-acceptance dimensions.

1. Introduction

Currently the Indonesian government is giving special attention to the furniture industries. This is realized through the implementation of the *Standar Verifikasi Legalitas Kayu* (SVLK). SVLK is a tracking system that is used to ensure the legality of timber sources that are circulated and traded in Indonesia. Since the SVLK regulated on 1 September 2009, the aspects of Occupational Safety and Health in the wood processing industry are getting noticed. The Occupational Health and Safety Document (OHS) is one of six documents in the SVLK audit implementation. The OHS document contains OHS procedure documents, OHS equipment list documents, and work accident records. PT CJI Furniture is one of the furniture industries that implements SVLK in their companies. The company has been serving overseas purchases to Taiwan, so it is also paying attention to the aspects of occupational safety and health. One of the steps to realize the SVLK in this company are there is OHS experts who have a work accident reporting system. Records of work accidents are carried out to fulfil the aspects of this SVLK document, but in reality, the workers awareness to report on work accidents is still low.

Based on data in 2015-2017, work accidents are classified as severe in which only 2,3% was recorded by the company. Though based on preliminary studies conducted to 35 workers through a questionnaire, it was found that 72% of workers had experienced work accidents that were not recorded by the company. Work accidents such as hands squeezed by wood, legs struck by wood, fingers pierced by large sewing needles, eyes exposed to glue and nails lost due to doing work [1].

Lack of safety awareness by the workers can be seen when there are no reports of workplace accidents experienced by the workers. The workers consider work accidents they experienced are a

IOP Conf. Series: Materials Science and Engineering **598** (2019) 012010 doi:10.1088/1757-899X/598/1/012010

Campus Sustainability Practice Assessment: An Empirical Finding from Jönköping University, Sweden

M M Ulkhaq[1,2], R S George Joseph[2], B Javed[2], and N R Nadekar[2]

[1]Department of Industrial Engineering, Diponegoro University, Semarang, Indonesia
[2]Jönköping International Business School, Jönköping University, Jönköping, Sweden

ulkhaq@live.undip.ac.id

Abstract. The role of higher education institutions (HEIs) nowadays in promoting sustainability has outspread over the past decades. This is a result of abundant declarations and conferences about the need for sustainability in higher education. As consequences, several HEIs have integrated sustainability into their curricula, research, programs, projects, partnerships, and assessments. The objective of the research is to assess the campus sustainability practice of Jönköping University, which is located in Jönköping, Sweden. The assessment includes three pillars of campus sustainability, i.e., environmental management, public participation and social responsibility, and research and teaching as well. The assessment is considered could yield various benefits, not only for the university but also for the stakeholders, surrounding society, as well as for the academic purposes.

1. Introduction

Since Stockholm Declaration in 1972—it is acknowledged as the initial declaration about sustainability in higher education, there is a growing number of higher education institutions (HEIs) which have incorporated sustainability into their research, curricula, operating activities, assessments, as well as reporting [1],[2]. The sustainability term could be viewed as an attempt to balance and harmonize the environmental concerns with social and economic issues [3]. In a more formal way, sustainable development can be defined as a "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" [4].

The HEIs are regarded to be in a unique position to address this challenge. Even though they mostly engage in education—not in the field of environment, social, and even not intended to gain much profit—but they are expected to offer an education to the students with knowledge that could have effects to the environment and influences on local communities [5]. Due to this circumstance, i.e., that HEIs could not embrace three pillars of sustainability (environmental, economic, and social); hence, a sustainable university is defined differently. There is a shared understanding that a sustainable university entails a balance between environmental issue, public participation and social responsibility, and teaching and research in policy formulation [6]. It does make sense as the economic pillar is substituted by teaching and research.

Several studies stressed out the need for sustainability in HEIs, see for example [7]-[9]. Some HEIs believe that this is a challenge to start formulating a sustainable campus program [10], while others employ to implement some established campus sustainability assessment tools or reporting, such as ISO 14001 (e.g., [11]-[13]), green building initiative [14], eco-management and audit scheme (EMAS) [15],

IOP Conf. Series: Materials Science and Engineering **598** (2019) 012037 doi:10.1088/1757-899X/598/1/012037

Revisiting Supply Chain System with Deteriorating Items and Transportation Cost

C V Huang[1], Y D Huang[2] and H M Wee[1]

[1]Department of Industrial & Systems Engineering, Chung Yuan Christian University, 200, Chung Pei Road, Chungli 32023, Taiwan, ROC.
[2]Department of Marketing and (&) Distribution Management, National Pingtung University, 51 Min-Sheng E. (East) Road, Pingtung, Taiwan 90041.

jackhjv@yahoo.com.tw

Abstract. Supply chain system with deteriorating items and transportation cost with environmental consideration has recently become a popular research stream. This study revisits a supply chain system with deteriorating items and transportation cost. Processing the defective items, which increases cost, affects supply chain decisions. We present an integrated inventory model involving a three-stage supply chain and defective items with no shortage. We then derive the minimal total cost considering supply chain integration and deteriorating items. Numerical examples are provided to illustrate how these models can be applied in practice. Sensitivity analysis is performed to gain more insight on changing parameters in the numerical studies.

1. Introduction

Due to increasing globalization, firms face a highly rapidly changing industrial conditions. The objective of our study is to determine the optimal cycle time and the replenishment policy for the integrated system which minimizes the average total cost per unit time. The motivation for looking at such models comes from the competitive environment and greater information transparency between suppliers, manufacturers, and retailers in the supply chain. Some researches on three-stage supply chain model were done by the following researchers. Ben-Daya et al. [1] explored the joint economic lot sizing problem in the context of a three-stage supply chain. Sana et al. [2] investigated a three-stage supply chain consisting of multiple suppliers, multiple manufacturers, and multiple retailers. Neither of them considered deteriorating items and logistic cost. Chung et al. [3] developed an integrated two-stage production–inventory deteriorating product model, in which stock-dependent, imperfect items and just-in-time delivery were considered.

In this study, we developed a generalized mathematical model considering three-stage supply chain for deteriorating items considering transportation cost. Our objective is to minimize the total system cost per unit time. We illustrate the process with a numerical example and analyzed the sensitivity of crucial parameters to provide managerial insights.

Traffic Accident Severity Prediction Using Naive Bayes Algorithm- A Case Study of Semarang Toll Road

W Budiawan[1,2], S Saptadi[1], Sriyanto[1], C Tjioe[1] and T Phommachak[2]
[1]Department of Industrial Engineering, Faculty of Engineering, Diponegoro University, Jl. Prof. H. Soedarto, SH. Semarang 50275, Indonesia
[2]Student at Department of Architectural and Civil Engineering, Toyohashi University of Technology, Japan

wiwikbudiawan@ft.undip.ac.id

Abstract. A traffic accident was one of the leading cause of death in Indonesia. Toll Road is one of the places where traffic accidents occur. In 2007-2017 there were 501 accidents at Semarang Toll Road. Accident in Semarang Toll Road has a variety of severity. The most severe case is death. A traffic accident can lead to death. One of the ways to decrease the number of the accident was decreased the severity of the accident. This achieved by making a prediction model. The prediction model can predict the severity of the accident based on the attribute affecting the severity of the accident. In this research, Days, Type of Road, Weather, Condition of Road, Time of the accident, Sex of Driver, and Type of Vehicle were chosen as attributes to make prediction model of accident severity. Naive Bayes algorithm was used to make the model which can predict accident severity. The result was an accident prediction model with an accuracy of 39.49% to predict accident severity and the probability of an accident.

1. Introduction

Accidents are defined as an unplanned and controlled event that can be caused by humans, situations, environmental factors, or combinations of these things [1]. The causes of traffic accidents were grouped into four elements, namely human, vehicle, road, and environment [2]. Environmental factors were weather conditions (foggy and rainy). Weather conditions had a significant impact on vehicle performance, driver's visibility, driver behavior, travel demand, traffic flow characteristics, and traffic safety [3]. A traffic accident is one of the leading cause of death in Indonesia. The amount of traffic accident in Semarang Toll Road were 501 from 2007 to 2017. A traffic accident has a level of severity in which the highest was death. Based on this, any attempt to increase safety in Toll Road need to be done, and one of the ways to do this is by decreasing the level of severity in an accident.

In their research, [4] said that many factors are leading to how an accident happens namely environmental factor like weather condition, type of vehicle, driver behavior and characteristic factor like an age of driver and sex type of driver. These factors have a role in determining the severity level of the accident. In other research, [5] said that by applying the data mining technique to make a prediction model in these traffic accident data, it could help decision maker to make a decision related to the safety of a driver. So in accordance with this, we can agree that safety in Toll Road can be increased by making a prediction model of accident severity.

According to [6], *data mining* was a process to gain pieces of information from a group of data which help in making a decision. Data mining consists of Classification, Clustering, Estimation, and