DEDAN KIMATHI UNIVERSITY OF TECHNOLOGY

UNIVERSITY

Souvenir Magazine



13TH Graduation CEREMONY

Editorial Team

MAGAZINE COORDINATOR
Dr. Arthur Sichangi

CHIEF EDITOR
Faith Mutheu

MANAGING EDITOR
Risper Thuku

PICTURES
Anthony Maundu

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

DESIGN, LAYOUT AND PRINT BY:
Magfre Enterprises Ltd.
Tel: 020-2228452 / 020 3316691
Email: Info@magfre.co.ke

TABLE OF CONTENTS

Vice Chancellor's Message....3
DeKUT marks 10 years since the Award of the Charter in 14th December 2012....5

Newly Created Departments at the University....8
Office of Career Services; "Striving to Prepare Students for the World of Work and More."....8
Financial Aid Office....10

Highlight on some of the Financially Independent Centres at DeKUT....12
Centre for Food Safety and Naturopathy Studies....12
Polymer Mold and Design Centre....14
Centre for Industrial Productivity and Engineering....15
Natural Products Research Centre....16
Startup Centre....17

DeKUT Participates in the 41st EARSEL Symposium held in Pathos, Cyprus....19
University Develops an Application for the Mapping of Small-Scale Farmers....21
Muringato WRUA Community Engagement for Environmental Conservation....23
Abstraction Survey in Muringato Sub-Catchment....25
Muringato Telemetric Water Quality Monitoring System....26
Utilization of Coffee Cherry Fruit as Food....27
Coffee Training Opportunities and Experiences at DeKUT....28
Directorate of Students Welfare....30
Sports at DeKUT....32
Directorate of Gender, Disability and Equity Affairs....34
Mental Health Issues in the Workplace....35
Impact of Social Media on Student's Mental Health....37
Sexual and Reproductive Health....39
Effects of Alcohol and Drug Abuse, Tobacco Case Study....41
Peer Counselling....42
Safeguarding your email accounts from Cyber Attacks....45
Brief Information on the Oldest African Script and Written Language....46
Establishment of Talking OR Codes Podcast Library....49
All you need to know about Medical Geology....53

Schools/Institutes at Dedan Kimathi University of Technology....54
Department of Chemical Engineering....54
Mechanical Engineering Department....56
School of Nursing and Midwifery....59

Student's Testimonials on International Exchange Programmes offered at DeKUT....61
Outdoor Adventure Activities at DeKUT....72
DeKUT Enterprises Company (DeKUTES)....77
Chaplaincy: A Fountain of Holistic Pastoral Care....80

Vice Chancellor's Message



As we mark and celebrate ten (10 years) since the University was awarded a charter, I welcome you all to the 13th Graduation Ceremony of Dedan Kimathi University of Technology. This is a significant milestone in the University as we celebrate a decade of academic excellence, significant strides in research and innovation, and a continuous commitment to technology development advancement for better life. I want to extend my congratulations to the students graduating. Kudos for your unrelenting determination to forge forward and complete your studies even as the world was battling with this global pandemic. You have completed this important phase of your career development journey and now you are ready to embark on the next phase, where you get to apply the knowledge that you have acquired.

This being the second physical graduation the University has held since the pandemic, it is clear that the Covid-19 pandemic disrupted the education sector in various ways. Academic programs were adversely affected necessitating us to shift from in-person teaching to e-learning. The COVID-19 pandemic also awakened our innovation potential seeing the University venture into the development of ventilator machines, hazmat suits and other innovations meant to assist the nation to combat the pandemic. The University has continued with the same streak, increasingly inculcating skills in innovation to our students who are the heartbeat of every innovation project that we undertake. In this regard we recently celebrated the launch of the Industrial Scale Automated Maize Drier (ISAMD) which was an innovation partnership between the University, the Laikipia County Government and Small and medium sized enterprises in Laikipia County. The event was graced by the former Cabinet Secretary for Education, Prof. Magoha and former Laikipia Governor, H.E. Nderitu Muriithi. Through the maize drier project, the University is impacting the community by creating jobs, promoting best practice in post harvest management, increasing food safety and overall health of the people, transferring of skills to the SMEs and encouraging the growth of SMEs.

With the growth of the internet and new technologies, work and work environments are changing at a very rapid rate. Some roles are getting automated, and new careers have been established. The COVID-19 pandemic has further accelerated the shift of work and this has led to more people working remotely. Digital platforms, and other innovations are also changing the fundamental nature of work. In line with this, the University has put measures to promote online work through platforms such as the Ajira Digital Club, which operates under the Office of Career Services. This is a partnership between the Kenya Private Sector Alliance (KEPSA) and the Ministry of Information Communication Technology that aims to bridge the gap between skills demanded by offering training and mentorship to the youth.

Through the Science and Technology Park, the University has created an ecosystem for the development and nurturing of start ups. DeST-Park encourages cooperation and synergy between universities, research institutions, the government and the private sector to create a favorable environment for innovation, renovation, and training. DeST-Park covers three thematic areas under which start ups are supported, they are: Agri-tech (Food bio-resources and natural products value addition),

Information and Communication Technology (ICT), and Design, Materials and Manufacturing (DMM). So far, DeST-Park has attracted anchor clients; Snowcap Development Limited, Asytec, and Semiconductor Technologies Limited.
The University has also established seventeen (19) specialized research and innovation centres to support the Science and Technology Park.

We also recently launched the UNESCO Chair on Anticipatory Socio-Technical Systems at the University. This is a partnership with the United Nations Educational, Scientific and Cultural Organization (UNESCO) and seeks to disseminate the knowledge and methods of understanding anticipatory systems and processes used to imagine futures, advance future studies, and enhance societal resilience by cultivating conditions for a capability-based approach to well-being and sustainability. It will enhance an integrated research, training, information, and community management system to study anticipatory socio-technical systems. It will also engage in research, teaching, and community engagement that enhances future literacy capacities and the integration of the discipline of anticipation to support the development of a resilient and sustainable Africa.
The University is also constructing a Comprehensive Cancer Management Centre in line with the Kenya Vision 2030, which aims to provide high-quality and affordable health care to improve the quality of life for Kenyans. This Centre is a National Government Project under the Ministry of Health and will be funded through a tied-credit facility from the Government of Hungary. The Cancer Management Centre aims to become a national and regional centre of excellence in cancer research and management. It seeks to fill the gaps in cancer care in the region in terms of early diagnosis and treatment. The construction of the centre is underway after the groundbreaking ceremony by the immediate former President of the Republic of Kenya, His Excellency Uhuru Kenyatta in August this year.

To the graduands; The University has equipped you with the best education to tackle any challenge that you encounter. Go forth with confidence and embrace the journey with courage and determination needed to last the course.

Congratulations to the class of 2022!

DeKUT Marks 10 Years Since the Award of the Charter

Dedan Kimathi University of Technology is a Premier Technological University in Kenya. It is one of the fastest-growing and well specialized Universities in the country, the African region and beyond; attracting students from across the continent and the world. The University was founded in 1972 as Kimathi Institute of Technology with the aim of using quality education, research and technology to transform the society; a focus the University has since not lost sight of. It later became a constituent college of Jomo Kenyatta University of Agriculture and Technology and on 14th December, 2012, the University was promoted to a fully-fledged Institution of higher learning through the grant of charter by the late President Mwai Kibaki. This December 2022, the University is celebrating ten years since its charter; since the official birth of Dedan Kimathi University of Technology (DeKUT). This is a significant milestone in the University as we celebrate a decade of academic excellence, significant strides in research and innovation, and a continuous commitment to technology development & advancement for better life.

This celebration of DeKUT at Ten coincides with the University's 13th Graduation Ceremony and we are proud to be releasing more graduates to join the rest of the DeKUT alumni in contributing to the development of our nation and beyond.
The University remains committed to providing an academically stimulating, culturally diverse, and quality learning environment that fosters research, innovation, and technology development towards producing relevant technical and managerial human resources and leaders to contribute to the attainment of national development goals.

The programmes offered by the University are approved by the Senate and the various designated bodies like the Commission for University Education (CUE) and the Engineers Board of Kenya (EBK). For us to continue providing relevant education and ensure that our graduates are well trained, exposed, employable and succeed in their careers and indeed contribute to making the world a better place, we have increasingly worked with the industry, the government, local and international institutions; and deliberately created opportunities to expose our students to the world of work and entrepreneurship. In the past few years, the University has made tremendous strides. To highlight just a few, we have formed strategic alliances and collaborations with various like-minded organizations to ensure that our students are empowered with superior skills and the requisite mindset that they need to deal with the challenges in the modern job market.

In 2020, the University partnered with the Kenya Film Commission (KFC) to start a digital media centre that aims at curbing some of the challenges our youths face today, such as unemployment, through technology. Through this partnership, we established and launched the DeKUT_Kenya Film Commission Film, Animation and Gaming Hub, which provides a platform where young people and interested parties in creative art can use technology in filmmaking and participate in the production of digital media products that can be marketed widely. Since its establishment, the hub has directly employed 20 people and provided over 100 freelance jobs to youth, students and locals. The hub has also created room for developing new academic programmes, such as the postgraduate diploma in animation, which is scheduled to commence in 2023. The facility currently serves 100 people per week, including students, interns and staff members. Aside from that, the hub also acts as an incubation space for film projects in Nyeri County and helps transform the country into a shooting destination for local and international filmmakers. So far, the hub has graduated 15 scriptwriters, 23 PSC interns, and 60 work-study programme students and has offered capacity-building training for 95 learners and 50 actors and actresses.

The University has also signed various agreements with several organizations/institutions. To list but a few, the University has an MOU with the Center for International Migration, the Africa Bio-Energy Programme Limited (AFBL) and Biogas Kenya, with whom the partnership will help set up a centre of excellence in biomass energy under the existing Center for Biomass Energy Studies (CBES). The University and the Deutsche Gesellschaft fuer

Internationale Zusammenarbeit (GIZ) recently signed a grant agreement for the Green Climate Fund (GCF) project, which is being implemented by the DeKUT Centre for Biomass Energy Studies.

In collaboration with ASYTECH, the University developed a Public-Private Joint Partnership project to manufacture laptops. The partnership intends to exploit the ability to develop products and solutions that are specifically suited for the income levels and tastes of the African market and create an entire ecosystem that allows for design up to local manufacturing of Made in Kenya for Africa. The computers, which have the model name "Six Look Above", are now available for sale countrywide for 350 USD - 800 USD.

The University has been in the process of establishing a Science and Technology Park. Recently, the park was admitted into the International Association of Science and Technology Parks (IASP) membership, becoming the second member from Kenya after Konza Technopolis Development Authority. DeKUT Science & Technology Park encourages cooperation and synergy between universities, research institutions, the government and the private sector to create a favourable environment for innovation, renovation, and training. This initiative also supports students and staff to become entrepreneurs and job creators and stimulates regional economic development. So far, DeST-Park has attracted anchor clients; Snowcap Development Limited, Asytec, and Semiconductor Technologies Limited (STL). The Semiconductor Technologies Limited, is already operational and provides the Science and Technology Park and the University with crucial local and international linkages contributing to intellectual property outputs. STL has also tapped the talent of human resource professionals from among the University's graduates and staff; we are proud to say that these professionals trained and moulded here at the University are a great asset to the company.

This year, during the 39th International Association of Science and Technology Parks World Conference, held in Seville, Spain, Kenya won the competition to host the IASP Conference in 2024. This is a positive statement and a great opportunity for Kenya and Africa to demonstrate the great potential to contribute to science and technology.

Representing Kenya at the conference were the representatives of Konza Technopolis Development Authority and DeKUT Science & Technology Park.
The University has established nineteen (19) specialized research and innovation centres to support the function of the Science and Technology Park. Among them are:

- Centre for Development of Electronic Devices that engineers design circuits for various electronic devices depending on functionalities specified.
- Centre for Nano-materials and Nanoscience Research that creates capacity for research and development in thin film deposition, nanofabrication, and characterization.
- Centre for Polymers and Mold Designs to support the development of plastic engineering and polymer technology required in the manufacturing of electronic devices
- Centre for Data Science and Artificial Intelligence that develops diagnostics tools for medical imaging, systems for natural ecosystems and water resources monitoring, sensor systems, and mobile applications for precision farming.
- Centre of Geospatial Information Systems and Remote Sensing
- Centre for Natural Products
- Software Development Centre that provides local software solutions
- The Start-Up Centre that promotes the development of prototypes and the establishment of spin-off companies and enterprises.
- Centre for Innovation and Entrepreneurship Management that offers mentorship support and entrepreneurship training to innovators and startup companies

The University also signed an agreement with the United Nations Educational, Scientific and Cultural Organization (UNESCO) to establish a UNESCO Chair on Anticipatory Socio-Technical Systems at the University, which will be launched in December 2022. Specifically, the chair will disseminate the knowledge and methods of understanding anticipatory systems and processes used to imagine futures, advance future studies, and enhance societal resilience by cultivating conditions for a capability-based approach to well-being and sustainability. This is a major milestone in the University as it will enhance an integrated system of research, training, information, and community management to study anticipatory socio-technical

systems. It will also engage in research, teaching, and community engagement that enhances future literacy capacities and the integration of the discipline of anticipation to support the development of a resilient and sustainable Africa.

The University is also constructing a Comprehensive Cancer Management Centre in line with the Kenya Vision 2030, which aims to provide high-quality and affordable health care to improve the quality of life for Kenyans. This Centre is a National Government Project under the Ministry of Health and will be funded through a tied-credit facility from the Government of Hungary. The Cancer Management Centre aims to become a national and regional centre of excellence in cancer research and management. It seeks to fill the gaps in cancer care in the region in terms of early diagnosis and treatment. The construction of the centre is underway after the groundbreaking ceremony by the immediate former President of the Republic of Kenya, His Excellency Uhuru Kenyatta in August this year.

Among the latest developments at the University is the Launch of the Ajira Digital Club under the Office of Career Services. The club was formed as part of a partnership between the Office of Career Services and the Ajira Digital program. It acts as an additional training, incubation, and mentorship forum to help equip students with digital skills for the world of work. So far, more than 200 students have been trained. Several of these have successfully explored the digital space where they gain more experience and earn a living. The Office of Career Services was launched earlier this year to spearhead, more deliberately, the focus and effort of the University to produce graduates who are well moulded, equipped, exposed and ready for the changing world of work and entrepreneurship.

The University has also established a Financial Aid Office (DeFAO), which has a robust work-study program that allows students to work while studying within the University to earn an income and learn from various departments and offices. This year, the Financial Aid Office signed a Cooperation Agreement with the Education For All Children (EFAC) to support needy students' access to education. The office seeks to enhance and diversify sources of funds to support needy students and ensure that such students continue with their studies uninterrupted. Together with EFAC, the office will identify strong candidates who demonstrate academic talent, leadership potential and financial need.

In addition, the University has enhanced her Internationalization agenda through the International Office that runs the Students and Staff Exchange Programmes thus ensuring international exposure to as many students as possible while also hosting international students to learn from and with our own. This is in line with the University's focus on being globally competitive and moulding the University into an Institution known for world-class research, academic excellence, exceptional staff and students, and one that harbours the highest level of innovation and progressiveness.

This year, the University has signed memoranda of understanding with various universities globally for the exchange of students. The students have also owned the internationalization agenda such that some of DeKUT'S Student Associations facilitate student exchanges. These associations include the International Association for the Exchange of Students for Technical Experience (IAESTE) and the Association for the International Exchange of Students in Economics and Commerce (AIESEC). Through these mechanisms, DeKUT has been able to send and receive students from different parts of the world, which has not only enhanced the diversity of the university student population but also enabled DeKUT students to gain valuable international work experience and exposure.

As we continue to make strides in contributing to a better society, nation and the world through our dedication to Quality Education, Research, Innovation, and Technology Development and Transfer, we urge our graduands, and all our alumni, to be good ambassadors of the University; to be visionary and carry themselves with dignity, discipline, integrity and hard work as they apply the knowledge, skills, lessons, experience and the formation gained here at DeKUT in building careers they love and that contribute to growth & development, to making the world a better place and to their fulfilment.

| Congratulations, Graduating Class of 2022!
| Congratulations DeKUT at 10!

Newly Created Departments at the University

DeKUT Office of Career Services



Striving to Prepare Students for the World of Work and More.

BY WANJIRU KABURU
Office of Career Services

The reality, after listening to both sides for a while, turns out to be that the potential employees (the job seekers) say that there are no jobs while the possible employers say that there are no right people for the jobs. Where is the disconnect?

Looking further, the disconnect is in the preparation and exposure. We have a lot of young people graduating from various institutions but many of them are not ready for the job market. Don't get me wrong, this does not necessarily mean that our institutions are not producing skilled personnel; no! It has however become evident over time that most graduates are technically skilled but lack the soft skills, life skills, work skills, entrepreneurial skills and various particular skills like communication skills and tenets like trustworthiness that employers are looking for in these highly technically qualified graduates.

This is where the office of career services comes in. At Dedan Kimathi University of Technology (DeKUT), the office of career services going by the name DeKUT Office of Career Services (DeKUTOCS) has been striving to change the story of graduates of DeKUT by ensuring that as they gain the top notch technical skills through the plethora of programmes offered at the University, they are gaining other key skills that have proven to contribute greatly to success in life after University. The office is working with various internal and external partners to ensure that students gain skills that differentiate them during their search for jobs and also, in their search for investors as they venture into business & enterprising.

Frameworks have been put in place for career advising that ensures that students are guided appropriately and that they create a brand that differentiates them as DeKUT students; and DeKUT alumni.

The office has also been working to help students build their portfolio and resumes while at the University and has been exposing students to the world of work and entrepreneurship through creation of linkages and initiatives geared towards that.

Some of the notable external partners that the office has been working with are The Jitu - an IT Staff augmentation company that offers scalable remote software engineers to businesses across the world; Ajira Digital - a program that strives to empower and expose students (and the youth in general) to the digital world of work and opportunities therein; Absa ReadytoWork - a program designed to equip the young people with work, people, money and entrepreneurial skills and help position them for the world of work and entrepreneurship. DeKUTOCS has also been working with employers who have offered internships, attachments and job opportunities to a number of students and graduates. The office is at the level of pursuing partners for remote internships, apprenticeships and jobs opportunities thus exposing students to the global space of work; The Jitu has already offered such opportunities to some DeKUT graduates. Other areas of collaboration with partners are on career talks through webinars, live talks at the University as well as contributing to the DeKUTOCS Career Blog. These avenues have been key in empowering and sharing insights with students; insights towards helping them build a career from informed perspectives and further, towards helping them prepare, present and position themselves appropriately for the changing world of work and entrepreneurship.

In the past few months since the launch in February 2022, DeKUTOCS has supported department heads and class advisors not just with the career advisory guidelines but by delivering talks during class advising/coffee hours sessions (or getting them relevant speakers) and have also worked with centres such as DeHUB and DeFAO in engaging external partners with whom we're pursuing further collaborations. The notable ones are iTalanta & ELEWA Company and Education For All Children (EFAC) Organization. The office also runs a webinar series focusing on key areas in exposing the students, (alumni and staff by extension) to insights, knowledge and perspectives regarding the world of work and entrepreneurship. So far, several topics have been handled spanning through the areas of CV Writing, Building a Portfolio, Preparing for and Acing Interviews, UN & UNDP Opportunities, Developing Life Skills & Soft Skills for the World of Work, the United Nations World Food Programme Internship Opportunities, Establishing a Viable Business, Effective Presentation, Communication Mastery and Career Growth. We continue to host these webinars every two weeks.

After the initial engagement of the Ajira Digital Program team in March 2022, DeKUTOCS has conducted a series of training sessions that has seen at least 250 students securing online jobs; this has come a long way in helping students earn a living, pay their school fees as well as get exposure on the digital world of work.
Through the office, a DeKUT Ajira Digital Club was launched in June 2022 by the Chief Administrative Secretary ICT & Innovation then; Ms. Maureen Mbaka. Subsequent training and mentoring is ongoing throughout the year.

One of the current activities by DeKUTOCS is carrying out a Tracer Study of our graduates in various programmes. This study is meant to inform the University of the status of our alumni in connection to the course they studied and their experience at Dedan Kimathi University of Technology. This will inform the University on certain career perspectives and general moulding of the students for the industry/ job/ business market. DeKUTOCS is also conceptualizing a Career Fair to be held early next year (2023) with the purpose of bridging the gap between possible employers and potential employees; the fair will give companies the opportunity to showcase their brand and attract the best talent while students/alumni will have an opportunity to stage themselves as potential employees/partners and talent that the companies are in search of. During the fair, students and alumni will also be exposed to elements of job search and interviews.

As we continue with our efforts at DeKUTOCS, we recognize and appreciate that it will take collective action; of the academic institutions and the industry/ the supply and demand side to help in moulding the right people for the jobs and also, in moulding the right people for creation of jobs. We therefore leverage partnerships in this endeavor.

If you would like to be a DeKUTOCS partner in this, write to us via email address careerservices@dkut.ac.ke

Dedan Kimathi University of Technology Financial Aid Office (DeFAO)



BY MAJORY NYAGA
Head, DeFAO

Dedan Kimathi University of Technology Financial Aid Office (DeFAO) celebrated its first year of operation in Mid- September 2022. DeFAO was established to assist needy students in meeting their financial obligations, enabling them to complete their academic programs without or with minimal disruptions. During the year, the office became fully operational and popular amongst students seeking financial assistance on various issues such as fees, rent, food, and upkeep. One of the core mandates of the office is to conduct a financial assessment of the students seeking support to determine their level of need. This helps in profiling students for ease in determining the support to accord them. The office explores both internal and external sources of financial support on behalf of needy students as outlined below:

Internal Financial Aid Programs

(i) Work Study

Work study is a program where students can work as they pursue their studies.

It is a popular but competitive program among the students and is run on a trimester basis. The student can use work study earnings to cater meals in the University Student's Mess, accommodation in the internal hostels, fees for those with a fee balance, and cash to those without fee balances but with upkeep challenges. The program is a quick fix for students with challenges of meals and accommodation.

(ii) University Bursary

DeKUT further recognizes and budgets for her needy students who require more than one source of financial support to meet the cost of education. Unlike work study, where students work for it, University Bursary is a monetary grant given to eligible students to enable them to pay fees either in whole or in part depending on the circumstances.

The needy students are called upon to apply, after which the applicants undergo a due diligence process to ensure only the deserving students benefit.

The University has a Bursary Award Committee that awards the bursaries based on due diligence conducted. The process is done once or twice a year, depending on the budgetary allocations.

(iii) DeKUTSO Bursary

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

(iv) Subsidized Accommodation

Internal hostels are serene and charge much lower rates than external hostels. However, the spaces in the internal hostels are few, making them mostly a reserve of students with special needs such as medical, physical, and financial.

(v) Staff Donations

The University fraternity, students and staff also come to the aid of needy students in one way or another, such as supporting through cash donations to cater for meals, accommodation, and fees. During 2021/2022, over a hundred (100) students benefitted from these donations, especially from the DeKUT faith-based communities and part-time earnings forfeitures. Some students mobilized friends, class or club mates to fundraise fees for a vulnerable colleague. However, such cases should be confirmed through DeFAO to avoid abuse.

(vi) Financial Literacy Training

Though this is not financial aid per see, it is an essential service. The need for extensive financial literacy training was informed by an observation made by DeFAO that a good number of students receive enough funding from various sources but lack money management skills. During the year, DeFAO conducted over 20 financial literacy training sessions for groups of students cutting across all schools and institutes during coffee hours and other organized forums such as leadership training for students.

External Financial Aid Programs

(i) HELB Loans and Bursaries

The University enjoys a cordial relationship with Higher Education Loans Board (HELB). HELB provides significant support to needy students. The loans are popular and competitive among students; hence not a guarantee for all the applicants.

DeFAO arbitrates and lobbies HELB on behalf of students for more and higher allocations.

(ii) CDF and County Bursaries

CDF and County Bursaries contribute substantially towards funding needy students. The office gained links with 39 counties countrywide on county and CDF & NG bursaries. Through these networks, DeFAO linked students with county administrators, which helped to increase allocations to students substantially. However, some networks were lost with the change of government at the county and national levels. We hope to build back as soon as the new government settles in office.

(iii) Sponsored Accommodation

DeKUT enjoys good public relations with accredited private hostel providers. As a result, the private hostel providers support DeKUT with free accommodation for needy students. The students sign a sponsorship agreement form that defines the scope of engagement.

(iv) Individual and Cooperate Sponsors

A good number of students receive support from individual and corporate sponsors.

Through these linkages, DeKUT signed cooperation agreements with two donors who committed to supporting the beneficiaries with full fee payment, a laptop and a small token of upkeep on a semester basis.

Conclusion

DeFAO sincerely appreciates all those people who go out of their way to support a less fortunate member of society. It's on this ground that DeFAO calls upon the readers of this article to consider donating to support the vulnerable members of the DeKUT family. Support could come in the form of fee payment, payment for meals in students' mess, and rent payment, among others. The donation can be channelled to Dedan Kimathi University of Technology Endowment Fund: Paybill no. 522522, Account no.1158874847 for an unrestricted grant, or liaise with DeFAO to adopt/ support a needy student (restricted).

End Quote

The simplest acts of kindness are far more powerful than a thousand heads bowing in prayer.

By Mahatma Gandhi

Highlight on Some of the Centres at DeKUT

Centre for Food Safety and Naturopathy Studies



DR. MONICA MBURU
Food and Nutrition Scientist

DeKUT, through the Institute of Food Bioresources Technology (IFBT), has established the Centre for Food Safety and Naturopathy Studies, headed by Dr. Monica Mburu, who has been vibrant in food-nutrition security research at the University.

Monica brings her broad experience in designing, planning and implementing food control-related projects in the food and horticulture industries to provide solutions to various societal problems. The centre brings insurmountable opportunities by integrating the ongoing chia projects into the hub.

Naturopathy is a holistic approach to wellness, with underlying principles of a healthy diet, clean, fresh water, sunlight, exercise and stress management. At the Centre for Food Safety and Naturopathy Studies, we focus on producing, processing and consuming a healthy organic diet. Naturopathy advocates for natural and functional foods to the innate healing power of nature.

Chia and other natural herbs have been promoted as therapeutic foods through ongoing projects and the students club "Seed to Table Innovators". The centre is establishing an organic therapeutic herbal garden with assorted herbs and vegetables for aromatherapy, medicinal, seasonings, flavourings in foods and beverages, and salads. Herbs are rich in antioxidants, valuable nutrients, fat-free flavor, and much more. The garden integrates permaculture practices imitating the no-waste, closed-loop systems seen in diverse natural systems. This offers a platform for innovations and capacity building. The centre will also promote the commercialization of products rich in bioactive compounds, including chia and oyster mushroom products.

As far as research is concerned, the Naturopathy hub integrates the concluding chia project, ***"The Potential of Chia (Salvia hispanica L.) Farming in Kenya for improved food security and health"***, which can be assessed at *https://chia-project.dkut.ac.ke/*, and the commencing project ***"Integrated Chia and Oyster Mushroom System for Sustainable Food Value Chain in Africa (CHIAM)".*** Chia seeds (Salvia hispanica L.) and Oyster Mushrooms (Pleurotus spp) are considered functional foods that provide health benefits when consumed at efficacious levels as part of a varied diet.

The CHIAM project aims to deploy the integrated chia-mushroom value chain that contributes to the diversification and resilience of African food systems against the impacts of climate change.

Consortium Partners

1. Kenya:
Dedan Kimathi University of Technology (DeKUT) – Expertise in Food science and technology, GIS agronomic aspects of chia, pig rearing, and capacity building of farmers. Keyrio Farm- Expertise in Agricultural Economics and Globalization.

Hands-on experience in rearing and marketing beef cattle, pigs, poultry, mushrooms, fruits and vegetables.



Figure 1: Integrating Chia and Oyster Mushroom

Production and utilization of biogas for small-scale farmers.

2. Germany

Universität Hohenheim (UH) – Expertise: Food Science and technology, cereal science, optimization of processes, modelling .

3. Hungary

Pilze-Nagy Ltd (Pilze) - Expertise: Applied research of biomass valorization technologies, agricultural waste management, mushroom cultivation, and biogas production. Bay Zoltan Nonprofit Ltd for Applied Research (BZN) – Expertise: Laboratory analyses, microbial and molecular biological monitoring, feeding experiments, LCA, LCC, S-LCA.

4. Egypt

Agricultural Research Center (ARC) – Expertise: Plant breeding, Molecular biology, Agricultural mobile application.

5. Algeria

Centre de Recherche Scientifique et Technique sur les Régions Arides (CRSTRA) – Expertise: Plant physiology and bioactive molecules, agronomic aspects, GIS and modeling, water management and smart irrigation

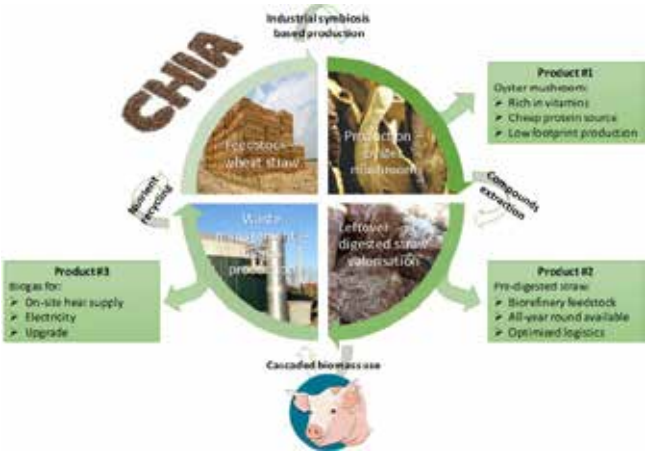
The CHIAM consortium research topics include;

- 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 reducing volatility in agri-food production and food markets to improve food security in the context of climatic variation sustainably;
- Reducing food losses under climate change, including novel approaches to valorize side streams and reduce food waste.

The deployment of an integrated chia mushroom biogas value chain contributes to the diversification and resilience of African food systems against the impacts of climate change.

The adoption of new and innovative technologies into the African food value chain is intended and will be accomplished through four interlinked and multidisciplinary research and technology objectives;

- Breeding and spreading high productivity chia crops
- Improving mushroom cultivation
- Development of novel chia and oyster mushrooms fortified local food products
- Development and demonstration of the climate-smart farming



Creating integrated system of chia and oyster mushrooms can improve the carbon nutrient circle and utilize the lignocellulosic by-products, wastes in a more efficient way and promote fortification of local foods and in Africa to improve household nutrition and economic status.

To create the circularity of farming, the waste of chia production will be evaluated for utilization as the substrate for oyster mushroom production. Spent mushroom substrate as an animal feed will be examined, while the biogas production based on manure will be optimized.

This Centre for Food Safety and Naturopathy Studies will contribute to DeKUTs vision of leading agricultural innovation and sustainable development through food science and technology.

Polymer Mold and Design Centre



PROF. JAMES KERAITA
Director Polymer Mold and Design Centre

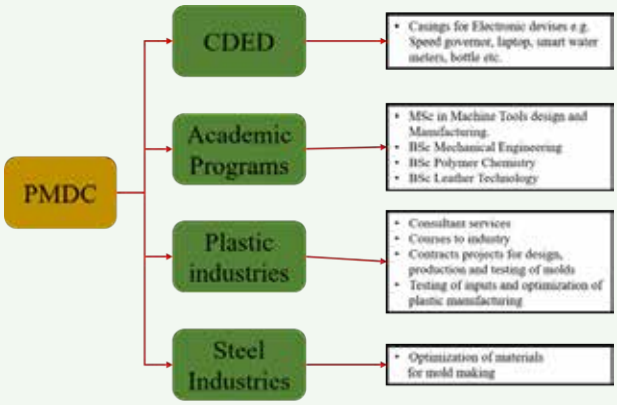
The 21st century is largely characterized by a modern, dynamic society that uses technological trends and changes daily. Kenya's expanding economy must embrace technological advancements in all development sectors, particularly in production and manufacturing. Dedan Kimathi University of Technology's inclusion of technology-based research and development facilities and research initiatives aimed at commercializing breakthrough ideas influenced the establishment of the Polymer Mold and Design Centre (PMDC). The centre is run by Prof. James Keraita as the Director, Hassan Langat Kipyegon as the Deputy Director, and Celestine Kathure and Ayub Omondi as the assistant mechanical engineers.

The PDMC contributes to the industrial sector by providing plastic solutions to the Kenyan plastics and polymer industries through implementing injection and blow molding procedures that are both innovative and efficient. PMDC specializes in the design, value engineering and manufacture of injection and blow molded parts, products and assemblies, simulation analysis and polymer material research. These techniques are being adopted to create plastic casing, shoe soles, containers, and bottles.



Shoe sole prototype developed under the student mentorship project by PMDC

Besides design and manufacturing, the centre provides capacity development through instruction and guidance to students interested in learning more about the field of material science. This is achieved through a partnership with the university's mechanical engineering department. The centre is also in collaboration with other centres, such as Centre for Development of Electronic Devices (CDED). The partnership aims to reduce the center's operating costs by supplying locally produced plastic parts.



The centre's emphasis is on adopting recyclable plastics in molding and developing new injection parts from used parts to introduce sustainable plastic products into the market. The centre is also promoting the use of recyclable polymers to alleviate the waste management problem that is now plaguing the majority of the plastic industries globally. This research initiative is part of running an environmentally conscious centre, and products from the facility will have a low carbon footprint. Additionally, this action will close the systematic gap caused by the absence of a well-established recycling infrastructure or the use of sustainable polymers in the plastic industry.

Ultimately, Kenya's long-term economic development and growth will undoubtedly be boosted by the Polymer Mold Design Center, both of which are essential for achieving sustainable national goals.

Centre for Industrial Productivity and Engineering (CIPE)

DR JAMES WAKIRU,
DeKUT Centre for Industrial Productivity and Engineering (CIPE)

The DeKUT Center for Industrial Productivity & Engineering (CIPE) has built expertise in Industrial Engineering and Management with the capacity to plan, design, implement and manage integrated production and service delivery systems to ensure; performance, reliability, maintainability, schedule adherence and control. CIPE leverages this expertise to support industrial sustainability through training, industrial project development and consultancy.

1. Training

Our robust and high-calibre technical training solutions are developed by subject matter experts to help organizations improve organizations' productivity and boost employees' careers and skill sets – core enablers of competitive advantage and sustainable business development. We provide innovative learning and development solutions covering multiple areas and industries tailored to meet your needs.

To ensure training objectives are met wherever you are, we provide flexible training options delivered virtually (eLearning) or face-to-face (either on-site or off-site). Utilizing subject matter experts, our training provides you with valuable real-world applicative insights moving beyond theory. We Share our expertise, thereby unlocking potential and building capacity, a significant factor to both individual and company success.

As a result, you can trust us to provide high-quality, consistent training and development for your organization.

Sample short-course training

- Maintenance Engineering and management
- Engineering Safety
- Quality engineering
- Productivity & Quality Improvement
- Lubricant and Lubrication technology
- Maintenance data analysis



On-site industrial training session by CIPE

2. Consultancy

To ensure you gain and improve on competitiveness, profitability and productivity, your production, operations and products must comply with the requirements of your strategies and your target market. Whether you're experiencing challenges with the organization's productivity, manufacturing, maintenance, or quality or need a new business strategy to reflect your envisioned future, we're here to help. Identifying and meeting those requirements is a complex challenge. Our consultancy services can help you understand and meet these demands, whatever your industry. CIPE conducts consultancy services in designing efficient systems with Innovative solutions to move your business forward.

3. Industrial productivity improvement research and project.

Are you looking to implement business-enhancing, agile production and maintenance services that improve an organization's performance? Leveraging proven research-based solutions, CIPE helps you improve productivity, quality and maintenance performance with proven and time-tested approaches. We will walk side by side with you to evaluate your current position with you and navigate challenges by developing an articulate road map addressing your needs, ensuring you reach your goals, and sustain performance. This is articulated using designed tailored projects and research in your organization from developing strategically aligned objectives to the implementation and review of the well-crafted decision support. An example is an Industrial feasibility study incorporating product decision, capacity design, process design, production equipment selection, plant layout design, material handling design, material storage design and Factory operation design.



Industrial feasibility study process steps

Natural Products Research Centre (NAPREC)

DR. BENSON ONGARORA
Director, DeKUT NAPREC

DeKUT Natural Products Research Centre (NAPREC) was established by the University Council in March 2022 and started its operations on April 1st, 2022. The Centre operates as a multidisciplinary entity committed to achieving the Vision and Mission of the University by promoting research and innovation as well as consultancy services. So far, the Centre has carried out the following activities in its quest to identify viable projects that can be pursued in the short term.

(a) Wine fermentation

Fermentation of wine has been carried out in order to obtain preliminary data. The experiments involved neglected fruits collected from one of the counties surrounding Mount Kenya. Samples of the fermented wine have been submitted to the Kenya Bureau of Standards (KEBS) for assessment and possible certification. The outcome of the test will inform the next step(s) to be taken by the Centre.
On the other hand, the Centre Director has initiated a discussion with a potential collaborator in the project to establish a pilot garden. The garden will select species of commercially viable plants for this business.

(b) Oil extraction from tannery fleshings

The Centre has taken bold steps to address the challenges facing the leather industry. One of the projects the Centre has engaged itself in is the extraction of oil/fat from fleshing waste collected from Sagana tannery and some obtained from DeKUT leather Technology practical training. Fleshing waste contains about 20% oil/fat content, which can be used as a raw material in various industrial processes. Further, the Centre involved Industrial Chemistry final-year undergraduate students in the formulation of various products from natural products. Chia (Salvia hispanica L) and Egyptian balsam (Balanites aegyptiaca) oil extracts were used to formulate the products.

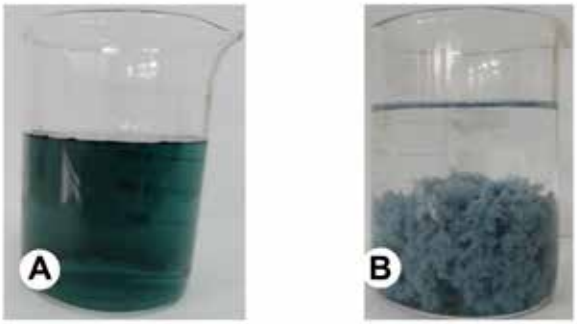
Samples have been submitted for analysis and possible certification by the Kenya Bureau of Standards (KEBS).



A figure showing (a) limed fleshing fat extracts; (b) soap produced from the extracted fats.

(c) Tannery chrome waste management

The Centre spent considerable resources assessing the possibility of treating the tannery effluent emanating from the tanning process. The tanning agent is a serious environmental threat since it is known to cause mutagenic and carcinogenic reactions. This process mainly employs chromium sulphate salt. A procedure has been developed that is suitable for this purpose. To achieve this, commercially available precipitants, coagulants and flocculants were tried in the waste treatment exercise. The figure below shows the results obtained from the developed waste treatment procedure.



A figure illustrating eexperimental work (a) untreated chrome liquor; (b) Treated liquor.

The Centre has filed documents with Kenya Industrial Property Institute (KIPI) to protect the technology and industrial design developed from this work. The Centre is also considering partnering with nearby tanneries to try this technology, with the possibility of scaling up. In summary, the Centre is committed to carrying out research activities that will impact our daily lives through innovative use of naturally occurring resources and environmental protection strategies. The Centre is extending an invitation to all interested parties to partner with it to realize its ambitions.

Startup Centre (DESTAC)

12B
Innovation 2 Business

Do you have an innovative business idea and do not know where and how to start?

DR JAMES WAKIRU
Director-DeKUT StartUp Centre (DeStaC)
EMAIL: startupcentre@dkut.ac.ke

Getting your business idea out of your brain and ultimately building a business model upon it requires a lot of resources and support. Following up on the startup process is vital to succeeding in the business model built from your dream idea.

Did you know that three startups are launched every second? In contrast, 90% of startups fail because they do not systematically follow the process before launching their product in the market.

To address these challenges, the University Management, in fulfilment of the University strategic plan and working towards making DeKUT an entrepreneurial university established DeKUT Startup Centre (DeStaC).

Among the objectives of DeStaC is to enhance the entrepreneurial ecosystem in the University, where innovators will find an avenue to commercialize their ideas and launch startup companies. Further, DeStaC will provide a support process that accelerates the successful development of startups and fledgling companies by providing an array of targeted resources and services. Consequently, DeStaC will provide a mentorship platform for you to scale up your startup. This framework will enable the University to support and take viable startups through the acceleration process and graduate them into financially viable and freestanding companies.

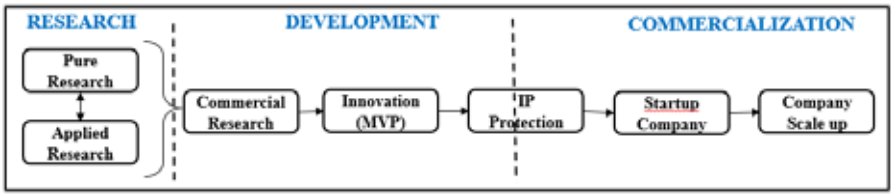


Figure 1: The DeKUT Startup Cycle for commercialization of innovations

The DeKUT Startup Centre (DeStaC) has been mandated to oversee the entire startup cycle (see Fig 1) towards commercialization of innovation, protection of intellectual property (IP), up to the support of startup companies through mentorship and ultimately scaling up. Looking at the research work taking place in the faculties, it may be mainly classified as pure or applied research. But to develop commercially viable products or innovations, which can be termed the minimum viable product (MVP), commercial research and development are imperative.

A minimum viable product (MVP) is a version of a product or innovation with just enough features to be usable by early customers as a commercial product, who can then provide feedback for future product development. Once this MVP is established, IP protection is sought through a patent. Finally, the Startup Company is established to support the commercialization of innovation. DeStaC has embarked on this journey and has vetted a number of innovations, of which some have been admitted to the Startup centre for commercialization support.

Through the established entrepreneurial ecosystem, DeKUT endeavors to promote the potential of Startups to create jobs, commercialize new technologies, and strengthen the national economy. Thus, the DeKUT Startup Centre will provide an ecosystem that promotes the identification, enrolment, support, acceleration and establishment of startups to contribute to the attainment of national goals. Currently, several companies are going through the startup process at DeStaC. Look no further; contact DeStaC and commence your startup process.





Fig 2: Student innovators pitching their business ideas in the DeKUT Startup fair organized by DeStaC previously.





DeKUT Participates in the 41st Earsel Symposium 2022 Held in Paphos, Cyprus



RSRG Team and the Ruhr University Bochum, Germany (RUB) Team members present in the 41st EARSeL symposium, 2022, held in Paphos, Cyprus

The 41st European Association of Remote Sensing Laboratories (EARSeL) Symposium was held from the 13th-16th of September 2022 in Paphos, Cyprus. The symposium's theme was using Earth Observation for Environmental Monitoring. The university was represented at the event by Dr. Kuria B. Thiong'o, Mr. Wisdom Kipkemboi and Mr. Simon Muthee from the Remote Sensing Research Group (RSRG). Mr. Kipkemboi and Mr. Muthee presented their research findings on the project titled "Participatory Approach to Environmental Conservation of the Muringato Catchment Area for Sustainable Management and Enhanced Ecosystem Health". The project, in collaboration with the Ruhr University Bochum (RUB), was funded by The German Federal Ministry of Education and Research (BMBF)- 01DG20022.

Mr. Kipkemboi delivered his presentation titled: *"Assessing the Effectiveness of Participatory GIS Tool for Environmental Conservation of the Muringato Catchment Area"*. The talk focused on how the Participatory GIS Tool has been adopted and utilized by the resident of the Muringato basin for reporting different incidents such as deforestation, water abstraction, damping, irrigation, dam construction and water pollution in the basin. The tool is geared to help monitor activities likely to affect Muringato basin's environment.



Mr. Kipkemboi delivering his oral presentation: "Assessing the Effectiveness of Participatory GIS Tool for Environmental Conservation of the Muringato Catchment during the 41st EARSeL symposium, 2022, held in Paphos, Cyprus

Mr. Muthee delivered his presentation titled: *"Characterizing the Changes in Land Use and Land Cover amid Changing Climatic Conditions using Remote Sensing Techniques in the Muringato Basin, Kenya"*.
The presentation focused on how Land Use and Land Cover had evolved from 1990-2020 in the changing climate in the Muringato basin using Earth Observation techniques for the research.

The research finding was used to sensitize the community on the need for sustainable utilization and inform them on policies for environmental conservation.



Mr. Muthee delivering his oral presentation on: "Characterizing the Changes in Land Use and Land Cover amid Changing Climatic Conditions using Remote Sensing during the 41st EARSeL symposium, 2022, held in Paphos, Cyprus

University Develops an Application for the Mapping of Small-Scale Farms



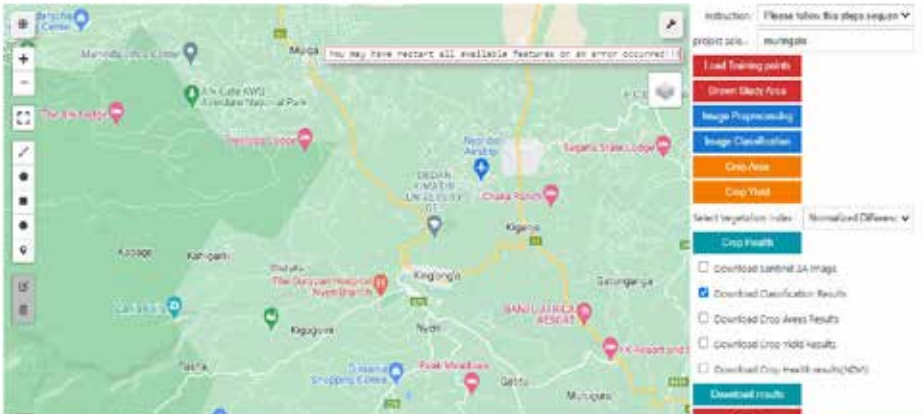
Part of the RSRG and DSAIL teams during the courtesy call visit by the team from the Kenya Space Agency (KSA).

KURIA B. THIONG'O
Remote Sensing Research Group (RSRG)

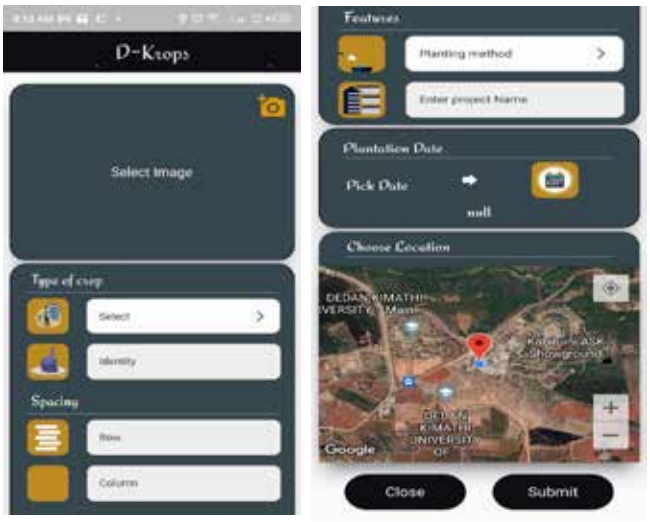
The continued subdivision of the once-vast agricultural land has seen an increase in the number of small-scale farmers in the country. There has been a focus shift towards small-scale farmers addressing the food security issue.

The cost of crop production continues to be a significant impediment towards small-scale farmers realizing their full production potential. There has led to a need to embrace new cost-effective technologies that small-scale farmers can use to grow their crops. One of these tools developed was the D-Krops mobile application.

The android based mobile application, freely available on the google play store, records all the farmers' farm management activities. This includes the type of crops planted, the crops spacing, the planting date and the planting method. There is also a provision for the farmer to take a photo of the product at the farm.



Basic Overview of the Graphical User Interface utilized in the processing and analysis of the collected data. It provided an estimate for the crop area, crop yield and health.



Basic overview of the D-Krops field crop data collection mobile application for the small-scale crop mapping project.

In addition, a web-based graphical user interface (GUI) was developed. This was to help visualize the data collected using D-Krops, as well as undertake any data processing and analysis that may be required. The GUI utilizes freely available Sentinel-1 and Sentinel-2 satellite data for data processing and analysis. Using the GUI and the information collected from the field using the D-Krops application, the crop areas, crop yield, and crop health could be estimated.

A team developed these tools and applications from the Remote Sensing Research Group (RSRG) and the Centre for Data Science and Artificial Intelligence Lab (DSAIL). It was funded by the Kenya Space Agency (KSA) under the Small Scale Crop Mapping (SSCM) project.

MURINGATO WRUA Community Engagement For Environmental Conservation

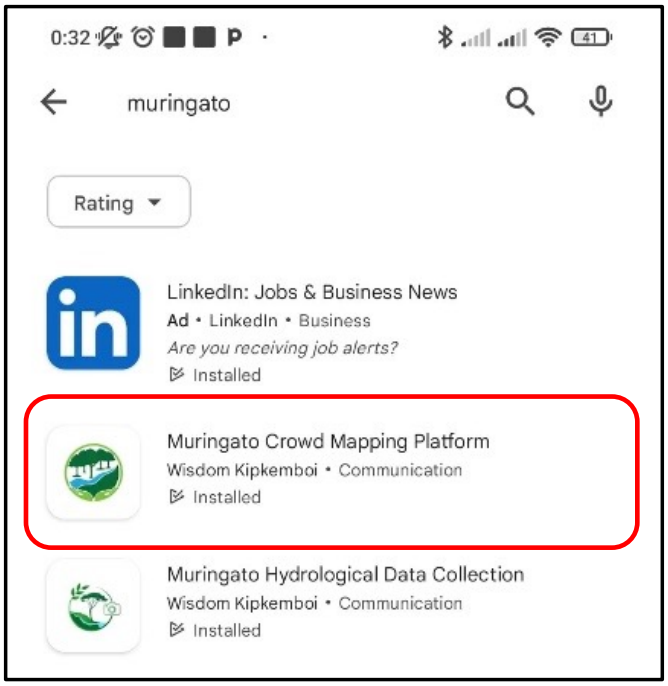
WISDOM KIPKEMBOI
Remote Sensing Research Group (RSRG)

The current trend in environmental conservation is geared towards local community engagement in managing natural resources, different from the earlier law enforcement-based approaches. This new trend engages the local community in policy planning and decision-making processes influencing their lives. With the involvement of local communities, not only are the stakeholders able to harness the local communities' vast knowledge of the surrounding ecosystem, but they are also able to sensitize the local communities on their contributions towards the endangerment and degradation of the environment and ecosystem as well.

The advancement in community engagement has been partly attributed to the spread and penetration of location-enabled mobile devices. Through various mobile application tools, the local community members can use their mobile phone devices to collect and map information from the ground.

The CITGI4Muringato project, funded by the German Federal Ministry of Education and Research (BMBF) - 01DG20022 and titled *"Participatory Approach to Environmental Conservation of the Muringato Catchment Area for Sustainable Management and Enhanced Ecosystem Health"*, sort to explore how mobile application tools can be used to address the challenges been faced by the members of the Muringato Water Resources Users Association (WRUA). The Muringato catchment is in Nyeri county and forms part of the larger upper Tana basin. Various stakeholders' meetings were held with the WRUA members to identify the challenges they face regarding their environment.

The sessions were held in the catchment's three zones: the upper, middle and lower zones. Following the discussions, a mobile application named *"Muringato crowd mapping platform"* was developed and published to the google play store.



The developed crowd mapping platform accessibility on Google Play Store.

The WRUA members use this application to report every environmental disturbance incident within the Muringato catchment. Sensitization, training and fieldwork workshops were organized to ensure the effective use of the developed application by the Muringato WRUA members. The training and fieldwork workshops were divided into three, guided by the existing Muringato WRUA zones: the upper zone, the middle zone and the lower zone.



Figure 1: Crowd mapping platform training where the Muringato WRUA members from the lower zone were trained to use the crowd mapping platform. It was conducted at the Mweiga chief's office in Mweiga town, Nyeri.



Figure 2: Crowd mapping platform training where the Muringato WRUA members from the middle zone were trained to use the crowd mapping platform. It was conducted at the Kihuyo coffee factory, Kihuyo, Nyeri



Figure 3: Crowd mapping platform training where the Muringato WRUA members from the upper zone were trained to use the crowd mapping platform. It was conducted at the Ihururu's chief's camp, Ihururu, Nyeri.

The incidence points collected were relayed and saved onto a local server setup at the Dedan Kimathi University of Technology (DeKUT). The topics were then visualized to display their spatial distribution within the Muringato catchment.

From the collected and mapped points, the Muringato WRUA management would therefore be able to make timely evidence-based interventions to ensure that the Muringato ecosystem is conserved.

Abstraction Survey In Muringato Sub-Catchment

JOHANNA WANJALA
Remote Sensing Research Group (RSRG)

Article 43 of the Constitution and Kenya Water Act (2016), in line with Sustainable Development Goal (SDG) 6, provides the fundamental rights of each Kenyan to access adequate clean and safe water without wastage. Access is regulated by the Water Resource Authority (WRA) and supported by the Water Resource User Association (WRUA) at a catchment level.

Access to clean water in Kenya is solely outsourced from rainfall with the substitution of abstraction from rivers and groundwater during the dry months. In recent times, however, due to unpredictable weather conditions subject to impending climate change, many people have resolved to unsustainable abstraction to sustain their livelihoods, especially in the upper catchment areas.

In the quest to monitor, manage and preserve water resources, DeKUT Enterprises Company (DeKUTES), under the contraction of the Muringato WRUA in the Upper Tana WRA Sub Basin Area, conducted an abstraction survey. The survey aimed to establish the level of compliance of the water users within the sub-catchment under section 36 of the Water Act (2016) required to obtain water permits. An inventory was created for Muringato WRUA to ensure constant monitoring of the abstractors and compliance with the Act.



Assessing the amount of abstraction in the Muringato river



Filling in abstraction details using manual and digital ODK tool



Validation meeting with Muringato WRUA community members



Measuring discharge on Muraria river

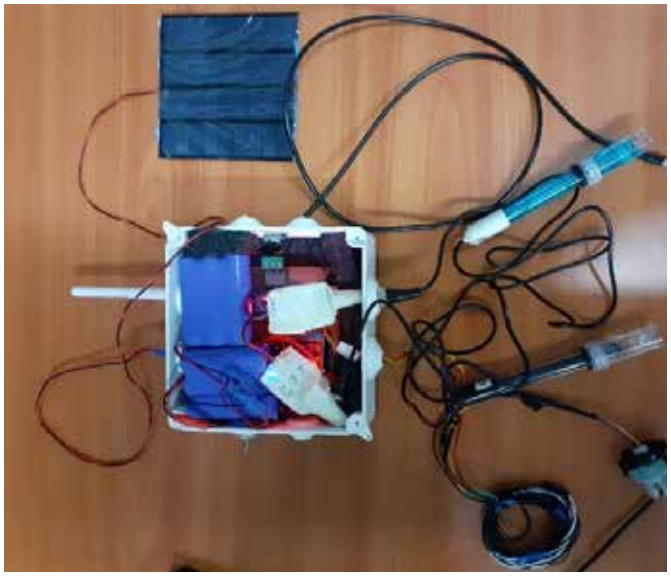


Preparing ADV machine to measure the actual amount of abstraction

MURINGATO Telemetric Water Quality Monitoring System

MARTIN CHEGE
Remote Sensing Research Group (RSRG)

Monitoring the water quality remains crucial in ensuring human health as per the Sustainable Development Goals (SDGs) no 6.3. Contamination of various water sources continues to threaten the quality of the available water sources. The associated costs in collecting and testing different collected water samples impede regular monitoring of these water sources. The quest led to the development a low-cost telemetric water quality monitoring system. The parameters selected for the water quality monitoring included the water's turbidity, pH, electrical conductivity, and temperature. The telemetric capability of the system ensured that the data collected by the system was relayed near real-time for analysis. A GIS component was attached to the system to track the collected parameters. In addition, a solar-powered battery was included in the plan to guarantee continuous recording.



The telemetric water quality monitoring system in the development and assembly stage

The developed telemetric water quality system was installed in the Muringato basin along the Muringato River, which flows from the Aberdare ranges.
This innovation allows the real-time tracking of the water quality through telemetry, allowing regular quality monitoring in the river stream.

Thus timely interventions can be made to ensure that the water quality meets the already established national and international standards.



Deployed water quality monitoring system along the Muringato river course.

Utilization of Coffee Cherry Fruit as Food





JONAH MBAE
Institute of Food Bioresources Technology (IFBT)

Did you know coffee fruits could be used to produce refreshing sweet juice rich in functional properties that are vital in promoting a rejuvenated, healthy body? Coffee cherry fruits contain antioxidants essential in eliminating predisposing factors to chronic diseases like cancer. Coffee fruit is considered waste after the coffee bean has been removed from oxocarp and pericarp of the cherry. This has been regarded as environmental pollution due to the nuisance of its nature after it has undergone rotting.

The coffee cherry waste could be utilized immediately to produce a healthy fruit drink. Coffee cherry juice is rich in antioxidants that are responsible for fighting free radicals that are generated during the oxidation process, thus making your body vulnerable to diseases like cancer and many others. Coffee cherries could be termed a powerful superfood occurring naturally containing vitamins A, C and E, chlorogenic acid and other phenolic compounds that boost antioxidant properties, thus promoting the functionality of the fruit.

This natural process of generating and accumulating free radicals can only be thwarted by healthy foods rich in antioxidants that help arrest the body's free radicals.

Coffee cherry fruits contain anthocyanin, which is also rich in antioxidants.
This is demonstrated mainly by the red pigmentation expressed in fruits like apples, coffee, cherries and many others.

Antioxidants also promote healthy skin hence preventing and delaying the ageing process. However, this noble idea could be faced with a significant challenge of chemical residues used in managing pests, diseases and weeds during cultivation. These chemicals include pesticides, fungicides, growth enhancers and herbicides that could compromise the food safety of the fruit to human health.

This phenomenon could be arrested through Good Agricultural Practices (GAP) and organic farming. Proper use of chemicals during spraying and observing Post Harvest Intervals (PHI) will significantly help in curving the food safety issue that may arise during the production and commercialization of coffee cherry fruit drinks.

Moreover, this initiative will help reduce environmental pollution, including water pollution, which threatens aquatic life. DeKUT is the heartbeat of innovations, where ideas are implemented and actualized to meet the world's demand for food security.

Coffee Training Opportunities and Experiences at DeKUT

My name is Faith Waithera Wanjohi, a third-year student pursuing Bachelor of Food Science and Technology. My journey in coffee started last year when I qualified for a work-study opportunity in the school, and fortunately, I was posted to our department, where I chose to work in one of our labs. I never liked coffee before, it was always too bitter for me and on top of that, I was told by the doctors that I could not take coffee as it would increase my heart rate, which in their medical terms, they called palpitations.

After joining Mr. Chuaga (the lab technologist) in the laboratory, I started my work without that much care about coffee. As time went by, Mr. Chuaga allowed me to sit in on one of his sessions with the coffee lab visitors, and I could see the passion with which he explained about coffee and I was just mesmerized. It piqued my interest.

When evaluating roast and cup quality, there are particular traits you look for in the coffee, like the flavor, acidity, body, aftertaste, aroma etc. So, when they were having a coffee evaluation session, I tried smelling it and couldn't differentiate anything!!

But all I could hear them say was that one of the coffees had a characteristic of apples, oranges, herbs, chocolate, caramel etc. that was it for me. I developed a keen interest, and I just had to know how they could differentiate the aromas that quickly and how they could distinguish all the flavors they were talking about. I remember asking Mr. Chuaga how they could do so, and he told me you get used to it and from practice.

Fortunately, when that semester ended, I qualified a second time for the work-study program, and I was again posted and continued to work in the coffee laboratory. It has been an upward trend from that time till now.

The ARABIKA coffee program, which I was enrolled in together with my classmates Winnie and Charles. This program aims to increase the production of good quality coffee throughout the coffee chain, from the farmer where they produce good cherries to the factory where the coffee undergoes secondary processing. At this level, coffee beans can be taken to the laboratories to undergo quality tests, including green quality assessment, roast assessment and cup quality assessment. This program equips lab personnel, farmers, factory managers, agronomists and students, who represent the young demographic, with the skills necessary to improve coffee production and consumption of coffee in the country which will help the country go back to a good position in the world market in terms of coffee trading.

At the end of the first level of training, we were given certificates, and after a month or two, we took a refresher course. It was a remarkable experience listening to farmers, agronomists and laboratory technicians providing their experiences on the ground and sharing their knowledge. As a student, we are mostly taken through classwork and a bit of practice but being given that chance to be there was eye-opening.





The Seeds of Gold program that Daily Nation airs. This event was held on 29th October 2022 in the school. The event was meant to teach and encourage farmers about the growing and production of good quality coffee. I was fortunate enough to be posted in the exhibition tent, where I was tasked to show farmers the different grades we get after the coffee is taken through dry and wet processing. This opportunity helped me increase my self-esteem and ability to talk to people and, to some extent, even teach.

When I started working in the coffee laboratory, I never thought I could accomplish anything that I have so far. I've met and conversed with coffee estate owners and talked with my lecturers, who I can confidently say I have made friends with and even had the chance to appear in the newspaper and the school website just because of coffee. I'm grateful for the opportunities so far, and I'd like to thank God, Dr. Eddy Owaga, the coffee director, Mr. Chuaga, the coffee technologist and my supervisor.

Directorate of Students Welfare



Group photo taken during the Financial literacy training offered to DeKUT students courtesy of UAP-Old Mutual Group on 14th November 2022.

The Directorate of Students Welfare (DSW) was established in the year 2007, soon after the University admitted its first batch of the Joint Admission Board (JAB) students when it was still a Constituent College of Jomo Kenyatta University of Agriculture and Technology (JKUAT). The primary responsibility of the Directorate is to ensure that the student's welfare is well taken care of from the time they enter the University until they graduate and act as the link between the University management and the students.

DSW coordinates all the personal, academic, social or economic activities that affect students' well-being at the University. Through this, the Directorate ensures that the student's learning and development at the University is enhanced, thus contributing to the achievement of DeKUT's vision and mission.

The DSW is responsible for providing numerous services to address the welfare of the ever-growing student population at the University's two campuses, namely the Main Campus and the Nairobi CBD Campus.

Currently, the Directorate has the following members of staff: a Director, Directorate of Students Welfare, Deputy Director, Directorate of Students' Welfare, three Students Counsellors, two Sports coordinators, two Social Workers and one Outdoor Instructor. It also has two Administrative Assistants and a Clerk. Some of the available services available at the Directorate of students welfare are:- Guidance and Counselling, Spiritual Guidance, Games and Sports, Matter of Students Congress - DeKUTSO, Clubs and Societies, Work Study Placement, Accommodation, Entertainment and Recreation, Recognition Awards, Residential Sector Wardens, etc. These services are accessible to the students through four departments/sections: the Director of Students' Welfare Office, the Counselling Department, the Sports Department and the Outdoor Adventure section.

The Directorate also liaises with other sections of the University on various student matters such as medical services, catering services, transport services, student financial services, etc.





DSW staff and the DVC AA&R after a directorate meeting that was held on 23rd August 2022.



DSW staff and students during the charity activity at Nyeri Children's Remand Home - Ruringu

Sports at DeKUT

DR. BENSON. GATHONI
HoD-Sports

Non-athletes and student-athletes can participate in various recreational and competitive sports at the Dedan Kimathi University of Technology. The university has built several new football fields, among other things, to meet the recreational and sporting needs of students. Soccer (M/W), Volleyball (M/W), Basketball (M/W), Hockey (M/W), Netball (M/W), Softball (M/W), Handball (M/W), Cross country (M/W), Track and field, Scrabble, Chess, Karate, Shorin RYU, Table Tennis, Tennis, Badminton, Swimming, Rugby, and Taekwondo are among the sports and games organized into clubs and teams.

The Kenya Universities Sports Federation (KUSF) governs university games in Kenya, divided into six sporting conferences: Nairobi North, Nairobi South, Central, Coast, Western, and Rift Valley. Our university is a member of the Central Sports Conference, which includes ten universities and one university college: DeKUT, Kirinyaga, Embu, Meru, Murang'a, KeMU, Karatina, Chuka, Tharaka, South Eastern University, and KU-Kitui University College. DeKUT has participated in several major sports events, which include:

- The All-Africa University Games (FASU Games) are held every two years. Kenyatta University hosted over 1,450 athletes aged 17 to 25, representing 48 universities from 14 countries.
- DeKUT athletic team of three well-experienced and trained participants was ranked 13th in Africa and 5th in Kenya out of 48 African universities.



DeKUT Rugby 15s participating in Rugby Varsity League 2022

Major Tournaments hosted, and to be in DeKUT

- In 2017 December 15th -21st we hosted KUSA National Games
- In March 2022, we hosted the KUSA-National women's championship
- In September 2022, we hosted the KUSA-Central women's championship.
- On 2nd July 2022, we hosted a successful mater run at DeKUT
- In 2022 Uhai festival sports for people living with a disability.
- On December 16-23, 2024, We intend to host the East African Sports Federation Games

Sports have long been regarded as a means of staying healthy and fit, but their significance extends much further. Sports teach life lessons such as discipline, responsibility, self-confidence, accountability, and teamwork. Sports are a powerful social tool that brings people together and fosters community. They form connections that bring people from all walks of life together.

Furthermore, exercising is a great way to escape the stressful campus life of homework, presentations, and group projects. Sports help students relax and reduce their anxiety. Several studies have found that sports participation can provide university student graduate athletes with specific 'core' and 'soft' skills that may increase their employability. Core skills are those directly related to coaching and sport management. Soft skills include values and competencies learned through sports, such as cooperation, leadership, respect for others, knowing how to win and lose, and managing competition.



Director students' welfare. Dr. Esther Nthiga speaking to Taekwondo students During 4th Edition Annual grading at Main Campus, where two students were graded with a black belt and four with red, while several others were graded in blue and yellow.



The coach, Antony Njuno, senior Lecturer S. Njore and Dr. B Gathoni issue taekwondo certificates and cards to grading students at the DeKUT City Campus



During Uhai Festivals among them, are visually impaired participants



Sponsored uniform by Maisha Hostel



DeKUT football team in Chuka University for the ongoing KUSA-Central league.



The team with their volunteer coach.



DeKUT ladies Hockey team during practice in preparation for KUSA-Central league

Directorate of Gender, Disability and Equity Affairs



DR. EMMAH MARIGI
Director, Gender, Disability and Equity Affairs

Dedan Kimathi University of Technology is dedicated to achieving gender equity, equality, and inclusiveness of all persons. In this regard, the Gender, Disability, and Equity Affairs Office was established to identify and address gender issues and concerns as well as disability issues and ensure equity in diverse groups to promote uniformity. The Directorate provides equal access to services for persons with disabilities and ensures the institution's infrastructure is disability friendly.

The Directorate is governed by policies, including Gender, Disability, Sexual & Gender Based Violence (SGBV), Affirmative Action, and Diversity policies, which offer reliable points of reference and a path for mainstreaming across all departments, to ensure equity for both staff and students. Gender, disability, and equity-related complaints are accepted through well-established channels, and advice on how to proceed is given. Client confidentiality is ensured by the high level of integrity displayed by the Directorate staff.

The Directorate works with two committees, i.e. the gender mainstreaming committee and the disability mainstreaming committee, whose mandate is to develop and review policies. The disability committee also addresses the social and economic disadvantages experienced by People living with Disabilities (PWDs) and advises the management accordingly. Students who are PWDs are given priority in the University hostels and are assisted in settling down. Those not registered with the council of PWDs are guided accordingly. The University has provided means of transport (TukTuk) that is used by any student who may be de-mobilized for one reason or another and may require transportation to attend lectures.

Every quarter of the financial year, staff are sensitized on gender and disability mainstreaming in various departments to cover all the departments by the end of the year. The students are sensitized during their class coffee hours, clubs, and societies' meetings. Gender peer support groups and counseling activities are organized in liaison with the Directorate of Students' Welfare. The Directorate office is accessible to everyone and committed to eliminating discrimination at the University.

Mental Health Issues in the Workplace



CHRP. PETER KARIUKI
DR TERESA WAITHERA

Is Everything Ok?



On Friday, 12 October 2018, Stephen Mumbo jumped from the 17th floor of the PwC office building in Westlands, Nairobi. Piecing his last moments alive reveals a trail of work-related stress and a broken man before he fell to his death. *(https://www.theelephant.info/features/2018/12/21/death-of-an-investigator-the-suicide-of-stephen-mumbo)*

Many of us would rather not hear that. We want to do what we feel free to do, and we do not want anybody telling us that we have any responsibility for the other guy. That started back in Genesis when God asked Cain, "Where is Abel, your brother?" and he answered, "I do not know. Am I my brother's keeper?" (Genesis 4:9).



People have been expressing that sentiment ever since. "What I do is my business, and what he does is his business. Please don't blame me for his actions. I am not accountable for him. Am I my brother's keeper?"

According to W.H.O., mental health is an individual's psychological well-being level. Psychological well-being involves the quality of an individual's thoughts, emotions, behaviours, and social aspects. Good mental health is when one is aware and utilizes their ability to deal with typical day-to-day life challenges, whether at school or work and is productive in what they find fulfilling. There is no health without mental health. W.H.O. appreciates that mental health influences various outcomes for individuals and nations.
Healthier lifestyles, better physical health, fewer limitations in daily living, higher education, greater productivity in academics, employment and earnings, better relationships with others, improved recovery from illness, and improved quality of life are all influenced by positive mental health.

Mental health is everyone's business. Approximately 1 in 6 working-age people will have a mental disorder at any point in time. On 1st June 2019, President Uhuru Kenyatta spoke in Narok County about the mental health of Kenyans in a manner that was to change the perspective of the country on this issue in fundamental ways. Recent studies have shown that stress, burnout, anxiety, and depression are common in the workplace but, more significantly, go unrecognized by both employees and employers.

Red Flags /Warning Signs

Noticeable change in behavior, e.g., a previously hard-working staff member who seems to have become lazy, forgetful, short-tempered, absenteeism, lateness, handing in work with many or glaring errors, frequent accidents in the laboratory or workshop, shouting to clients and colleagues. Other symptoms include: feeling sad or down, confused thinking or reduced ability to concentrate, excessive fears or worries, extreme feelings of guilt, extreme mood changes of highs and lows, withdrawal from friends and pastimes/activities, significant tiredness, low energy, or problems sleeping.

NOTICE. TALK. ACT

A change over time in a colleague's behavior or performance might be a red flag for mental disturbance. Ask if they are well. The role is not to make a diagnosis but to express concern and care. Simply asking could make a positive difference, and check-in creates an institutional culture of caring—the NOTICE. TALK. ACT.™ approach in checking in is recommended for staff check-in the workplace:

Notice: The change and warning signs in another person's behavior or performance. These visible changes continue for two or more weeks, not just once, signifying maybe a bad day. If the change in behavior or performance is sufficient to warrant an instant response, link up the staff with the appropriate help in the University.

Talk: Find a private and quiet place to ask a colleague: "are you OK"? Words of concern and care add to a supportive work environment. Additionally, evident changes: such as changes in behavior or appearance—could be a red flag signifying that all is not well. When talking with a colleague, point out parts of their behavior that you have noticed, and take a non-judgmental stance. Assume that you do not know what is going on and wish to learn more from your colleague's perspective. We all have our low moments, and we might need added guidance and support to wade through those times. Give your colleague the best of your ear.

Act: Link up the person with appropriate care. Reminding your colleague about the available support system in the University.

Ask your colleague about their preferred mode of linkage with support and care. If the colleague appears unstable or at risk, do not leave them alone. Find emergency assistance, and accompany the colleague to the medical clinic. Check back with the person frequently to see how things are going and offer social support.

Nearly 60% of the world's population is at work (I.L.O. 2022, Geneva). Work accords human beings the opportunity for a livelihood; purpose and achievement, a sense of confidence, an opportunity for positive relationships and inclusion in a community; a platform for structured routines, amid many other benefits. Good work is a protective factor against mental health disturbance. For people with mental health conditions, decent work can contribute to recovery and inclusion and improve confidence and social functioning. An average person spends roughly 90,000 hours of their life in the workplace. This is a substantial amount of time.

Your work could be your source of happiness or self-fulfilment. However, it could cause solemn mental health issues. You must know how to deal with work-related mental issues to remain productive. If you have a work-related mental health issue, it is highly recommended that you ask for help from a professional and other people close to you. Talk to your doctor if you need more help than what is available at the University. Mental health can be treated through various forms of therapy. Your doctor may prescribe medications or recommend other alternatives like psychotherapy.

The Human Resource Department at the Dedan Kimathi University of Technology has partnered with Counselling Department to improve knowledge, peer support, and services for staff with or at risk of mental health conditions in the University.
As part of support, we have:

- Improved access to care centres and services: assessments, diagnosis, and treatment
- Raised awareness about mental health by organizing online training
- Established peer support services for students and staff through training and commissioning of students and staff peer counsellors.

THERE IS NO SHAME in receiving a diagnosis of a MENTAL DISORDER; Together, we can end the stigma around mental illness that isolates and shames. "COME, LET US JOIN HEARTS AND HANDS AND BEGIN.

"One small crack does not mean that you are broken, it means that you were put to the test and you didn't fall apart." — Linda Poindexter.

Impact of Social Media on Student's Mental Health

SAMUEL WACHIRA
Peer Educators Club (ADA)

What is mental health?

Mental health includes our emotional, psychological & social well-being. It affects how we think, feel & act. It also helps how we handle stress, relate to others & make healthy choices. Examples of mental disorders include clinical depression, anxiety disorder, bipolar disorder, dementia, attention deficit, schizophrenia, Obsessive-Compulsive Disorder, autism, Post-Traumatic Stress Disorder etc. However, my major concern is the impact of social media on students' mental health because social media beholds sporadic enhancements in quantity, quality & utility of an individual, which is readily available through the advancement of technology.

What is Social Media?

Social media is a collective term for websites and applications that focus on communication, community-based input, interaction, content-sharing, and collaboration. People use social media to stay in touch and interact with friends, family, and various communities. Social Media platforms include Twitter, Instagram, WhatsApp, LinkedIn, Facebook, YouTube, Tiktok etc.

A study by the Pew Research Center showed that 95% of teenagers & youth use internet-enabled phones and 45% are avid internet users. Also, approximately 70% of these teenagers use Snapchat, Instagram & Tiktok.

The effects of social media on students' mental health are discussed below.

Positive Effects of Social Media

Though students tend to benefit more from face-to-face interactions, online interactions positively affect students. These effects have been well documented in several social media essays. Social media platforms allow students to:

Meet new friends with similar interests e. g, Meeting new friends on WhatsApp.

Express themselves and unlock their creativity, e. g create a creativity channel on Tiktok, YouTube and Instagram to unlock their creativity, such as Art.

To find educational information e. g use of YouTube & Google to acquire educational information.

Communicate with friends and family in different parts of the world. e.g. use of WhatsApp, Twitter, Instagram, and Tiktok to communicate

Get emotional support in tough times, e. g, use Twitter, Instagram and WhatsApp for emotional support, i.e. writing condolence notes to our departed loved ones.

Join progressive communities and raise awareness on critical issues, e. g, joining the FGM community & put in programs to raise awareness.

Negative Effects of Social Media

There are several negative social media impacts on students due to the relative newness of technology. However, some researchers have linked technology to a rise in depression, anxiety, and loneliness, amongst others.

Why does social media causes depression, anxiety, loneliness etc.?

Depression and anxiety

What is depression & anxiety? Depression is a mood disorder that causes a persistent feeling of sadness and loss of interest, while anxiety is a feeling of worry, unease, or nervousness that vary from mild to severe. Anxiety is a typical stress reaction.

To remain mentally healthy, students need to have a good amount of face-to-face interaction. It lessens stress and improves moods faster than most activities. Students that choose online communication over physical communication have a higher chance of experiencing anxiety & depression, unlike physical communication.

Poor Self Esteem

People use all kinds of filters, especially on Snapchat & Instagram, on their pictures before uploading them online. As a result, several students feel insecure about their appearance when they see these pictures. People also tend to post about their wins, not their low points, which internet users rarely post. This can make a student feel envious &dissatisfied about their situations & achievements.

Self-Absorption

People can easily get absorbed by the likes and comments they get on platforms like Facebook, Instagram & Twitter. This often makes people self-centred and distant from their real-life connections.

Isolation

Though students may feel like social media makes them less lonely, in reality, it makes them more isolated. Students with more physical interactions are less likely to feel isolated or lonely than online interactions.

Fear of Missing Out (FOMO)

More people feel like they are missing out on the good life due to what they see on the internet. This then results in low self-esteem, anxiety & social media addictions.

How to Avoid the Negative Effect of Social Media

Platforms such as Facebook, Instagram, Twitter, and Tiktok have positive and negative influences. Fortunately, we can limit how social media affects students by doing the following;

Through monitoring Social Media apps

One of the easiest ways for students to solve issues relayed to social media is to monitor their online activities.

Several monitoring apps, e.g. Digital Wellbeing App, have been designed to help students to limit their internet usage. These apps also allow them to alter their internet usage to certain times of the day & change their privacy settings to keep off cyber bullies and predators.

Through understanding that some things on Social Media are not an accurate representation of things

As mentioned earlier, most students can be affected by what they see online. So they need to understand that most people live fake lives online and only post their wins. Lecturers could teach & encourage their students that no one has a perfect life and it's okay not to be perfect 100%.

By understanding how Social Media works

Young adults usually find themselves comparing their lives to that of online celebrities such as The Pluto. This often damages their self-image. According to research, several female college/ university students do not like their appearance, unlike males, because they think other women online are perfect. Young adults should protect themselves by keeping in mind that things are more appealing online than in reality.

Final and Personal Thoughts

Since the world is still learning about social media, we don't fully understand how it affects our lives. However, recent studies have shown a link between social media and anxiety. Uncontrolled internet use can result in depression, loneliness and other mental health issues. So students should protect their mental wellness by using the tips shared in this article and have self-discipline in their mindset.

Sexual and Reproductive Health (SRH)



MAINGI N., OKUMU M. & MBUTHIA F.
Midwifery/Reproductive Health
Department, School of Nursing, DeKUT

Did you know sexual and reproductive health apply to every human being irrespective of gender?

Sexual and reproductive health is a fundamental human right as well as a human development issue that states must strive to fulfil. This right is guaranteed in various international and regional human rights instruments and national laws and policies. Reproductive health is a lifetime concern for both women and men, from infancy to old age, from womb to tomb, every citizen is entitled to receive the highest attainable SRH irrespective of their status.

What is Sexual and Reproductive Health (SRH)?

This is a state of complete physical, emotional, mental, and social well-being in relation to sexuality, and not merely the absence of disease, dysfunction, or infirmity in all matters relating to the reproductive system, its functions and processes. Good SRH implies that people can have a satisfying and safe sex life, the capability to reproduce, and the freedom to decide if, when, and how often.

Sexual and reproductive ill-health accounts for one-third of the global disease burden among women of reproductive age and one-fifth of the burden of disease among the population overall. Sustainable Development Goal (SDG) 3.7 targets by 2030 to ensure universal access to sexual and reproductive healthcare services, including family planning, information and education, and the integration of reproductive health into national strategies and programmes.

The International Conference on Population and Development draws a clear connection between reproductive health, human rights, and sustainable development. When sexual and reproductive health needs are not met, individuals are deprived of the right to make crucial choices about their bodies and families, with cascading impact on their family's welfare and future generations. (UNFPA, 2022), the impact cannot be overemphasized for young people.

Sexual and Reproductive Health for young people

Sexual and reproductive health (SRH) among young adults in low- and middle-income countries (LMIC) is still a significant public health challenge (Ali M. et al., 2018). As an intimate issue, most young people have trouble finding or asking for accurate information about it.

According to UNAIDs (2021), More than a quarter of the world's population is between the ages of 10 and 24. This is a generation caught between biology and society—between curiosity, questions, and concerns about their emerging sexual and reproductive selves and the controls, constraints, and conditions imposed by laws, policies and community practices.

This, therefore, warrants the acquisition of correct information about their health and rights that will enable the young person to make informed decisions in all matters related to SRH.

Sexual and reproductive health package for young people

- Universal access to accurate sexual and reproductive health information
- A range of safe and affordable contraceptive methods
- Sensitive counselling
- Quality obstetric and antenatal care for all pregnant women and girls
- The prevention and management of sexually transmitted infections, including HIV
- Screening for gynaecological conditions, including cancers of reproductive organs

These services are available in a health facility near you, including those in institutions like Dedan Kimathi University of Technology (Medical Center).

"Knowledge is not power; it is only potential. Applying that knowledge is power. Understanding why and when to apply that knowledge is wisdom!" ***Takeda Shingen***

Effects of Alcohol and Drug Abuse

MIDHEME BEATRICE, ELIZABETH JOSEPH
PETER MWABA

TOBACCO

Tobacco is obtained from a tobacco plant. The leaves are dried and fermented before being put in tobacco products. Tobacco contains nicotine which leads to addiction, which is why people who use tobacco find it difficult to quit. Tobacco is classified as a stimulant, which speeds up the messages that travel between one's brain and body.

Tobacco Products

They include:

- Water pipe tobacco
- Cigars
- Cigarillos
- Pipe tobacco
- Bidis
- Kreteks

There are also electronic cigarettes. These are also called e-cigars or e-vaporizers, battery-operated devices that deliver flavoured nicotine and other chemicals to the lungs in vapour form.

Methods of Consumption

Tobacco is consumed through smoking, chewing and sniffing

Reasons why people consume tobacco

- To relieve stress
- Pleasure
- Due to social situations: peer pressure, tobacco advertising, and promotion exposure.

Effects of Tobacco

Short-term effects

- Bad breath
- Fatigue
- Reduction in the sense of smell and taste
- Coughing
- Shortness of breath

Long term effects

- Cancer [throat, mouth, lung, liver, stomach, pancreas etc.]
- Heart disease
- Stroke
- Lung disease, e.g. asthma, excessive coughing
- Diabetes[type 2]
- Chronic obstructive pulmonary disease
- Increase in risk of TB
- Fertility problems

Effects on pregnant women

- Ectopic pregnancy
- Premature birth
- Rapture of placenta
- Giving birth to stillborn babies or low weight babies or a baby with defects

Effects on children exposed to second-hand smoking

- Coughing
- Asthma
- Lung problems
- Infections like pneumonia, bronchitis

How does one quit taking tobacco? Learn why you feel like using tobacco and consider why you want to quit. To quit, one must go through rehabilitation depending on the extent that one is addicted to it.

Withdrawal Symptoms

- Having urges or cravings to smoke; managed by taking the quit-smoking drug or keeping busy
- Feeling irritated; managed by taking a deep breath and reminding yourself why you're quitting
- Feeling jumpy and restless, managed by engaging in some physical activities
- Having a hard time concentrating; managed by trying to limit activities that require intense concentration
- Having trouble sleeping; managed by taking physical activities and other activities
- Feeling hungrier or gaining weight
- Feeling anxious, sad or depressed; is managed by being active, connecting with other people and doing things one loves doing

How to minimize tobacco use in the country

- Government heavily taxes tobacco
- Ban advertising tobacco
- Helping people to quit by encouraging them to go for rehabilitation

REFERENCES

- World Health Organization (2022)
- Centre for Disease Control and Prevention (2020).

Peer Counselling

DR. ESTHER
Director DSW

The 3 C's concept:
C: Choice
C: Chance
C: Change

"You have the choice to take the chance if you want anything to change in your life."

"You tend to become what you observe or associate with."

Who is a Peer Counsellor

A peer counsellor is a student at Dedan Kimathi University of Technology. They are a student entrusted by the University through the Counselling Department under The Directorate of Student Welfare (D.S.W).
A peer counsellor is a link between the University and the student in DeKUT; being closer to students and being students themselves helps the University reach students suffering from different traumas to seek help from the Counselors at the University
A Peer counsellor is a change agent. They are disciplined to change things for the better.
A Peer Counsellor is a role model amongst their peers.
A peer counsellor is an Ambassador of the University amongst students.

Peer Counselling

The helping process that invoves one-no-one iteraction between members of a group who have several

Things in common

It's a way of relating, responding and helping people.

Being a Peer Counsellor

Any student in the University can become a peer counsellor. Several things are considered for one to become a peer counsellor:

- Training.
- Personal therapy sessions.
- Commissioning.

Therefore being just a student at the University though being the first qualification, is not the only consideration to becoming a peer counsellor.

Training

This is one of the most educative and interactive experiences a student in Dekut can have other than the main course program the student goes through in the University; peer counselling training tends to enhance personal skills and most importantly, it aims at enlightening self-awareness.



The training is more based on the student's self-disclosure; this helps the student and prepares them to help others. During the training, students are taught various topics, including:

- Basic counselling skills.
- Youth and crime.
- Ethical practices in counselling.
- Stress management.
- Self-awareness.
- Mental health and illness.
- Loss and grief.
- Personal branding.
- Leadership.
- Sexual and reproductive health.
- Financial literacy.
- Gender and disability mainstreaming.
- Conflict resolution and management.
- Academic Issues.

With this kind of knowledge, it's very much possible for a peer counsellor to be the best in all ways, but most importantly, to help fellow peers.

Therapy Sessions

After training, the peer counsellors are expected to go for at least three therapy sessions with their assigned therapists. During these sessions, the peer counsellors are assessed if they are ready to help other students. The need to refer clients is made clear at this point; for example, A peer counsellor might handle a case that might leave them in trauma hence the need for referring clients and having therapy sessions every week or after handling a number of clients.

Commissioning

After the sessions, the peer counsellors are commissioned by taking an oath by which they are expected to abide.
During the commissioning, the Peer counsellors are issued certificates.



A group photo of peer counsellors after their commissioning.

There are several skills the world at large is looking for in a person:



Professional Skills

This is the first qualification imparted to students in class during their studies.
Here the world is looking for knowledge, skills and competence.

Basic and Interpersonal Skills

As an individual, are you able to communicate? What is your character?, are you responsible?, do you have integrity?.

Entrepreneurial Skills

An entrepreneurial person is Innovative (they are not satisfied by the way things are.), creative and strategic.

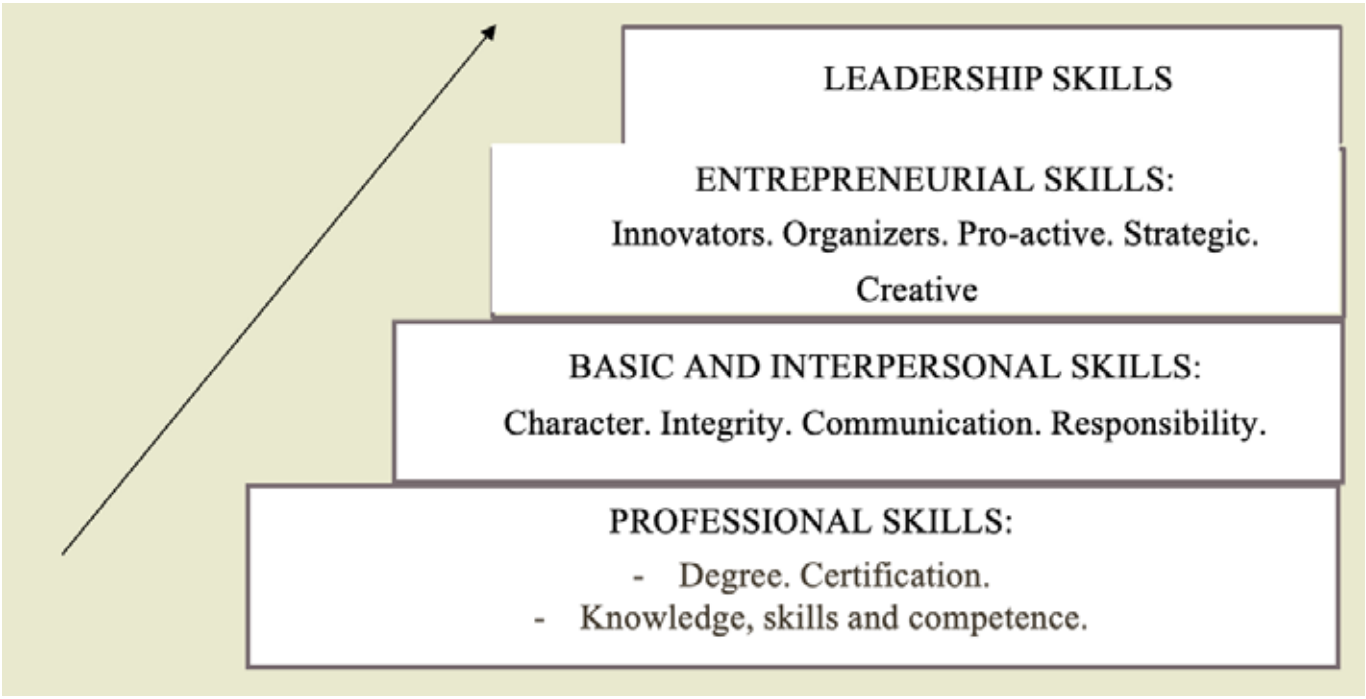
Leadership Skills

A leader is an influence. They build and maintain teams and networks, influences change, and mentors.
A leader is a change agent. "



DVC Prof Peter Muchiri at the peer counsellors commissioning.

THE IMPROVEMENT CYCLE



Safeguarding your Email Account from Cyberattacks

DR ANTHONY M. MAINA
Deputy Director, ICT

Email is one of the most popular services on the Internet. Its history dates back to the 1960s, when the earliest forms of computer-based messaging appeared. More than 300 billion emails are sent in a single day, translating to well over 3.5 million emails a second.

Modern organisational email systems emerged in the 1980s with the advent of the desktop computer. Gmail, Yahoo! Mail, and Outlook.com are popular examples of web email platforms. To access web emails, users typically log in to their accounts using a web browser (for example, Google Chrome). Other email systems employ client email applications which connect to email servers using protocols such as POP3 or IMAP. Users may download and access email messages without an active Internet connection using a client email application (for example, Microsoft Outlook).

The popularity of email systems comes with increased cybersecurity threats, most notably phishing. In this type of attack, a threat actor sends a fraudulent email message designed to trick individuals to reveal sensitive information or launch malicious software on the victim's computer systems.
Phishing attacks can also be deployed using text messages, social media or telephone calls.

What causes email phishing attacks to succeed? Primarily, users fall prey to misleading emails by unknowingly downloading malicious programs or sending sensitive information (for example, passwords). Stolen credentials are later used to breach email systems. Users are vulnerable if they are less cautious about checking a message's source address or are unaware of cyber security threats.
What steps can you take to minimize the risk of phishing attacks? First, never click on any link or attachment in suspicious emails.

Such links or attachments can enable attackers to deploy viruses, worms, ransomware or other malicious programs. Second, protect your computer with an antivirus program. For Windows-based computers, upgrading to Windows 11 enables access to Windows Defender, a built-in antivirus program that is routinely updated and comes at no additional cost. Third, regularly back up your data. If an email attack leads to data loss, a backup allows recovery and continuity of operations. Fourth, protect your email account using two-factor authentication (2FA). 2FA is a security system that requires two separate, distinct forms of identification to access an online resource (in this case, an email account). It offers an extra layer of protection beyond just a username and password.



An example of two-factor authentication

With virtually all organizations relying on email messaging, electronic mail systems remain a target for cybercriminals. Such malicious actors constantly seek to exploit vulnerabilities in human nature (such as a tendency to assist) and lack adequate security controls. Accordingly, malware protection, data loss prevention, and two-factor authentication are essential safeguards against phishing and other cyberattacks.

Note: *This content was adapted from the cybersecurity awareness month (CAM) training conducted in October 2022 by a team from the ICT Directorate. CAM 2022 was an initiative to raise awareness about Internet-related risks and threats and was inspired by activities surrounding the October Cybersecurity Awareness Month, a collaboration between government and private industry to promote digital security and safeguards against digital crime.*

The Oldest African Script and Written Language

PROF. YOPOREKA SOMET
Institute of General Studies & Centre for African Renaissance Studies

Africa is generally considered as the continent of oral tradition. This implicitly means that writing was unknown to Africans until the arrival of the Arabs (7th century CE) and the Europeans (14th century CE).

But the historical truth is that Africa has many endogenous writing systems (Hieroglyphic, Hieratic, Demotic, Coptic [Kemet], Ge'ez [Ethiopia], Shumun [Cameroon], Vai [Liberia], Nsibidi [Nigeria], Bambara [Mali], etc.), the oldest being the pictographic script called ***"mdw-netcher"*** (divine words) or ***"ra n Kemet"*** (the language of Kemet, ancient Egypt), by its inventors.

This first African writing system has some hundred signs, inherited from the Nile valley and the Sahara environment. This script was used from around 3250 BCE down to 392 CE when the Roman Emperor Theodosius, the then-colonial ruler of Egypt, banned it.

1. **What does this writing system look like, and how does it work?**

The system is called pictographic, which means that it is made of images of different kinds, originating from the geographic and cultural environment of the Nile valley: animals and parts of animals, human beings, birds, plants, trees, buildings, crafts, sky, earth, water, etc.

2. **The numbering system:**

From 1 to 9, numbers are expressed with strokes. Other numbers from 10 to 10 million are made of other signs, such as a hobble (for 10), a coil of rope (100), a lotus (1,000), a finger (10,000), a tadpole (100,000), a deity supporting the sky (1,000,000), a circle called cartouche (10,000,000).

When I first went to school in Burkina Faso, this is how we were taught numbering. But then, we could not imagine this system was an endogenous African invention. So, one can write any number using combinations of the following signs:

1	2	3	4	5	6	7	8	9
 10	 100	 1,000	 10,000	 100,000	 1,000,000	 10,000,000		

3. The main alphabet and how to use it?

A	I	Y	Â	W	B	P	F	M
N	R	O	L	H	H (emphatic)	KH	QH	S
Z	SH	Q	K	G	T	TCH	D	DJ [J]

Between the end of the 4th millennium and the beginning of the 3rd millennium BCE, the people of the Nile valley invented an original writing system that notes both sounds (letters) and ideas. Among its height, hundred signs, only 27 are each associated with a single sound: this was the origin of the alphabetic system, which is also an African invention. Many other signs exist, having two or three or more sounds. A good number of other signs are just there to express ideas and for that reason are not meant to be read. And even if they are mute, they are of great importance for the meaning of the words, as in the following instances.

For example, the word for "sun"  which is pronounced ***"Râ"*** is written with an image of the sun-disk at the end, which is not read. The same rule applies to the word for "moon",  ***"iâh"***, where the final crescent is silent, and also for "sky",  ***"pet"*** where the symbol of the sky is mute too. The same is true when it comes to personal names: the name of a girl will end with a seated woman as in the following example:  ***"Jina"***. Also, a boy's name will have a seated man at the end, so that any person able to read it, automatically recognizes that  ***"Maina"*** is the name of a man.

Now, knowing the meaning of words such as  ***"hna"*** (together with, and) [the equivalent of ***na,*** in Kiswahili] and  ***"m"*** (in, into) [***mw*** in many Bantu languages], a person with a good knowledge of the basic alphabet is able to read and understand the following sentence:



iw râ hna iâh m pêt Maina hna Jina m at-sba

*"**While the sun and the moon are/were in the sky, Maina and Jina are/were in class**"*

Most importantly, for the new generation of African scholars and/or students, an accurate knowledge of this old script and language will provide not only a direct access to scientific, medical, literary, legal, religious texts, but also an introduction to the social life, values and thinking of those who wrote them some 5,000 years ago. It is also certainly a powerful mean to help reconcile African people with History, strengthen their cultural personality, reveal the linguistic and cultural unity of the continent, and eventually pave the way for the long awaited African Renaissance. Last but not least, this is an African and world intellectual heritage.

4. How and where to enroll for the study of this script and language?

This language program is offered as one of the flagship activities to be developed within the newly created Centre for African Renaissance Studies (CARS). After validation by the Senate, this program is meant to deliver a *Language Certificate* to the learners who successfully satisfy to the requirements of a full semester. For a *Language Diploma*, the students should successfully complete all the requirements in 8 semesters (4 years).

Students and/or learners willing to enroll for these classes are invited to send a letter of application to the Director of the Centre for African Renaissance Studies using one of the following email addresses: *cars@dkut.ac.ke or yoporeka.somet@dkut.ac.ke*

5. Illustrations: samples of different African writings







Hieroglyphs carved on the ceiing and columns in the Temple of Karnak (Egypt). The name of King Ramses the Great is written inside the ovals.





Hieroglyphics painted on walls and vessels in the grave of King Tutankhamen (Egypt).
The royal names of Tutankhamen are written in the ovals, also called cartouches.





The Westcar Papyrus written in Hieratic: excerpt of the *Story of King Khufu and his Magicians*. This story has been translated and published in the attached book in 5 languages: English, French, Gomala'a (Cameroon), Kiswahili and Moore (Burkina Faso).



Ethiopian Bible written with Ge'ez script (Ethiopia)



Coptic Bible, in the Coptic script (Egypt)





Other different African scripts. The oldest African script gave birth to the alphabet

Establishment of Talking Qr Codes Podcast Library

The initiative bears the name talking QR codes podcast library because it uses QR codes to deliver online audio formats derived from converting documents to audio formats using RoboBraille Software. This initiative is the first of its kind and is exclusively being tried and tested at Dedan Kimathi University of Technology Institutional Repository.

It has come into use by combining several open-source softwares into one unified system called TALKING QR CODES PODCAST LIBRARY. The system has been deployed and tested for possible service at the Institutional repository of Dedan Kimathi University of Technology Institutional Repository, whose URL is *http://repository.dkut.ac.ke:8080/xmlui/*

Attached is a screenshot of the TALKING QR CODES PODCAST SYSTEM, which is available online at *http://repository.dkut.ac.ke:8080/xmlui/handle/123456789/12/recent- submissions?offset=20*

Currently, the system is focused on Peer reviewed Academic Research papers of the Academic staff of the University. The system will be fully deployed into other areas of interest to cater to library clients' different needs.



The TALKING QR CODES PODCAST SYSTEM initiative revolved around converting documents into audio formats. It is made accessible online and offline via QR codes which are then uploaded into Digital Institutional Repository alongside the main document article. The initiative led to the accidental creation of a podcast library on Google drive, which can be streamed online, offline and even downloadable audio formats of any document.

Talking QR codes use different software and open-source systems to achieve their objectives.

Open Source Software's used to Develop Talking QR Code Podcast Library

RoboBraille

» The software converts documents to audio, precisely MP3/MP4 format.

Cloud Computing Software

» Google Drive is used to house the converted audio formats online.

» It also provides a URL link to the uploaded audio mp3/mp4 format, which will be used to generate a QR code.

» Google Drive also allows controlling the accessibility of the uploaded mp3/mp4.

» The uploaded MP3/MP4 can be accessed on request or open to anyone who has access to the link that the QR-Code provides

URL Shortener

» The URL shortener is meant to shorten URLs to make the QR Code more scannable on smart devices or webcams.

» The use of a URL shortener is optional.

QR Codes and QR Code generating software

» QR codes make the audio formats accessible over several devices, such as smartphones, computers, tablets, and laptops.



Above are examples of talking QR Codes. They have been uploaded alongside the main document articles providing a user of the repository an option of listening and downloading the audio of the article as well as reading. A person can stream the work's audio and read the main document.

STEPS TAKEN TO ESTABLISH THE TALKING QR CODES PODCAST SYSTEM

1. The first step involves downloading the leading article from the Institutional Repository and uploading on on Robobraille at *https://www.robobraille.org/*

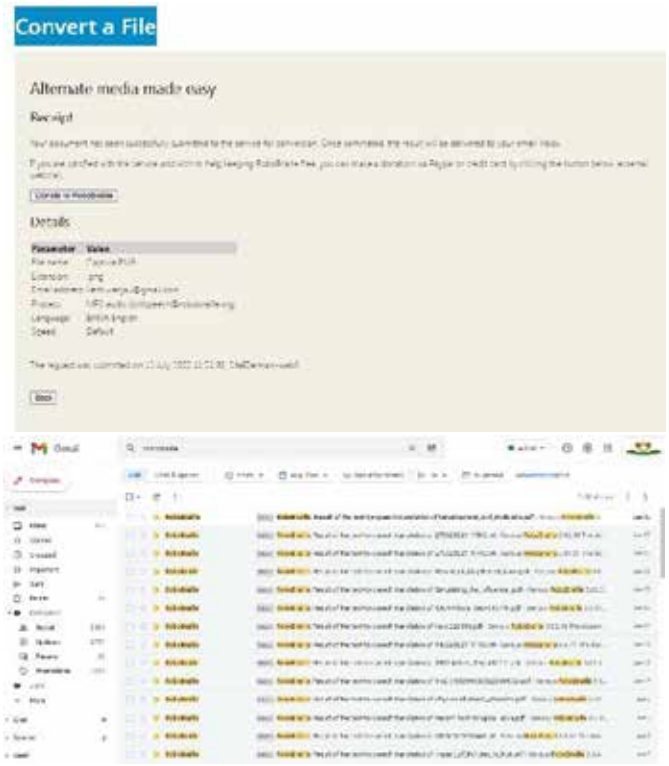


2. After attaching the desired document on Robobraille, uploading it is the next step

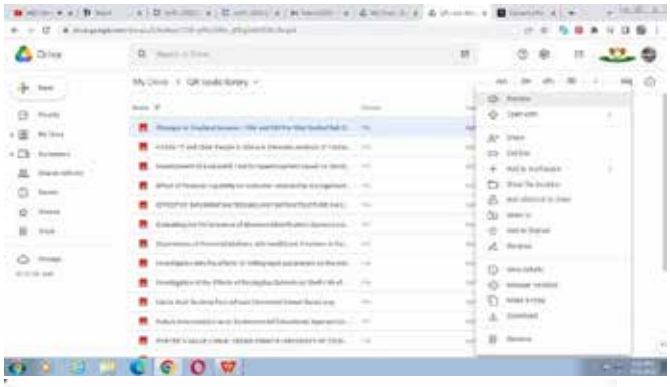


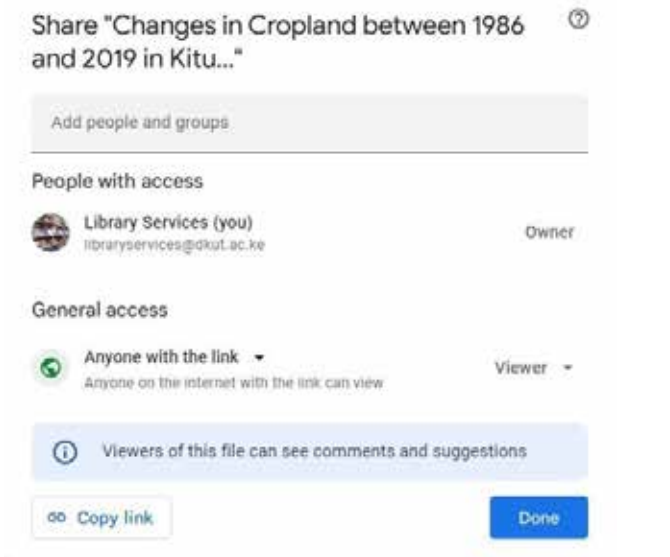
Once the document is uploaded, one needs to choose the target format, which in our case is mp3. One can choose from 40 international languages into which the MP3 audio file can be translated. Audio speed can be changed to 7 different rates varying from very slow to very fast. After choosing the preferred language and audio speed, one must input the email address where the audio format link will be sent.

3. A notification is generated, and an email is sent with the URL containing the audio file's download link.



4. The audio downloads are then uploaded into Google drive, where URL links can be generated for the audio files



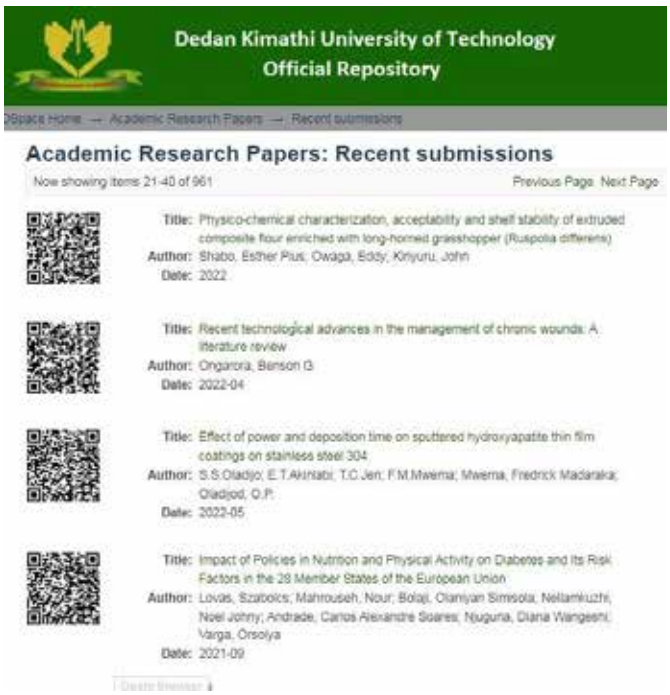


5. A generator can encode the copied link into a QR code image. The QR code is downloaded and ready to be attached to its equivalent work on the Dedan Kimathi University Institutional Repository as a thumbnail attachment.



After the QR images are uploaded into the Institutional repository, they appear alongside the e-documents they are derived from.





Anyone can now scan the QR code image with a webcam or smartphone camera, which will be streamed directly onto the device. An example of a working QR code podcat system can be viewed at *https://youtube.com/shorts/goX1RjMzCz0?feature=share*

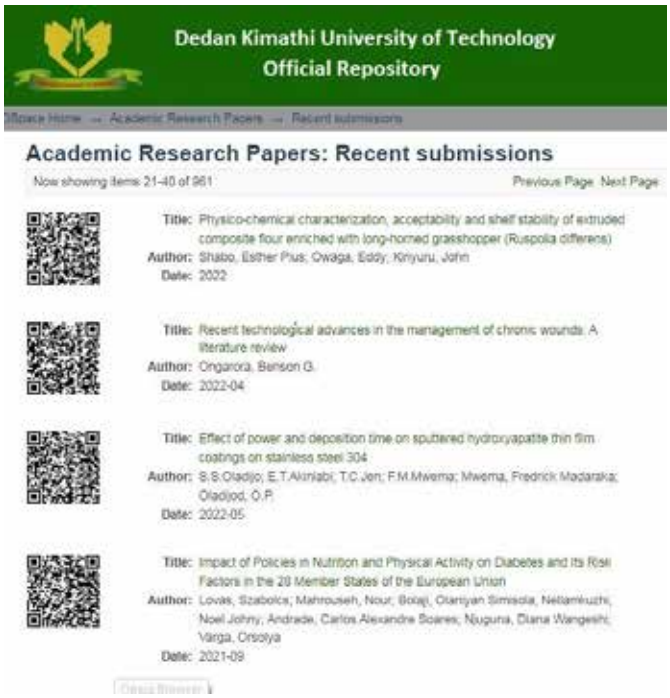
The audio can be streamed or downloaded depending on one's preference. A person can also log in to their google account and save the podcast on their drive for offline access.

POSITIVE RESULTS OF THE TALKING QR CODES PODCAST SYSTEM

1. The TALKING QR CODES PODCAST SYSTEM utilizes open-source software and systems to work. Each system works differently, but when they are put together, they create a new system which operates independently.

2. The TALKING QR CODES PODCAST SYSTEM has been deployed at Dedan Kimathi University of Technology Official Institutional Repository to enhance innovativeness and creativity in the delivery of alternative study methods. A user has a choice of reading or listening to an article. An example of its use is available at *http://repository.dkut.ac.ke:8080/xmlui/handle/123456789/12/recent- submissions?offset=20.* The TALKING QR CODES PODCAST SYSTEM has been adopted for

Use in the Institutional Repository for use not only by the University Academic fraternity but for showcasing worldwide for adoption and use.



3. The TALKING QR CODES SYSTEM has created a podcast library which can be utilized as a complementary work alongside any published document. The system can be used to preview a written document in audio format.

4. The TALKING QR CODE PODCAST SYSTEM is also being adopted as a disability main streaming initiative to provide Library users who are differently abled with an alternative format.

5. The TALKING QR CODE PODCAST SYSTEM has also caught the interest of other able-bodied students who began scanning created QR Codes to listen to documents.

6. Anybody can use the TALKING QR CODE PODCAST SYSTEM with a camera device

What is Medical Geology?

DR. PATRICK KIRITA GEVERA
Lecturer, GeTRI

Most people would associate the term Geology with mining and groundwater exploration. However, the field, which falls under natural sciences, offers more than these two sub-disciplines. Among these is Medical Geology. Medical Geology is an emerging interdisciplinary field that studies human-environment interactions to determine the benefits and detriments of communities living in different geologic environments.
There always exists an intimate interaction between human beings and the natural environment, especially in developing countries where subsistence farming is practised. Most of the nutrients we need for life are derived from the natural environment (geology). For example, the food crops we eat get their nutrients from soils on our farms, and the water we drink is sourced from wells, and rivers, most of which have a groundwater origin. Additionally, the air we breathe contains aerosols which could be composed of fine dust particles. Therefore, our bulk nutrition can be highly controlled by what is in our immediate geological environment.

To maintain a healthy life, we must make sure that we consume a balanced diet, and as demonstrated, the farm soils and water sources provide much of that into the different food sources we have. In a perfect world, our food should provide a balanced diet of nutrients from the soil and water. However, this is not always the case. There exist areas where rocks have excess or deficiency elements/nutrients needed for good health. Natural weathering processes release these elements into farm soils and groundwater, making their way into our food sources and the air we breathe. Therefore, food grown in such areas would also be deficient or have toxic concentrations of these elements.Potentially harmful elements, if found in the environment (farm soils and drinking water sources), can enter the human body through several pathways and affect our health depending on the type of element, dosage, and duration of intake. This is where Medical Geologists come in; we study the health complications associated with the natural geological environment.

For example, in Kenya, the Rift Valley region is notorious for having the issue of dental fluorosis (brown teeth). The disease is caused by consuming drinking water and food with high fluoride concentrations. Although fluoride is a beneficial element for the proper growth and development of healthy teeth and bones, if consumed in excess (more than 1.5 mg/l in drinking water), it can result in dental and skeletal fluorosis.

Therefore, in the Rift Valley, it's essential to study and understand the rocks releasing high fluoride into groundwater, locate and avoid using aquifers/drinking water sources with high fluoride content, develop techniques for removing the high fluoride in the drinking water and educate the affected communities on safe drinking water practices to reduce and eliminate the disease in the region. This approach can also be applied in other areas of Kenya affected by similar health complications of high fluorides, such as some parts of Nairobi, central, and eastern Kenya.

Additionally, human activities such as mining can accelerate the release of potentially harmful elements into the food chain. Therefore, as we scale up exploration and mining activities in the country, we should always be aware of how we dispose of our waste to avoid contaminating the environment and risk a human health crisis.In GeTRI, we do research in Medical Geology which involves collaborations between geologists, hydrogeologists, environmental scientists, public and medical health specialists, toxicologists, and other professionals. Students must develop their knowledge in geology (BSc Geology) and then embark on Medical Geology research in post-graduate studies.

A PhD study by Dr Gevera et al. (202-=2022) (a lecturer in GeTRI) demonstrates an example of the importance of Medical Geology in society. The research involved the identification of Natural Occurring Potential Harmful Elements (NOPHE) in rural communities of Makueni County, their health implications and community awareness and perception of their health risk factors. The results show that most regions of eastern Kenya (Ukambani region) have high concentrations of NOPHE, such as fluoride and increased salinity in drinking and irrigation water, farm soils, and food crops grown in the area. Leafy vegetables showed higher fluoride accumulation than grain food crops, indicating a higher health risk of fluoride toxicity in individuals consuming a higher vegetable diet in the region.

A questionnaire and Focus Group Discussion survey in the area showed that most of the local population was not satisfied with their drinking water taste (due to salinity), leading to low daily drinking water intake. Despite the disease being endemic, there was also evidence of a lack of knowledge of the cause of dental fluorosis in the region. This indicated a need for community awareness campaigns on the health implications of the natural geological environments in most communities in Kenya for the effective development of mitigation measures.

Dedan Kimathi University of Technology

Department of Chemical Engineering Industrial Visits

ERIC K. KEMEI
Patron, Chemical Engineering club

Chemical Engineering Department organized a visit to Kenya Industrial Research and Development Institute (KIRDI) on 11th November 2022. The visits aimed to seek a partnership with the Kenya Industrial Research and Development Institute in research and access to attachment opportunities for the students.

The members present during the meeting from KIRDI include Dr. George Wanjala-Ag. Assistant Director (Industrial and Allied Technologies Research), Ms. Ingrid Wekesa-Ag. Assistant Director (Technology Transfer and Extension Services), Ms. Bevin Kundu-HOD (Chemical Engineering and Allied Processes Research Centre) and from DeKUT were Dr. Robert Tewo, Mr. Eric Kemei, Mr. Job Wambua and Mr. Isaiah Mutai (Chemical Engineering Department).





The staff was challenged to develop marketable products by actualizing their research ideas, and those of their students.The key areas of collaboration identified are partnership in applying for research grants, sharing of research equipment, access to student attachment opportunities and co-supervision of masters and PhD degree programs.

The possibility of having joint research publications and generation of intellectual property was also discussed. The discussions and deliberations made by the two teams were fruitful, and they are currently in the process of actualizing the partnership.

"We are willing and ready. We only want to plug in and run" KIRDI.

Industrial Visit to East African Portland Cement (EAPCC)

The Chemical Engineering club, on 17th November 2022, visited EAPCC. The objective of the visit was to learn about the processing steps involved in manufacturing cement. The officials of the club together with the Patron successfully organized the visit in conjunction with the Dean, student's welfare office.

There were five staff members who accompanied fifty seven students during the visit.









The team was well received by the technical team of EAPCC and taken through a safety session before proceeding to the plant. The students were then taken through different sections of the factory on the actual operations taking place. Cement manufacturing is one of the final year electives of the chemical engineering curriculum, and the session was very informative to the students. Through such club initiatives, the students can explore their academic and social skills and appreciate their learning environment.

Industrial & Societal Solutions
Mechanical Engineering Department

We are committed to being the premier Mechanical Engineering Department in the country providing quality training and research in the field of Mechanical Engineering. As such, the staff and students offer solutions to various industrial and societal problems.

Recently, through DeKUT Enterprises Company (DeKUTES), the department was involved in the design, fabrication, installation and commissioning of industrial-scale maize drier for Laikipia County. The maize drier shall go a long way in reducing the post-harvest loss for the region's farmers.



Industrial maize drier

To solve the problem of machine power in off-grid areas and farms, a team of technical and teaching staff has worked with Manufacturing on Wheel Ltd (MOW Ltd) to develop a Motorbike Coupler to drive various machines such as maize sheller, chaff cutter, coffee pulper, cassava chopper, maize miller, and so many others. The department and MOW Ltd have patented the Motorbike Coupler with KIPI (Ref. No: KE/P/2020/3767). We are currently working with local machine manufacturers such as Coffee Agri works Ltd, Muharata Food Company Ltd, and Pipeman to mass-produce the coupler.

To prospective students, you will not regret joining the Department of Mechanical Engineering, DeKUT. We are among the best Mechanical Engineering Departments in the region!!

According to SciVal, Elsevier Ltd. Ranking in 2021, the top two (2) researchers in the field of Mechanical Engineering in Kenya was from the Department of Mechanical Engineering, DeKUT!!



Testing of the motorbike coupler

The department is also working with several Small and Medium Enterprises (SMEs) across various sectors to solve some of their challenges. For example, recently, a group of three (3) students and three (3) teaching staff have also been working with an SME in Nanyuki Town to develop machines for recycling dumpsite waste into construction materials.



Student's visit to a dumpsite: Problem identification; the SME requires machines for plastic shredding, extrusion, and moulding of construction materials.

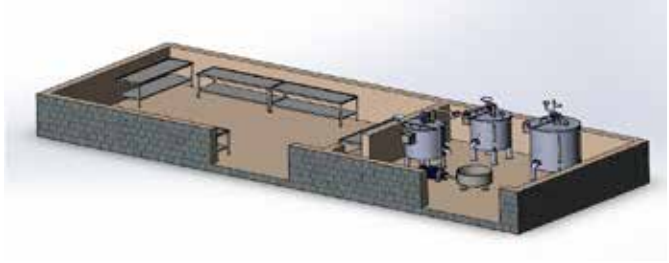


Plastic shredder: Developed by our students



Eco-friendly Construction materials by the SME

The department is also working with Kiwama Enterprises, a milk processing plant based in Nanyuki Town, to design and manufacture systems for milk processing. The department is also involved in an energy audit for the enterprise.



Processing Layout plan for Kiwama enterprise



a) 500 litres hybrid steam batch pasteurizer for Kiwama enterprise, b) a team of students and staff visiting Kiwama enterprise

The department has also worked with food value addition SMEs to develop machines and systems such as vegetable driers, sugarcane extractors, sunflower oil extractors, and many others.



Fruits & vegetable drier for an SME at Nanyuki Town

Through the centre for mechanical engineering design, the department is working with the Kenya Forest Service (KEFRI) to design and fabricate a seed huller machine for the KEFRI Nyeri region. This project will open more collaboration and research opportunities between the Kenya forest service and the university. The project is ongoing and close to its completion.



Design, fabrication and testing of the KEFRI Seed huller

The Department of Mechanical Engineering, being a pioneer in industrial design and fabrication through the centre for mechanical engineering design and in collaboration with the Centre for Development of Electronic Devices (CDED), was tasked to design,

fabricate, test and install a turnstile access control unit for the main gate that is partially opened. The fabrication is ongoing and close to its completion. Also, a sample prototype of an auditorium seat and table has been fabricated, and a redesign of the project is in progress. The projects aim to increase capacity building in solving and offering solutions within the university.



Design of the turnstile and fabrication progress of the turnstile

By engaging our students in these projects, we are providing them with an opportunity to become critical thinkers and problem solvers, gain hands-on skills and become socially responsive engineers. As a department, we live with technology and social dynamics in the modern world. As such, we progressively improve ourselves, the curriculum, and research to respond effectively to new problems and challenges.

To prospective students, you will not regret joining the Department of Mechanical Engineering, DeKUT. We are among the best Mechanical Engineering Departments in the region!!

According to SciVal, Elsevier Ltd. Ranking in 2021, the top two (2) researchers in the field of Mechanical Engineering in Kenya was from the Department of Mechanical Engineering, DeKUT!!

What You Need to Know about the School of Nursing and Midwifery



The School of Nursing and Midwifery is one of the highly competitive schools at Dedan Kimathi University of Technology. It is committed to training nursing students by equipping them with the knowledge, skills and attitudes necessary for professional nursing practice, education, health care administration and participation in research. Currently, the School runs two programs; Bachelor of Science in Nursing (Upgrading) for in-service Diploma in Nursing (KRCHN) holders and Bachelor of Science in Nursing (Direct entry) for form four leavers.



In terms of research, the School is currently managing two grants;

Kenya Brain-Heart Pilot Study with the University of Pittsburgh under the project title: Sociodemographic predictors and cardiovascular correlates of age-related cognitive impairment in mid-life and elderly community-dwelling Kenyans. This pilot and feasibility grant is supported by the Healthy Lifestyle Institute at the University of Pittsburgh.

Through this grant, the School received some of the study equipment provided by the University of Pittsburg, such as Pedometers, Actigraphs, TANITA Weighing scale, Omron BP machines, girth measurement tapes, HBAlc machine, step-down power transformer, cognitive battery books.







Mental Health Textbook Project

The School also obtained a grant of Ksh. Six million four hundred thousand from the Johnson & Johnson corporation to create and write a mental health textbook and a variety of supplementary digital resources that address regional mental health training requirements for nurses and other categories of health workers. The unique book will play a key role in educating nurses about this critical speciality in the East African region's context.

Other Activities in the School

In addition to training and research, the School also provides consultancy services and has various collaborations and partnerships that have been instrumental in ensuring the School achieves its mandate. The consultancies are offered mainly to health departments. Currently, the School is in the process of providing a curriculum for Continuous Professional Development for mental health nurses in the country.

Upcoming Programs

The School is looking forward to admitting students in the upcoming programs, i.e., Postgraduate Diploma in Nursing, Masters of Science in Nursing, and Doctorate in Nursing in various specialities.

We, therefore, invite you to join us or recommend someone to join us. The School is also open to more collaborations and partnerships.

Telephone: 0700711628
Email: nursing@dkut.ac.ke

International Exchange Student Testimonials

ELYSSA SALMON
Canadian Development Practitioner, Intern at the Directorate of Gender, Disability, and Equity Affairs

Committing myself to Gender Equality in my home region of Greater Toronto, I have worked on rape crisis lines that operated 24/7 at family shelters for women and their children fleeing abuse, with family agencies supporting foster and adoptive children and other NGOs. Nyeri, Kenya, would host me on my internship or "attachment" in the Directorate of Gender, Disability, and Equity Affairs office of DeKUT in partnership with the Canadian government's Global Affairs Canada, which operates the International Youth Internship Program.

The opportunity to work with a Directorate that deals with Gender Equality and GBV was something I found exciting and knew could be challenging. I understood that working in the Gender sector in an African country would be a huge learning experience and a frustrating one. Over the past six months, I have seen how the Directorate operates with the university community. Hosting a variety of women's groups like Empowered Me and Empowered Moms is something the community primarily benefits from. It gives the women on campus a space to discuss issues about them and how to succeed in their studies at DeKUT.

They discuss the path of personal growth while navigating the challenge of being the minority on campus, with male students being the majority. It is crucial at technical institutions to give women, traditionally the minority in STEM programs, a space to comfortably relate to one another and speak openly. With the support of the Directorate, these young women are empowered to work hard in their studies and develop their soft skills outside of the technical skills they learn in class.
The last session the Directorate had with Empowered Me discussed leadership, healthy relationships, sexual health, financial management, and stress management.

The Directorate also facilitates research initiatives on campus. In 2021, research was carried out amongst students assessing how many students have experienced Gender-based violence in their lifetime.

In 2022, I developed upon that existing research. The 2021 results were benchmark statistics in the 2022 survey focused on the connection between GBV and alcohol and drug use amongst students. As universities and colleges are pivotal moments in each student's life, it is essential to remember that this transformational period would bring forth different and new kinds of experiences, experimentations, relationships, and lifestyles. Many students are away from home as adults for the first time, which brings about a lot of excitement and challenge in coping with the change.

The research I facilitated through surveys and focus groups painted a picture of this coming-of-age story and the existing challenges. And most importantly, it equips the university with empirical evidence regarding the student experience and how to create the right supports and programs for their students. I have learnt much more in my six months in Nyeri than during my undergraduate and post-graduate studies related to Gender Equality. Being enmeshed in the culture, speaking with people and learning about their personal experiences, and observing how people move throughout their daily lives have been etched into my memory.

Although it is not always easy to undertake an internship, there is an outstanding value in the knowledge you gain from experiencing a country outside your own.
Salaam Aleikum!

ALLAN WAITHIRA

I recently finished my coursework in Bsc. Mechatronic Engineering. I am currently doing an internship at the University of Sharjah, United Arab Emirates, under the IAESTE program. This is the second exchange I am doing with IAESTE.

Last year, I did my external attachment at Karlsruhe Institute of Technology, Germany. While working there, I interacted immensely with European people and culture, not to mention the skills I gained at the cutting edge of engineering. At the University of Sharjah, I work with researchers from the Nuclear Energy System Simulation and Safety Group. I am researching and developing a preliminary RVE model for hydride Zry-4 considering the parameters of orientation and volume of fraction (concentration) of the embedded hydride. During nuclear reactor operation, hydrogen precipitate ingress into the cladding, a protective jacket enclosing the nuclear fuel.

As a result of temperature and pressure changes, the hydride particles settle around the circumference of the cladding. Radial orientation of the hydrides results in changes in the cladding's mechanical properties, such as embrittlement.





This increases the likelihood of cladding failure during transportation and storage. As such, there is a need to study the effects of hydride formation and mechanical property changes of cladding.

My research project has also been accepted for the 30th International Conference on Nuclear Engineering to be held next year in Kyoto, Japan.
Kenya seeks to establish its first nuclear power plant by 2038. My internship here prepares me to be a part of the team that will realize the development of carbon-free, sustainable, and adequate energy that will fuel our production capacity in pursuit of Kenya's plight for economic success. Learning about the safety of nuclear power plants helps engineers reduce the chances of emitting harmful radiation or catastrophic accidents in nuclear power plants, as once happened in Chornobyl and Fukushima.

While at Dedan Kimathi University, I met and interacted with visiting students at the IAESTE club and personal levels. I gladly shared my culture with them during cookouts, visits to wildlife conservation parks, local communities, and hikes. While outside my country, it's a chance for me to learn and experience new cultures from all over the world, particularly cultures from the Arabic world. Ranked the top university in UAE this year, the University of Sharjah is culturally divergent, with students from all over the world travelling here for their studies. I am utterly grateful to dine in this frontier of sheer research with some of the best people in academia in the world. In an equal measure, being here helps me own and appreciate my culture even more. UAE is a great country with a vibrant economy and business booming from the skyscrapers of Dubai to the deserts of Abu Dhabi. As IAESTE celebrates its 75 years of existence, I am proud to be a beneficiary of the program in multiple ways. It has connected me with people on research frontiers and helped me interact with diverse cultures worldwide.
I am utterly grateful to the Dedan Kimathi University of Technology for creating a platform for students to explore their educational and cultural aspects further into the world, crucial ingredients of a holistic student. I would encourage students from the many programs the school offers to apply and explore the world while pursuing their careers. I am also grateful to the entire IAESTE fraternity at the University of Sharjah for their welcoming heart.

In one sentence, I would say that IAESTE is a flashing flame and now a fast-burning fire, spreading true to the meaning of International Exchange.

Erasmus+ Exchange Program at the University of Siegen, Germany

PERSONAL DETAILS

Name:
Mutai Kiprono Isaiah

Course:
M.Sc. Mechanical

Engineering Department:
Mechanical Engineering

Email:
Isaiah.mutai21@students.dkut.ac.ke

Institution:
Dedan Kimathi University of Technology

Exchange Institution:
University of Siegen, Germany

Department:
Department of Ubiquitous Computing



Figure 8: Spring, snow all over, Germany's first weeks of arrival.

Introduction

The opportunity to travel to Germany was a lifelong dream that fulfilled the goal of being outside Kenya, and not only Kenya visiting Europe! The travel began on the 14th of March, 2022, with tight schedules to ensure I finish my research within the summer semester. This would see me fulfil the partial requirement for the award of Master of Science in Mechanical Engineering. The arrival in Germany was marked by the seasonal transition from spring to summer. This transition was cold but better than winter. The majority of the mornings were marked by falling snow.

Research

The master's program requires that the student carries out research work in the second year of study. This requirement is not easy to fulfill owing to the challenges the students encounter in regard to the availability of research resources. Readily available resources at the students' disposal make this part of the study much more accessible. The exchange program at the University of Siegen saw me complete my research work within five months. I researched machine learning for Biochemical Oxygen Demand Prediction in Wastewater. The Ubiquitous Computing department at the University of Siegen greatly supported me with the necessary resources to complete the research. The professors were always available to guide and offer all the training needed to meet the research work requirements. Part of the success of this research work is the publication available at: *http://repository.dkut.ac.ke:8080/xmlui/handle/123456789/6993*. I owe the success of this work entirely to the opportunity to visit Germany.

General Experience

The experience in Germany was a memorable one. Generally, the German community speaks the German language. Middle age to old age has few people able to communicate in English. This was bound to cause a language barrier. Luckily, I had studied German in high school, and it took me a short time to comprehend the language. The Erasmus+ program students already at the University of Siegen too were of great help in making us feel at home and adapt quickly to the environment abroad. In addition, I was lucky to be welcomed in Germany too by a student who previously was at DeKUT for her exchange program three months before my travel to Germany.



Figure 9: Left: Photo with DeKUT students at Siegen, Germany and Right: photo with former DeKUT exchange student from Germany, welcoming me in Cologne City, Germany.

The stay over the period was enjoyable. Besides the research work, we managed to travel to several cities during the summer. The German government offers a 9 Euro ticket for travel across Germany during summer, from June to the end of August. For students, travel is accessible across the whole of Germany using the semester ticket given at the university. With this, we visited several cities, such as Dortmund, Frankfurt AM, Cologne, Aachen, and Hagen.



Figure 10: Top Photos: At the Borussia Dortmund Football arena during the visit to Dortmund City, Bottom: Photos during the visit to Cologne City.

The international office at the university of Siegen also organized interactive sessions and events, which helped us to bond with other students of Erasmus+ from other countries, including China, India, Spain, and Italy among other countries of the world.

The events ensured the exchange of cultures from across the globe.



Figure 11: Left: Photo with other Erasmus+ students at the Freudenberg historical city, Right: Photo with Erasmus+ students inside the Freudenberg church built in the 1600s

Conclusion

In conclusion, I wish to express my thanks to the Dedan Kimathi University of Technology, through the International Office and the Erasmus + program, for the golden opportunity accorded me to be in Germany.

It was an excellent opportunity to experience life in Europe, interact with diverse cultures and, most importantly, benefit from the research resources available at the university of Siegen.

I challenge other students to take advantage of these opportunities available at the International Office to benefit from the vast enriching experiences. Thanks to Dedan Kimathi University of Technology for establishing these collaborations abroad.

My Exchange Experience at the University of Twente, the Netherlands

PERSONAL DETAILS

Name:
Job Maveke Wambua

Course:
M.Sc. Mechanical Engineering

Department:
Mechanical Engineering

Email:
job.wambua@dkut.ac.ke

Institution:
Dedan Kimathi University of Technology

Exchange Institution:
University of Twente (UT), Enschede, The Netherlands

Department:
Mechanical Engineering

Student Exchange at the UT

For the past three months, I have been at the University of Twente as an exchange student in the Mechanical Engineering Department.

My experience at the university has been an exceptional one, especially bearing in mind the Covid-19 situation. On arrival with other exchange students from Kenya, Uganda, and Ethiopia, we were warmly received and assisted in settling down. Despite being in a foreign land, I felt at home again as we adapted and blended in.



Arrival at the University of Twente, Netherlands

Academic Experience

My academic experience at the University of Twente has been life-changing and will significantly shape my academic, career, and social life. First, I have learned the importance of time management and planning. The semesters at UT are divided into modules, each with two modules, within which different course units are taught.

Learning begins immediately in the first week, and the lessons are planned from the first week to the end of the semester. Second, most post-graduate course units are practical and research-based, with extensive deliverables. Most research assignments are conducted in groups that work together cohesively and make continuously graded presentations.

Projects

In the past three months, the other exchange students and I from Africa have been privileged to work on the design, manufacturing, and testing of an Educational Box (EduBox), which is composed of a self-contained, off-grid, and modular learning environment to provide technical vocational education and training (TVET) to underserved communities. The project is under the Humanitarian Engineering at the university and is funded through the Orange Knowledge Programme TMT+ project, sponsored by Nuffic and the Dutch Ministry of Foreign Affairs.

The entire team has been working on its design and manufacturing, and it will be tested in a refugee camp in Jordan early next year. I have gained hands-on experience in the design, simulation, and logistics involved in manufacturing processes through the project (The project and its team members can be accessed at *https://www.utwente.nl/en/humanitarian-engineering/projects/edubox/)*



Design of the EduBox



The initial EduBox project team during the arrival of the container



EduBox design, manufacturing, and management team during one of the weekly progress meetings

Social Experience in The Netherlands

I have to say that The Netherlands is a country of its beauty and distinguishing attributes. First, there are water bodies everywhere, and the country is evergreen with beautifully laid and kept grass, trees, and flowers. These water bodies and canals are kept clean from dropping leaves and algae growth, making them appealing.



The green and watery environment in The Netherlands

Second, the primary mode of transit and short-distance transportation is cycling. As a fun observational fact, there are more bicycles than the population in The Netherlands, which means that some residents own more than one. The bicycle infrastructure is also quite established, with cycling roads and parking lots in every region and centre. This was one of the exciting things I observed and appreciated since I also had to get a bicycle for daily transportation. This behavior helps keep the residents healthy.



Main mode of transport in the Netherlands: cycling

Third, the Dutch and all residents in The Netherlands are very welcoming, understanding, and always

ready to assist, be it directions, translations, or instructions. Fourth, the foods in the Netherlands are more similar to Kenyan foods, so I have had a good transition and the opportunity to try other local cuisines. The residents take many snacks, which reduces the intake of main meals, which are majorly consumed maybe once a day. So many coffee shops and ATMs are around, which keeps the residents active, especially on busy days. Fifth, The Netherlands has other beautiful cities which I have had the chance to visit, including Amsterdam, Rotterdam, and The Hague, which houses the Kenyan embassy and the International Criminal Court.

Lastly, the University of Twente holds many student-based occasions and functions to keep students and staff acquainted, especially when Covid-19 is depressing.



Enjoying time with other exchange students and staff



Enjoying local cuisines with other exchange students



Visiting the 9 Little Streets in Amsterdam



Visiting the Cube Houses in Rotterdam



Visiting the Scheveningen Beach in the North Sea, The Hague

Conclusion

I wish to thank the Dedan Kimathi University of Technology, through the International Office, and Prof. Muchiri for giving me this opportunity to explore, learn, and experience life here in The Netherlands. It has been an enriching experience. I encourage other students to grasp and embrace such opportunities when they arise through such platforms as IASTE at the university. The collaboration established by DeKUT and other global universities is strong and is getting stronger, benefiting its staff and students.

IAESTE Summer Internship Report at Tunisia

RHODA WAMBUA

This was one of my favorite summer memories. There is almost nothing analogous to Kenya in Tunisia. Religion, weather, culture, food, streets, laws, and manner of life are all significant factors. All of this was a new experience for me, which I quite liked. Tunisia is one of the most underappreciated and beautiful countries in the world, with a rich culture, gorgeous scenery, and a rich history. In the following paragraphs, I will highlight my favorite moments and a few problems for any intern planning a trip to Tunisia in the near future.

From the airport to the flat, to them showing us around the streets and where to buy everything, to being transported to work on your first day and full support till we memorized all the routes we had to use, I received a warm welcome from the IAESTE Tunisia team. One of my favorite memories, for which I will be eternally grateful to the IAESTE team, is the opportunity to network with students from over 15 different countries. I've never made such fantastic friends in such a short period of time.

I enjoyed my working space so much. I had wonderful supervisors and bosses in the both company's I worked for. My coworkers were great; they looked out for my wellbeing and were always willing to help when I needed it. I enjoyed the trips and fun activities organized by IAESTE Tunisia almost every week. Within such a duration, I toured a lot of beautiful places, met so many people, created beautiful friendships, learnt new culture and a little bit of Arabic (for the tax drivers and thrift shopping, shout out to my girl Lobna.)

As for my technical experience, I was extremely lucky to work for two companies, SOLTECH and El Kanaouet, which are majorly engineering firms. At SOLTECH I worked on research and geotechnical modelling of dams using GeoStudio, laboratory works to test the variety of soil properties and field work for better understanding of the dam construction process. I worked at El Kanaouet on the diagnosis, evaluation, and reengineering of the prestressed reinforced concrete pipe manufacturing process. This involved determining the causes of production issues, recommending and putting into place corrective measures, as well as quality control and inspection of the prestressed concrete pipes to make sure the manufacturing process complies with industry standards and regulations.
I also encountered a few challenges, one being the language barrier, as their main language is French and Arabic. Thank you to my work colleagues for always striving to use English when communicating to me and allowing me perform my duties and reports on English. Culture and climate change was also another challenge; I didn't know whether I would survive in such extreme hot spaces in my first week but my body was able to adopt within a few weeks. The final challenge was my visa extension, which IAESTE team was quick to solve as the laws there are different on visa extension matters.

My final advice to anyone considering an internship abroad is to work to understand and research the local culture, learn a little of the local language, become familiar with the country's immigration and visa policies, cooperate with your host, travel as widely as you can, make memories and new friends, and ultimately advance your career because it is the main reason you are there.




IAESTE


IAESTE

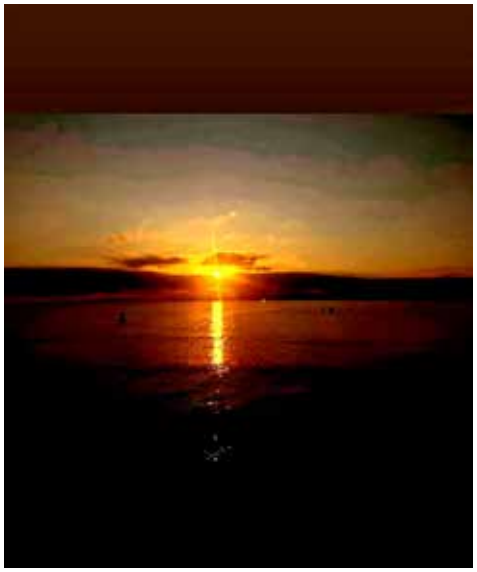



























today















DeKUT Outdoor Adventure Activities



This section spearheads experiential-based outdoor activities while assisting in fast-track the embracement of some of our core interpersonal values. We build and roll out games with an instructional design purpose. Our activities are customized and are a great source of recreation & fun for the participants who flock to our Challenge Course after work or studies and during our weekend wilderness excursions.



"Mohawk Walk", a low-rope challenge that cultivates endurance, communication, cooperation and trust

Please come along with me so we can explore some of our unique products and services:-

(1) Bridging the (workplace) inter-personal gaps

No matter where we work, study or the type of "hustling "we do, we shall nearly always stumble into an interactive conversation with people outside our regular area of operation. Those persons do not understand our professions, office jargon, or group heuristics.



DeKUT staff members from diverse Departments navigate through obstacles to evacuate a potentially "explosive atom" to a "safe" detonation site with critical precision

There's only a tiny window into each other's world through which we can access and interact. It is the reason that we keep interpreting each other's words and actions.

Effective communication is a crucial element to the success of our activities. If we could clearly express more of our worlds and inquire more about the other person's world, we can lessen the interpretation we have to do of each other. This translates to fewer misunderstandings, fewer conflicts and errors emanating from miscommunication, misinterpretation and confusion



Students take a snack break in small groups in the wilderness to reflect on their inter-personal dynamics

Our activities are stylized to address a broad spectrum of such interactions through simulations and orchestrating pertinent scenarios. We set a suitable physical and physiological climate to facilitate the participants thinking as individuals and solving problems as a team.



The staff members team has 5 minutes to shuttle the "gold" across the "acid lake."

Constantly reflecting on our experiences ripens and gives us pertinence to the real world. This is where the themes of inclusion, diversity, cohesion and assimilation manifest. The soft skills of cooperation, trust, communication, judgment and other critical emotional skills are also centrifuged as the authentic ingredients of a functioning team. Participants in our activities must strategize, communicate, meet deadlines and be accountable because what they do and how they do it impacts the results. This is the basis of our popular *"Process versus Product"* metaphor.



This challenge element (Burma Buckets) is a full gym!

(2) Climb to educate initiative

This is an outdoor leadership program for both our students and staff.

Since its inception at the end of 2014, we have successfully enrolled 250-300 members each year who spend part of their evenings and weekends working out at the DeKUT Challenge Course and hiking in excursions. We also stage 4-5 day camping and climbing expeditions to Mt. Kenya.



Season 6 team 2 has already adapted to living and functioning in the austere alpine environment

The group meets three days a week for aerobics training, Life-skills, outdoor education, Wilderness First-Aid, Team-building, and Ropes challenge activities. It is, therefore, the team to join if interested in excursions and mountain climbing expeditions.



Climbers are subdivided into several smaller groups for back-packing, trekking, camping and cooking. This team of 10 is traversing the Alpine zone of Mt. Kenya on a five-day expedition.

(3) Freshmen Bonding & Integration (FBI) program

Upon admission of our first-year students, the Outdoor Section stages an outdoor program that serves to experientially accelerate settling and embracing of a "sense of place", teamwork, inclusion, cohesion and assimilation.

The 2-3 weeks program eventually immerses the students into the DeKUT version of outdoor adventure. The program is rolled out along the handrails of safety and security. They are the cornerstones of all our adventure-based activities.



DSW Admin shares a lifestyle point with a cohort of the Freshmen Bonding & Integration program

(4) DeKUT Service Learning Program (DSLP)

This outdoor-based initiative is designed to broaden the base of the students' leadership while targeting their skills, values, practices and dispositions. The participants are expected to find a safe, sustainable and enjoyable means of practising and transferring some of their leadership skills to the community in the most collaborative, compassionate and fun ways.



Gaturiri Primary School in Mathira constituency was among the first beneficiaries of DSLP

During our first community building project, we visited Gaturiri (public) primary school and conducted games, life-skills talks, tree-planting and donated books and games items. Our students interacted with the kids individually, which demystified the pupils' university education.



Our students team up with the pupils to plant indigenous trees at Gaturiri Primary school



Community experience: An international student lends a hand in tree planting as pupils receive donations

(5) Shaolin Kung Fu training

Students learn and practice self-defence techniques for at least two days each week. The challenge course provides a natural setting for experimenting with techniques that involve rolling, pinning, eluding, groundwork, disarming opponents and several other stunt manoeuvres.

DeKUT Arts of Kempo & Kung Fu



Performing Wu Bu Quan, a basic form of Shaolin Kung Fu

Below are some sampled sights from our challenge course, expeditions and excursions trails:-



Climb to Educate team Scaling Mt. Longonot



Stork Stretching



Popsicle push-ups

These are some of our fun-packed moments, but they also help us to *"Keep the Doctors away."*



Hiking a steep terrain of Aberdares



Top talent student demonstrates Xu-bu (Cat-stance)

Staff Members' Bonding Activities



Nitro-crossing



Ride the wild log



Arrested development





Wild bridge

Below: - Climb to Educate team at point Lenana 4985M at the break of dawn.



Welcome, All.

Let us start getting more proactive about embracing fresh air and exercising outdoors while we stick dirt under our boots!



MWAI KENNEDY
Outdoor Pursuits Instructor

DeKUT Enterprises Company

DeKUT Enterprises Company (DeKUTES) was established as the commercial arm of the University and charged with the responsibility of mobilizing resources through engaging in various Income Generating Activities. 2021/2022 financial year was, by any ideals, a notable year for DeKUTES, with many accomplishments regarding its core mandate. With the zeal to develop innovative products that transform lives and address the needs of communities at large, DeKUTES added equipment sales to its revenue divisions and has focused on designing and manufacturing various equipment in conjunction with staff from the School of Engineering.

During the year, the company designed and manufactured Maize Dryer at the University, which was later installed at Kinamba in Laikipia West Constituency. Laikipia County Government sponsored the undertaking with a European Union grant to allow maize to dry optimally and homogeneously, even in extreme weather conditions, to reduce the risk of mould, aflatoxins and post-harvest losses. Laikipia County Government and former Cabinet Secretary for Education were enthralled by the innovative use of raw materials sourced locally to manufacture machines that can address the issues affecting farmers nationally.



Components of the Maize Drier, CS education powers it on

Coffee Roasting

DeKUTES equipped Coffee IGU with Coffee Roaster to ensure that quality beans are processed within the University by its machinery through standardized processes. We are also aware that coffee roasting is the principal stage of processing; it transmutes a raw, green coffee bean into a brown bean and produces a deep, aromatic characteristic flavour. The Coffee Roaster is available for students pursuing a Certificate/Diploma in Coffee Technology and Quality Management at the Institute of Food Bioresources Technology (IFBT). It's also available for roasting coffee to farmers at an affordable cost.

DeKUT ENTERPRISES COMPANY
Nyeri-Mweiga Road
Private Bag – 10143, Dedan Kimathi, NYERI
Telephone: 0758 563586/ 0110912738
Email:dekutes@dkut.ac.ke, md-dekutes@dkut.ac.ke

@DeKUTESkenya
Dedan Kimathi University Enterprises
dekuteskenya



Coffee Roaster

DeKUTES Products

A number of value-added products are being sold at DeKUTES outlets, including DeKUT coffee, yoghurt, detergents and students' educational materials such as stationeries and personal protective gear and Branded Corporate Wear.



Some of the DeKUTES products available

CONFERENCES

DeKUTES leverages on the University's well-equipped facilities and venues that are ideal for boardroom meetings, training, seminars and conferences. During the 2021/2022 financial year, we hosted different institutions, including National Aids Control Council, RTI International, National Council for Population and Development, land reform and rural development, Kenya National Qualifications Authority, Leeds Becket University, and ICT Authority, among others.



ICT Authority training on Entrepreneurship

CONSULTANCY

Consequently, through the provision of consultancy services, the company creates an avenue for University staff to utilize their expertise, knowledge and skills in providing innovative solutions. We are committed to delivering quality consultancy services and anticipate proactive participation through constant engagement with private and public sectors and the wider industry, both locally and internationally.

We partnered with DeKUT Film, Animation and Gaming Hub to facilitate in training 50 visual artists in animation and creatives and the different areas covered were Film Production, 2D animation and 3D animation. The training, sponsored by the County Government of Nyeri, Department of Tourism trade and cooperatives development, aimed at empowering the youth in Nyeri in the creative industry under the theme, "Nurturing creativity, inspiring dreams and promoting sustainability." Also, with DeKUT Film, Animation and Gaming Hub, we facilitated the Capacity development workshop through an Animation Boot camp. We also facilitated Transcription, Dubbing and Subtitling Training Services sponsored by Kenya Film Commission.



Some of the trainees and facilitators during the training of visual artists in animation and creatives

We also partnered with the Centre for innovation and entrepreneurship management to facilitate capacity building for cooperative leaders and managers sponsored by the County Government of Nyeri through the department of trade, tourism, culture and Cooperative development. The training was geared towards promoting and enhancing good governance and management practices in cooperative societies in Nyeri county.

We also assessed the governance and managerial skills gap in coffee cooperatives sponsored by AVSI Foundation, which was done in twenty-one (21) cooperatives in seven counties of Meru, Embu, Murang'a, Nyeri, Kiambu, Machakos and Bungoma.



Capacity building for cooperative leaders and managers

Through the Institute of Tourism and Hospitality Management (IToHM), DeKUTES facilitated the Training of Nyeri County Tourism and Culture Mountain Tour Guide, Porters and cooks sponsored by the County Government of Nyeri. It emphasized on promoting Professional Service Delivery for Sustainable Mountaineering Tourism in Nyeri. The training culminated with a two days field trip to Mount Kenya- the afro-alpine to collect information to develop a short marketing documentary that the mountain crew can use to popularize its activities.

Recently we facilitated training and certification of coffee tasters for laboratory staff, farmers, and coffee experts sponsored by The European Committee for Training and Agriculture through the institute of Food Bioresources Technology. The focus was on medium and long-term interventions in agriculture and the environment.



Training and certification of coffee tasters for laboratory staff, farmers and coffee experts

CONCLUSION

As a Company within the University, we continue to be practical, working closely with the University, which is the backbone of research and innovation to create products that meet the needs of the community around us. We have no doubt that the space to offer assistance through technology transfer, consultancies, training, and innovative products will aid in the growth of the University and the community at large. Our products are available at DeKUT Main Campus at our outlet near the gate and in Nairobi Campus for those living in Nairobi and its environs. Furthermore, we can dispatch any of our products to any part of the country.



Students enjoying DeKUT Yoghurt at our outlet

Chaplaincy: A Fountain of Holistic Pastoral Care



REV. FR. DR. VINCENT WAMBUGU MWAI
Head of Chaplaincy and Senior Lecturer,
Dedan Kimathi University of Technology

Though it might appear vague or irrelevant to a world that largely adores scientific development, pastoral care is indispensable in the lives of persons. There is nothing wrong with scientific development but many things can go wrong if nothing else matters. The holistic nature of every person as body and soul calls for a holistic approach to their welfare and development, hence the continued affirmation of chaplaincies in institutions worldwide.

The core mandate of any chaplaincy is pastoral care. Pastoral care involves journeying with people or persons within the same faith community to deepen or restore their hope, love, and trust in God. Faith is not limited to the Christian faith, and the concept embraces a multi-religious context.

Pastoral care becomes intensive when a faith community member becomes more deserving due to illness, old age, or special needs, including vulnerability and death. Too often, the required intensive pastoral care for such brethren may reflect chaplaincy in many contexts as exclusively care for the sick, the vulnerable, or the dead in need of final rites.

In this way, chaplaincy appears shallow and generic. However, despite the urgent and critical pastoral needs for the sick and the dead, chaplaincy as an instrument of pastoral care is wider. We must interrogate and counteract the limited perceptions of Chaplaincies with the proper pastoral focus as the care of souls in all circumstances.

Pastoral care helps a person recognize and enjoy the love of God and, consequently, embrace the painful but necessary transformation to make it a lifestyle and to enable others to find a fountain of this love in them. The spiritual journey, therefore, seeks personal growth in integrity and Christian witness. Continuous pastoral care restores this faith, hope, and love in the hearts of all those who profess their faith in God.

Pastoral care is even more relevant when the spirit of unbridled negative consumerism (the desolation and anguish born of a complacent yet covetous heart, the feverish pursuit of frivolous pleasures, and a blunted conscience) is eating into the moral fabric of society and tearing it apart. Consumerism is not an isolated reality in any part of the world but occurs to varying degrees everywhere, and it is an impediment to an authentic personal encounter with God and growth in this personal encounter.

When presented with the thought of growth or positive advancement, the human mind moots an idea of upward movement. Upward movement is a gradation to the ultimate summit, which must be higher. A significant mark of the Christian life is the continuous conversion from the point of ignorance about God to a high level of knowledge of God and obedience to His will, a phase characterized by personal responsibility for one's freedom of choice, otherwise referred to as intentional discipleship.

The Christian paradigm of the march to heaven is comparable to the paradigm of spiritual growth presented as ascending to the summit of Mount Carmel. There are five thresholds, a vertical gradation, in the personal spiritual journey:

- Initial Trust.
- Spiritual Curiosity
- Spiritual Openness
- Spiritual Seeking.
- Intentional Discipleship

Initial trust is a fruit of remote association with God, the Church, or a good person, in which the person is at the remotest point of the spiritual journey. This stage develops into spiritual curiosity and a desire to know more.

The positive aspect is that the soul has not stalled in the remote stages. The stage matures in spiritual openness to the possibility of personal change. The journey bears fruits of in-depth knowledge that stirs sentiments of change for faith. The stage matures into spiritual seeking leading to an active search for God based on a sincere spiritual quest. The soul yearns to find and rest in God. The seeker has reached intentional discipleship, a personal commitment to God and His will.

The point of success in seeking God could be likened to the momentous arrival at the highest summit of a mountain after a challenging climb. The summit is the point where communion with God occurs. However, people will move through at different paces. There is no one-size-fits-all way of negotiating the journey to the mountain's summit.

Some may bound through a few thresholds in a few days, and others may stay stuck in one place for years or ping-pong back and forth between different thresholds. People move at a pace proper to their ability and stage of growth in all dimensions, including faith. In this regard, pastoral care does not end but lasts from birth to death. It is a life-long and indispensable personal spiritual project.



DEDAN KIMATHI UNIVERSITY OF TECHNOLOGY | NYERI - MWEIGA PRIVATE BAG, 10143,NYERI, KENYA

ADMISSIONS OFFICE
0706688135

REGISTRAR ACADEMIC AFFAIRS
0713835965

NAIROBI CAMPUS
0710127516

MARKETING OFFICE
071312302

DeKUTKenya vc@dkut.ac.ke Dedan Kimathi University of Technology www.dkut.ac.ke