



**KIRINYAGA UNIVERSITY
7TH ANNUAL INTERNATIONAL CONFERENCE
WEDNESDAY - THURSDAY, MARCH 27-28, 2024**

PROGRAMME AND BOOK OF ABSTRACTS

THEME

ADAPTIVE LEADERSHIP FOR SOCIETAL DEVELOPMENT

SUB THEMES

- ENGINEERING AND BUILT ENVIRONMENT
- ICT AND DIGITAL TRANSFORMATION
- HEALTH AND WELLNESS
- NATURAL AND PHYSICAL SCIENCES
- MATHEMATICS
- BUSINESS AND SUSTAINABLE DEVELOPMENT
- EDUCATION FOR SOCIETAL EMPOWERMENT

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KIRINYAGA UNIVERSITY

7TH ANNUAL INTERNATIONAL CONFERENCE, 2024

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PROGRAMME AND BOOK OF ABSTRACTS

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AFTERNOON PARALLEL/PLENARY

2PM -4.30PM

SUB-THEME	ENGINEERING AND BUILT ENVIRONMENT
Chairperson	Eng. Moses Mwai
Rapporteur	Mr. Simon Cheptum

1. Mburia, Lydia Nyawira (Daystar University, Kenya). Structures, Size and Trends of the Forest Sector & Global, Regional and National Comparative Studies.
2. Bosire¹, R.N., Gombe², Daniel (¹Kirinyaga University, ²Kenya Power Institute, Kenya). Biodegradable Composite Material for Construction Application.
3. Olowo, Sunday, Idris, Ismaila, Olawale, Surajudeen Adebayo, Olawale, Surajudeen, Joseph Adebayo, Ojeniyi, Joseph Adebayo, Isah, A. O., Subairu, S.O (Federal University of Technology Minna, Nigeria). Diffie Hell-Man Key Exchange Encryption Mechanism for Securing Data from Man-In-The-Middle Attack.
4. Wambugu, Patrick Gatonye (Nyandarua National Polytechnic, Kenya). Motorbike to Electric Bike Conversion and the Design of a Unique Electric Scooter to Reduce Emissions, Reduce Fuel Expenditure and Manage Electronic Waste.
5. Sitoya¹, Moses, Maina², Paul, Muliwa³. Anthony (Moi University, Kenya). Evaluation of Combustion Performance of Briquettes-Firewood Co-Fired Tea Factory Boiler.
6. Owino, Jane, and Kemboi, Benjamin Opicho (Technical University of Kenya). Administrative Framework Governing Development and Management of Renewable Energy in Kenya: A Case of Wind Turbines in Ngong Hills Forest Ecosystem.

SUB-THEME	ICT AND DIGITAL TRANSFORMATION
Chairperson	Dr. Kennedy Malanga
Rapporteur	Mr. Harrison Karani

1. Ngumbi¹, Elizabeth, Wasike², Jotham (¹Education Consultant, ² Kirinyaga University, Kenya). Rise of Fake News in Kenya: Impact and Mitigation Measures in 21st Century.
2. Kimuna¹, Caroline, Kitui², Festus and Sisa³, Richard. (¹Jomo Kenyatta University of Agriculture and Technology,²National Industrial Training Authority, Kenya,³International Consultant, Records and Archives (UNFPA). Strategic Knowledge Management: Unveiling the Nexus of Organizational Success.
3. Kimani, Grace, Karani, Josphat, and Mwangi, Ephantus (Kirinyaga University, Kenya). A Systematic Review of Credit Rating Variables

DIFFIE HELL-MAN KEY EXCHANGE ENCRYPTION MECHANISM FOR SECURING DATA FROM MAN-IN-THE-MIDDLE ATTACK

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Abstract

In this study, a Diffie-Hellman key exchange encryption mechanism was adopted to enhance the security of transmitted data from Man-in-the-Middle (MITM) attacks. The system aims to improve the confidentiality, integrity, and non-repudiation of data transmitted over an unsecured network. The key exchange protocol used in the system ensures that the keys are securely exchanged without interception by a MITM. The proposed system also includes a user authentication mechanism to verify the identity of the parties involved in the key exchange. The system is designed to be simple to use and efficient in terms of storage space utilization and data consistency. The results of the study show that the proposed system effectively protects against MITM attacks and provides a secure channel for data transmission.

Keywords: *Diffie Hell-Man Key Exchange Encryption Mechanism, Securing Data, Man-In-The-Middle Attack.*