

Table of Contents

Preface, Committee and Sponsors

Chapter 1: Digital Human Modeling

Virtual Human Modeling and Simulation for Toll Booth Design in Indonesia T. Septyan and B. Nurtjahyo	3
RULA Analysis of Work-Related Disorder among Packaging Industry Worker Using Digital Human Modeling (DHM) D. Mohamad, B. Md Deros, A.R. Ismail, D.D.I. Daruis and E.H. Sukadarin	9
Applications of DHM in Agricultural Engineering: A Review P. Thanewer, J. Sanjog, A. Chowdhury and S. Karmakar	16
Virtual Ergonomics Laboratory: Human Body Dimension Relevance D. Chakrabarti, M. Deori, S. Pandit and T. Ravi	22
Tools for User-Centred Design K. Case	28
A Review on Cybersickness and Usability in Virtual Environments M. Mousavi, Y.H. Jen and S.N.B. Musa	34

Chapter 2: Design for Special Population

Physical Strain and Risk during Stroller Locomotion on Cross and Combined Slopes M. Satoshi, S. Seiji and O. Mituru	43
Ergonomic Living-Dining Room Design to Enhance Assisted Living for Elderly People in Indonesia J.R. Octavia and M.S. Widjaja	51
Investigation of Sitting Postural Angle and Muscle Activity on Ageing Women Workforce during Computer Task N.S. Mohd Kamil and S.Z. Md Dawal	57
Interactive Stroller for Increasing Focus Time and Participation in Learning Al Quran for Autistic Children B. Bilikis and N. Jomhari	63

Chapter 3: Environmental Ergonomics

Experimental Study of Temperature Effect on Human Skin: Discussion of Methodology A.R. Ismail, A.B. Rosli and N. Jusoh	71
Alertness, Visual Comfort, Subjective Preference and Task Performance Assessment under Three Different Light's Colour Temperature among Office Workers M.T.B. Shamsul, S. Nur Sajidah and S. Ashok	77
A Review of Research Concerning Lighting in Manufacturing Plants S.H.M. Yusop, I.N. Ahmad and M.I.N. Ma'arof	83
Optimizing Protective Clothing Design for Hot Outdoor Environments U. Reischl, G. Sun, Q. Bahramian and Z.Q. Xue	89
The Effects of Driving Environment on the Mental Workload of Train Drivers N.I. Abd Rahman, S.Z.M. Dawal and A. Bahreininejad	93

Chapter 4: Ergonomics in Agriculture

Investigation of Ergonomics Risk Factors for Musculoskeletal Disorders among Oil Palm Workers Using Quick Exposure Check (QEC) E.H. Sukadarin, B. Md Deros, J.A. Ghani, A.R. Ismail, M.M. Mokhtar and D. Mohamad	103
--	-----

Evaluation of Musculoskeletal Disorders Prevalence during Oil Palm Fresh Fruit Bunches Harvesting Using RULA M.M. Mokhtar, B. Md Deros and E.H. Sukadarin	110
Design and Evaluation New Rice Planter Tool without Mechanical Engine for Improving Conventional Farmer's Posture as Revival of Agriculture's Indonesia A. Dila Sari, N. Pusfitasari and R. Rahma	116
Assessment of Oil Palm Fresh Fruit Bunches Harvesters Working Postures Using Reba N.S.M. Nawir, B. Md Deros and N. Norani	122

Chapter 5: Ergonomics Awareness, Training and Education

A Review of Studies Concerning Prolonged Standing Working Posture S.N.A. Mohd Noor, I.N. Ahmad, N.A. Wahab and M.I.N. Ma'arof	131
An Overview of Ergonomics Problems Related to CNC Machining Operations M.Z. Hafiz, H. Isa and M.S.S. Mohamed	137
Investigation on Ergonomics Awareness among Video Display Unit Users - A Case Study among Office Workers in UPNM D.D.I. Daruis and S. Ramli	143
Effectiveness of Ergonomics Awareness Training Programme in Minimizing the Ergonomic Risk Factors in Dental Surgeons A.R. Shaik, B.H. Sripathi Rao, A. Husain and J. Linnette D'Sa	148
Review on Accidents Related to Human Factors at Construction Site I.S.M. Kamal, I.N. Ahmad and M.I.N. Ma'arof	154
A Case for the Introduction of Designers' Safety Education (DSE) for Architects and Civil Engineers W.F. Wan Azmi and M.S. Misnan	160

Chapter 6: Ergonomics Product Design

Ergonomic Design of a Scrap Compactor for Small Scale Industries B.P. Paul, S.D. Gnanaraj and J. Chandran	167
The Design of Thermal-Insulating Mouse Pad Based on the Effect of Hand Temperature K.A. Damayanti and S. Siemadinata	173
Design of an Ergonomic Gaming Console S. V. Bhat, N. Kajaria, A. Kanoria, H. Rajkumar and S.R. Yalamalle	178
Design of Visual Display Terminal Parameters for Visual Comfort and Performance Hartomo, A. Djalal, K. Kurniawan and R.N. Kartika	184
Usability Study of Self-Service System in Gadjah Mada University Library D.L. Kusrianti, I.L. Rianti, N. Riri, H. Maira and R. Dharmastiti	190

Chapter 7: Ergonomics and Work Design

Comparison of Working Postures among Students in School Workshop: A CAD Environment Analysis A. Md Hashim and S.Z.M. Dawal	199
The Effect of Grip Span on Hand-Gripping Control Strength K. Hsi Liao	207
A Review of the NIOSH Lifting Equation and Ergonomics Analysis N.H. Kamarudin, S.A. Ahmad, M.K. Hassan, R. Mohd Yusuff and S.Z. Md Dawal	214
Work Shift Analysis by Using Psycho-Physiological Method Hartomo, Hudaya, R.J. Syam and E. Maftuchah	220
Ergonomic Evaluation of Postural Assessment among "Canting" Batik Workers N. Yusof, R. Yusof, F.M.F. Ahmat Basri and N. Soin	226
Ergonomics in Semiconductor Wafer Manufacturing W.Y. Foong and A.H. bin Hassan	231

Analysis of Vertical Multiplier on Revised National Institute for Occupational Safety and Health (NIOSH) Lifting Equation for Male Workers in Indonesia Industry E. Muslim, A. Iadha Nuraini and M.A. Puspasari	236
---	-----

Chapter 8: Health Care Ergonomics

Effects of Lifting Height, Twist Angle and Load Mass on Psychophysical Experience, Muscle Activity and Heart Rate during Manual Lifting H. Isa, O.N. Rawaida, R.K. Seri, S.M. Muhamad, S.O. Mohd and A. Rohana	245
A Review on Ergonomics Risk Factors and Health Effects Associated with Manual Materials Handling A.A. Mohamed Sultan, Z. Nuradilah, H. Isa, M. Nor Akramin, I. Febrian and Taufik	251
Evaluation of Ergonomic Risk of Manual Handling of Patients with MAPO Index and its Relationship with Incidence of Low Back Pain among Nurses M. Saremi and F. Khayati	257
Ergonomics Study of Public Hospital Signage A.Q. Basri and R. Sulaiman	263
The Prevalence of Muscle Fatigue Symptoms in Industries at Lembah Klang Malaysia H.R. Zadry, S.Z. Md Dawal and Z. Taha	272
Task Analysis of Paramedics in the Ambulance Patient Compartment R. Mohd Yusuff, A.M.b.Z. Abidin and F. Agamohamadi	278

Chapter 9: Musculoskeletal Disorders

A Study on Muscle Fatigue Associated with Awkward Posture among Workers in Aerospace Industry R.K. Seri, H. Norhidayah and S.O. Mohd	287
Investigation on Musculoskeletal Symptoms and Ergonomic Risk Factors at Metal Stamping Industry V. Mean, N.S. Abdullah, S.Z. Md Dawal, H. Aoyama and K. Sothea	293
A Study of Musculoskeletal Disorders among Visual Display Terminal Workers N.A. Samsuddin and D.D.I. Daruis	300
Investigation on Working Postures and Musculoskeletal Disorders among Office Workers in Putrajaya C.H. Che Mansor, S.E. Zakaria and S.Z. Md Dawal	308
Vibration of Power Hand Tool and Discomfort Experience among Malaysian Industrial Workers R.K. Seri, A. Nurulhuda and A. Rohana	313
The Effect of Vibration on Muscle Activity and Grip Strength Using an Electric Drill M. Widia and S.Z. Md Dawal	318

Chapter 10: Transport Ergonomics

Ergonomic Analysis of the Automotive Head-Up Displayed Information C.K. Yeh, Y.P. Fang, K.Y. Shih and M. Jiang	327
Ergonomics Assessment of Seat Design Based on Buttock Pressure and Anthropometrics Data A.R. Ismail, S.N. Abdullah, E.H. Sukadarin and B. Md Deros	331
Comparison of Malaysian and SAE J833 Anthropometric Proportions for Vehicle Package Design Z. Rashid, N. Abu Bakar and R.A. Raja Ghazilla	336
A Relationship between Road Conditions, Physical and Psychophysical Experience among Occupational Drivers R.K. Seri and R.A. Fatihah	345
Prevalence of Carrying Multiple Pillion Riders on the Route to School N.F. Paiman, S.M. Syazwan, A. Aqbal Hafeez, M.H. Mohd Isa, R. Mohd Khairudin, Z.M. Jawi, H. Azhar, K.A. Abu Kassim and N. Mohamed	351

Amber Position Lamp as Daytime Running Light for Motorcycle R. Mohd Khairudin, M.I. Mohd Hafzi and H. Azhar	357
Validity and Reliability Testing on Train Driver Performance Model Using a PLS Approach J. Azlis-Sani, S.Z.M. Dawal and N. Zakuan	361
Assessment of Bus Interior Design in Malaysia M.S. Solah, A.H. Ariffin, M.H. Mohd Isa, Z. Mohd Jawi, N.F. Paiman, H. Azhar and K.A. Abu Kassim	367
Musculoskeletal Analysis of Driving Fatigue: The Influence of Seat Adjustments N.A.b.A. Majid, M.F. Edzuan Abdullah, M.S. Jamaludin, M. Notomi and J. Rasmussen	373