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President Uhuru Kenyatta launches a one of a kind Technology Factory at Dedan Kimathi University of Technology



On 26th April 2021, we were privileged to host His Excellency Uhuru Kenyatta, President of the Republic of Kenya, who presided over the launch of the Semi-Conductor Technologies factory at the University. The factory, which is the only one of its kind in Africa, manufactures nanotechnology products such as integrated circuits and sensors used in electronic gadgets for the global market. Its products have a high demand and are used in electronic gadgets such as mobile phones, televisions and laptop computers.

The establishment of the Semiconductor Technologies Limited (STL) in the University is a major milestone in the development of Dedan Kimathi Science & Technology Park (DeST-Park). Dedan Kimathi Science and Technology Park is an important platform that brings together professors, innovators, capital and business expertise to work together to support the development of new innovations and the creation of new commercial enterprises to create employment and increase the wealth of the society hence contributing to improved standards of living.

The Semiconductor Technologies Limited (STL) is one of the first two anchor clients at the park that are commercial firms running a global business in cutting edge technological fields. STL will provide the Science and Technology Park and the University with crucial local and international linkages which contributes to intellectual property outputs.



"This is the dream some of us have for this country, our ability to become an industrialized nation, to be able to create good quality and well-paying jobs for our young people," the President said during the launch as he acknowledged this great milestone by the STL and the University working with the various partners and stakeholders. He further pointed out that Kenya's unique companies like the Semiconductor Technologies Limited (STL) will transform the country from one that consumes products from other parts of the world to one that exports not only her products but also her technology across the globe.

The President congratulated the Chief Executive Officer of the Semiconductor Technologies Limited (STL), Mr. Anthony Githinji and the Vice Chancellor Dedan Kimathi University of Technology, Prof. Ndirangu Kioni for this unique partnership and specifically thanked the University for being visionary in her promotion of technology and innovation and making it easy for such companies to set up at the Science and Technology Park; a venture that will create jobs for the youth of this country. He stated that as a nation, we have educated people, and all we need to do is give them an opportunity; this he said while pointing out STL and the University's Science and Technology Park as developments that are creating such opportunities.









The Kenya Alumni Engagement Programme holds its Second, Third and Fourth Speaker Series



The Kenya Alumni Engagement Programme is a partnership between Cultural Vistas, United States and Dedan Kimathi University of Technology. This programme aims at recruiting alumni of U.S. government-funded programs to help Kenyan's address challenges that are in the way of the nation's progress. The project's main objective is to engage alumni of U.S. government exchange programs in enhancing peace and security, economic empowerment, health and the rule of law in Kenya.

(Ms. Jacqeline Omol addressing the alumni during the University of Embu speaker series)

In the month of April, the programme held its second, third and fourth speaker series in Embu, Meru and Laikipia respectively. The second speaker series was held on 19th April 2021 at the University of Embu. The speaker, Ms. Jacqueline Omol, a Principal Persecution Council member in the office of the Director of Public Prosecution and an alumna of two U.S. Government-funded programs facilitated an interactive discussion on peace, security and the rule of law. She urged each participant to have an achievable goal on what they would do towards ensuring that there is peace and security in the nation. The event culminated in the formation of an Embu County Alumni Chapter. The chapter will enable the youth to undertake initiatives that will address peace and security in the community.

The third speaker series was held on 23rd April, 2021 at Meru University of Science and Technology. The day's theme was the rule of law, which was delivered by Ms. Christine Mweu, a Forensic Investigator working with the Ethics and Anti-Corruption Commission (EACC). On the same day, the fourth alumni speaker series was held at Laikipia University. The day's theme was “Health Awareness", which was addressed by Mr. Nicholas Mwenda, a Health Economist and Mandela Washington Fellow. He encouraged the participants to know and perform their roles in ensuring a good healthcare system.





(*At Laikipia University and Meru University of Science and Technology respectively)*

DeKUT Students Design a Virtual Assistant for the Analytical Process Control System



In the fourth industrial revolution, cyber-physical systems have begun to change the way various systems work. To support engineers' activities, a more developed extension of digital twin, known as digital triplet, is slowly emerging and gaining popularity in the modern world. But what is a digital triplet? What does it entail? To answer this question, a group of fifth-year students, who are also in the Siemens Mechatronic Systems Certification Program (SMSCP) Level III, developed a digital triplet for the Analytical Process Control Module. The Digital Triplet of this module consists of intelligent systems that interact with both physical and virtual systems to monitor and control activities in real-time.

The Digital Triplet of the Analytical Process Control Module is equipped with facial recognition security which is programmed to allow only authorized individuals to control the module. The program uses an algorithm that writes and saves images of the individuals who have accessed the machine and the time of access; this is an important security feature since in case of a machine breakdown, it will be easy to know who was responsible for the fault that occurred. Another intelligent feature of this project is the ability of the system to recognize voice commands. It doesn't stop there; the system is designed in a way that after it has recognized the face of an individual with access rights, it greets the individual by name and requests for instructions from the authorized user. An authorized individual can command the machine to start, stop, and determine set point of the controller and so on. In case an unknown or rather unauthorized individual tries to have access to the machine, this system will deny the individual access.

When an authorized user is, for instance, bored and would like to have a chat with the machine, an Artificial Intelligent (AI) chatbot incorporated in the system will aid the user to interact freely with the machine. The chatbot model was achieved by using deep learning to train it with possible words a user might say and possible responses. To crown it all, the system uses a Human Machine Interface (HMI) to monitor and control operations. The introduction of HMI in the system enables authorized users to interact with the system in case of emergencies or faults that might occur with facial recognition and speech recognition of voice commands.

“The fourth industrial revolution demands more than just skills, it demands the openness of one's mind to receive, synthesize and make meaningful choices in the ever-changing world. The DeKUT Siemens Mechatronics System Certification Program (SMSCP) not only offers opportunities for embracing Industry 4.0 but also serves as a pathway to the technological dynamic world " – says the Director, DeKUT Siemens Mechatronic Systems Certification Centre Prof. Eng. Jean B. Byiringiro



Kenya Film Commission sets up a sound studio at the DeKUT Film, Animation and Gaming Hub



Earlier in the year 2020, the University launched the DeKUT Kenya Film Commission Animation & Gaming Hub after signing a Memorandum of Understanding with the Kenya Film Commission (KFC). This came about after discussions to invest in a Digital Media Centre to promote and grow the creative industry and in the process, reduce the youth unemployment gap. This hub aims at providing a platform where young people and interested parties in creative art can use technology in film making and participate in creating digital media products marketed and used widely. The University aids in providing

capacity development support for the interested parties as the Commission's main objective is to provide a vibrant film industry in Kenya.

In honouring the commitment to continuously support the hub, a team from the Kenya Film Commission visited the University on 8th April, 2021 and issued out various equipment for setting up a sound studio at the DeKUT Film, Animation and Gaming Hub. The hub endeavours to promote local talent through the production of African films, animations and video games.

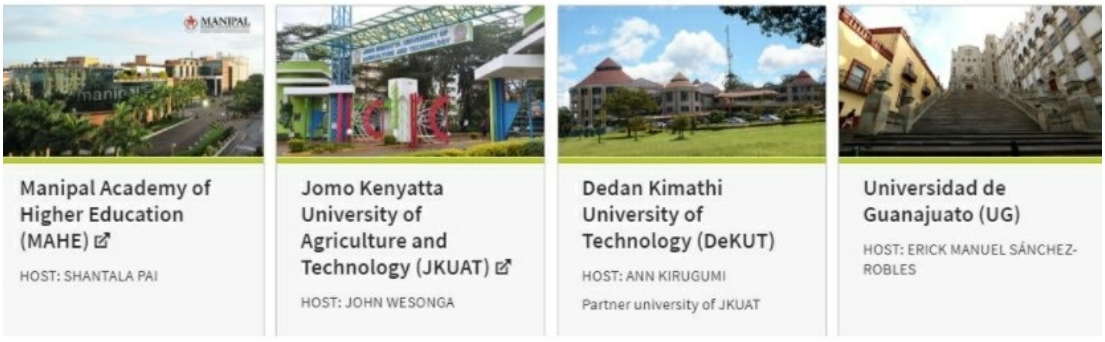


Management of Internationalization Training Dialogue on Innovative Higher Education Strategies (DIES)



Dialogue on Innovative Higher Education Strategies has been an ongoing, continuous conversation and once again, we were privileged to be the co-host of the DIES Africa Regional Workshop on Management of Internationalization Training Programme jointly organized by the Leibniz University of Hannover, Germany, the German Academic Exchange Service (DAAD) and the German Rectors Conference (HRK). The programme took place virtually from 6th April to 16th April, 2021 and drew participants from ten different countries in Africa and Europe. This workshop's aim was to bring together university managers to equip them with skills on how to manage processes and tasks of internationalization in higher education and enable participants to build improved and more effective internationalization structures in their home universities.

Hosting this workshop was a significant milestone for the University in being counted among the peer universities that have embraced internationalization in the quest to become world-class universities.



A team of students incubated at DeKUT Innovation and Incubation Hub (DeHUB) Develop an Artificial Intelligent Solution for Bee Keepers - IBEES



Beekeeping was introduced to help rural women improve their livelihood while increasing their income, yet they still do not get value for this. In sophisticated night heists, thieves harvest the honey while stealing the beehives making these women lose and putting their livelihood at stake. This is sometimes at a threat on their life by honey badgers; a rodent listed as the most fearless animal in the Guinness

book of records. According to a local bee farmer, the honey badger can attack even a lion by scratching the eyes with its sharp claws. Its skin is thick and tough to the extent that a machete, arrow, or spear cannot easily pierce it and stings from bees cannot scare it away. At the same time, it releases a "very strong" odour that scares its enemies. When it releases the odour, the bees move away from the honeycombs.



(Jackline Tum pitching to H. E. Jane Marriott about IBEES)

Moreover, sustaining apiaries in the face of Colony Collapse Disorder based on traditional labour-intensive work practices has become a hindrance to apiaries' profitability. Regular hive inspections are labour intensive and dangerous to these women. Frequent intrusive hive inspections disturb the bees, which might make them abandon the beehive.

These and many other challenges are what inspired Jackline Tum, a 3rd year student pursuing Bachelor of Science in Electrical and Electronics Engineering, Joseph Musya, a 4th year student pursuing Bachelor of Science in Mechatronics Engineering and Clinton Odour, a 5th year student pursuing Bachelor of Science in Electrical and Electronic Engineering come up with IBEES to help beekeepers make the most out of their time and reduce the frequency of dangerous intrusive hive inspections while still detecting problems within the hive in real-time.

IBEES is an automated beehive solution that lets bee keepers monitor the health of their beehives in real-time from their phones. Once installed on the beehives, bee keepers can: know the level of dampness which may lead to pest and diseases infestation or even lower the quality of honey produced, know the weight of their beehive in order to tell the best time to harvest honey without frequently disturbing the bee colony, get real-time alerts via SMS or IBEES App notification when their beehives have been knocked over or stolen or upon smoke detection which might be a sign of intrusion or honey stealing and also get to know when the Queen has stopped laying and the colony is about to become broodless. IBEES mobile notification allows bee keepers/ honey farmers to monitor all these things in real-time and keep records such as harvests, tasks and operations, and even receive notifications to remind them of inspections.

"Bees are vitally important for the health of our planet. For every third bite of food we take, bees are the responsible pollinators. Worldwide, approximately 1,000 plants grown for food, beverages, fibers, spices, and medicine need to be pollinated by bees to produce the foods we depend on to exist in this world. In recent years, annual bee colony losses have reached an unprecedented 30%. If Colony Collapse Disorder continues, we will be missing more than just our coffee and chocolate if it results in our bees dying"- Jackline Tum (Co-Founder IBEES)

IBEES is among the many innovations at the Dedan Kimathi Innovation and Incubation Hub (DeHUB). The Hub, which was launched in March 2015, has continued to support innovations from idea stage to commercialization. Although the Hub is at the University, it also supports innovations from people around the Mt. Kenya region. The Hub has supported over 100 startups over the years. Some of the main activities currently at the Hub include: incubation, mentoring through meetups, trainings and hosting competitive hackathons that inspire innovation ideas for incubation. The Hub hosts mini hackathons called Hack Rush every fortnight on Fridays at 7PM overnight to promote the culture of brainstorming and teamwork. This keeps most of the innovators motivated and through the exchange of ideas, the quality of innovations at the Hub is assured.