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UiTM SEBUAH UNIVERSITI

UNIVERSITI TEKNOLOGI MARA

20 & 21 MAY 2024

IRAX

International Industrial Revolution 4.0 Exposition

"INNOVATING IDEAS, TRANSPIRING DREAMS"

ABSTRACT BOOK

Strategic Partners:

UST

Perpustakaan Sultan Badlishah
UNIVERSITI TEKNOLOGI MARA

Organized By:

COLLEGE OF COMPUTING, INFORMATICS AND MATHEMATICS, UNIVERSITI TEKNOLOGI MARA, KEDAH BRANCH

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Copy Editors: Mohd Zhafri Mohd Zukhi
Shahida Farhan Zakaria
Norin Rahayu Shamsuddin
Nor Athirah Mohd Zin
Khairul Adilah Ahmad

Cover Design: Syahrini Shawalludin
Jasmin Ilyani Ahmad

IREx 2024

The successful inauguration of IR4.0 Exposition IREx 2019 has witnessed ground breaking initiatives, ideas, and innovations materialised into numerous practival devices today. Treading on the same triumph, the College of Computing, Informatics, and Mathematics, UiTM Kedah is thrilled to announce the continuation of said event, IREx 2024 with the theme: *Innovating Ideas, Transpiring Dreams*.

The IREx 2024 aspires to incorporate even more exciting new technologies including, but not limited to, Information & Communication Technology (ICT), Educational Technology & Innovation (ED), Operational Excellence (OE), Internet of Things (IoT), Process Improvement, Ideas & Design, Multimedia, and Electronics that will chart new milestones in human history. This will serve as an excellent platform for scientists and innovators alike to meet the like-minded individuals and showcase inspiring ideas and notable innovations.

PROGRAM SCHEDULE

International Industrial Revolution 4.0 Exposition (IREx 2024)
21ST May 2024 (Tuesday)
Dewan Perdana, UiTM Kedah Branch

TIME	EVENT
8.00 – 9.00 am	Registration & Booth Set Up
9.00 am – 12.00 pm	Exhibition & Judging Session
12.00 pm – 2.00 pm	Obedient Drone Session & Break
2.00 pm – 5.00 pm	Official Closing & Prize Giving Ceremony
5.00 pm	Program Ends

Official Closing Ceremony

International Industrial Revolution 4.0 Exposition (IREx 2024)

TIME	EVENT
2.00 pm	Arrival of Guests and Participants
2.30 pm	Arrival of VVIP
2.40 pm	National anthem - Negaraku And Wawasan Setia Warga UiTM
3.00 pm	Welcoming Speech Rector's Welcoming Speech
3.10 pm	Officiating Speech Gimmick & Montage presentation
3.30 pm	Prize Giving Ceremony
4.00 pm	Photography
5.00 pm	Program Ends

CATEGORY D

CATEGORY D

ANALYSIS OF VICKERS HARDNESS FOR DIFFERENT MATERIALS BY FINITE ELEMENT AND EXPERIMENTAL METHODS

Ana Syahidah Mohd Rodzi[1*], Ahmad Naqib Ashrar Mohd Zamri[2], Nur Kamarliah Binti Kamardin[3], Mohamad Irwan Bin Yahaya[4], Ahmad Faiz Bin Zubair[5], Abdul Rahman Bin Hemdi[6]

[1,2,3,4,5,6]*Mechanical Engineering Studies, College of Engineering, Universiti Teknologi MARA Cawangan Pulau Pinang, Kampus Permatang Pauh,13500 Permatang Pauh, Pulau Pinang, Malaysia*

anasyahidah@uitm.edu.my

ABSTRACT - The hardness aspect of a material is one of the main concerns when it comes to engineering design. The Vickers Hardness (HV) of a material increases as the applied force. This research aims to compare the Vickers Hardness (VH) analysis of different types of materials using both simulation and experimental methods. For simulation, the method known as Finite Element Analysis (FEA) is used to analyze the VH of C3604 brass and AISI1030 mild steel using Abaqus CAE software. The experimental processes include sample preparation including cutting, facing, turning, mounting, grinding, polishing and characterized before conducting the VH experiment using Mitutoyo HM-200. Metallographic analysis revealed the microstructure of the materials. The process parameters measured for different indentation loads are 0.1 N, 0.5 N and 1.0 N. The research found that the increase in VH value as the load is increased. The deviation in the results of both methods is determined by comparing the depths of the indentations. The deviation results were found to be 6.83% error for brass and 8.97% error for mild steel. The research provides insight into the VH analysis of materials and can be used to improve material selection and design in engineering applications.

Keywords: Vickers hardness, Finite Element Analysis, Abaqus; Mild steel, Brass

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