EDITORS
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MOHAMMAD YEAKUB ALI
AKM NURUL AMIN

DESIGN FOR MANUFACTURE
Towards Improved Manufacturability

IIUM Press
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PART I: DESIGN

Chapter 1 - Design of a Simple and Affordable Electric Bicycle .................................................. 04

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Chapter 2 - Design of Bicycle Helmet Using FEA ............................................................. 10

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Chapter 3 - Mould Design for Handphone Casing Using Moldflow ..................................... 18

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2 School of Technology, Tunku Abdul Rahman College
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Chapter 4 - Improvement of Typical Hip-Joint Design for Gripping and Fixing ............... 26

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1, 2. Faculty of Engineering – International Islamic University Malaysia
✉️: cdesta@ii.um.edu.my

Chapter 5 - A Surgical Training Model Manufacture Using Fused Deposition Modeling ......................... 44

Hasanudin Hafis Mohamad Ali, Md. Amir Hamzah Md. Shukri, WAY Yusoff
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✉️: hasan.ma86@gmail.com; mdamirhamzah87@gmail.com
Chapter 6 - Reverse Engineering for Rapid Prototyping of Automotive Components

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Chapter 7 - Design and Fabrication of Industrial Welding Robotic Arm

Syed Idros Syed Abdullah	extsuperscript{1}, Mohamad Syatbi Mahamad Puzi	extsuperscript{2} and WAY Yusoff	extsuperscript{3}
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PART II: QUALITY

Chapter 8 - Application of Statistical Quality Control for Quality Improvement

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2 School of Technology, Tun Hussein Onn University Malaysia
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Chapter 9 - The Development of Cost Estimation for Quality Assurance System in Die-Casting Processes

Nur Hanisah A Hamzah	extsuperscript{1} Nurhafizah Azmi	extsuperscript{2} and Ery Yulian Tribdas Adesta	extsuperscript{3}
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Chapter 10 - Study the Adherence of the Values in The ISO 9001:2000 Certified Companies in Malaysia

Dr. Mohd Radzi Bin Haji Che Daud	extsuperscript{1} and Rusdi Bin Mat Song	extsuperscript{2}
1, 2. Faculty of Engineering – International Islamic University Malaysia

Chapter 11 - Cost Comparison Analysis between Strip to Coil for Support Brake Pedal at Suria Component (M) Sdn. Bhd

Dr. Mohd Radzi Bin Haji Che Daud	extsuperscript{1}, Shamin Asyriani Bt Ali	extsuperscript{3} and Norhayati Bt Saleh	extsuperscript{3}
1,2,3. Faculty of Engineering – International Islamic University Malaysia

Chapter 12 - Performance Measurement of SMEs Manufacturing Sector in Malaysia

viii
Chapter 13 - The Introduction of Fit Manufacturing as a Performance Measuring Approach towards Sustainability of Selected Manufacturing Companies in Malaysia

WAY Yusof1, Muhammad Fauzan Md Neraini2 and Mohd Norazrul Ismail1
1, 2, 3 Faculty of Engineering - International Islamic University Malaysia
✉️ : yusmawiza@iium.edu.my

Chapter 14 - The Study of the Implementation of OHSAS: 18001 at Kulliyyah of Engineering

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Chapter 15 - Implementation of FMECA on Fixed Assembly Cell (FAC)

WAY Yusof1 and Paul Roberts2
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Chapter 16 - Implementation of FMECA on Computer Integrated Manufacturing (CIM)

WAY Yusof1 and Azmil Soleh2
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PART III: MATERIALS

Chapter 17 - The Effect of Stucco System in Ceramic Shell Investment Casting

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1, 2. Faculty of Engineering – International Islamic University Malaysia
✉️ : eadesta@iium.edu.my
Chapter 18 - Casting Investigation of Heat Treated Biocompatible Materials for Total Hip Bone Replacement ................................................................. 151

Siti Norbahiyyah Binti Mohamad Badari\textsuperscript{1} and Erny Adesta\textsuperscript{2}
1, 2. Faculty of Engineering – International Islamic University Malaysia
✉️: eadesta@iium.edu.my

Chapter 19 - Pultrusion of Pineapple Leaf Fibre (PALF)-reinforced Vinyl Ester Composites: Water Absorption Property ......................................................... 162

Mohamed Abd. Rahman, M. Kamarul Helmi M. Nawawi
Faculty of Engineering – International Islamic University Malaysia
✉️: mrahman@iium.edu.my

Chapter 20 - Effects of Austempering Treatment on Mechanical Properties of Ductile Iron ................................................................................................. 170

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Chapter 21 - Microwave Sintering of Metallic Materials ................................................................. 179

Tasnim Firdaus Ariff
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Chapter 22 - Microwave Sintering of Ceramic Materials ................................................................. 185

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PART IV: MODELLING

Chapter 23 - Numerical Analysis to Characterize Triaxiality Value of Adhesive Joint due to Particular Load Configuration. Part 1: Butt Joint ...................... 194

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✉️: ihilmy@iium.edu.my
Chapter 24 - Numerical Analysis to Characterize Triaxiality Value of Adhesive Joint due to particular Load Configuration. Part 2: Cleavage and Scarf Joint ....... 202

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Mohammad Iqbal¹
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✉️ : mohammad_iqbal@iium.edu.my

PART V: MANAGEMENT

Chapter 26 - Value Stream Mapping: an Important Footstep for Value Analysis and Value Engineering ................................................................. 223

A. N. Mustafizul Karim and Nurul Husna Binti Azon
Faculty of Engineering, International Islamic University Malaysia
✉️: mustafizul@iium.edu.my

Chapter 27 - The Project Management Challenges in Technology Innovation ............ 231

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Chapter 28 - Critical Chain in Project Management .................................................. 239

Erry Yulian Triblas Adesta¹, Asfana Bari Mohamad Asharaf², Nur Atiqah Abdul Rahman Azmi³
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PART VI: MACHINING

Chapter 29 - Engineering Project Management in Automotive Industry ..................... 247

Mohamed Khoneh, and Abdul Halim
Faculty of Engineering - International Islamic University Malaysia

xi
Chapter 30 - Surface Study when Finish Grinding Silicon using Resin Bonded Diamond Cup Wheel

Mohamed Konneh and Muhammad Muhhtar
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Chapter 31 - Surface Roughness Studies in Die-sink EDM of Tungsten Carbide using Copper Tungsten Electrode

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Chapter 32 - Study of the Effect of different Electrodes on Material Removal Rate, Electrode Wear Rate and Surface Roughness in the EDM of S-STAR

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Chapter 33 - Kerf in Micro Wire Electro Discharge Machining

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Chapter 34 - The Effect of Deep Cryogenic Treatment on the Properties of AISI D2 Tool Steel

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Chapter 35 - Effect of Welding Process on Formability of Tailor Welded Blanks

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Chapter 30 Surface Roughness Studies in Die-sink EDM of Tungsten Carbide using Copper Tungsten Electrode ......................................................... 257

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Chapter 31 - Study of the Effect of different Electrodes on Material Removal Rate, Electrode Wear Rate and Surface Roughness in the EDM of S-STAR................. 264

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Chapter 32 - Kerf in Micro Wire Electro Discharge Machining................................. 272

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Chapter 33 - Engineering Project Management in Automotive Industry ..................... 279

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Chapter 34 - The Effect of Deep Cryogenic Treatment on the Properties of AISI D2 Tool Steel ................................................................. 286

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Chapter 35 - Effect of Welding Process on Formability of Tailor Welded Blanks .......... 294

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1. Introduction

A bicycle helmet should generally be light in weight and provide ample ventilation, because cycling can be an intense aerobic activity which significantly raises body temperature, and the head in particular needs to be able to regulate its temperature. The dominant form of helmet up to the 1970s was the leather "hairnet" style. This offered acceptable protection from scrapes and cuts, but only minimal impact protection, and was mainly used by racing cyclists [1]. Many dynamic factors exist during a motorcycle collision that results in helmet detachment, including head shape, helmet fit, strap materials and tightness, helmet wear-and-tear, and inertial forces caused by impact. Too frequently, motorcyclists or bike cyclists purchase helmets without understanding what constitutes "proper fit" as required by Federal Motor Vehicle Safety Standard No. 218 [2].

An academic from Norway has poured more fuel on the long-running helmet debate by claiming that they do not reduce the incidence of head injuries by the extent suggested by a meta-analysis of previous studies. Moreover, he says that by considering head, face and neck injuries as a whole, there is "no overall effect" through wearing a helmet. On the contrary, Professor Alistair Woodward, head of the School of Population Health at the University of Auckland and a cyclist who himself wears a helmet, told the NZ Herald: "It's reasonably clear to my mind that helmets do protect people's heads and on balance they do more good than harm". However, he agreed that helmets were not intended to guard against neck injuries. He claimed that it was possible for the neck to bend more than otherwise with the bicycle helmet. Anyhow, if there is an effect on neck injuries, it would be much smaller than the protective effect from head injuries [3]. The results of a bicycle crash can just be bad even