



MAKERERE UNIVERSITY

## CEDAT

Newsletter

October - December

2021



**MAKERERE UNIVERSITY**

Leveraging 100 years of Excellence  
in Building a Transformed Society



**Principal CEDAT**

**Prof. Henry Alinaitwe**



**Deputy Principal CEDAT**

**Dr. Venny Nakazibwe**

# Deans of Schools at CEDAT



Prof. Anthony Gidudu

*Dean*

*School of The Built Environment*



Eng. Dr. Dorothy Okello

*Dean*

*School of Engineering*



Dr. Kizito Maria Kasule:

*Dean*

*Margaret Trowell School of Industrial and Fine Art*



## THE CEDAT MADE ENGINES AT THE MAK@100 LAUNCH



It was a show of innovations at the Kololo Independence ground as the country marked its 59th Independence Celebrations. At the same Event, H.E. President Yoweri Kaguta Museveni launched the #MakerereAt100 logo, signifying the launch of the year-long celebrations of excellent service to humanity. Among the innovations, was the locally made diesel engine made by researcher of the College of Engineering, Design, Art and technology and Artisans from Kevoton Engineering.

A team of researchers from the African Centre of Excellence for Material science and nanotechnology (MAPRONANO) partnered with artisans from Kevoton Engineering, to design and assemble a diesel engine, the first of its kind in Uganda. It is a single cylinder 4 stroke engine with 13 horse power and consumes 1 litre of fuel per hour. The engine is a water-cooled and therefore does not heat up.

The engines are able to run a generator and a water pump to facilitate irrigation on farms.

The generator is single phase and can therefore be used to power home appliances and small workshops. According to Mr Mubiru Rogers of Kevoton Engineering, work on the engines started in 2017 but they were not able to make much progress until 2019 when they partnered with MAPRONANO ACE. The centre of excellence was then able provide training and technical advice, designing and student attachments to the project.

## CEDAT Student's Innovations display hope for a better economy



The College of Engineering, Design, Art and Technology (CEDAT) held its Annual Open day on the 19<sup>th</sup> and 20<sup>th</sup> of November 2021 on the Theme; 'Innovation and Technology in Combating Crisis'

The event which was also an avenue to celebrate 50 years of Makerere Engineering Society (MES) was characterized by a display of many student ideas and innovations in line with the theme of the event.

The Minister of Science, Innovation and Technology Hon. Dr. Monica Musenero was Chief Guest at the event held at Makerere.

Dr. Monica Musenero expressed her commitment towards building the future in partnership with the young engineers. She applauded the great work done by the students as seen from the exhibitions and expressed optimism that the future of the nation was assured with the kind of work the students were doing.

'We are standing at cross roads, we are standing between the past and the future, standing between what has been and what we want to be, she said adding that we need to choose whether we go forward and take our future in our hands or choose to sit down, lament and blame everybody else'.

Dr. Musenero noted that the young people were the face of the future and congratulated Makerere Engineering Society for the 50 year milestone whose success she said, should be used to reflect on what had been realized as seen from the number of Engineers and products nurtured. .



*Hon. Dr. Monica Musenero*



## Collaboration between Makerere University and Strathmore University in Renewable Energy



*(L-R) Prof. nuwangwe, VC, Makerere, Prof. Henry Alinaitwe and Staff*

Effort is on to enhance collaboration between Makerere University College of Engineering, Design, Art and Technology (CEDAT) and Strathmore University in the area of renewable energy.

During a meeting held between the College management and Prof Izael Pereira Da Silva from Strathmore University on Monday 13<sup>th</sup> December in the College Boardroom, the two institutions agreed on a way forward to champion the establishment of a center for renewable energy in Makerere University drawing from the experience from Strathmore University.

The Vice Chancellor Makerere University Prof. Barnabas Nawangwe while welcoming Prof. Izael Pereira Da Silva, observed that a number of organizations had contacted the University but the process did not get started for lack of a champion to propel the drive.

He commended Prof. Izael Pereira Da Silva for coming back to Makerere where he served over ten years ago to share ideas that would not only see the University lead the process of greening the campus but also start on a journey that would lead to reduced energy costs in the running of the University.



*Prof. Izael Pereira Da Silva addressing CEDAT Staff*

## A public Lecture by Professor (Dr) Nachieketa K Sharma hosted at CEDAT



On 15<sup>th</sup> November 2021, the College of Engineering, Design, Art and Technology conducted a public lecture on 'Contribution of Ancient India to Mathematics and Astronomy' delivered by Professor (Dr) Nachieketa K Sharma. The event was attended by the College Principal Professor Henry Alinaitwe and Deputy principal Dr. Venny Nakazibwe, students and staff.

The Principal thanked the presenter for travelling all along from India to come and give the lecture.

He revealed that there was a plan to sign an MOU between Siksha O Anusandhan University and MakCEDAT, which would lead to staff and student exchanges between the two universities.

Professor (Dr) Nachieketa K Sharma gave a detailed introduction of Mathematics and Astronomy. He said most of the things were done in India before the coming of Europeans. He stressed that Astronomy goes hand in hand with mathematics, and further explained Astronomy in ancient India by giving the vedic literature of 1500 BCE, with reference to sun, moon, stars, planet and meteors.

The Deputy Principal thanked the presenter for the insightful presentation. She pointed out that India seemed to be on the path of decolonizing science.

She introduced Samuel as the alumni of Makerere University that had just completed his Master's degree in physics from Siksha O Anusandhan University. Professor (Dr) Nachieketa K Sharma said that the university offered Samuel full scholarship after identifying him as a bright student of Physics.

Professor Henry Alinaitwe thanked the presenter for giving the history of Science in local Indian language. He revealed that there is a discussion in Uganda on how the science teaching subjects should be made easier and teaching science in local languages.





## Drone Technology; a viable option to facilitate compensation processes in projects



The use of Unmanned Aerial Vehicles (UAVs) has been found to be a viable and usable technology for capturing data needed to undertake compensation for projects. The UAVs were found to be cost effective since they use half of the cost in terms of time and resources compared to the traditional valuation processes.

This and more were some of the findings of the Research project undertaken in the College of Engineering, Design, Art and technology (CEDAT).

The study established that the use of the traditional forms of assessment was characterized by weaknesses in regard to time used, the high costs involved, the accuracy as well as providing obsolete information.

During the final dissemination workshop held at the College on Monday 30<sup>th</sup> November 2021, the Principal CEDAT and Acting Deputy Vice Chancellor, Finance and Administration Prof. Henry Alinaitwe noted that the study on the use of unmanned aerial vehicles to pick data for use in mapping was offering a lot of learning opportunities to a number of stakeholders

‘There is intense discussion concerning the use of this technology and its effect on the implementation of the road projects’, he said while congratulating

the team that was behind the study led by Dr. Lydia Mazzi Kayondo the Principal Investigator.

Prof. Henry Alinaitwe noted that Uganda as a country was faced with a number of challenges in compensation which led to constraints in project implementation such as the failure to reduce curves in road projects. He said there were instances where the intended beneficiaries of the compensation exaggerated the rates. The study, he said, was to benefit a number of projects that include land valuation, the railway projects, as well as water and roads projects.



***Prof. Henry Alinaitwe delivering his remarks during dissemination workshop***

The Project team comprised Prof. Moses Musunguzi, Mr. Moses Okumu a representative of the Chief Government Valuer, Mr. Ivan Bamweyana, the Project Coordinator and Ms. Diana Abeho, currently away to study the use of drones. It was supported by the Government of Uganda, through Makerere University Research and Innovation Fund (MakRIF).

## A grant of 6,962 Euros won



Makerere University, together with 28 other partners across Africa and Europe have been awarded funding of EUR 6,962,820 by the European Union's Horizon 2020 to collaborate and implement a five-year project "Renewable Energies for Africa: Effective Valorization of Agri-food Wastes (REFFECT AFRICA)".

The project seeks to demonstrate innovative, reliable, and adapted sustainable energy solutions based on the valorization of biomass wastes from the agri-food industry. REFFECT AFRICA will build biomass gasification demonstrators at three African locations including Ghana, Morocco, and South Africa. The project will cover both urbanized and rural contexts in Africa, as well as the different socio-economic backgrounds. The demonstrators will be adapted and optimized to a wide variety of biomass wastes available in the specified locations producing electricity for productive use.

Beyond electricity, the installed demonstrations will provide a range of secondary uses to communities to close the energy-food-water cycle. These include heating or cooling, biochar, steam for sterilization or food processing, water and pathogen analysis. Other business model approaches in REFFECT AFRICA

include biomass supply and logistics. Beyond these, the partners in REFFECT AFRICA will take advantage of digital tools to;

- 1) Achieve more useful and profitable exploitation pathways for plant operators and entrepreneurs.
- 2) Impact policymakers in order to boost the transition to renewables in Africa and
- 3) Train and raise awareness on a new generation of African stakeholders.



**Eng. Dr. Peter Wilberforce Olupot**



Dr. Engineer Dorothy Okello inducted a fellow of the Uganda National Academy of sciences



Dr. Engineer Dorothy Okello is the Dean, School of Engineering, College of Engineering, Design, Art and Technology (CEDAT), Makerere University and Senior Lecturer, Department of Electrical and Computer Engineering & Researcher with netLabs!

A number of staff in CEDAT led by the Principal Prof. Henry Alinaitwe extended congratulations to her for the achievement. Many applauded her for this and many other achievements. She pledged to work towards ensuring that more staff in CEDAT got enrolled.

UNAS is an independent, non-profit, non-political, and membership-based service organization that was created to provide credible, balanced, and evidence-driven advice to the nation on matters

## New method offers rapid monitoring of contamination in drinking water



Scientists have developed a reliable new method to monitor the risk of contamination in drinking water which gives immediate results, enabling global communities to respond rapidly and help reduce their exposure to waterborne diseases

Drinking water contaminated with human and animal faeces is consumed by at least two billion people worldwide. This pollution is responsible for outbreaks of waterborne diseases that remain common, even in high-income countries. A new study, published in *Water Research* by a collaborative team from Makerere University, the British Geological Survey, and University College London, shows how a technique exploiting the fluorescent properties of microbiological materials in water provides an easy-to-use method to test for faecal contamination. [Click here for more details](#)



## successful PhD defenses



**Dr. Allan Mazimwe**, Assistant Lecturer Department: Department of Geomatics & Land Management defended his Phd Research titled: Pattern Driven Data Interoperability in Situation Awareness Systems: A Case of the Disaster Community in Uganda.



**Ms. Nanfuka Joan** a PhD student in Margaret Trowel School of Industrial and Fine Art (MITSIFA) successfully conducted her PhD dissemination and publication at the Makerere University Gallery. The exhibition showcasing her work ran until the 23<sup>rd</sup> of November 2021.



**Mr. Joseph Ddumba Lwanyaga**, a student at CEDAT and a Lecturer in Busitema University successfully defended his doctoral Thesis entitled; Application for Process Technologies for improved salt production from Lake Katwe Uganda.



## Student Sports Gala



Students took off time to engage in a number of sports activities. At the closing of the event all players were given medals for participating actively in the gala activities and the medals were received by different Association presidents





## The newly elected student leaders ushered into office



The new leadership of the student community in the College of Engineering, Design, Art and Technology (CEDAT) were asked to adopt the culture of a smooth hand over of power as exhibited in the smooth change of office that was witnessed on Tuesday 7<sup>th</sup> December 2021

Prof. Henry Alinaitwe, the Ag. Deputy Vice Chancellor in charge of Finance and Administration as well as Principal of the College said the smooth hand over of authority was a good culture that should be emulated in one's life even in careers after University. He extended his appreciation towards the outgoing executive which he said had helped support the management and administration of the College. 'Leadership is about sacrifice and this is going to help you in your future career' he said while witnessing the hand over held in the CEDAT Conference Hall.

The Principal said it was through such positions

that people got to learn soft skills like communication, time keeping and team work and this he said required one to keep self-esteem and free contribution.



*Deputy Principal CEDAT, Dr. Dr. Venny Nakazibwe addressing students at the event*



## Research and Innovations

### Ongoing Projects

N	Project	PI	Period	Amount	Funding Ur-
1	Bioplastics development from agricultural residues in Uganda	Prof. Minna Hakkarainen, Department of Fiber and Polymer Technology, KTH International  Project Leader: Dr. Michael Lubwama	2021 - 2023	720,000 SEK	Swedish Research Links
2	Enhanced flame retardancy of bio composite plastics developed with rice husks and clay fillers	Dr. Michael Lubwama	March 2019 to March 2022		Volkswagen Foundation Senior Post doctoral Fellowship
3	Beyond the networked city: building innovative delivery systems for water, sanitation and energy in urban Africa (Off grid Project)	Dr Robinah Kulabako (Co-PI)	1 April 2020 to 2023		Research Fund

### New Projects

No	Project	PI	Period	Amount	Funding Agency
1	Renewable Energies for Africa: Effective Valorization of Agri-food Wastes	<i>Eng. Dr. Peter Wilberforce Olupot</i>		<b>6,962,820 Euros</b>	European Union's Horizon 2020
2	The TUM SEED Center Project	Eng. Dorothy Okello			

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