MBEYA UNIVERSITY OF SCIENCE AND TECHNOLOGY

WEEKLY RESEARCH SEMINAR SERIES

MUST Community and General Public are cordially invited to attend the 48th Research Seminar Presentation

COLLEGE OF ENGINEERING AND TECHNOLOGY (CET) **DEPARTMENT OF ELECTRICAL AND POWER ENGINEERING**

RESEARCH TITLE: Modeling Energy Transfer System for Gas Turbine Fuelled by Low Quality Coal Combustion

SPEAKER: Mr. Massawe Vicent Venance (MSc. in Engineering and Technology - Electrical Power Engineering)

BIOGRAPHY OF THE SPEAKER: Mr. Massawe Vicent Venance is an Assistant Lecturer in the Department of Electrical and Power Engineering under the College of Engineering and Technology at the Mbeya University of Science and Technology (MUST). He holds a Full Technician Certificate in Mechanical Engineering from Arusha Technical College, Bachelor of Science in Engineering and Technology, measuring Electrical Power Engineering from Saint Petersburg State Polytechnical University and Master of Science in Engineering and Technology, measuring Electrical Power Engineering from Saint Petersburg State Polytechnical University. He has specialized in Sustainable Energy Engineering. Mr. Massawe has 11 years teaching experience.

R-ID NO: 0106

DATE: Thursday 18th February, 2021 **TIME: 04:00PM** **VENUE: MUST CONFERENCE AT OLD LIBRARY**

SUMMARY OF THE PRESENTATION: Coal reserves represent the largest of the world's fossil energy resources estimated to be 1,139,331 million tonnes of oil equivalent (mtoe) at the end of 2016 (Bp, 2018). Electricity generation share from coal accounted for 25,551.3 TWh in 2017 which is 38.1% of the total share globally (Bp, 2018) and is expected to increase to 44% by 2030. In Tanzania the contribution of coal in electricity generation is insignificant, while it has coal reserves estimated at 5 billion tons. Around half of the world's estimated recoverable coal reserves comprise coals of low quality, predominantly sub-bituminous and high-ash bituminous coals, and various grades of lignite, of which anthracite and bituminous coals account for 51% of the world's reserves, sub-bituminous coal 32%, and lignite 18%. All are important for power generation and/or cogeneration. The research aims at designing a power plant that utilizes low quality coal as source of fuel to fire gas turbine through mathematical simulation and test rig fabrication and characterizing .

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COLLEGE OF ENGINEERING AND TECHNOLOGY (CET) **DEPARTMENT OF CIVIL ENGINEERING**

RESEARCH TITLE: Modeling the Impacts of Climate Change on Sediment Yield: A Case Study of Songwe Sub-Basin, Tanzania

SPEAKER: Eng. Lupakisyo George Mwalwiba (PhD. Student in Civil Engineering)

BIOGRAPHY OF THE SPEAKER: Eng. Lupakisyo George Mwalwiba is a second year PhD Student in Civil Engineering at Mbeya University of Science and Technology. He is holding a Post Graduate Research in Ecohydrology at European Regional Centre for Ecohydrology under the auspices of UNESCO, Lodz, Poland, Masters of Science Degree in Water Resources Engineering, and a Bachelor of Science Degree in Civil and Structural Engineering, both from the University of Dar es Salaam. He is an experienced Civil Engineer in his professional life with more than fifteen years. He participated in more than Sixty (60) construction projects as Project team Leaders in provisional of Consultancy services for Design and supervision and supervision works. Lupakisyo George Mwalwiba attended and presented research papers in more than three international conferences in Africa and Europe on water environmental related issues.

R-ID NO: 0107

DATE: Thursday 18th February, 2021 **TIME: 04:00PM** **VENUE: MUST CONFERENCE AT OLD LIBRARY**

SUMMARY OF THE PRESENTATION: Climate change is a major environmental concern in many river basins of the world because of increasing high concentration of greenhouse gases (GHGs), and influences of climate variables. Change in climate significantly influence soil erosion rates and sediment yield in the river Basins. Soil erosion and sediment yield is a serious problem affecting the quality of soil, land, and water resources. Lake Rukwa basin is typical of many large river basins in Tanzania, and it has experienced considerable changes in climate in the last few years. Songwe sub basin is also experiencing changes in temperature and rainfall associated with climate change, and increase sediment delivery from surrounding catchments to rivers and Lake Rukwa. Many studies have investigated the impacts of climate change on sediment yield. In Tanzania few studies have addressed the impacts of climate change on soil erosion and sediment yield. Studies have shown that climate change can significantly affect sediment yield. Many studies applied SWAT and general circulation models (GCMs) with low spatial resolution. Detailed understanding of future climate change and sediment yield is essential for formulating adequate and effective adaptation strategies for water and soil management. Therefore, this study will use upgraded resolution climate models and upgraded resolution Digital Elevation Model (DEM) to model the impact of climate change on sediment yield in Songwe Sub-Basin.

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