DEDAN KIMATHI UNIVERSITY OF TECHNOLOGY

UNIVERSITY

Souvenir Magazine

14TH Graduation CEREMONY



Editorial Team

MAGAZINE COORDINATOR
Dr. Arthur Sichangi

CHIEF EDITOR
Faith Mutheu

MANAGING EDITOR
Maureen Wairimu

PICTURES
Anthony Maundu

Contributors content for this publication has been developed by University Staff.

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Magfre Enterprises Ltd.
Tel: 020-2228452 / 020 3316691
Email: Info@magfre.co.ke

IN THIS ISSUE...

Message from the Vice Chancellor....3

Kenya Advanced Institute of Science and Technology, the New Baby in Town....4

The Inevitable Influence of Green Economy on Tourism and Hospitality Workforce Training....7

DeKUT Holds an Environmental Conservation E-Learning Workshop....9

Going Round and Past Research Obstacles: Scientific Research Field-Data Collection Challenges and Recommended Solutions....12

Leather Technology....13

Technology Education....14

Reflecting on a Year of Productive Engagements and Accomplishments for DSAIL....16

Kieni Forest Monitoring: A Collaborative Effort Between DSAIL and IGGReS....18

Integrated Chia and Oyster Mushroom System for Sustainable Food Value Chain in Africa (CHIAM Project)....20

DeKUT Health Week by the Institute of Food Bioresources Technology and School of Nursing....23

Cyber Security Club of DeKUT....25

My Student Exchange Experience at Karlsruhe Institute of Technology, Germany and the Nuclear Energy Systems, Simulations, and Safety Research Group, UAE....27

My student Exchange Experience at EMPA, Switzerland....28

Dedan Kimathi University of Technology Financial Aid Office (DeFAO)....30

Social Workers' Office in DeKUT....32

Student-Led Projects in Preventing and Countering Violent Extremism in DeKUT....34

Why Should Equity Affairs be Taken Care of in a Learning Institution?....36

Mental Disorders....37

How to Recognize and Work through Emotional Dependency....39

How do I Manage My Money as a Student....41

The Role of Social Issues in the Fight Against Drugs and Substance Abuse....44

Divulging Potentials through Co-curricular Activities....45

The DeKUT Men's Club....47

DeKUT Enterprise Company....49

Vice Chancellor's Message



Prof. Ndirangu Kioni
Vice Chancellor

Welcome to the 14th graduation magazine. We are proud to be graduating 817 graduands in this cohort. This is indeed a proud moment for the University as we have been able to conquer the disruption brought about by the Covid-19 Pandemic to facilitate smooth studies for the graduating cohort who were admitted just before the pandemic in May 2019 for the four-year programmes and in May 2018 for the 5-year programmes. This goes to prove that the University is not only agile enough to adapt to the ensuing digital and technology disruption but also capable of leading the adoption of technology in education and beyond.

In the last year, we have witnessed significant milestones for the University. In February, 2023, the University celebrated its 10th Anniversary since its award of charter in December 2012. The University has come a long way since then to become a premier technological University, leading in technology education, research and innovation not just in the country but in the region. It has grown in leaps and bounds in terms of programmes, infrastructure and student population over this first decade.

In the last 5 years, the University has expanded its wings, soaring great heights to become a leader in innovation and research. This has seen the University expand into new areas by first developing the Dedan Kimathi Science and Technology Park (DeST-Park). This has seen the University enter the global alliance of science and technology parks. Through this park the University aims to lead innovation and research in the country by bringing together capacities in the Government, Public Organisations, the Academia and the Industry. This venture has seen the development of a collaboration between the University and Konza Technopolis Development Authority (KoTDA) which is a strategic partnership in the STP agenda for the University and KoTDA.

As a result of this partnership, the University has been tasked with the development of the Kenya Advanced Institute of Technology (Kenya-AIST) which will be located at the Konza Technopolis. It was established on 8th July 2022 through publication in the Kenya Gazette Supplement No. 117, legislative supplement No. 55, under legal Notice No. 130 as a Constituent College of Dedan Kimathi University of Technology. The institution has strategic national importance and is set to specialize in post-graduate research, education and training in science, technology and engineering.

In August, 2022, the ground-breaking ceremony for the Dedan Kimathi Comprehensive Cancer Management Center took place and was graced by the former president, H.E. Uhuru Kenyatta. This hospital, once completed, is set to lead in cancer research and treatment in the country and in the region, by bringing cutting edge technology and qualified human resource in cancer management. With the support of the Hungarian Government which is funding the and through the Kenyan Government, this hospital will have access to global collaborations in the field of cancer research and management.

Looking into the future, the University is set to grow and continue leading in the region. The recently launched Strategic Plan for 2023-2028 and the DeKUT Vision 2040 have seen the University's vision, roadmap and action plan solidified. Years to come all of us who have been part of the University's journey will look back with pride at the impact our individual contribution, no matter how small, has made to this great institution. I thank the great sons and daughters of this nation and beyond who have worked hard to get this institution to where it is. Thank you all and long live DeKUT!

To the graduating class of 2023, I wish you all the best in your future endeavours. As the toast goes, *"If you have an appetite for life, stay hungry!"*. Stay hungry for education, stay hungry for growth, stay hungry for innovation and stay hungry for entrepreneurship.

Kenya Advanced Institute of Science and Technology, the New Baby in Town



There is a new baby in the academic, research, technology and innovation arena by the name Kenya Advanced Institute of Science and Technology (Kenya-AIST). It was on 8th July, 2022 when Kenya-AIST was established as a legal entity through publication in Kenya Gazette Supplement No. 117, Legislative Supplement No. 55, under Legal Notice No. 130; as a Constituent College of Dedan Kimathi University of Technology. The Institute was conceptualized and designed to be an institution of strategic national importance; and is modelled after the Korean Advanced Institute of Science and Technology (KAIST).

The establishment of Kenya-AIST was aimed at meeting the shortage of highly skilled engineers needed in Kenya and in the region; to drive the country into an industrialized Nation. Once the baby comes of age, it is expected to make a significant contribution to Kenya's transformation into a prosperous and innovative country, with its graduates leading Kenya's economic and technological growth. Kenya-AIST is an anchor client of Konza Technopolis Development of Authority (KoTDA) and a state corporation under the State Department of ICT and Digital Economy, in the Ministry of ICT and Digital Economy (ref. The Executive Order No. 1/2023 of January 2023).

Kenya-AIST is envisioned as the engine for moving Konza Technopolis; and that all companies in the Technopolis will develop a symbiotic relationship with the Institute. Given the foregoing, Kenya-AIST will contribute to realization of the Government's commitment to strengthen KoTDA by bringing together industry, academic institutions and other innovators to co-invest in emerging technologies and to create high-quality jobs that leverage on artificial intelligence, robotics and other technologies; and thus enhance Kenya's regional and global competitiveness.

Vision and Mission of Kenya-AIST

Kenya-AIST is designed as a specialized post-graduate degree-awarding institution with a focus on advanced research, training and education in science, technology and engineering.

Vision

The vision of Kenya-AIST is to lead pioneer research and education in science and technology, and nurture highly qualified scientists and engineers for Kenya's industrialization and modernization.

Mission

Its mission is to nurture highly qualified scientists and engineers by equipping them with theoretical and practical knowledge; conduct socially relevant research and development to improve national competitiveness and speed up industrialization; create social and economic values to improve Kenyans' quality of life.

Strategic Objectives

The Vision and Mission will be operationalized through three strategic objectives:

1. To prepare scientist and engineers who are highly skilled with theoretical and practical knowledge in order to foster future industries in Kenya and East Africa;
2. To conduct national level research for development and improve Kenya's competitiveness and accelerate industrial growth; and
3. To create and foster social and economic values and improve the quality of life of Kenyans through education, research and development.

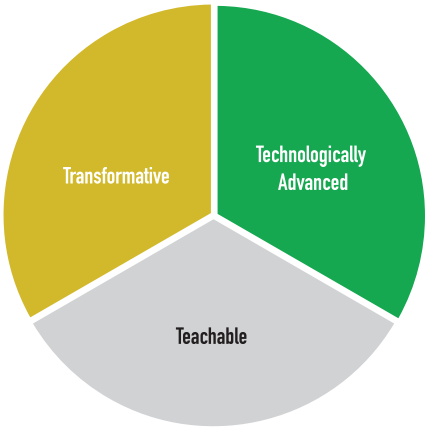
Core Values

Kenya-AIST will be guided by the following core values:

» Excellence
» Dedication
» Creativity
» Sustainability

Kenya-AIST Curriculum Design Philosophy

The curriculum design philosophy is embodied in the 3T principles. The curriculum of Kenya-AIST must be "transformative" in the sense that it brings about meaningful changes both for the learner and for Kenya, "technologically advanced" by teaching the students new approaches with frontier knowledge and skills, and "teachable" by tailoring the contents to local needs and conditions.



Curriculum Design



Vice Chancellor DeKUT, Prof. P. N. Kioni and Ag. Principal Kenya-AIST, Prof. J. W. Khamasi visited KAIST on 28th & 29th March, 2023. Included in the picture are KAIST professors who were served in the Center for the Establishment of Kenya-AIST at KAIST.

Academic Programmes

For a start, the programmes to be offered at Kenya-AIST during the first 5 years are:

1. Master's Degree in Civil Engineering,
2. Doctor of Philosophy in Civil Engineering,
3. Master's Degree in Electrical & Electronic Engineering,
4. Doctor of Philosophy in Electrical & Electronic Engineering,
5. Master's Degree in ICT Engineering,
6. Doctor of Philosophy in ICT Engineering,
7. Master's Degree in Mechanical Engineering,
8. Doctor of Philosophy in Mechanical Engineering,
9. Master's Degree in Nuclear Engineering,
10. Doctor of Philosophy in Nuclear Engineering,
11. Master's of Science in Chemical Engineering,
12. Doctor of Philosophy in Chemical Engineering,
13. Master's of Science in Agricultural Biotechnology, and Doctor of Philosophy in Agricultural Biotechnology.
14. Academic Departments

The 14 academic programmes will be managed under six departments as listed below:

1. Civil Engineering
2. Electrical and Electronic Engineering (EEE),
3. ICT Engineering,
4. Mechanical and nuclear Engineering (M & N)
5. Chemical Engineering, and
6. Agricultural Biotechnology.

Prospective Students

- » Are you seeking admission into a Master's degree programme in an engineering field or computer science or IT or Agricultural Biotechnology?
- » Are you passionate about contributing to Kenya's transformation into a prosperous and innovative country?
- » Do you have a dream to improve the quality of life of Kenyans at a point in time?

Kenya-AIST is the place to pursue a Master's degree. *For more information, contact the principal@kenya-aist.ac.ke*



The Inevitable Influence of Green Economy on Tourism and Hospitality Workforce Training

By Dr. Juma Misiko, IToHM

According to Speck and Zaboli (2017), the green economy has been in existence since time immemorial. It has been on the periphery of the developmental discourse because of the limited attention key policy makers have given it. However, the 2007 economic and financial crisis catapulted it in the public space. Green economy as an approach to development, advocates for robust and sustainable economic performance, conscious environmental management and enhanced social inclusion, equity and equality. It other words, green economy objective is to transition towards creating better living within the environmental limits.

The urgent need to transition to green economy is driven by diverse factors that have unprecedentedly disrupted the existing, once considered robust global economic, social, environmental and political benchmark structures. The cutting edge digital capabilities, the unforgiving havoc of climate change and variability, the increased poverty, social exclusion, widening gender disparities, and the global migrations and demographic shifts are undeniably and unapologetically redefining and reengineering the way we live, work, socialize, develop and collaborate.

Any disruptive change in existing economic structure definitely affects the prevailing social, environmental, political and cultural settings. Green economy is underpinned by resource efficiency i.e. responsibly doing more or achieving more with the available resources. It is about efficient use of resources to produce sufficient goods and services for domestic and international consumption. In other words, it's about blossoming within the resource limit. Operating within the limit means not only slowing down resource extraction but also doing it responsibly. Working within the limit is premised on reduced pollution, wastage, resource consumption and emission of green house gases (Elliott 2017).
Changes in economic structures affect all sectors-education, manufacturing, agriculture, tourism and hospitality, transport, service name them. Green economy is anchored on the exploration of alternatives; a departure from the destructive / consumptive practices.

Regions and countries across the world started reimagining and creating their respective future green pathways. Their green economy initiatives and decisions undoubtedly disrupt will the global economic, social and environmental systems. The cross border movement of people, services, and goods will be affected by the global green economy decisions.

Tourism and hospitality businesses are global in nature. The green economy initiatives witnessed in key tourist source markets for example the European community will incontestably affect tourism practices in Kenyan destinations. The COVID 19 pandemic forcibly mainstreamed digitization in institution of higher learning in a speed of light. The initially viewed impossibility especially in public universities is currently one of the widely celebrated education milestones in this second decade of the millennium. Digitization is virtually embedded in every academic process-application, admission, teaching, examination, graduation, research and conferences.

Coming back to tourism training, it is evident that the green economy is a global conversation. Sooner than later, it will not take a pandemic approach for the industry to start demanding green tourism and hospitality management graduates. Tourism and Hospitality unreservedly contribute to the climate change and variability challenges. For instance, the equipment and tools used in the sectors are made from extracted resources. Most them are imported, which means the process contributes to carbon footprints. Therefore, the tourism stakeholders have a debt to mother nature to correct their previous misdeeds. As Wangari Maathai said, "nature is unforgiving" (Wangari, 2008). It's absolutely true; the vagaries of climate change and variability specifically extreme drought are contributing to rapid loss of biodiversity either through wild fires or lack of food for fauna in protected areas. The unfortunate loss of the signature animals for example the elephants, buffalos and lions due to starvation has never been witnessed in Kenya.
These unlucky happenings have led to innovative undertakings for instance water trucking and provisions of hay in order to save our faunal natural heritage. The protected areas regulations prohibit feeding of wild animals.

The circumstances under which and the context in which undertakings were done were extraordinary. Therefore, the desperate actions were justifiable. Additionally, extraordinary floods destroy tourism destination's infrastructures thus jeopardising the livelihoods of employees.

The hospitality sector has been left with limited options to strive for survival in a turbulently competitive business environment. The sector has no choice but to revaluate its sources, uses and cost in relation to energy and water. Waste production and management practices will no longer be ignored, as it has been the tradition. Elevated cost of energy combined with soaring inflation and skyrocketing cost of raw materials and utilities have compelled some organizations to exit the market.

What opportunities are there for the tourism and hospitality sectors in the green economy space? The green economy is a potent impetus for the development of new practices, processes, product and jobs in the tourism and hospitality sectors. It is true COVID 19 pandemic reconfigured the operations in these sectors. However, the green economy wave will tremendously revolutionise the tourism and hospitality sectors.

A disruptive paradigm shift is anticipated right from the conceptualization of the tourism & hospitality experience, design of the facility, operationalization, general management and workforce management. The change will be towards destinations and facilities that provide improved health, safety, productivity, and promote the well being of employees (Hodges and Sekula 2013). Eco-creativity, eco-innovation entrepreneurship are going to play a key role in shaping the tourism and hospitality sectors in Kenya. For many years, few innovations especially in service have been happening or if they have ever been there, they have not been well documented, communicated and leveraged upon in order to generate additional income.

The future tourism and hospitality industry is going to optimize eco-innovations by engaging in technology transfers for example intellectual property rights. With the right and appropriate human capacity, no doubt the tourism and hospitality sector will tap into the business of carbon foot printing.

Green economy is about inclusion and participation of actors in the development of innovative solutions. We can foresee the industry-university long-term partnership in the development of energy efficient technologies, and innovative practices that enable the sectors to transit to the green economy.

In this regard, tourism and hospitality graduates with adequate training and practical skills in knowledge management, eco-creativity and eco-innovation will be highly sought after. The employee of the future will be required to have industry and research competencies in order to strengthen the synergistic symbiotic collaboration between industries and universities. The industry will require a versatile individual with the capabilities to generate ideas and translate them into responsible saleable product at the speed of thought. In other words, the tourism and hospitality destinations will provide a working space for passionate employees whose values and philosophies are in concurrence with those of the destinations. The employees of the future will have the freedom to design, develop and sale responsible products, and partake of the returns accruing from the competencies and the resources provided by the destination owners.

This simply means, there is an opportunity to lay down structures, frameworks, and create a network to midwife the birthing of the green tourism and hospitality. Multidisciplinary and inter-disciplinary research approach will catalyse industry-university collaborations. This should focus on specific solution driven research. The involvement of students in this research will be an effective way of bridging the gap between lectures and practicability. This diversity will enhance research outcome, facilitate technology transfer and market the graduates. DeKUT is already in this future. The tourism and hospitality management curricula have already integrated the green economy tenets apart from the digitization components. This will enable graduates to adapt to the inevitably on-going disruptions hence facilitate the tourism industry transit to green economy. As we continue to pride ourselves in sustainable tourism and hospitality management, we endeavour to make available adaptive knowledge through opportunities such as reskilling and up-skilling to enable the workforce remain productive and relevant in the changing business environment.

DeKUT holds an Environmental Conservation E-Learning Workshop

By Batholomew T. Kuria, Wisdom Kipkemboi, Simon Wachira, Martin Chege and Johanna Anyesi

Innovation remains a core value of the university. As such, various efforts geared towards integration of technology in the education and conservation realm continue to be explored by the Remote Sensing Research Group (RSRG) under the Institute of Geomatics, GIS and Remote Sensing (IGGReS).

Through the CITGI4 project "Participatory Approach to Environmental Conservation of the Muringato Catchment Area for Sustainable Management and Enhanced Ecosystem Health (01DG20022)", the RSRG team has been working with various stakeholders within the Muringato catchment area towards various environmental conservation efforts. One of the major stakeholders has been the education sector: both learners and teachers.

Various E-learning tools have been developed to support the environmental conservation efforts. For the tools to remain relevant to the school curriculum, the developed E-learning content was aligned to the current competency based curriculum (CBC). The grade 4 social studies topic "Resources and Economic Activities" was identified as the one aligned to the environmental conservation area. E-Learning tools namely: 2D simulation models, 3D simulation models, and video animations were developed.
To ensure the effective use of the developed tools by the learners and teachers, as well as get feedback on the developed content, a two-day workshop on the 11th and 12th January 2023 held at DeKUT was organized by the CITGI4 project teams from Dedan Kimathi University of Technology (DeKUT) and Ruhr University Bochum (RUB). Learners and teachers from the various parts of the catchment were invited to ensure a balanced representation. Learners from Muringato Primary School, Mary Mother Academy Primary School, Nyaribo Primary School, Hill Farm Primary School and Mwangaza Primary School participated in the workshop, with each school bringing along 5 learners.

Moreover, DeKUT staff members with learners in grades 4 and 5 were invited to bring them along tothe workshop as well. Also invited to the workshop was a team from the Kenya Space Agency (KSA) and a cartographer/children books author Ms. Catherine Njore to make their presentations. This was a collaborative effort to pass down critical knowledge to the learners on environmental conservation. The learners viewed the e-learning video developed by the DeKUT team. They were then introduced to remote sensing by the RUB team who utilized simple tools used to develop desktop applications. The learners were engaged stepwise which enhanced the understanding of the concepts taught.

KSA made their presentation using practical examples of remote sensing for environmental conservation in addition to making a presentation on the space club. Ms. Njore afterwards introduced the learners to maps and mapmaking and gave the learners a task to draw a map of their classroom.



Prof E. Magiri, DeKUT Deputy Vice Chancellor- Administration and Finance making her introductory remarks and officially opening the workshop sessions (Left). Dr. Arthur W. Sichangi, Director IGGReS, making his introductory remarks before the Learners' workshop began (Right).



Learners' workshop session in progress

The teachers' session was held on the 12th of January 2023. Grade 4 social studies teachers from Ikumari Primary School, Kamatongu Primary School, Mary mother Academy Primary School, Mwangaza Primary School, Kiguru Primary School, Amboni Primary School, Mweiga Primary School, Njengu Primary School, Chania Primary School, Hill Farm Primary School, Mathari Primary School, Muringato Primary School, Mwenji Primary School, Kahiga Primary School, Kihuyo Primary School, Nyarugumu Primary School and Nyaribo Primary School, were invited.

The DeKUT team showcased their developed E-learning video and thereafter explained how to use the video to teach the learners. Feedback was received from the teachers on areas of improvement.

The RUB team presented on the use of desktop, web and mobile applications for learning. The desktop and web application introduced them to remote sensing while the mobile application introduced them to virtual reality. The KSA team made a presentation showcasing the materials they have been developing to aid the teachers in administering their lessons. They later gave out some of the sample books and materials to each school to go and use. The Muringato WRUA chairperson was also in attendance as a major stakeholder in the environmental conservation of the Muringato catchment. The Kenya Television Network (KTN) was at hand to cover the workshop (Dedan Kimathi Technical University carries out early e-learning training).









Teachers' workshop session

Going Round and Past Research Obstacles: Scientific Research Field-Data Collection Challenges and Recommended Solutions

By Nahashon Mokua Obiri
Electrical and Electronic Engineering

Introduction

Scientific research often requires the collection of field data to support its objectives. However, field data collection can be challenging due to various factors, such as harsh environments, limited resources, and technical constraints. In this article, I discuss some of the common challenges associated with field data collection and propose some solutions to overcome them.



Figure 1: (a) Mr. Clinton Oduor and Mr. Nahshon Mokua setting up a node at the DeKUT coffee firm area, (b) Mr. Humphry Shikunzi replacing a flat tire during a fieldwork exercise, (c) Mr. Jared Makario and Mr. Nahshon Mokua deploying water quality sensors at the NYEWASCO, Kamakwa Treatment Plant, and (d) Mr. Nahshon Mokua presenting the results at the DeKUT 2019 STI Conference. All the events took place in the year 2019.

Challenges and the Proposed Solutions

One of the primary challenges of field data collection is the difficulty of accessing remote or hard-to-reach locations. This can be particularly challenging in environments such as forests, mountains, or oceans. To address this challenge, researchers can utilize emerging technologies such as unmanned aerial vehicles (UAVs) and remotely operated vehicles (ROVs) to access and collect data from remote or inaccessible areas. UAVs and ROVs can be equipped with sensors and cameras to collect data on various parameters such as temperature, humidity, and water quality.

Another challenge of field data collection is the limited availability of resources such as power and network connectivity. In remote or off-grid locations, researchers may face difficulties in accessing a reliable power source and network connectivity. To address this challenge, researchers can use low-power and energy-efficient sensors and devices that operate on renewable energy sources such as solar power or kinetic energy. Additionally, researchers can leverage wireless communication technologies such as satellite or long-range communication networks to transmit data to a centralized location.

The accuracy and reliability of collected field data can also be a challenge due to measurement errors, equipment malfunction, or human error. To address this challenge, researchers can employ rigorous quality control measures, such as calibrating equipment, verifying measurements through repeated sampling, and implementing data validation checks. Additionally, researchers can utilize advanced data processing and analytics tools, such as machine learning algorithms, to detect and correct errors in collected data.

Finally, field data collection can be challenging due to the ethical and legal considerations associated with collecting data from human subjects or sensitive locations. To address this challenge, researchers must obtain the necessary permissions and approvals from relevant authorities and ensure that data collection is conducted in an ethical and respectful manner. This may involve obtaining informed consent from participants, ensuring confidentiality and anonymity of collected data, and adhering to data protection and privacy regulations.

Conclusion

In conclusion, field data collection presents several challenges for scientific research. However, by utilizing emerging technologies, energy-efficient sensors, advanced data processing tools, and ethical and legal considerations, researchers can overcome these challenges and collect high-quality and reliable data to support their research objectives.

Leather Technology



Leather Technology is one of the lucrative courses in Kenya. Dedan Kimathi University of Technology is one of the few institution offering leather training at bachelors and masters level. The course was started in order to help the government realize vision 2030 in relation to Manufacturing. Kenya as a country has been known to be having huge material base i.e hides and skins as we are believed to be largest consumers of meat. Leather manufacturing has been considered to be one of the industries that can make the country a manufacturing hub for footwear and leather goods. It has also been state as one of the Flagship project to help us realize manufacturing as country.

The program is being offered at three levels and these encompasses Masters, Bachelors and Diploma. The graduate from this course at all levels have heard the issue of tarmacking from other counterpart graduate from other courses as they have no idea of what it is. They have managed to secure opportunities in Parastatals such as KLD & KIRDI, County government such as Laikipia, Nakuru, Kirinyaga, Kakamega etc. Academia such DeKUT, Machakos Technical Institute for the Blind (MTIB), KITI, AHITI Kabete etc. The university for the last five years has been awarding the best students and have always given an opportunity to the best students a chance further their studies. They have been providing full scholarship and connected the students to the global experts in the leather field.

Our MSc. Leather Technology graduates are in the Parastatals they are holding the senior most positions ranging from Principal Leather Industrial Development Office and Senior Leather Development Officer (KLDC) and KIRDI.

BSc. Leather Technology students from DeKUT are working in counties and Parastatals as Leather Industrial Development Officers. Based on the skills the students have been getting and to be specific leather goods and footwear fabrication, costing and marketing some have explore the business world. They are doing well as they are trying to fill the technological gap and improving the quality of the leather products. Just to mention one like Ngozi Kenya owned by one of our graduates. Other graduate has decided to venture into the energy companies and they have been helping companies to reduce the amount of energy they are using to process hides and skins to leather.

The University has set up a diploma program to ensure that relevant skills are transferred. Around 9 SMEs have been trained under AfDB scholarship. The graduate has managed to come up with excellent designs and have been solving evolving problems and this has been beneficial to the country and global. Since they completed the program, they have improved production, quality, sales and profit. TVET trainers in different have also been trained on both hard and soft skills which have been beneficial to them in their work station. Once they have received these skills, excellent work performance has been recorded in their work station.

Without a doubt the way to go as a country is leather Technology. When you think about footwear (Shoes & Saddles), Belt, Handbags, wallet, Jacket think leather and without a doubt you won't regrets. And if you are thing what to study consider Leather Technology from DeKUT and you won't regret your studies and stay at DeKUT. If you are thinking of what to do, explore the leather world and know that 'Ngozi ni Mali'.

Technology Education

By Technology Education Department

Dedan Kimathi University of Technology, department of Technology Education in the School of Engineering offers a course in Postgraduate diploma in Technical and vocational education with the aim of bridging the gap in terms of equipping Tvet trainers by offering a customized curriculum with multidisciplinary competencies that meets the demands of the TVET sector.

Postgraduate Diploma was designed as One year course. The programme commenced in 2021 with the first intake being in September 2021. Over time we have admitted a total of 250 trainers. The pioneer cohort of a total of 35 trainers graduated in December 2022 with the second cohort expected to graduate in April 2023 whose total number stands at 89 trainers. The mode of delivery for the course is blended, that is, distance and e-learning and face to face interactions.

The admission criteria into the programme is as follows;
The following shall be eligible for registration for the postgraduate diploma in Technical and Vocational Education. Either;

i) A holder of a minimum of Bachelor of Science or Bachelor of Technology in Engineering and Technology related field, Bachelor degree in Consumer Sciences and Hospitality education, Bachelor of Science in computer and ICT, Bachelor of Science in Biological sciences and health science or equivalent academic qualifications of any accredited university.
ii) A holder of any other qualification(s) accepted by the University Senate as equivalent to any of the above.

We have four thematic areas covered under this programme which include;
Education Management Curriculum and Planning. This was set to comprise of the administration, economics and planning aspect.

» Education Psychology, this encompasses of the methods of teaching.
» Education foundations, this covers on the History and Philosophy of Education. It was recommended that it would aid employing a permanent staff in this area.
» Technology education and Educational Communication Technology, this encompasses use different specialized engineering equipment to teach and learn preparation of various types of teaching and learning aids i.e. print, audio, visual, 2D, simulations and 3D.
» Plans are also underway to launch a Master's programme to in this thematic area.

After completion of the course work, our students proceed for teaching practicum where we developed the importance of mentors to help evaluate our students. Mentors are very vital in that they help new teachers integrate into the system, they offer guidance to help develop practical teaching skills and knowledge, they offer critical constructivist perspective in that, teacher mentoring involves the processes of learning that is shaped according to assimilation and accommodation.

Benefits of the Training to the Teacher Trainee

» Improved knowledge and understanding of subject matter
» Enhanced teaching skills
» Increased confidence
» Professional development
» Networking opportunities
» Improved job prospects
» Personal growth
» Flexibility

Micro Teaching Exercise

In micro-teaching, students in a micro class are taken through teaching strategies, models, assessment and instructional techniques.
Students undergo the following

» Orientation
» This involves guidance through the expected mode of operation. The student- teachers are taken through File organization, Lesson planning, Documentation, Scheming, Board management, code of conduct. A breakdown of the teaching strategies is also taught and demonstrated.
» The learners are taken through the use of teaching aids (2D,3D, simulation, use of realia, use of whiteboard, integration of ICT)
» Co-teaching and Instructional strategies in practical lessons are also learnt in this exercise.
» The learners have a minimum of 1 week to practice teaching in the presence of the micro-class and an assessor who guides them as they teach.

- The teaching strategies, instructional techniques, integration of ICT and the use of different teaching aids in one class is instilled in this exercise.
- A shift from a teacher centered teaching to a learner centered teaching is emphasized and trained.
- Benefits of Micro-Teaching
- One skill at one time: Skills in microteaching are targeted one at a time. Training on particular skills are given until it is mastered. Once mastered another skill is targeted next. Thus, micro teaching aims for one skill at a time.
- Small scale content: Limiting the content gives more freedom and ease to the trainees. Thus, micro teaching is based upon the principle of limited content. Teachers are to prepare their lessons within the given content, therefore, it becomes easier for them to conduct their lessons.
- Experiments: Experiments are the key factors in any concept. In micro teaching, many experiments are conducted in order to test the skills of the teachers. For example, the supervisors conduct experiments where the length of the lessons, time duration, the strength of students in the class etc is changed. These skills are tested under controlled condition.
- Instantaneous feedbacks: Micro teaching consists of teacher-pupil and supervisor as students. Once a session ends, teacher-pupil and supervisors come up with their feedback. This feedback is given instantly during and after the lesson plan ends. Thus, it helps in rectifying the drawbacks.
- Self-evaluation opportunities: Evaluation plays an important role in any task. In micro-teaching, supervisors conduct various tests and thus there are several chances to analyze mistakes.

Future Prospects of the Students Who Has Pursued PGDTVET

PGDTVET is guided by the need to inspire those Kenyans who join the teaching profession before they have received the necessary training which is a requirement by the governments for one to be an effective college tutor or instructor or work in other higher education institutions, to provide leadership and stewardship in the education sector and to give hope and faith to the trained educationists to excel in whatever educational activities they choose to do with passion, moral responsibility and a strong sense of patriotism. The students who graduate with PGDTVET qualify to pursue masters in any of the four thematic areas.

Teaching Practicum Process

The department also engages our teacher trainees in teaching practicum. This process in a typically involves student teachers (also known as practicum students or teacher trainee) working with experienced teachers (known as mentors) to gain hands-on teaching experience in a real classroom setting. In DKUT we allow our post graduate diploma students to be attached to technical institution during their final semester for a period of not less than three months/one term in order to gain experience. The students are usually assessed several times by their mentors and the university lectures also.

Roles and Importance of Mentors for Our Trainees

One important word that comes to mind when thinking about mentors in the teaching practicum process is "mentoring." Effective mentoring involves establishing a positive and supportive relationship with the student teacher, creating a safe and inclusive learning environment, providing regular feedback and opportunities for reflection, and modeling professional behavior and attitudes. Mentoring is a valuable and rewarding experience for both the mentor and the student teacher, as it helps to shape the future of the teaching profession.

Mentors play a crucial role in the teaching practicum process as they provide guidance, support, and feedback to the student teachers. They help the student teachers develop their teaching skills and knowledge, provide constructive criticism, and offer suggestions for improvement. Mentors also serve as role models for the student teachers and demonstrate effective teaching practices in action.

Reflecting on a Year of Productive Engagements and Accomplishments for DSAIL



DSAIL team during a tree planting exercise held at the University farm on December 1 2022

By Muhinyia Ndegwa

DSAIL had an exceptional year 2022-2023, marked by a range of productive engagements and accomplishments. The centre has remained dedicated to innovative research, collaborations, and community activities. Let us take a closer look at some of our significant achievements for the past year.

Team

Mid last year, DSAIL expanded the team by ushering in new research interns and undergraduate research assistants. In addition we have engaged a number of attachees from DeKUT and beyond with the intent of nurturing young researchers. This expansion has enabled DSAIL to drive the centre's research forward and has diversified our research capacity.

Projects

At DSAIL, we endeavour to solve real world problems in our local context. DSAIL has worked on projects in the areas of health, agriculture, environmental monitoring and conservation. In health, we used Machine learning to develop tools to help in diagnosing Rheumatic Heart Disease (RHD); we also developed a knee wearable device to help in monitoring orthopaedic patients. In environmental monitoring and conservation, we have leveraged the power of data to monitor changes in ecosystems through bioacoustics analysis. We developed hardware to monitor water catchments as well as one to detect and localise faults in electric fences. DSAIL has also been collaborating with Trans-African Hydro-Meteorological Observatory (TAHMO) for data quality control across their weather stations. In agriculture, DSAIL has developed innovative solutions to help monitor parameters such as oxygen concentration, temperature, humidity among others influencing Black soldier fly insects and fish farming. These innovations have the potential to transform farming practices for better production.

Conference Participation

DSAIL participated in various conferences and hackathons throughout the year, where the team members presented their research findings and exchanged ideas with other experts in the field. Notably, the entire team attended and presented at the Data Science Africa conference hosted by the

Institute of Accountancy Arusha, Tanzania. We also attended the Women in Conservation Technology workshop held at Ol Pejeta conservancy where we presented the DSAIL Camera Trap Project and the DSAIL Porini dataset. Further, members of our team have received invitations to participate in hackathons and fellowships at international universities.

Publications

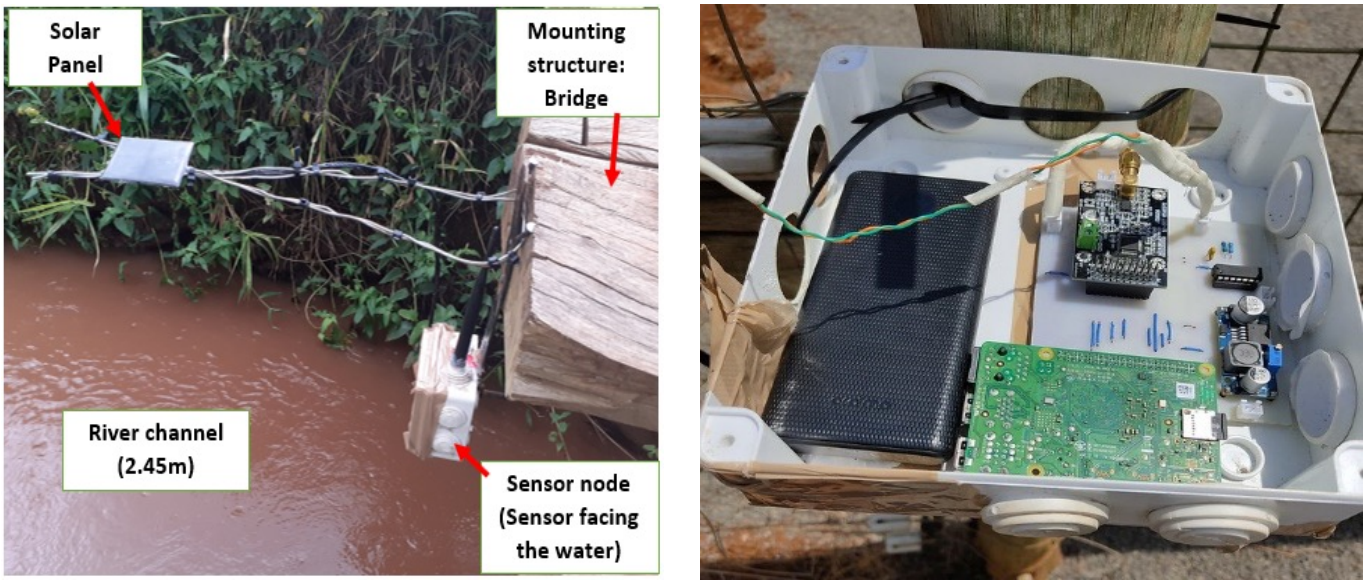
DSAIL has published a number of papers throughout the year among them "DSAIL power management board: Powering the Raspberry Pi autonomously off the grid", "DSAIL-Porini: Annotated camera trap image data of wildlife species from a conservancy in Kenya'', "Towards AI Based Diagnosis of Rheumatic Heart Disease: Data Annotation and View Classification''. We have several other accepted papers awaiting publishing.

Collaborations

Last year DSAIL established new collaborations in both corporate and academia spheres. We received visitors and collaborators, among them the CEO Raspberry Pi ltd - Eben Upton, Rosalie Tribe and Fran Baker - sustainability coordinators at Arm, Prof. Ronaldo Menezes and Dr. Marcos Oliveira- researchers from the University of Exeter, Prof. Mark Keith - ecologist from University of Pretoria and Billy Okal a Staff Engineer at NVIDIA. These collaborations have enabled DSAIL to combine its expertise in data science and artificial intelligence with the knowledge and skills of other experts for innovative solutions to complex problems.

Other Activities

The centre held its annual research day on 21st October 2022. This presented an opportunity for team members to showcase their projects for feedback and guidance. It was also accompanied by talks from guests and team-building activities. DSAIL has been actively partaking in community activities; we participated in a tree planting activity organised by the university farm which i s in line with one of our major research themes.



DSAIL water resource monitoring System deployment along river Muringato (left) and the electric fence faults detection and localization system at the Dedan Kimathi University of Technology Wildlife Conservancy for testing (right).

In conclusion, DSAIL had a productive year, characterised by numerous achievements, collaborations, and community engagements. The centre's commitment to innovation, excellence, and community engagement has enabled it to make a positive impact in the field of data science and artificial intelligence. DSAIL is looking forward to sustaining this momentum and making even greater strides in the years to come.

Kieni Forest Monitoring: A Collaborative Effort Between DSAIL and IGGReS

By Cedric Kiplimo - MSc Telecommunication Engineering
Viola Kemunto - MSc GIS and Remote Sensing and Collins Emasi - BSc Electrical and Electronic Engineering

Forests are the biggest sources of terrestrial biomass, which makes them particularly useful in carbon sequestration. To calculate how much biomass is contained in a forest stand, individual tree attributes such as crown and trunk diameters as well as heights are needed. Safaricom PLC has recently funded a great reforestation effort that has helped the Kenya Forestry Service (KFS) to replant a 200 hectare section of the Kieni Forest in Kiambu County. To help KFS and Safaricom monitor this reforested section, the DeKUT's Centre for Data Science and Artificial Intelligence (DSAIL) and Institute of Geomatics, GIS, and Remote Sensing (IGGReS) have partnered to collect this tree attribute data. The project will leverage the expertise brought by both teams using different technologies and open the doors to future collaborations.

To ensure the accuracy of the results obtained, a double-pronged approach has been taken for this project. While the IGGReS team deploys remote sensing technology to extract the measurements of the trees in the replanted section, DSAIL will focus on obtaining the same information using computer vision.

The IGGReS team collected their reference data by randomly sampling trees in the reforested area and collecting data on the various parameters of the tree such as trunk and crown diameters, and tree heights. Tree species information was also recorded. Before flying a drone to capture overlapping aerial images of the area, a surveying device known as Real-time kinematics (RTK) was used to mark ground control points. All these images will then be merged into one georeferenced panoramic photo known as an orthophoto. This single photo will be useful in obtaining tree attributes and estimating the biomass.

DSAIL has developed a device which estimates the attributes of individual trees using stereoscopic vision, the same vision that gives human beings the ability to perceive depth in their surrounding environment. By taking two images of trees from different angles, the geometric aspects of those trees can be obtained through a series of digital image processing applications.

The tree attribute information collected through the two methods will then be compared to assess the confidence in the estimates.Currently, the two teams have already undertaken an extensive data collection exercise at Kieni Forest in Kiambu County. In the following weeks, they will be analysing the images collected after which a report will be presented to the stakeholders.This undertaking brings together two teams with different yet complementary expertise.

Remote sensing makes it easy to take aerial images of vast areas faster while computer vision makes it possible to extract individual tree attributes faster and with fewer resources. With this collaboration, not only do we benefit from shared expertise but also harness the advantages of both approaches. We look forward to future collaborations.



Figure 1: Setting up a Base Station at Kieni Forest



Figure 2: Ground Control Points marking at Kieni Forest using Real Time Kinematics (RTK)



Figure 3: Measuring the trunk diameter of a sampled tree at Kieni Forest



Fig: The DSAIL and IGGReS team at Kieni Forest



Fig: DSAIL's tree inventory device in use



Fig: Measuring the tree height

Integrated Chia and Oyster Mushroom System for Sustainable Food Value Chain in Africa (CHIAM Project)



International cooperation and solidarity must prevail if we really want to eradicate starvation and undernutrition of billions of people in the world and induce a transition to a sustainable future for its citizens. The application of research findings and knowledge are fundamental to improve our approaches to food and nutrition security, while mitigating climate changes. By the improvement of existing farming systems in Africa may enhance climate resilient food production and food security for the sufficient nutrition of the growing population of Africa.

Oyster mushrooms, or Pleurotus species, are a group of gilled mushrooms. While mushrooms are classified as fungi, which are technically different from plants, they are a great addition to any meat-free diet.

They're known for their impressive health-promoting properties and contain a variety of powerful compounds. In fact, they've been used in traditional medicine approaches for centuries.

Oyster mushrooms are loaded with fiber, vitamins, minerals and other important nutrients. They are also low in carbohydrates, thus a good choice for people following low carb dietary patterns. They also provide antioxidants, which are substances that help reduce cellular damage in your body.

The steps involved in cultivating oyster mushroom are substrate preparation, spawning of substrate, incubation, fruiting and harvesting. Complete process takes 25-30 days to get a good and healthy yield.



Figure 1: Oyster mushroom in grow bags a bucket (6th March 2023)



Figure 2: Growing Oyster Mushroom in (6th march2023)



Figure 3: Fact finding mission on Oyster Mushroom growing (traditional house) in JKUAT University (6th March2023)



Figure 4: Training workshop at DeKUT on Oyster Mushroom production by Experts from Hungary, Prof. Miklos Gyalai-Korpos and Adrienn Somosne Nagy from Pilze-Nagy Ltd (PILZE) CHIAM. (18th November 2022)

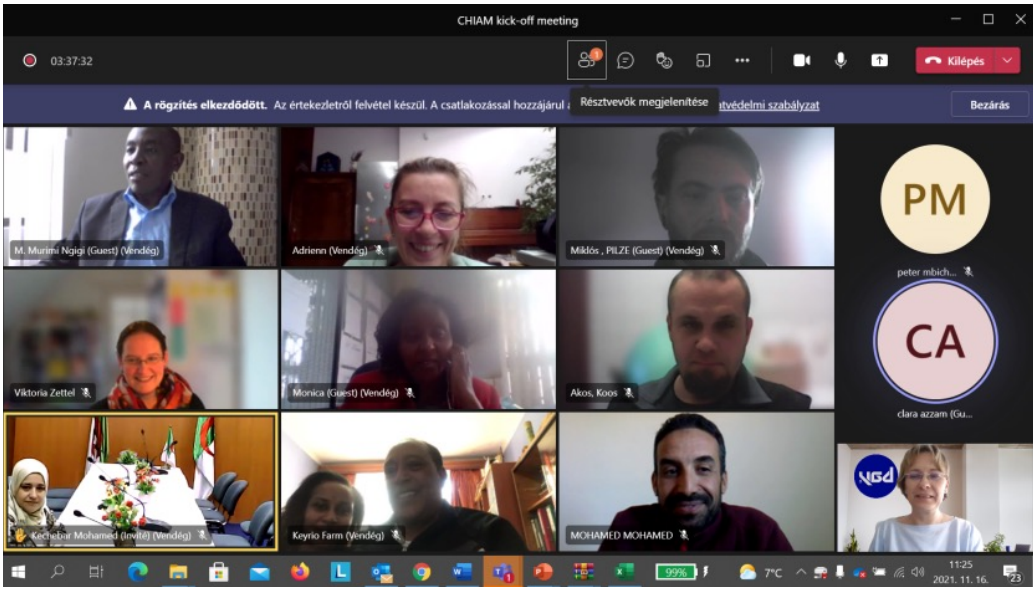


Figure 5: CHIAM Partners Virtual meeting

CHIAM consortium comprises:

1. Kenya: Dedan Kimathi University of Technology (DeKUT) and Keyrio Farm
2. Germany: University of Hohenheim (UH)
3. Hungary: Pilze-Nagy Ltd (Pilze) and Bay Zoltan Nonprofit Ltd for Applied Research (BZN)
4. Egypt: Agricultural Research Center (ARC)
5. Morocco: University of Sultan Moulay Slimane (USMS)
6. Algeria: Centre de Recherche Scientifique et Technique sur les Régions Arides (CRSTRA)

The CHIAM consortium contributes to:

» Promoting innovative technology deployment to build sustainable and resilient food value chains influenced by changing food needs and patterns, and to develop better efficiency of the inputs and outputs of food systems;

» Improving resilience and reduce volatility in agri-food production and food markets to sustainably improve food security in the context of climatic variation;

» Reducing food losses under climate change, including novel approaches to valorise side streams and reduce food waste.

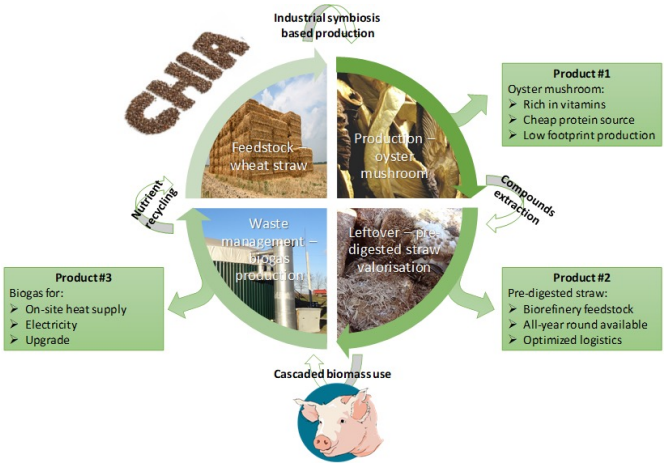


Figure 6: CHIAM Bio circular System

The CHIAM project is supporting two IFBT postgraduate students under a sandwich program at University of Hohenheim, Germany. The researchers have developed fortified local products with chia and oyster mushrooms.



Figure 7: DeKUT Sandwich-researcher's in University of Hohenheim Germany labs for Product Optimization (13th March 2023)



Figure 8: DeKUT Sandwich-researcher's visit to a mushroom farm at PILZE Nagy Ltd- Hungary (23rd March 2023)

Conclusion

CHIAM project (Integrated Chia and Oyster Mushroom system for sustainable food value chain for Africa) aims to create a complex agro system, which will result novel functional foods and use their by-products to feed animals and create energy in a biogas plant.

Enhancing food and nutrition security in Africa is essential to improved livelihoods and life opportunities for resource-poor individuals and households. The efficiency of the primary production of African farms has to be improved and additionally, it is urgent to put more emphasize on the sustainability of farming systems. This means a significant challenge for the local agricultural communities, therefore showcasing good practices can help in spreading the lacking knowledge and turn it into practice.

Developing biomass-based farm operations in Africa can promote the sustainable utilization of the available and new feedstock creating value for local society and protecting the environment with sustainable high-quality solutions. Both chia seeds (Salvia hispanica L.) and Oyster mushroom (Pleurotus spp.) are considered as functional foods that provide health benefits, when they are consumed at efficacious levels as part of a varied diet on a regular basis.

DeKUT Health Week by the Institute of Food Bioresources Technology and School of Nursing

By Jackson Mudengeya
DeKUT Food Science and Nutrition Students Association
Outgoing Chairman

Health is wealth, we all surely agree to it. It is well captured in the Sustainable Development Goals (SDGs) and National and County Governments Development goals. Healthcare is an important aspect in each society and institution, with various measures being put in place to ensure quality and proper healthcare for all. With the rapid changing times, chronic illnesses have been on the rise with high morbidity and mortality rates. Unfortunately, the impact of these 'lifestyle diseases' are being felt even at the lower age brackets. This has led to the creation of awareness on health-related matters with a wide range of health matters being addressed. As the adage states " knowledge is power," taking care of your health requires an access to the right channel of information. Possessing the right health information provides an avenue to leading meaningful and healthy lives.

Within the university community, through a student-led initiative, the health week is mainly utilized to provide health-related information to students and staff respectively. The Health week is an annual event planned and run by students from the Institute of Food Bioresources Technology (IFBT) and School of Nursing (SON) with support from the University through the Directorate of Students Welfare, various departments and DeKUTSO.

Various services are offered during the health week. They include;

i) Nutritional counselling on various aspects such as weight loss, dietary management of chronic illnesses and meal planning.
ii) Nutritional education on Chia; a superfood that's under research at IFBT.
iii) Sexual reproductive health.
iv) Biochemical and anthropometric measurements.
v) Prostate, breast and cervical cancer awareness
vi) Alcohol and Drug abuse awareness.
vii) Peer counselling services.
viii) Blood-sugar testing.
ix) PITC- Provider-Initiated HIV Testing & Counselling

The previous health week was held 22nd-25th November 2022. The National Cancer Institute of Kenya, Marie Stopes, DeKUT Alcohol and Drug abuse Abuse Club and the DeKUT peer counselling club were invited as service-providers. The National Cancer Institute played a critical role in sensitizing the health-care professionals and the general University population on matters relating to cancer as there has been rising prevalence of cancer prevalence.

Breast, cervical, colorectal and prostate cancer were noted to be the leading types of cancer. Colorectal cancer is mainly attributed to our dietary lifestyles. Marie Stopes and the university provided adequate materials in addressing sexual health. Topics such as sexual reproductive health, family planning methods, menstrual cycle tracking and proper use of contraceptives were extensively addressed.

The Nursing and Nutrition Students offered blood sugar measurement and HIV/AIDS services. HIV/AIDS remains to be a threat especially to the younger generations as the country makes great steps in addressing it. Nutrition has been gaining traction and increased awareness among the general population as consumers are increasingly becoming health-conscious. Various aspects of nutrition and dietetics are being sought after. They include, weight loss and weight management, nutrition education on proper dietary lifestyles, meal planning and management of chronic illnesses such as diabetes and hypertension. Nutritionists and dietitians work in synchronization with other healthcare workers in addressing the current health care challenges.

There has been increased attention and research to superfoods in the quest to combat chronic illnesses and encourage proper lifestyles among the general population. Chia is a good example of a superfood that has been under research at IFBT due to its nutritional properties. With the changing times, health doesn't mean being free from any infirmity nor diseases. Health as defined by WHO is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. This brings out the importance of the peer counsellors and ADA peer educators.

ADA peer educators address drug and substance abuse while peer counsellors handle mental well-being in collaboration with other health care providers. Peer counsellors also provided personality tests and perspective tests to the participants. This aided the participants in understanding themselves better. As part of embodying the university's tradition of giving back to the community, the health week climaxed with an outreach to PCEA Muringato Church to provide health care services to the church members and communities. The areas of focus were blood pressure measurement, weight and height measurement, nutrition counselling and education, sexual reproductive health and Cancer awareness.

This helped in solidifying the relationship between DeKUT and the surrounding community. The health week plays a critical role in equipping the students with the necessary practical skills that are required in their various professions.

It also improves the interactions among students of different courses as they build on their social skills and also learn about the various courses that are offered in the university. It also provides a platform of leadership as the event is student-led right from planning to execution.

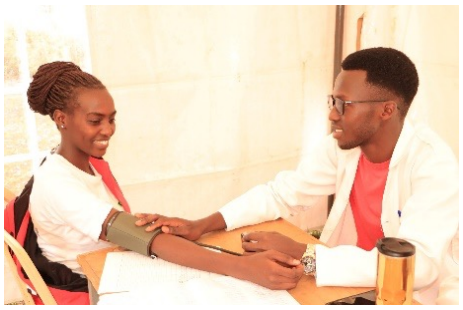
The notable interesting aspect of the health week is on its emphasis on nutritional matters. "Take food as thy medicine or you will take medicine as food" was emphasized on. This mirrors the university goals in addressing nutrition-related health matters by offering a BSc. Nutrition and Dietetics. It places DeKUT at a strategic point in addressing nutrition matters such as the chronic illnesses burden as plans are in the pipelines for several other nutrition-related programmes. The programme is well complemented by various initiatives such as the various centres formed at IFBT and the proposed Cancer Centre. Let's all meet at this year's health week in May. Be on the look-out, shall you?



Nutritionists at the health week. (On the far left is a body fat impedance machine for body fat measurements)



Provision of sexual reproductive health education to participants (on the right) during the health week



A nurse measuring the blood pressure of a participant(on the left) during the health week.





ADA peer educators providing services to a participant (on the left) during the health week.

Cyber Security Club of DeKUT

By Peter Wambua | Club Finance Manager
Mark Tanui | Club Lead
Patrick Theuri | Club Patron

The outlook for cyber security careers is extremely positive, making it a great option for anyone looking to enter the field. According to ISC2.org there are approximately 2.93 million cyber security positions open around the globe.

Launched in September 2022, the Cyber Security Club of Kimathi has over 40 active and semi-active student members. The club has provided a platform for students and faculty staff in the university, to learn, teach and share their knowledge in **Computer** and **Network Security.**

Cyber Security Awareness Month 2022



October, being Cyber Security Awareness month, on Thursday Oct 13th, the club in collaboration with SheHacks_KE held a one-hour-long capture the flag session at the resource center to test and improve the members' knowledge of Linux commands. The top three teams were handsomely awarded.



Objectives
The purpose of this club has been and will always be to promote education, training, and skills development in Computer Security, Network Security, and general Cyber Security.

The club intends to increase exposure to cyber security enthusiasts through projects, speaker series, hackathons, and other networking events. To foster cohesion among the members:

SHEHACKS KE

1. We aim to inculcate in-depth knowledge of cyber security, digital forensics, and online safety in students to make DeKUT a haven for cyber security enthusiasts and a place where companies would connect to students active in these fields.
2. We aim to create a club where students, irrespective of their different courses, are united by their passion for cyber security.
3. We aim to collaborate with clubs, companies, and institutes in various fields for projects and research in cybersecurity and make DeKUT students the best in these fields.

The Club has received support from SheHacks, a non-profit organization, under its campus outreach program. Some of our club members are campus ambassadors of the program. The collaboration has helped our student members be in touch with the InfoSec industry in the country.

Weekly Sessions
For continuous learning and growth of the members, the club holds weekly sessions on Thursdays from 5 PM at RCLab1.



These sessions allow members to share knowledge on topics they have learned and share solutions to the drawbacks they are facing.
Membership

The club's membership is open to every student in the university who is interested to learn about cybersecurity. Aiming to broaden everyone's knowledge about the insecurities of the internet, we encourage even the rest of the tech communities to join us in learning how to protect their technologies/ products.

Patronage (Patron and Student Leadership)



Cyber Security Club of Kimathi has had remarkable student leadership led by the **Patron, Mr. Theuri Patrick -Computer Science and IT.** The patron has overseen the club's activities, given guidance on club matters, and represented the club in administration matters as well.

The student leadership includes: **(Lead - Mark Tanui, CS 3.1 | Co-Lead - Amanda Ahona, IT 2.1 | Finance-Manager- Wambua Peter, CS 3.1 | Secretary - Angwenyi James, CS 3.1 | Organizing Sec - Mike Muia, IT 2.2 | Ass. Organizing sec- Maureen Rita, IT 2.2)**

Contributors/Progress So Far(GitHub & Resources)

We have made **remarkable** progress so far as a club. We now have a GitHub account with amazing cybersecurity **resources and paths for complete beginners** available at GitHub. Available on one of the repositories is a script from a session we held on the exploitation of Bluetooth vulnerability(CVE-2017-0785 Android information leak vulnerability). Members of the club have also stepped up to produce amazing resources for learning with the rest of the members (CTF write-up by Allan, cracking WPA network by Peter).

Way Forward

We purpose to continue providing a space for students in the university to learn and share their knowledge in Cyber Security. Our **biggest achievement** would be to grow a community of Cyber Security megs, that **competes favorably with other campus communities**.

Intra-Varsity Capture The Flag competitions are hosted annually in the country, and as the Cyber Security Club of Kimathi, we're building a community to represent the campus in such events.
*You're welcome to **poke around**, and probably **stay around**. Happy Cyber Security Learning ::)*

My Student Exchange Experience at Karlsruhe Institute of Technology and the Nuclear Energy Systems, Simulations, and Safety Research Group, UAE



Dubai deserts, UAE

By Allan Mucheru Waithira
BSc. Mechatronics

As an exchange student, I had the opportunity to intern abroad in two vastly different countries: Germany and the United Arab Emirates. Both experiences were unique and enriching, but they also had many differences.

Germany is known for its rich history, culture, and diversity. As soon as I arrived, I was struck by the stunning architecture, picturesque landscapes, and friendly people. The education system was rigorous, but also allowed for independent thinking and creativity. I enjoyed exploring the local food scene, trying new dishes, and participating in cultural events such as Oktoberfest. While in Europe, I was at Karlsruhe Institute of Technology. Notable scientists, engineers and mathematicians such as Karl Benz of the Mercedes car, Heinrich Hertz of electromagnetic waves, and Johan Jacob of the Jacobi math have schooled here. I worked on a research project which seeks to develop smart engineering materials for the future we all look up to. Essentially, I conducted my research side to side with a professor from the department in context, which has helped me better understand the education system in Germany. However, the language barrier was a bit of a challenge, and I had to work hard to improve my German skills.

On the other hand, the United Arab Emirates was a completely different experience. The UAE is a melting pot of cultures, with people from all over the world living and working together. The modern infrastructure, luxurious lifestyle, and warm weather were a welcome change from the colder climate in Germany. The education system was also top-notch, with a focus on innovation and technology. I had the chance to learn more about Islam and the local customs, and I was fascinated by the beautiful mosques and traditional clothing.

I was working at the Nuclear Energy Systems, Simulations, and Safety Research group on a project on development of a Representative Volume Element (RVE) to study the effect of hydride formation in a cladding material, an important concern in nuclear power plants. I was able to develop several models of different volume fractions and inclusion orientations using python and Computer Aided Engineering tools. I also tested and verified the models by conducting simulations at microscale levels. I collaborated with my supervisor in comparing the results of the study with experimental data. Lastly, I co-authored a paper which was successfully accepted for a conference in Japan, which was my first-time experience.

However, the strict social norms and cultural differences made it harder to fully integrate into the local community.

In conclusion, my experiences in Germany and the United Arab Emirates were both amazing in their own ways. While they were vastly different, they taught me valuable lessons about different cultures and ways of life. I am grateful to Dedan Kimathi University of Technology, and the International Office, for the opportunity to have had these experiences and will cherish the memories for a lifetime.

I encourage more students to embrace the opportunities offered through IAESTE, IASEC, and other platforms in the university to enrich their education and cultural experience. After all, success is where preparation and opportunity meet.



University of Sharjah, UAE.



With a friend, Germany.

My Student Exchange Experience at Empa, Switzerland

By Kelvin Weru
BSc Chemical Engineering



Grüezi! My name is Kelvin Weru. I am fifth-year student pursuing Bachelor of Science in Chemical Engineering. I am privileged to undertake my current internship at Empa, Switzerland under the IAESTE program. Empa, that is the Swiss Federal Laboratories for Material Science and Technology, is an interdisciplinary Swiss research institute for applied material science and technology. Currently I am based at the Building Energy Materials Components department, Dubendorf Campus. Under this department I am working on a project on the development and upscaling of new biomass based insulation materials with a low CO2 footprint and a competitive thermal insulation performance.

This is project with Swiss academic partners in the field of climate research, energy, CCS, buildings and biodiversity which serve as the foundation for a subsequent industrialization of the developed material in order to have a tangible impact on the Swiss built environment.

Empa being an international research institute I get to interact and work and exchange ideas with different people from all over the world. I am privileged to be the first person to represent not only Kenya but also the continent of Africa from the department.

Apart from work, I take time to travel a lot in Switzerland, which is home to numerous lakes, villages and the high peaks of the Alps. I also immerse myself into the Swiss culture which the Swiss people are known to be extremely organized, cleanliness, honesty and strict adherence to a set of unwritten social rules for daily life. I have also had a chance to travel to other European countries such as Italy and Germany just to mention a few. During my stay I get to meet a lot of people from other countries, share a lot about my culture and also get to know more about their culture.

In a nutshell, IAESTE has been of great help allowing me this opportunity of a life time which I can say not only is it building me career-wise but also I get to understand and have a feeling of living and working in a first world country such as Switzerland and build networks, which has been always being my dream.



Dedan Kimathi University of Technology Financial Aid Office (DeFAO)

By Majory Nyaga
HoD- DeFAO

Dedan Kimathi University of Technology Financial Aid Office (DeFAO) was established to assist needy students in meeting their financial obligations, enabling them to complete their academic programs without or with minimal disruptions. The office assists students seeking financial aid on various issues such as fees, rent, food, and upkeep. One of the core mandates of the office is to conduct due diligence on the students seeking financial support to determine their level of need. This helps determine the kind of support to accord to those found genuine. The office explores both internal and external sources of financial support on behalf of needy students as outlined below:

Internal Financial Aid Programs

Work Study

University work-study programs are designed to provide students with financial assistance by offering them part-time employment on or off campus. Students are placed in both administrative and academic departments. Work-study programs typically offer flexible work hours based on their timetables, which makes it easier for students to balance their work and academic schedules. In DeKUT, it is a popular program among students and is run on a trimester basis. There is a committee coordinated by the Directorate of Students' Welfare, which sits to consider and award work-study, of which DeFAO is a member. Students use work-study earnings to cater for meals in the University Student's Mess, accommodation in the internal hostels, fees for those with a fee balance, and cash for those without fee balances but with upkeep challenges. Overall, work-study programs allow students to earn money while gaining valuable skills and experience to prepare for their careers. Over 400 students benefit from the program each year.

University Bursary

A university bursary is a type of financial aid or scholarship awarded to students who need financial assistance to cover the cost of their education. The eligible students are called upon to apply, after which the Bursary Award Committee awards the bursaries based on due diligence conducted. Bursaries are typically awarded based on financial needs, academic merit, and other special financial needs of the applicant, amongst other considerations. The process is done once or twice a year, depending on the budgetary allocations. Over 100 students benefit from the program each year.

DeKUTSO Bursary

The Dedan Kimathi University of Technology Students' Organization (DeKUTSO) is not left out in supporting needy peers. The student body awards bursaries each year from the DeKUTSO kitty. The number of awardees depends on the funds available.

Internal Hostels

DeKUT hostels are convenient, safe, affordable student accommodation options. The package includes bed, mattress, study tables, chairs, wardrobes, hot showers and free access to Wi-Fi. The University has put security, janitorial and cleaning services in place to ensure students' welfare is addressed on a 24/7 basis. The University Medical Department and Students Mess are also located near the hostels. This helps to maintain a peaceful and conducive environment for study. Though the internal hostels may not be adequate for all the students, the University ensures that they reserve spaces for students with special needs such as medical, physical, and financial.

Staff Donations

DeKUT staff and especially those who interact with students daily, are aware of some students' financial struggles and the impact they can have on their academic performance. As a result, a good number of staff and students come to the aid of needy students mainly through cash donations to cater for meals, accommodation, and fees. Some lecturers have committed their part-time earnings to pay fees for needy students, mainly from their departments. Some students mobilize their colleagues in classes, hostels, clubs, and especially faith-based communities to fundraise fees for vulnerable colleagues on compassionate grounds. Over 100 students benefit from this arrangement every semester. However, we encourage staff and students to pass through DeFAO for due diligence to avoid abuse by non-deserving students. DeFAO is in the process of developing structures for such donations.

Financial Literacy Training

Financial literacy is an essential life skill that helps individuals to manage their finances effectively. These trainings are aimed at helping students learn how to manage their finances, plan for their futures, and make informed financial decisions that can lead to better use of the available finances. DeFAO conducts these pieces of training during coffee hours and other organized forums such as empowerment pieces of training. Tips on sources, use, and money management skills are shared.

External Financial Aid Programs

i) HELB Loans and Bursaries. The Higher Education Loans Board (HELB) is a Kenyan government agency that provides loans and bursaries to eligible students in higher education institutions. The amount of loan a student can get depends on the level of need. The maximum loan amount for undergraduate students is Ksh. 60,000 per year, while for postgraduate students, it is Ksh. 200,000 per year. DeKUT enjoys a cordial relationship with HELB which helps in the timely exchange of information. DeFAO arbitrates and lobbies HELB on behalf of students for more and higher allocations. However, due to budgetary constraints, FY 2022/2023 has been a bad year in HELB allocation and disbursement.

ii) CDF and County Bursaries: These are awarded to needy and deserving students through Members of Parliament (MPs) for the Constituency Development Fund (CDF) and Governors for the County Bursaries. The application process for these bursaries typically involves filling out an application form and submitting it to the County or CDF offices. DeFAO has links with the 47 counties through which the office gets timely information about the advertisement, public participation and awarding of these bursaries. Many DeKUT students have benefitted from these bursaries. For FY 2022/2023, most of the County & CDF bursaries were rolled out in December 2022 and are expected to be completed by April 2023.

iii) Sponsored Accommodation: Sponsored accommodation typically involves a sponsor providing students with free housing needs. This program allows students to focus on their studies without worrying about housing costs. Some sponsors offer support for a single semester, while others sponsor the entire student's academic journey. A large number of these sponsors come from accredited private hostel providers. DeFAO developed Sponsored Accommodation Agreement Form, which spells out the student's responsibilities while under sponsorship, amongst them being academic progression. On average, 10 students benefit from this program every semester.

iv) Individual and Corporate Sponsors: Individual and corporate donors provide financial support to DeKUT students through scholarships, grants, and other forms of financial aid. DeFAO has a database of about 20 such sponsors and has coordinated the signing of cooperation agreements with two donors who support students through payment of total fees, a laptop and money for upkeep on a semester basis.

Conclusion

DeFAO is deeply grateful to our sponsors for their support of our students. Their generosity has made a real difference in the lives of beneficiaries and their families, and we cannot thank them enough for their kindness and support. On this note, we also appeal to our potential donors to consider supporting needy students. The donations can be made through the Dedan Kimathi University of Technology Endowment Fund: Paybill no. 522522, Account no.1158874847 (unrestricted), or liaise with DeFAO to adopt/ support a needy student(restricted). DeFAO has a profile of some of the needy students.

End Quote

If you cannot feed a hundred people, then feed just one - Mother Teresa

Social Workers' Office in DeKUT



Sector Warden and the social workers during hostels' visit at Nyaribo

Students in institutions of higher learning experience diverse challenges ranging from freshmen adjustment, financial constraints, relationships, alcohol and drug abuse, dysfunctional families, academic pressure and high cost of living among others. Significant life stressors can be impediments to achieving prospective career goals. In the midst of distressing situations, students need competent people to help them navigate through the different issues that may hinder them from timely graduation.

Social workers are trained to identify/recognize and respond to a wide range of contemporary issues facing students in the modern dynamic world. They provide a multifaceted case management approach when addressing diverse issues. Social Workers are expected to link students and parents/ guardians with community resources/services and other support systems available on-campus and off-campus.

In DeKUT Social Workers play a major role in creating awareness/psycho education, and advocacy for behaviour change. The main issues pertinent to particular groups are identified for approproate.The main issues pertinent to particular groups are identified for appropriate action; which may vary from one residential sector to another, school/department, financial abilities, and health related issues among other things. Appropriate recommendations for intervention are made to address identified needs including mediation of disputes among students.

Social workers offer intervention for the "At - risk" groups such as student parents, students with disabilities (PWD) and those from socioeconomic/ vulnerable backgrounds. During interactive sessions, students are empowered to identify possible barriers that hinder them from accessing help, and are encouraged to visit the Social Workers' office where needs assessment is conducted and appropriate support, or referral is offered.



The Social workers employ biopsychosocial – spiritual approach of intervention so as to ensure that students reach holistic development through a well structured system of care. In a well coordinated procedure, DeKUT Social Workers assist in follow-up and monitoring of students who are at risk of dropping studies due to any of the afore - mentioned issues.

Additionally, the Social workers collaborate with other stakeholders such as hostel providers, caretakers, lecturers, parents, and school/ departmental administrators, to identify students who may need support.

To the graduands, congratulations on your outstanding achievement! As you embark on the next chapter of your lives, we believe that your education and experience at the university has equipped you with the skills and knowledge to make a positive impact in your communities and beyond. As you navigate through life's challenges and opportunities, we encourage you to leverage the resources available to you.

We wish you all the best in your future endeavors.

Students-Led Projects in Preventing and Countering Violent Extremism in DeKUT

By: Midheme Beatrice
BSc. Geomatics and Geospatial Information Systems

DeKUT believes in exposing the students to co-curricular activities crucial to their holistic development. It provides students with opportunities for personal growth, exposure to different perspectives, health and well-being, career preparation, and community building. Co-curricular activities also help students to develop a range of personal skills such as leadership, teamwork, communication, time management, and problem-solving that enhances their readiness to face the world. In this pursuit, the University brings to the student's attention every opportunity it believes will impact their lives.

Towards the end of 2021, the Royal United Services Institute (RUSI), in conjunction with DeKUT, invited DeKUT students to participate in student-led projects on Preventing and Countering Violent Extremism in Kenyan Universities through a call that the Directorate of Students Welfare rolled out. DeKUT was amongst the four public universities identified to roll out the projects. The other three (3) were the Technical University of Mombasa, Moi University and Garissa University.

The specific objectives of the projects were:

i) To create awareness of violent extremism in the university communities.
ii) To increase space for voicing concerns and debating on issues.
iii) To improve the relationship between university students and staff.
iv) To enhance interfaith dialogue within the University.
v) To increase students' potential capacity to implement Countering Violent Extremism projects.
vi) To improve knowledge and understanding of CVE projects in a university setting

RUSI conducted one-day training, after which interested parties were required to write proposals on how they would prevent and counter violent extremism within the University.

The topics covered during the training include:

i) Violent Extremism (VE), Terrorism & Emerging trends.
ii) Recruitment and radicalization within a university context.
iii) Drivers of VE & Recruitment (Reasons why students join VE – Research findings).
iv) Roles of different actors on P/CVE in Kenya.
v) Proposal writing skills.

Three teams from DeKUT were successful. Two members of staff were identified to coordinate the projects in DeKUT. The facilitators were drawn from the university departments, with DeKUT Security Department playing a significant role. The projects were funded by RUSI and implemented in three phases which took eight months to complete from mid-January to mid-September 2022. A close-out workshop for the DeKUT projects took place in October 2022, and the National Close-out took place in Waridi Paradise Hotel, Nairobi, in February 2023, involving the four universities chosen to implement the students-led projects in Kenyan universities. The summary of the group activities is as follows: -

The Indomitable DeKUT Group



The Indomitable team presenting their project during close – out workshop

The group comprised seven members whose activities aimed to increase the integration of DeKUT Faith Communities towards preventing and countering violent extremism. They undertook ten (10) activities: Interfaith Talk, One Day Challenge, Clubs and Societies Sensitization Week, P/CVE Talk, Hike to Nyeri Hills, Team building Activity, Bike Fest, Interfaith Coffee hour, Fun day and a Wrap-up Dialogue.

Interclasses Football Tournament Group

The group comprised four members whose activities revolved around football as a mobiliser of students to forums of sensitization on prevention and countering violent extremism. The group carried out nine (9) activities: Training of the referees, Launching of the Tournament, First-Round Matches (8), Group Stage Matches, Quarterfinal matches, Semi-finals, Ladies tournament, Finals and third-place playoffs and the winners' goats awarding ceremony.



The Interclass' Football group presenting their T-Shirts with CVE message to staff members to staff members with CVE messages.

The PCVE DeKUT Group



The DeKUT PCVE Project presentation during close – out workshop

The group comprised five members whose activities aimed to sensitize students on violent extremism and how it can be prevented. The group also undertook ten (10) activities, namely: Door-to-door activity in halls of residence to sensitize students on Violent Extremism, Dialogue on terrorism, a launching ceremony for phase 2 coupled with a talk on PCVE, Bike riding competition, Debate, Phase 2 Wrap- up dialogue, Video taking, Hike to Mau Caves, a meeting with first years on PCVE and a Group Dialogue that evaluated the gains, challenges and experiences gained from the projects.

Conclusion

The projects had a significant impact on the University community. More students have become aware of P/CVE. Equally, the projects have increased cohesion among the different groups in the University, improving the relationship between students and staff. Students have learnt to air their voices peacefully through appropriate platforms. The projects have also promoted mental well-being by engaging students in outdoor activities. Finally, the projects allowed the implementers to showcase their talents- many of them are now celebrities.

I appreciate the University for giving us the platforms to grow, build our interpersonal skills and improve our abilities. I want to encourage my fellow students to always grab the opportunities for the gains they realize.

Why Should Equity Affairs Be Taken Care of In A Learning Institution?

By The Directorate
Gender, Disability & Equity Affairs, DeKUT
0717681088, gendercoordinator@dkut.ac.ke

"Inclusive education is often associated with the needs of people with disabilities and the relationship between special and mainstream education. But the same practices that exclude people with disabilities, also exclude learners for reasons such as gender, age, location, poverty, ethnicity, migration, or displacement status, and sexual orientation or gender identity orientation. We need systems that work for everybody, not just for those who meet whatever criteria their society defines as 'normal'. The concept of barriers to participation and learning should replace the concept of special needs." – [Excerpt from the youth version of the 2020 UNESCO Report on Disabilities and Education]

A learning institutions like DeKUT, with its 9,000+ students is expected to have a community with very many different people in it. This means that measures should be put in place to ensure that these differences are taken care of in all sections of the University including the academic section. This means that we should make a deliberate effort to make our institution more inclusive. Inclusivity tends to take care of very many people. For example, the parking spaces designated for people with disabilities at the entrance of buildings not only take care of people with mobility disabilities, but also, a woman who is heavily expectant will benefit from these parking spaces.

Academically, students and even lecturers may require arrangements to ensure that they are able to achieve their academic and teaching goals. If a student has a disability, has financial challenges, comes from a marginalized community, there are things that should be done so that their experience in the University almost matches that of what is considered a "normal student." Similarly, a lecturer, a non-academic staff, may need disability mainstreaming to teach or work, may require gender mainstreaming to work while being the primary caregiver of a child. If these arrangements are not made, everyone does not equally enjoy their right to quality education or a safe working environment.

Attitudinal barriers can also largely affect how minority communities learn and work. Discrimination from peers, service people and colleagues can have negative effects on an entire institution. People from minority communities may feel unsafe, unwanted, discriminated against and abused from behaviors, perceptions and mostly untrue assumptions about their being them and belonging to a certain minority community. It is therefore important that the whole University community puts effort in educating themselves about different minority communities and how to support and include them in the successful running of the University.

Dedan Kimathi University of Technology has made large strides towards being an institution that is inclusive. The Directorate of Gender, Disability and Equity Affairs being in existence is a testament to that. The different duties it carries out helps the University to become better equipped in being an environment where a student or employee from a minority community thrives. Support systems have been put into place to support students and staff members with disabilities, students with financial challenges and other vulnerabilities, students and staff members taking care of young children, among many others. Any department or person can liaise with The Directorate to ensure that DeKUT serves everyone better, and equitably.

Mental Disorders

By Njenga Sammy
Nursing/ADA, and Wangechi Maingi-IT/ADA

Definition

Mental health is a state of well-being in which an individual is able to realize his/her potential, cope with normal life stressors, work productively and contribute to the community and not merely the absence of disease (WHO).
Mental disorders/ mental illnesses are health conditions that involve changes in emotion of, thinking or behaviour or a combination of both (American Psychiatric Association).

Some Causes of Mental Disorders

- Substance abuse
- Genetic predisposition.
- Chemical changes in the brain.
- Structural changes in the anatomy of the brain.
- Psychosocial factors
- Environmental factors
- Side effects of medications.

Classification of Mental Disorders

Mental disorders can be classified into several categories like substance use disorders, eating disorders, sexual disorders, mood disorders, psychotic disorders, trauma and stressors disorders and anxiety disorders.

a) Anxiety Disorders

These are a group of disorders that has features of excessive anxiety and fear then followed by disturbances in behaviour. Anxiety has a deeper effect than fear as it interferes with the central core of one's personality. Anxiety occurs due to the failure of the defence mechanism to cope up with stressors leading to maladaptive responses. These disorders include Separation Anxiety Disorder, Selective Mutism, Specific Phobia, Social Anxiety Disorder (Social Phobia), Panic Disorder, Generalized Anxiety Disorder And Substance/Medication-Induced Anxiety Disorder.

Manifestations

- Sweating
- Trembling
- Shortness of breath
- Chest pains and discomfort

b) Eating Disorders

These are a group of disorders that are associated with persistent alteration of eating or eating-related behaviours which result in interference in food intake or absorption that will in turn impair physical well-being. The disorders are classified using the Diagnostic and Statistical Manual 5 (DSM-5) into Anorexia Nervosa, Bulimia Nervosa, Rumination Disorder, Pica, Binge Eating Disorders And Avoidance/ Restrictive food intake disorder.

Manifestations

- Malnutrition
- Food avoidance/ restrictions
- Emaciation
- Scars on hand when inducing vomiting

c) Substance Use Disorders and Addictive Disorders

These are mental health disorders that are linked to drugs and substance abuse. A drug is a substance, not food, when used alters the normal functioning of the body. Drug abuse refers to the maladaptive use of drugs. These drugs can be taken into the body through several routes like injection, smoking, sniffing, orally, intradermal (skin patch), rectal, per urethra/vaginal and inhalation. When these drugs are taken especially with repeated use, it may lead to addiction.

Some of the drugs abused in the order of progression include alcohol and nicotine, marijuana, tranquillizers, hypnotics, cocaine, heroin and PCP (phencyclidine)/ lysergic acid diethylamide.

d) Sexual Disorders

These are groups of disorders which disturb one's ability to respond in terms of sex-related matters or sexual experiences. Some of the sexual disorders include a group of disorders called paraphilias. They include exhibitionism, voyeurism, masochism, sexual sadism, necrophilia, coprophilia and zoophilia.

Manifestations

- Exhibitionism is a disorder where one gets sexual gratification by exposing genitals to other people.
- Voyeurism one gets sexual gratification by watching other people engaging in sex or naked.

» Masochism gets sexual gratification by being physically or emotionally abused and mistreatments.
» Sexual sadism one gets sexual gratification from humiliation or harm to another person.
» Necrophilia gets sexual gratification from fantasies involving corpses.
» Coprophilia sexual gratification from faecal matter.
» Zoophilia sexual gratification from animals.

e) Trauma and Stress-related Disorders
These are mental disorders that are associated with exposure to a traumatic and stressful event. Most people who suffer from these disorders are police forces and people who engage in stressful events like medical professionals. The disorders here include post-traumatic stress disorder, acute stress disorder, adjustment disorders, disinhibited social engagement disorder and reactive attachment disorder.

Manifestations
» Lack of motivation
» Inability to express self-emotions
» Exaggerated negative beliefs

f) Mood disorders
These are disorders that result in an altered mood status of the person. The conditions here include depression (MDD- major depressive disorder), Bipolar Disorder and Seasonal Affective Disorder.

Common signs and symptoms
» Insomnia/hypersomnia
» Suicidal ideas
» Indecisiveness
» Anhedonia/lack of pleasure
» Low motivation
» Pessimistic thinking

g) Psychotic disorders
These are disorders that cause changes in behaviour and other symptoms in a patient. They also cause altered thinking and perception. Examples of the conditions include schizophrenia and schizoaffective disorders.

Common signs and symptoms
» Hallucinations
» Delusions
» Incoherent speech

h) Obsessive-compulsive Disorders
These are disorders with features of obsession and compulsion. Obsessions are repeated and persistent thoughts, desires and pictures that occur in intrusive and unwanted by the person. Compulsions are now a result of obsession which are now then behaviours the person feels to do. They include obsessive-compulsive disorders, trichotillomania, excoriation and hoarding disorder.

Common signs and symptoms
» Obsession
» Chronic anxiety
» Low self-esteem
» Difficulty expressing self-positive feelings
» Depressed mood

Management
The different mental health disorders will adopt different management options.

How to Recognize and Work Through Emotional Dependency

By Manyasa Daniel Makokha
Bachelor of Science in Geomatics and Geospatial information systems

1. Signs

Emotional support is one of the benefits of having relationships. When you face life challenges or stress, your loved ones can offer empathy and comfort by listening to your troubles and validating your feelings. Your partner in a romantic relationship may be the first person that you turn to for this support. Looking to partners for emotional support and guidance is normal, especially in a long-term relationship.

When you need your partner to meet all your emotional needs, you are probably bordering on becoming emotionally dependent. This reliance on another person can eventually take a toll on your relationship and overall well-being.

What it looks like

It helps to think of emotional dependence as a spectrum. Emotional independence rests on one end and emotional dependence on the other. Completely independent people might resist all emotional support, preferring to cope with their emotional needs. Interdependent relationships, the healthiest type of relationship, fall in the middle. Interdependence means you can recognize your own emotional needs and do the work to get many of them met. In emotional dependence, one typically relies on their partner to meet nearly all their needs. When you experience distress, you might look to them immediately before trying to manage your emotions yourself.

Feeling like you cannot live without their emotional support can suggest your relationship has veered toward an unhealthy level of dependence.

Other signs of emotional dependence include:

- » An idealized view of your partner or the relationship
- » The belief your life lacks meaning without them.
- » The belief you cannot find happiness or security without them.
- » A persistent fear of rejection.
- » A constant need for reassurance.
- » Feelings of emptiness and anxiety when spending time alone.
- » Needing your partner to build your self-esteem, confidence, and self-worth.
- » Feelings of jealousy or possessiveness.
- » Difficulty trusting in their feelings for you.

Dependence Vs. Codependence

There is an overlap between codependence and dependence. However, there are also differences between the two. Codependence occurs when you neglect your own needs to take care of a one's ones' needs.Emotional dependence can resemble a type of codependence if you overlook your own emotional needs to prioritize your partners' emotions.

2. Effects

Trouble meeting your own emotional needs can significantly impact your romantic relationship. The effects can also extend to other areas of life.

Relationship Problems

Emotionally dependent people typically need a lot of reassurance and support from their partners.
They might regularly ask questions like;
"Do you love me?"
"Am I bothering you?"
"Do you want to spend time with me?"
"How do I look like?"

Stress

Dependence in relationships involves some level of emotional distress.
High levels of stress can affect how you experience and express your emotions.
You might notice:

a) Sudden mood changes.
b) Feelings of depression.
c) Outbursts of anger or sadness, including crying or shouting.
d) Physical expression of feelings including violence towards people or objects.
e) Somatic symptoms, including muscle tension and headaches.

3. How to Overcome It

A. Get more comfortable with your emotions.

Learn more about yourself, try;

a) Meditation.
b) Spending time in nature.
c) Spending time on your own.

B. Take charge of your emotional needs

a) Try focusing on what is enjoyable now by;
b) Spending time with friends outside the relationship.
c) Exploring your interests.
d) Making time to relax.
e) Practicing self-care.

C. Explore your triggers

You find yourself seeking reassurance most when dealing with outside sources of stress, like trouble at work.

Your self-esteem tanks when you make a mistake and you depend on their approval to lift you back up. You feel rejected and fear losing their love when you spend a lot of time with someone else.

D. Talk to a therapist

In therapy, work to resolve other issues that often tie into emotional dependence by:

a) Developing great self-compassion.
b) Increasing self-confidence and self-esteem.
c) Learning to recognize healthy relationships.
d) Learning to challenge and reframe negative thoughts.

4. In a Partner

Here are a few ways to offer support while protecting your emotional needs.

» Set boundaries.
» Ask for what you need.
» Seek support together. (A couple- therapist can also help).

5. The Bottom Line

Emotionally dependent behaviours develop over time, so you probably will not improve them overnight.

» Take steps to address emotional dependence.
» Have patience and compassion -for yourself or your partners.

How Do I Manage My Money As a Student

By Kelvin Njoroge Maruthu

What is Money?
Money is a denomination for the exchange of goods and services.

In social terms, it classifies people as wealthy or poor in a social class context.
In psychology, money is a stress reliever and a happy hormone stimulator.

How Do You Make that Money?
The sources of money for students in the University include that from parents for upkeep, bursaries, Harambee, and loans from the government such as HELB. Some students go the extra mile to make money through online businesses by doing remote jobs while others maximize their talents and skills. Students have become creative and started businesses such as service delivery of beauty and aesthetics, fruit vending and big hotels.

Expenses and Liabilities
Expenses are the payments made for services or goods while liabilities take money from you.
In the finance and accounting field, professionals advise you to make expenditures, unnecessary purchases and liabilities as low as possible and that you maximize income and revenue.

Ironically, people have an unbalanced statement of financial position whereby they make their liability column heavier than their asset column.

In the book money personality by Scott and Bethany Palmer, various spending habits are enumerated below:
1. Emotional or mood spenders
2. Adrenaline spenders
3. Impulsive purchase spenders
4. Dopamine spenders
5. Peer spenders.

1. Emotional Spenders
These individuals will buy anything if it is in their financial capability range based merely on the prevailing moods. Finally, such people have more remorse than satisfaction when their emotions stabilise.

2. Adrenaline Spenders
Adrenaline is a hormone in the body that is responsible for fight-or-flight situations when the need arises. When these groups of people have a surplus amount of money, they activate both fight and flight responses.

They fight the little financial discipline they have enough to jump-start a flight response to squander the money they have gained. This is popular amongst the lottery and gambling mega jackpot winners who live lavish lives for a period and then later go back to poverty. Lack of financial discipline and literacy or having too little that will be overlooked when the surplus opportunity avails itself will always yield the same results as history has it.

3. Impulsive Purchase Spenders
This category of individuals does not have breaks when it comes to purchasing. They can purchase, especially goods just to see they have abundance and more than they even required. They go even beyond credit card purchasing wants that are not even necessary. Just like the emotional spenders, most of the time they will have pretty remorse for the goods they bought since most of them were not even within the budget.
They have a condition known as a 'purchase justification machine', a brain trigger that justifies a reason for them to buy something even if it's not in their budget list. They live in the moment of purchase though later they are usually faced with challenges of compensating for the un-budgeted purchase by selling the purchase, going more into debt and working extra hours if they wage by hours in their jobs if they are employed.

4. Dopamine Spenders
Dopamine is a feel-good hormone secreted by the brain. That's why everybody does what he feels good doing most of the day such as hobbies. In fact, for some people spending money is a hobby. They like spending money purchasing goods and services just to have that good feeling. They will do it repeatedly since the hormone is addictive, it acts as caffeine and it leaves the individual wanting more and more. This is tricky and will come without saying when an individual finds himself stuck in such a trap having no financial literacy or ways of escaping it.
Having a budget in hand and setting a limit on how

much money you can spend in a day is a great beginning towards escaping that trap.
Secondly, the individual can have alternative activities that are not cost-inclusive of money but are beneficial and still gives the same good feeling. Examples include exploring one's talent or doing community service and charity work.

5. Peered Spenders
They spend their money based on peer groups. They spend their money based on peers or their age group's opinions and spending habits. Psychologically, a person's character and behaviour are an average of 10 closest friends.
Most of the affected individuals are the youth since they live beyond their means just to fit in a particular group. Without the necessary financial discipline and literacy, an individual will consume more than what can be afforded and end up in deep debt.

How Do I Manage the Money?
The best way to manage something is to know what that is, how to gain it and make more of that. The Bible says that zeal without knowledge is all useless.

The Budget Game
A budget is a well-outlined plan that tells money what to do instead of wondering where that money went. The budget informs one of what they spent money on. A well-outlined budget helps in financial discipline. One can put money into use in certain activities and even save.

Questions to ask yourself during budget formulation are:
Do you need it?
Do you love it?
Do you like it?
Do you want it?

The questions on love or need are necessary and should be given priority during budget formulation. The questions of like and wants are the secondary wants which are options and should only one has surplus funds.

Never borrow to consume but to invest. Borrowing to purchase want makes one a slave to the lender and their consumption habits. Cut down the unnecessary expenses.

When budgeting, use the 50, 30,20 Rule
50% of your income should go to the primary expenditures such as recurrent expenses, house rent, food, clothing and education.

30% of your income should go to secondary wants which include funding hobbies, having fun with friends, and paying debts. As Robert Kiyosaki author of the bestseller Rich Dad Poor Dad narrates, always pay yourself first. It is good to make debt payment a secondary want.

10% of the total income will go to savings. These savings should be a source of an emergency fund, investment or a backup plan just in case of layoffs in your job. Can your savings amount fund you for the next six months? If not, then save little by little, a step at a time. When the savings are enough to fund an investment, then invest.

Consider where to invest and how to do so
How do you manage and make your money grow?
Most individuals will start looking for formal employment after graduation to draw an income. What would happen if you graduate already having an income? And if you have already graduated, where do I make money?

A. Be creative with money-making ideas
Do you know your talent? Can you maximize your potential through that talent? Most individuals make more money than their peers by using their talent and translating money-making techniques into hobbies.

The campus allows one to brainstorm with some of the best minds in the Country to come up with money-making ideas. If you only get on campus, attend lectures to obtain a degree and start thinking of making money after graduation, you need to reconsider.
Use all the available opportunities presented by the University for example, the Ajira program, seminars on money making and mental health programs which will help design your way of thinking in money making.

B. Be Financially Literate
How do you manage your money? How can you handle sudden abundance? You need knowledge on how to handle your money and make it grow. What type of content based on money are you feeding your brain? Remember that whatever you feed always grows.

The notion that all money is evil is all irrational because poverty is not a sign of holiness. If you are a religious person, there is no problem. However, consider money as wealth given by God for you to manage.

Be ready to learn the dynamics of money and be literate on money-making ideas by reading financial books, podcasts and even seminars.

C. Be independent of consumption and expenditure habits

One has to be financially independent means your income dictates the type of consumption you decide to take but not based on your peers and irrational feelings.

A personal budget will be an independent financial discipline coach that will help you gain consumption management skills.

D. Have a network of skilled individuals

In a university setup, many individuals are specialists in different fields of knowledge and expertise to do something great. It is up to you to make a network based on skills of interest to help you brainstorm ideas that will help you make money and even start partnerships as early as on campus.

Stop viewing colleagues as individuals with a four- or five-year course to complete and then search for jobs, start now.

E. To make your money grow, remember to put your money to work

Do not work for money. Let it work for you. Have someone who will guide you in viable investments. Have a financial coach that will also monitor your investments and advice you on what is giving the maximum return. Starting small such as using 10% of your HELB amount contribution by five partners and starting a business around the University that will help make money other than just using all that amount on parties and trips. Always think outside the box. Stop thinking like the multitude but with them. Solve a problem for humanity, and make money through that service.

Finally, remember that man may make plans but God is the one who establishes them. Therefore, consult God.

The Role of Social Issues in the Fight Against Drugs and Substance Abuse

BY Jackson C. Mudengeya

Drug and substance abuse poses challenges to University students. Following the NACADA statistics, alcohol abuse has continuously been gaining traction among the 18-25 age group, the ages of campus students. As the statistics paint a grim picture, all is not lost. The University has been training students as alcohol and drug abuse (ADA) peer educators and peer counsellors. The ADA club mantra "reach them before drugs do" was birthed from this. Most members are trained as peer counsellors as well. In the fight against drug and substance abuse, sharing information amongst peers is critical as students spend much time together. The provision of necessary knowledge to peer educators and counsellors allows information to reach students at the grassroots level, famously referred to as "Kwa ground." The club has a great influence in reducing the rate of drug and substance abuse in the University.

Adequate information is availed to students through various media such as the provision of reading materials, organizing of training, seminars and health weeks etc. Commonly abused drugs are alcohol, cigarettes and bhang. This happens despite students' knowledge of the disastrous effects of the drugs. The ADA peer educators club members changed their strategy. Discussions on social topics were introduced as a mainstay and linked to drug matters. As such as the club members are fully aware of the various effects of drugs, and they are also competent in social issues that provide a route towards drugs and substance abuse. Several social matters have been tabled and discussed. Some topics discussed are stress management, relationship issues and financial matters. Social issues are interconnected in various ways.

With the rigorous academic schedule present in the University, some students feel overwhelmed by the end of a week and opt to drink away as a method of coping. Unfortunately, due to the depressive ability of alcohol, they have a false sense that all their problems are solved but hangovers soon set in. This marks the beginning of occasional drinking which later becomes binge drinking. From this, it is evident that as much as the students are aware of the effects of drugs and substance abuse, they engage in it due to poor stress management skills. Relationship issues are present. Heartbreaks and entanglements are normal despite the level of trust, sacrifices and love provided by either of the parties and it is normal to experience them. However, the critical issue is how to manage the situation due to distrust. Stress always accompanies such situations as either of the parties may suffer from self-blame over the relationship failure, lowered self-esteem, self-hate and negative self-judgement. To drown such negative feelings and thoughts from reality seems to be the safest option for most students.

Financial matters also prove to be a huge problem due to the stress as the affected face a bleak feature. To numb the feelings for a while, some students may choose to be drunk or get high most of the time. Stress is a mainstay in most social matters that affect students.

The University Management has helped in addressing this in various ways, such as;

1. Establishing a Financial Aid Office to look into students' financial matters through work-study programs, bursaries from the University and DeKUTSO, and streamlining the process of approving documents required for processing external bursaries.
2. Provision of free, confidential counselling to the students affected through the University counsellors and follow-up by the social workers in the Directorate of Students' Welfare. Various matters addressed are relationship issues, stress management, personal planning, grief management etc. Social matters are closely related to mental health matters.
3. The continuous training of peer counsellors and ADA peer educators help in ensuring that the University community is continuously informed about drug and substance abuse.

Divulging Potentials Through Co- Curricular Activities



Students and staff dusing a P/CVE co-curricular activity

By Kawira Zablon
University Social Worker

As students transition from secondary school to universities and colleges, one of their major concerns is "how to fit in" and adjust to new life. Once in campus, students enjoy uncontrolled liberty which at times is abused. Sense of belonging gives them identity and fulfillment. In search of this identity, students engage in different activities. It is evident that those who engage in extra/co-curricular activities adjust faster and interact more easily than those who are loners. These activities provide a roadmap for socialization, and inspiration for learning. In addition, individuals acquire self confidence which impacts on their emotional, physical, intellectual and interpersonal development.

From January to September 2022, DeKUT implemented Student – led projects on Preventing/ Countering Violent Extremism (P/CVE) in the University community sponsored by the Royal United Services Institute (RUSI). RUSI is an independent think tank engaged in defense and security research activities. An earlier research was conducted by the RUSI head office in Nairobi on drivers of radicalization and recruitment to violent extremism (VE) in public universities in Kenya. As a result, DeKUT was among the four universities selected to implement student-led projects to sensitize University community on ways of preventing and countering violent extremism. Several groups from DeKUT submitted their proposals and three of them were selected to implement their projects.

During implementation, the teams used different creative methods such as soccer, door to door campaigns, outdoor adventures, interfaith forums among others to sensitize the University community on the possible causes of radicalization and violent extremism. They further emphasized on why University students are the main targets of recruitment by the radical groups. The teams carried out vibrant activities within the university which involved students and staff members.

In a special way, involvement of the team leaders and champions in the coordination of various activities enabled them to link academic knowledge with hands- on experience. This approach led to a better understanding of their abilities, talents, acquired skills and prospective career goals.
Two leaders from each of the three DeKUT Teams and the two coordinating staff members attended the RUSI – P/CVE close out workshop for the four implementing Universities held in Nairobi on 22nd and 23rd February 2023.



Interclass' football tournament group during launching of phase one



Students in an outdoor interactive P/CVE activity



DeKUT team presenting their P/CVE project during close – out workshop in Nairobi

The DeKUT Men's Club



By M. M. Njenga
University Social Worker

As men enter into their University years, they face a unique set of challenges and opportunities. From academic pressures to social expectations, the journey to graduation can be a bumpy ride. Fortunately, there is a powerful resource available to help men navigate these challenges: the DeKUT Men's club.

The DeKUT Men's club is a community of male students who come together to support one another and discuss issues that are important to them. Whether it's academic stress, relationships, or career goals, the Forum provides a safe space for men to share their experiences and gain insights from others who have been in similar situations.

One of the primary benefits of the DeKUT Men's club is the opportunity for male students to form meaningful connections with their peers. University can be an isolating experience, and it's common for men to feel like they are going through their struggles alone. By joining the Forum, however, men can build friendships and find a sense of camaraderie that can be difficult to find elsewhere on campus.



Photo: During the 2023 Mens Empowerment talk dubbed "mens conference"

In addition to fostering social connections, the Men's club is also a valuable resource for academic support. Members of the Forum can share study tips and resources, form study groups, and even provide feedback on one another's work. This can be especially helpful for men who may be hesitant to seek help from professors or academic advisors.

Of course, the DeKUT Men's club is not just about academic and social support. The Forum also provides a space for men to explore their identities and discuss issues related to masculinity. In a society that often places strict expectations on what it means to be a man, the Forum encourages men to question these norms and find their own authentic paths. This can be an empowering experience for men who may feel like they don't fit into traditional masculine roles.

Ultimately, the DeKUT Men's club is a valuable resource for male students who want to thrive during their university years. By providing social, academic, and identity support, the Forum helps men build meaningful connections, develop valuable



skills, and navigate the challenges of university life. For men who are looking to make the most of their university experience, the DeKUT Men's club is an invaluable resource that should not be overlooked.
To the graduating class, as you move forward in your careers and personal lives, remember that this is just the beginning. You have gained a wealth of knowledge, skills, and experiences during your time in university, but there is always more to learn and discover.



Photo: Dekut men during the 2022 "Men's conference"





Photo captions of Men during the Conferences.

DeKUT Enterprise Company

DeKUTES COMPANY

Introduction

The creation and sale of value-added products are important aspects of modern business. It involves taking raw materials and processing them into finished products that are of higher value and quality than the original materials. DeKUT Enterprises Company is an example of a company involved in the creation of value-added products. Our products include coffee, yogurt, detergents, educational materials, personal protective gear, and branded corporate wear. These products are designed to meet the needs of the local community and offer them high-quality products at affordable prices. DeKUTES also provides consulting services and short-term training courses designed to improve the productivity, effectiveness, and efficiency of businesses. In this article, we will explore each of these products and services in details:-

DeKUT Coffee

One of the standout products at the DeKUT outlet is DeKUT coffee, which is a premium blend of locally sourced coffee beans from the DeKUT farm. The coffee is roasted, ground and packaged on-site, ensuring that customers get the freshest cup of coffee possible and of the highest quality. The beans are hand-picked and carefully processed to create a rich and full-bodied coffee that has a smooth finish. The coffee is available in both whole bean and ground form, making it convenient for customers to use at home or in the office. This product is available in 30g, 100g and 250g.





Coffee Roasting and Grinding Services

As DeKUTES, we are proud to offer our customers high-quality coffee roasting and grinding services. Our coffee roasting process involves carefully selecting and roasting green coffee beans to perfection, resulting in a rich and flavorful cup of coffee. We use the latest technology and techniques to ensure that every batch of coffee is roasted to perfection.

We also offer coffee grinding services to ensure that our customers receive the freshest and best-tasting coffee possible. Our state-of-the-art equipment allows us to grind coffee beans to the precise level of fineness required for each brewing method, whether it be for a French press, drip coffee maker, or espresso machine.



DeKUT Yoghurt

In addition to coffee, DeKUT Yoghurt is another popular value-added product sold at the outlet. Our yoghurt is made from fresh milk sourced locally from the farm. Our diverse and unique flavors of yoghurt include coffee yoghurt, chia enriched yoghurt, vanilla and strawberry flavored yoghurt and natural yoghurt. It's available in 250ml, 500ml and 1L.



DeKUT Yoghurt

DeKUT Detergents

DeKUTES also stocks a range of detergents that are eco-friendly and gentle on the skin. These detergents are highly effective at removing dirt and stains, and are gentle on fabrics and the environment. Our Hand Wash is a gentle and effective hand soap that provides germ-free protection while also moisturizing and nourishing your skin and the Multi-Purpose Detergent is a highly effective cleaning solution that is designed to remove dust, stains, and odors from a variety of surfaces and fabrics. They are available in 1L and 5L



DeKUT Detergents

Educational Materials and Branded Protective Gear

In addition to these products, DeKUT also sells educational materials such as stationeries and personal protective gear to students studying at the DeKUT. The personal protective gear available at DeKUTES outlet are overall and dust coats.





Conference Facilities

Our conference facilities are among the most exclusive in Nyeri County, providing well-equipped venues suitable for boardroom meetings, training sessions, seminars, conferences, team building, and outdoor activities. With various venues available, we can accommodate small and large groups of up to 1,000 people. The conferences facilities are offered as a conference package that include stationeries, food and refreshments.



Consultancies

DeKUTES is keen to enhance the productivity and performance of businesses by offering various consultancy services. We offer consultancies such as strategic planning, business plan formulation, baseline survey, and feasibility studies among others which all critical components of building a successful business. By engaging a team of professionals with diverse experience in specific areas, DeKUTES can provide valuable insights and guidance to businesses looking to improve their operations.



Conclusion

As a company affiliated with the University, we remain committed to working in close collaboration with the institution, which serves as a crucial pillar of research and innovation. Our practical approach enables us to develop products that cater to the needs of the surrounding community. We are confident that our technology transfer, consultancy, training, and innovative products will contribute to the growth of both the university and the larger community. You can find our products at our outlet near the DeKUT Main Campus gate and at the Nairobi Campus for those residing in Nairobi and its environs. Additionally, we offer nationwide delivery of all our products.

DeKUT ACADEMIC PROGRAMMES

SCHOOL OF ENGINEERING
Ph.D. Mechanical Engineering
Master of Science in Civil Engineering
Master of Science in Mechanical Engineering
Master of Science in Biomedical Engineering
Master of Science in Electrical and Electronics Engineering
Master of Science in Machine Tool Design and Manufacturing Engineering
Master of Science in Advanced Manufacturing &Automation Engineering
Master of Science in Industrial Engineering and Management
Master of Science in Telecommunication Engineering
Master of Science in Electrical and Electronics Engineering
Bachelor of Science in Electrical and Electronic Engineering
Bachelor of Science in Civil Engineering
Bachelor of Science in Mechatronic Engineering
Bachelor of Science in Mechanical Engineering
Bachelor of Science in Chemical Engineering
Bachelor of Science in (Telecommunication Information Engineering)
Bachelor of Education in Technology (Civil Engineering)
Bachelor of Education in Technology (Electrical and Electronic Engineering)
Bachelor of Education in Technology (Mechanical Engineering)
Bachelor of Technology in Building Construction
Postgraduate Diploma in Technical and Vocational Education

SCHOOL OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY
Ph.D. in Computer Science
Master of Science in Computer Science
Master of Science in Cyber Security
Postgraduate Diploma in Animation and Visual Effects
Bachelor of Science in Computer Science
Bachelor of Business Information Technology (BBIT)
Bachelor of Science in Information Technology (IT)

SCHOOL OF NURSING
Bachelor of Science in Nursing (Direct Entry)
Bachelor of Science in Nursing (Upgrading)

SCHOOL OF BUSINESS MANAGEMENT AND ECONOMICS
Ph.D. in Business Administration & Management
Master of Science in Supply Chain Management
Master of Science in Project Management
Master of Science in Business Analytics
Master of Science in Economics
Master in Business Administration
Postgraduate Diploma in Project Management
Bachelor of Purchasing and Supplies Management (BPSM)
Bachelor of Commerce (BCOM)
Bachelor of Business Administration (BBA)
Diploma in Business Administration (DBA)
Diploma of Purchasing and Supplies Management (DPSM)

SCHOOL OF SCIENCE
Ph.D. in Chemistry
Master of Science in Chemistry
Master of Science in Leather Technology
Bachelor of Science in Industrial Chemistry
Bachelor of Science in Leather Technology
Bachelor of Science in Actuarial Science
Bachelor of Science in Mathematics and Modeling Process
Bachelor of Science in Polymer Chemistry
Bachelor of Science in Medical Physics
Diploma in Leather Technology

INSTITUTE OF TOURISM HOSPITALITY MANAGEMENT
Master of Science in Sustainable Tourism and Hospitality Management
Bachelor in Sustainable Tourism and Hospitality Management
Diploma in Sustainable Tourism and Hospitality Management
Certificate in Institutional Accommodation and Catering Operations
Mountaineering and Outdoor Expeditions Guiding

INSTITUTE OF FOOD BIORESOURCE TECHNOLOGY
Ph.D. in Food Science and Technology
Master of Science in Food Science and Technology
Bachelor of Science in Food Science and Technology
Bachelor of Science in Nutrition and Dietetics
Diploma in Food Science and Technology
Diploma in Coffee Technology and Cupping
Certificate in Coffee Technology and Quality Management

INSTITUTE OF GEOMATICS, GIS & REMOTE SENSING (IGGReS)
Ph.D. in Geomatics & Geospatial Information Science
Master of Science in Geospatial Information Systems and Remote Sensing
Bachelor of Science in Geomatics and Geospatial Information Systems
Bachelor of Science in Geospatial Information Science and Remote Sensing

GEOTHERMAL ENERGY TRAINING AND RESEARCH INSTITUTE (GETRI)
Master of Science in Geothermal Energy Technology
Post Graduate Diploma in Geothermal Energy Technology
Bachelor of Science in Geology

INSTITUTE OF CRIMINOLOGY, FORENSICS AND SECURITY STUDIES (ICFoSS)
Master of Science in Forensics and Security Management
Bachelor of Science in Criminology and Security Management
Diploma in Security Management

INSTITUTE OF TECHNICAL AND PROFESSIONAL STUDIES (ITPS)
Diploma in Building Technology
Diploma in Fashion Design & Interior Decoration
Diploma in Electrical &Electronics Engineering (Power Option)
Certificate in Building Technology
Certificate in Fashion Design and Interior Decoration
Certificate in Electrical and Electronics Engineering (Power Option).

PROFESSIONAL AND CERTIFICATION COURSES
Level 1 (Siemens Certified Mechatronic Systems Assistant)
Level 2 (Siemens Certified Mechatronic Systems Associate)
Level 3 (Siemens Certified Mechatronic Systems Professional)

FOR ENQUIRIES
Admissions Office: 0705 688135 | admissionsoffice@dkut.ac.ke
Registrar Academic Affairs & Research: 0713 835965 | registaraa@dkut.ac.ke
Nairobi Campus: 0710-127 516 | directornairobi@dkut.ac.ke
Marketing office: 0713-123 021 | marketing@dkut.ac.ke