



MACHAKOS UNIVERSITY

Co-creating Sustainable Futures

BIANNUAL RESEARCH AND INNOVATION BULLETIN



FUNDAMENTAL STATEMENTS

Vision

Excellence in transformative scholarship and community service.

Mission

To Provide scholarship through Teaching, Training, Research and Innovation; and community service for sustainable industrial and socioeconomic transformation.

Identity Statement

Machakos University is an Academic Institution Committed to Generating and Transmitting Knowledge, Skills and Attitude through Science, Technology, Research and Innovation for the Benefit of Humanity.

Philosophy Statement

The Philosophy of Machakos University is to provide transformative leadership in Teaching, Training, Research, Innovation, Industrial and Technology transfer for wealth creation.

Core Values

Creativity
Agility
Meritocracy
Professionalism
Integrity
Inclusivity



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As I reflect on the first half of 2025, I take great pride in the remarkable progress Machakos University has made in research, innovation, and international collaboration. This period marks a transformative chapter that demonstrates our unwavering commitment to academic excellence and global engagement.

The achievements highlighted in this 12th Research and Innovation Bulletin exemplify our vision of becoming a world-class institution that bridges theory and practice. Through the Research, Innovation and Technology Transfer (RITT) mandate, Machakos University continues to position itself as a regional hub of innovation.

Over 200 academic staff and postgraduate students benefited from targeted research capacity-building programmes. Further, the acquisition of state-of-the-art laboratory equipment through The World Academy of Sciences (TWAS) grant—including a Hydrothermal Autoclave, High-Speed Centrifuge, and Microwave Digestion System—has significantly strengthened our research infrastructure.

Innovation Excellence and Global Recognition

The 7th Innovation Week showcased outstanding student ingenuity, with innovations such as

Thermochromism, SmartFarm, and Deaf Connect addressing real societal challenges. Our students' exceptional performance at the 2025 Global Huawei ICT Competition, where Machakos University emerged top globally, reaffirmed our strength in digital innovation.

Strengthening International Partnerships

Strategic collaborations such as the Luban Workshop with Tianjin City Vocational College, UNESCO Chair in Cloud Computing, DigiTREE Virtual Exchange, and the YEMAYA Erasmus+ Programme have expanded our global research and mobility footprint.

Community Impact and Recognition

Our commitment to societal transformation was evident through environmental conservation initiatives, health outreach programmes, and recognition at the 2025 Machakos A.S.K Show, where the University won multiple awards for excellence in research and innovation.

Looking Ahead

As we move into the second half of 2025, we remain focused on expanding international collaborations, enhancing research infrastructure, commercializing innovations, and deepening community engagement.

I thank the University Management, staff, students, partners, and collaborators for their unwavering support.

*Prof. David Mulwa, Ph.D.,
Ag. Registrar (Research Innovation and Linkages) &
Chairman, Editorial Board*

Editorial Team

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FROM THE DEPUTY VICE-CHANCELLOR (RESEARCH, INNOVATION AND LINKAGES)



I am pleased to present this Research and Innovation Bulletin highlighting Machakos University's exceptional achievements during the first half of 2025. This period has been pivotal in our journey toward becoming a global centre of excellence in applied sciences, innovation, and technology.

Our students and staff continue to demonstrate outstanding innovation capabilities, from award-winning technologies to international ICT competitions. The strengthening of laboratory infrastructure through international grants has further elevated our research output and relevance.

Strategic global partnerships, notably the Luban Workshop and Erasmus+ initiatives, have expanded opportunities for staff and student mobility while delivering tangible local impact. Environmental stewardship, community engagement, and national recognition continue to define our institutional identity.

As we look forward, strategic investments in digital transformation, robotics, entrepreneurship, and sustainable innovation will position our graduates as solution-driven leaders.

*Prof. James Muola, Ph.D.
For Ag. Deputy Vice-Chancellor
Research, Innovation and Linkages*

KEY HIGHLIGHTS DURING THE PERIOD

Strategic Partnerships

1. Equity Bank partnership for staff empowerment, digitization, scholarships, and financial inclusion
2. M-Pesa Foundation collaboration on a state-of-the-art Smart TVET Skills Centre
3. Sinoma Roofing Systems Kenya Ltd. engagement for industry-academia collaboration
4. CorpsAfrica partnership for community-driven development initiatives

Research and Innovation

1. Completion of internally funded research projects
2. Hosting of MksU Hackfest 2025 (3rd Edition)
3. Intellectual Property and AI capacity-building training

Student and Staff Mobility

1. Erasmus+ KA171 agreement with Riga Technical University
2. DigiTREE Virtual Exchange participation

Community Engagement and Wellness

- World Clean-Up Day 2025 hosting
- World Environmental Health Day participation
- Free Medical Camp in partnership with Aster Healthcare
- International Youth Day 2025 celebrations
- Vota Wellness Walk and Run participation

Public Engagement

- 10th Public Lecture on Artificial Intelligence in Higher Education

CONCLUSION

The period under review reflects Machakos University's strong commitment to research excellence, innovation, global engagement, and community service. Through strategic partnerships, capacity building, and impactful outreach, the University continues to live its tagline.

MACHAKOS UNIVERSITY PARTNERS WITH EQUITY BANK TO UNLOCK OPPORTUNITIES FOR STAFF AND STUDENTS. ACCELERATING DEVELOPMENT

In pursuit of its goal of “Creating Sustainable Futures,” Machakos University hosted Equity Bank officials on July 15th, 2025. The high-level meeting brought together MksU top leadership to develop a bold plan that will alter the experience of employees and students. The Vice Chancellor, Prof. Joyce Agalo; Prof. Mugendi M’Rithaa, DVC APF; Prof. Stanley Makindi, DVC RIL; Prof. James Muola DVC ASA; and Prof. David Mulwa, Registrar RIL, represented the university while Ms. Mary Mungai and her associates represented Equity Bank.

In light of their common commitment to social and economic transformation, MksU and Equity Bank have developed a relationship based on confidence, excellent collaboration, and cooperation. This move ushers in a new chapter that will integrate education, financial stewardship, and technology to deliver great value to staff, students, and the wider community.



From 3rd right Vice Chancellor Prof Joyce Agalo, Prof Mugendi M’Rithaa DVC APF, Ms Mary Mungai rep Equity Bank, Prof. Stanley Makindi DVC RIL, Ms. Terecia Mutunga, Prof. David Mulwa Registrar RIL, Ms. Mumbi Mwihurih-Head Legal Affairs & Council Secretariat.

Equity Bank’s support has already revolutionized financial processes from fully digitized fee payment platforms to real-time transaction tracking. A proposed tech-driven approach such as automating payments, that will make transactions for graduate school easier, and digitalizing supplier invoicing.

Empowerment of Staff

Committed to supporting University staff, Equity Bank will offer robust financial literacy training. Set to empower employees with the knowledge and confidence needed to make informed financial choices and access to long-term, affordable loan solutions. Staff wellbeing is a key priority in its overall university development agenda.

Strengthening Scholarships and Mentorship Programs

The Equity Leadership Program at Machakos University is now providing support and guidance to a sizable number of students. There are plans to increase this influence.

Driving Innovation and Sustainability

Machakos University and Equity Bank are exploring joint projects to advance economic initiatives that will provide students with hands-on experience in sustainable business models.

A Shared Vision for Transformative Growth

Equity Bank expressed readiness to manage project-related accounts and extend comprehensive financial services. Machakos University's major development projects are set to gain from an expanded financial ecosystem.



Vice Chancellor Prof. Joyce Agalo center, Prof Mugendi M'Rithaa DVC RIL right receiving a gift from Ms Mary Mungai rep Equity Bank, as a symbol of partnership.

Both institutions committed to the following as part of their agreed-upon plan:

- Signing a new Memorandum of Understanding (MOU) to solidify the partnership.
- Offering customized loan packages tailored for staff.
- Introducing supplier financing solutions to improve liquidity.
- Conducting financial literacy workshops for University staff

This collaboration marks a transformative step towards sustainable growth, ensuring that Machakos University remains at the forefront of education, innovation, and financial empowerment.

PARTNERING FOR IMPACT: MACHAKOS UNIVERSITY AND M-PESA FOUNDATION PLAN NEXT-GEN SKILLS CENTRE

A revolutionary state-of-the-art TVET (Technical and Vocational Education and Training) project took a significant step forward on July 8th, 2025, during a vital alignment meeting in conjunction with M-Pesa Foundation under “the citizens of the future program” and Machakos University. With the

University’s top administration in attendance, including the Vice-Chancellor, Prof Joyce Agalo, Prof. Mugendi M’Rithaa, Ag. Deputy Vice-Chancellor APF, Prof. David Mulwa, Registrar RIL, Director TVET Nicholas Mwunda, and Ms. Alice Njeri, Head- Supply chain management.



The project, spearheaded by architect Kent Gichuru and his team, aims to deliver a world-class technical facility focused on future skills and real-world income generation. The project aims to enhance the institution’s capacity to offer competitive industry-relevant training. The grant will be strategically allocated to cater for construction and landscaping, creating a purpose-built facility of approximately 2,500 square meters. Additionally, part of the funds will be allocated for state-of-the-art equipment, furniture, and machinery across the specialized workshop.

The Facility Highlights

The proposed design presented by Kent prioritizes functionality, accessibility, and inspiration:

Multi-Level Learning Hub: The facility

will span three levels. Ground floor access, caters to workshops and deliveries featuring: a prominent entrance with reception, including a digital display. Upper floors will house lecture halls, administrative offices, and staff lounges. With full accessibility of ramps and elevators. Natural light and ventilation are key design principles.

Workshop Focus: core to the vision are specialized high-ceilinged workshops, office space for technicians, and stores designed for:

- **Automotive Engineering-** targeting cutting-edge technology training in modern vehicle systems, including advanced diagnostics, electric vehicle (EV) technology, and renewable energy components integration.

- **Mechanical Engineering-** comprehensive training in mechanical designs, manufacturing, automation technologies sustainable engineering solutions
- **Civil Engineering-** equipped for hands-on learning in structural designs, construction material testing.
- **Electrical and Electronic-** focused on power and control systems, incorporating renewable energy integration.
- **Building and Construction-** equipped for high-quality production skills, including carpentry, masonry, supported by modern tools and safety protocols.
- **Fashion and Design-** facility designed for high-quality production skills, garment construction, and digital fashion technologies, encouraging sustainable and trend-responsive design practices.
- **Food and Beverage-** a commercial standard food and beverage workshop with a visible restaurant and a potential robot

assistant.

- **Cosmetology Lab-fully fitted spa-like** environment for beauty and wellness training.
- **Beyond Training-production and showcase:** A dedicated exhibition space near the entrance, which allows students to pitch ideas and showcase their best work to the public.
- **Tech-forward learning:** lecture halls and labs will support future-focused curricula. Discussions highlighted the need for:
 - a) Advanced ICT beyond standard labs-computer-aided designs, manufacturing, and simulation.
 - b) Virtual reality (VR) integration.
 - c) Cutting edge equipment like 3D body scanning machine.
- **Sustainability built in:** solar energy solutions and energy management systems are integral considerations.



Members of the Machakos University Management Board listening to a presentation by consultants from Safaricom.speech.

With user feedback gathered, the lead project architect will now refine the design. The tender process will commence once designs are finalized and approved, paving the way for groundbreaking on a facility poised to become a national beacon of innovative TVET education and economic empowerment. The facility is planned for completion within one year after groundbreaking.

Machakos University remains committed to transforming technical education through this Smart TVET Facility. The facility which will enable the co-creation of sustainable futures, ensuring that citizens of the future are equipped with the knowledge, skills, and values necessary to build a resilient and equitable society.

MACHAKOS UNIVERSITY SHINES AT VOTA WELLNESS WALK AND RUN

Under the golden sunrise of Machakos County, the vibrant spirit of Machakos University came alive as staff members gathered at Vota Ranch for the *Vota Wellness Experience 40@40 Walk and Run* on Saturday, 2nd August 2025.

Leading the charge was the University's dynamic Vice-Chancellor, **Prof. Joyce Agalo**, who, with a warm smile and unwavering determination, laced up her running shoes to champion the spirit of active living. She was joined by senior University officials, including **Prof. David Mulwa** (Ag. Registrar, RIL), **Prof. Richard Kimiti**, **Prof. Robert Arasa**, and **CPA Francis Wambua**, among other staff members — all united in promoting wellness as a lifestyle.



Vice Chancellor, Prof Joyce Agalo (r) participated in the Vota Wellness Walk and Run

The **Machakos University Staff Football Club** brought their competitive edge to the event, enthusiastically participating in the 10km run. Running alongside the Vice-Chancellor, they demonstrated outstanding teamwork and resilience, their camaraderie evident in every stride.

The event's highlight came as **Mr. Peter Kivindyo**, a proud member of MksU Staff FC, sprinted to victory, claiming 1st place in the Men's 10km race. He was closely followed by **Raphael Kioko** and **Thomas Kitheka**. Thunderous cheers greeted their finish, with Kivindyo's achievement standing as a testament to discipline, hard work, and the spirit of

excellence that defines Machakos University. Beyond medals and finish lines, the day was a celebration of community health, connection, and shared purpose. From brisk walkers enjoying the lush Vota trails to determined runners pushing their limits, every participant contributed to the vibrant energy of the event.

As the sun set on a day well spent, one truth stood out clearly: **Machakos University doesn't just talk about wellness — we live it.** We are a family that sweats, strives, and succeeds together — not only in classrooms and lecture halls but also through meaningful co-curricular engagement that strengthens both body and spirit.



From the left: Raphael Kioko, Mr. Peter Kivindyo and Thomas Kitheka



Vice Chancellor with MksU staff after the run

SINOMA ROOFING SYSTEMS KENYA LTD. EXPLORES COLLABORATION OPPORTUNITIES WITH MACHAKOS UNIVERSITY

On 4th September 2025, Machakos University welcomed a senior delegation from Sinoma Roofing Systems Kenya Ltd., the largest roofing product manufacturing facility in East Africa.

The visiting team held a high-level discussion with officials from the Division of Research, Innovation and Linkages (RIL), alongside

representatives from the Schools of Engineering and Technology, Humanities and Social Sciences, and Business, Economics, Hospitality and Tourism Management. The engagement centered on exploring collaborative opportunities that align with the University's mission of fostering innovation, industry linkages, and sustainable development.



Dr. Charles Ombuki (center), Director of Research, Innovation and Technology Transfer, with the Machakos University team and senior delegation from Sinoma Roofing Systems Kenya Ltd.

Sinoma Roofing Systems Kenya Ltd. is a subsidiary of the China National Building Material Group Co. Ltd. (CNBM) — a global leader in building materials with operations in China, Nigeria, the Philippines, and now Kenya.

Discussions identified promising areas for collaboration between Sinoma and Machakos University, including:

- Internships and Industrial Attachments

by providing students with practical, hands-on industry experience.

- Scholarships Support to deserving students in their academic pursuits.
- Curriculum Development by jointly aligning academic programmes with industry needs and emerging technologies.
- Collaborative Research through advancement of innovation in construction, materials science, and sustainable technologies.

As part of efforts to deepen this relationship, Sinoma Roofing Systems Kenya Ltd. extended an invitation to Machakos University staff and students to participate in their Open Day held on 5th September 2025. A University delegation, led by the Deputy Vice-Chancellor (Academic and Student Affairs), attended the event.

The Open Day provided participants with invaluable exposure to modern roofing technologies, advanced production processes, and career opportunities within the company. It also reaffirmed the importance of academia-industry collaborations in preparing graduates for the demands of a dynamic job market.

MACHAKOS UNIVERSITY CELEBRATES STUDENT EXCELLENCE AND STRATEGIC PARTNERSHIP AT WORLD ENVIRONMENTAL HEALTH DAY EVENT

Machakos University played a pivotal role in the World Environmental Health Day 2025 celebrations held at Athi-river on 26th September 2025, marked by the recognition of student achievement, the announcement of a key institutional partnership, and high-level speeches from University and county leadership. The event, held under the global theme “**Clean Air, Healthy People,**” was coordinated by the County Government of Machakos, Department of Environmental Health.



The University delegation was led by the Dean of the School of Agriculture, Environment and Health Sciences, **Dr. Julius Nzeve**, who was accompanied by staff and students from the school. In a significant address, **Dr. Nzeve delivered a speech representing the Vice-Chancellor**, underscoring the University’s unwavering commitment to environmental stewardship and public health.

In his speech representing the Vice-Chancellor, Dr. Nzeve stated, “Today, we embody our University’s core mission. We celebrate the intellectual vigor of our students, formalize partnerships that amplify our impact, and stand united with the County Government on the crucial theme of ‘Clean Air, Healthy People.’ This holistic approach combining academic excellence, strategic collaboration, and community engagement is how we equip our students to become responsible leaders and problem-solvers.”

Six students were honored for their outstanding performance in a recent University poster essay competition. The recipients, **Innocent Marieta, Desmond Lennox, Sanchase Ombaso, Benjamin Wamalwa, and Phelix Otieno**, were presented with Certificates of Participation, highlighting the University’s dedication to fostering critical thinking and research among its scholars.



In a major development for the institution, Machakos University was also presented with a **Certificate of Partnership** during the ceremony. This new alliance is poised to enhance practical training, research, and community development initiatives, further bridging the gap between academia and industry.

The gathering was graced by the presence of the **County Minister for Health (CECM Health), Hon. Justus Kasivu**. His attendance underscored the strong collaborative relationship between the County Government and the University in addressing critical public and environmental health challenges within the region.

The ceremony successfully highlighted Machakos University’s multifaceted role as an academic institution dedicated not only to education but also to tangible community action and sustainable development. MksU is a dynamic institution of higher learning committed to providing quality education, promoting research, and fostering innovation for the sustainable development of society.

MACHAKOS UNIVERSITY CONCLUDED A WEEK-LONG FREE MEDICAL CAMP, FOCUSING ON HOLISTIC STUDENT AND STAFF WELLNESS

Machakos University in a partnership with Aster Health Care, successfully concluded a comprehensive week-long Free Medical Camp, held from 15th to 19th September 2025 at the University's Health Unit. The extended initiative provided thousands of students and staff with unprecedented access to critical and confidential health services directly on campus.



MksU Free Medical Camp at the University Health Unit.

The camp was spearheaded by the Counseling department alongside the leadership of the Alumni Association, The Machakos University Alumni Association, in a powerful demonstration of “giving back,” designed as a holistic wellness intervention, moving beyond general check-ups to address pressing health concerns within the University demographic. The core services included: Speaking during the event, the **Deputy Vice-Chancellor for Administration, Planning, and Finance, CPA Prof. Florence Memba**, emphasized the University’s unwavering commitment to the well-being of its community.



DVC APF, CPA Prof. Florence Memba (left) at the event

“Our students and staff are our greatest asset. This medical camp goes beyond treating illness; it is about nurturing a proactive culture of health, awareness, and prevention. By directly addressing critical issues—from mental health to specialist care—we are investing in a more productive and empowered University community. This aligns with our mission to educate the whole person, ensuring they are physically and mentally well as they pursue their academic and professional goals,” she noted.

Also present was **Mr. William Nyette, Vice Chairperson of the Alumni Association**, whose strong support underscored the important role of alumni in sustaining initiatives that benefit the University community. His presence served as an inspiration for greater alumni engagement and philanthropy.

The core services provided included:

- **HIV Testing and Counseling:** Confidential and rapid testing was provided, accompanied by pre- and post-test counseling to promote awareness, reduce stigma, and encourage responsible sexual health practices.
- **Screening for Sexually Transmitted Infections (STIs):** Discrete screenings and consultations were available, offering early detection and guidance on treatment and prevention.
- **Cervical Cancer Screening:** This vital service aimed to promote women’s health through early detection and educational talks on preventive measures.
- **Gender-Based Violence (GBV) Awareness:** Dedicated desks provided information, confidential counseling, and guidance on support systems and reporting mechanisms for survivors of GBV.
- **Sexual and Reproductive Health (SRH) Services:** Experts offered consultations on family planning, safe sex practices, and answered questions to empower individuals to make informed decisions about their reproductive health.
- **Mental Health Awareness and Counseling:** Recognizing the immense pressure on students and staff, licensed counselors provided one-on-one and group therapy sessions, stress management techniques, and mental health first-aid education.
- **General Surgical Consultations:** A key highlight of the camp was the availability of a General Surgeon from Aster Health Care. The surgeon provided expert consultations for a range of conditions, offering professional advice and referral pathways for those needing further care.
- **General Wellness Section:** This included nutritional advice, physical health assessments (BMI, blood pressure, blood sugar checks), and wellness workshops.

The collaborative effort with Aster Health Care, which provided the specialist medical personnel, was hailed as a model for successful public-private partnerships in advancing healthcare accessibility. The camp successfully reinforced Machakos University’s culture of care, ensuring that both students and staff are equipped with the knowledge and resources to prioritize their health.

MACHAKOS UNIVERSITY HOSTS WORLD CLEAN UP DAY MACHAKOS 2025 CELEBRATIONS

Machakos University was honored to host the World Clean Up Day 2025 celebrations on Saturday, 20th September 2025, in collaboration with the Ministry of Environment, the County Government of Machakos, and other partners



World Clean Up Day Machakos 2025 Celebrations

The day began with a community clean-up exercise at **Sokoni in Machakos Town**, bringing together government officials, students, staff, and members of the public in a collective effort to promote environmental sustainability.



Exhibitions by the Department of Design

Representing the Vice-Chancellor, **Prof. James Muola** welcomed guests to Machakos University, conveying appreciation to the County Government for selecting the University as the host venue. Prof. Muola endorsed the University's commitment to environmental sustainability through various community outreach initiatives, including clean-up activities and tree-planting programs.



World Clean Up Day Machakos 2025 Celebrations

The celebrations later shifted to the Machakos University Amphitheatre, where activities included **tree planting, exhibitions by the University's Department of Design**, and interactive conversations focused on the theme: "Tackling Textile and Fashion Waste through Circular Fashion."

Through the event, Machakos University once again demonstrated its role as a champion of sustainable development, engaging the community in practical solutions to environmental challenges while empowering students to take part in shaping a sustainable future.

MACHAKOS UNIVERSITY HOSTS INTERNATIONAL YOUTH DAY 2025: EMPOWERING YOUTH FOR A SUSTAINABLE FUTURE

Machakos University was honoured to host International Youth Day 2025 celebrations on 12th August, 2025, themed “**Youth Empowerment for a Sustainable Future.**” The event, organized by Youth for Sustainable Development (YSD) Machakos, brought together young people, community leaders, and key stakeholders committed to driving sustainable change.

The YSD delegation, led by the Executive Director, Ms. Margaret Wanja, was warmly received by Machakos University, Prof. James Muola-Deputy Vice-Chancellor, Academic & Student Affairs, and Prof. Stanley Makindi- Ag. Deputy Vice-Chancellor-Research, Innovation & Linkages, during a courtesy call to the Vice Chancellor’s Office. The Professors officially welcomed the delegation on behalf of the Vice-Chancellor, Prof. Joyce Agalo, before proceeding to the day’s events.



YSD Executive Director, Ms. Margaret Wanja and Prof. James Muola-Deputy Vice-Chancellor (Academic & Student Affairs) during the function.

In the true spirit of youth-led action, Youth for Sustainable Development (YSD), as the official convener, brought together youth groups, civil society actors, government representatives, and community stakeholders to collaborate and co-create solutions for a better future.

The day featured a wide array of engaging activities, including:

- A blood drive led by the Kenya Red Cross
- Youth exhibitions showcasing diverse products and services
- Football matches at the Machakos University grounds
- Panel discussions on entrepreneurship, creative arts, sports, governance, and civic education.



This year's theme was anchored on the "4Ts framework"- a locally developed model that reflects the priorities and aspirations of young people.

Tuchanuane – Motivation & Sensitization

Tujitume – Empowerment & Skill Building

Tujengane – Networking & Community Building

Tuomoke – Entrepreneurship & Sustainability

Through thought-provoking discussions, interactive sessions, sporting activities, and collaborative networking, participants reaffirmed the pivotal role of youth in shaping a more inclusive, innovative, and sustainable future.



Participants during the function.

SEEDS OF INNOVATION: MACHAKOS UNIVERSITY CELEBRATES GROUNDBREAKING RESEARCH FROM INTERNAL GRANTS

In a vibrant showcase of academic excellence and practical problem-solving skills, Machakos University held a dynamic workshop to celebrate the successful conclusion of its 2022/2023 internally funded research projects on 20th August 2025. The event showcased how strategic investment in home-grown talent is generating real-world impact and strengthening the university's role as an engine of development.

The journey for this cohort began with the University's 6th call for proposals. Researchers from across the University's diverse schools answered the call, submitting 11 compelling project ideas. Following a rigorous and competitive peer-review process, eight of these proposals were selected for funding.

These projects were strategically aligned with the University's key priorities, channeling resources into research areas with significant potential for community and industry benefit.



Dr. Margaret Nganu presenting her findings during the workshop

The workshop was officially opened by Prof. James Muola, representing the Vice Chancellor, Prof. Joyce Agalo. The event brought together thirty-five participants from various schools, creating a fertile ground for collaboration and learning.

The workshop was more than just a presentation; it was a conversation, providing a unique platform for grant recipients to share their findings, discuss the challenges they overcame, and present their evidence-based recommendations. A lively open session fostered engagement through questions, comments, and peer-to-peer learning. The knowledge generated will inform future researchers and practical applications.

The internal funding scheme is a critical investment in the future, intended to ensure;

- Continuous improvement in the quality and relevance of research conducted at Machakos University
- The development of strong evidence-based solutions to pressing challenges faced by our communities and industries
- The reinforcement of Machakos University's role as a premier hub for research and innovation and sustainable development in the region.

The stories that emerged from the workshop are a powerful reminder that when you plant the seeds of inquiry and provide them with the resources to grow, the harvest benefits us all, just as our tag line, co-creating sustainable futures.

MACHAKOS UNIVERSITY STUDENTS PARTICIPATE IN VIRTUAL EXCHANGE COURSE

Twenty-two (22) Machakos University students completed Cycle 1 of a seven-week virtual exchange course in the scope of the Erasmus+ project DigiTREE – “Enriching youth digital, media, and soft skills using virtual mobility experiences in Sub-Saharan Africa and the European Union. The students were awarded certificates on Thursday 9th September 2025, as Cycle 2 of the project commenced with forty (40) students on board in a ceremony presided over by the Project Team leader, Prof. Stanley Makindi.



Students and their trainers during the function

The Project is funded by the Erasmus+ Programme of the European Union. The Project is coordinated by Riga Technical University (Latvia). Other Partner Institutions include; Machakos University, Cyprus University of Technology (Cyprus), Vilnius Gediminas Technical University (Lithuania), University of Botswana (Botswana), and University of Lusaka (Zambia). The facilitators from Machakos University include; Prof. Stanley Makindi, Prof. Richard Kimiti, Prof. Peter Koech, Prof. David Mulwa and Dr. John Musau.

The DigiTREE project creates cross-cultural pathways for youth in the EU and countries of Sub-Saharan Africa for virtual exchanges geared towards media literacy, critical thinking skills, and soft skill development. Through participation in online modules, teams of students learn how to recognize rhetorical strategies used in online communication to persuade audiences. They analyse their own everyday social and digital media use through collaborative group activities led by expert facilitators and learn to recognize and resist misleading or inaccurate information while practicing effective communication strategies to work together in multi-national teams. Completed modules include; Introduction to virtual exchange, Critical consuming of media content, Digital games for misinformation, Fact-checking, Creating media literacy awareness campaigns, and Presentations and reflection.

The collaborative activities in DigiTREE fosters mutual understanding, cultural sensitivity, and soft skill development, which will increase participant employability and open doors for participants to explore new cultures beyond the scope of the project by connecting with people from across the globe. DigiTREE fosters active citizenship by giving participants the tools to create meaningful awareness campaigns through a variety of digital tools through the use of communication strategies learned during the course of the project.



MACHAKOS UNIVERSITY AND CORPSAFRICA FORGE STRATEGIC PARTNERSHIP TO ADVANCE COMMUNITY DEVELOPMENT

Machakos University and CorpsAfrica officially launched a comprehensive strategic partnership during a meeting held on 14th October, 2025 at the UNESCO Chair office at the Machakos University and Conference Hotel. Members present during the meeting included the UNESCO Chair, Prof. Mugendi M’Rithaa, Prof. David Mulwa, Registrar Research, Innovation and Linkages, Dean of the School of Agriculture, Environment and Health Science Dr. Julius Nzeve, Chair of Departments from the School and the Country Director of CorpsAfrica Dr. Patricia Mugendi and her delegation.

CorpsAfrica is a nonprofit organization that recruits and trains African youth to serve as volunteers in rural communities within their own countries. The volunteers live and work with local residents to identify development priorities and implement sustainable, community-led projects. By promoting local leadership and capacity building, CorpsAfrica empowers communities to drive their own social and economic transformation.

Discussions outlined a multi-faceted framework for cooperation, designed to leverage the unique strengths of both organizations. Key areas of focus including:

1. Academic Integration and Curriculum Review
2. Expanding Volunteerism and Practical Student Experience
3. Joint Research and Innovation
4. Co-creation of Training and Community Content
5. Community Outreach and Public Campaigns

The alliance plans to host annual joint events and public awareness campaigns. An early milestone will see CorpsAfrica participating in an upcoming MksU conference, showcasing the partnership's initial progress and vision.



CorpsAfrica representatives and staff of Machakos University

MKSU HACKFEST 2025 – 3RD EDITION REPORT

The **Machakos University Hackfest (3rd Edition)** was held from **October 22 to 24, 2025**, and was a great success. The event has now become one of the key platforms for innovation and creativity at **Machakos University**.

Building on the success of previous editions, this year's Hackfest brought together students, developers, engineers, and entrepreneurs to create real solutions to real problems.

The event took place at the **Luban Workshop**, one of the University's top venues, which hosted the opening ceremony, keynote speeches, panel discussions, and served as the main space for the hackathon.

Theme

The 2025 Hackfest focused on the theme **“Industry, Innovation & Infrastructure.”** Participants were challenged to come up with creative and practical solutions that could improve technology, manufacturing, and service industries, and promote sustainable innovation for the future.

Purpose

The main goal of the Hackfest was to connect academic skills with real-world industry needs. It provided a platform where students and young innovators could collaborate and build ideas that respond to the current challenges in Kenya and Sub-Saharan Africa.

Participation

The event attracted 169 participants from several universities, showing steady growth and strong interest in the Hackfest.

Participants came from:

- Machakos University
- Scott Christian University
- Zetech University
- Umma University
- Daystar University
- Tharaka University

This mix of institutions and disciplines encouraged teamwork and creative problem-solving across different fields.

Sponsors and Partners

Machakos University

As the main sponsor, the University provided funding for meals for guests and offered the Luban Workshop as the main venue, showing strong commitment to supporting innovation on campus.

GitHub

GitHub contributed Ksh. 22,000 and gave all participants free access to the GitHub Student Developer Pack, offering professional tools for software development.

Hackquest

Hackquest supported the event with Ksh. 6,500 and provided incubation for five blockchain projects, helping teams turn their ideas into real products.

Odoo

Odoo donated branded items, gave students free access to its education platform for website development, and conducted a practical workshop titled “Hands-on with Odoo,” led by Grace Apondi, who also served as a judge.

GuildCode

GuildCode was one of the key partners. They provided branded items, hosted an “Introduction to AI/ML” workshop led by CEO Kevin Obote, and served on the judging panel. Beyond the event, they mentored five winning teams to develop their projects into companies and offered a graphic design internship to one participant.

Chalosoftware Systems Hub

Chalosoftware Systems Hub supported the event with merchandise and offered a software development internship to one participant. Charles Ombati from Chalosoftware also served as a judge.

CloudFactory

CloudFactory, an AI consulting firm, ran a workshop titled “10 Principles of Winning in the AI Age.” They also guided participants on how to apply for tech jobs through their online workforce platform.

Uzuzi Hub

Uzuzi Hub played a key role in managing the judging process. The organization developed the official judging criteria and trained the judges to ensure fairness and transparency. They also connected three Hackfest winners to international opportunities through the Agile Innovation Week, in partnership with the Project Management Institute (PMI) – Kenya.

Assessment Process

A major improvement in the 3rd Edition was the professional evaluation system, managed by Uzuzi Hub. This ensured that the judging was transparent, fair, and aligned with industry standards.

The judging panel included experts from partner organizations:

- Charles Ombati (Chalosoftware Systems Hub)
- Grace Were (Appkings Solutions)
- Grace Apondi (Odo)
- Dickens Okode (eMobilis)
- Kevin Nganga (Safaricom)
- Zedekiah Ambogo (TurnKey Solutions)
- Outhan Chazima (Triply)
- Stephen Oyaro (Safaricom)

Winners and Prizes

The 2025 Hackfest focused on long-term growth rather than short-term cash rewards. Winners received opportunities that help them develop their careers and businesses.

Awards and Opportunities

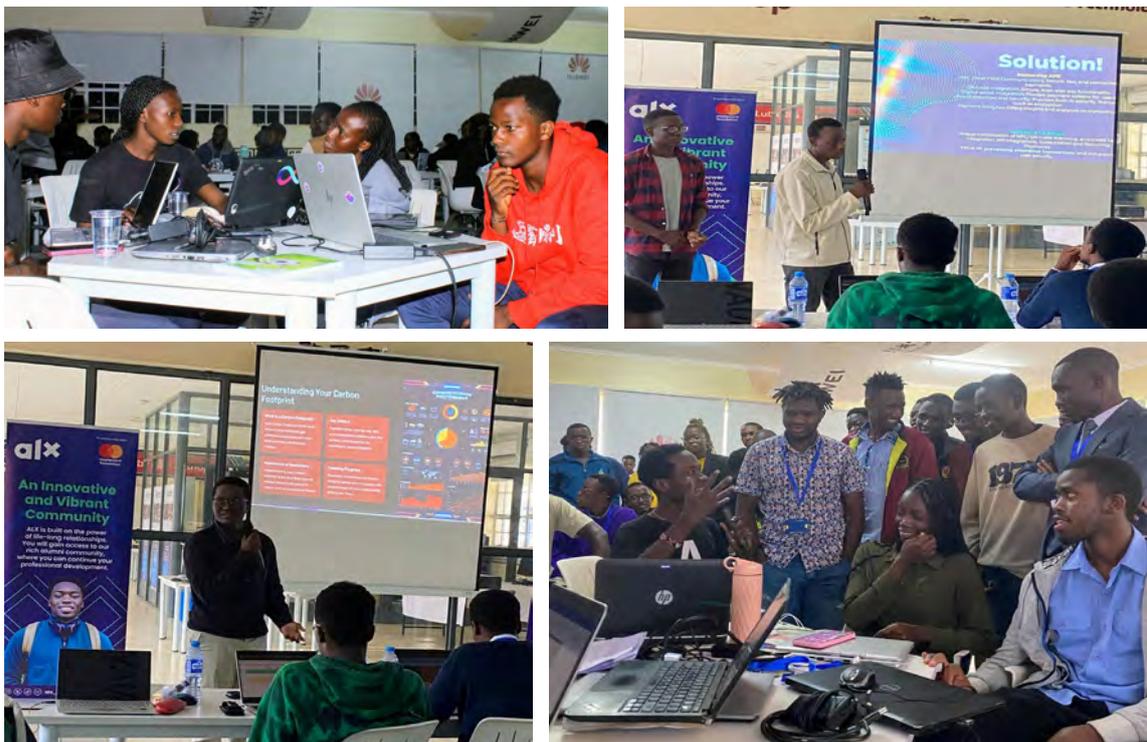
- Engraved Glass Plaques: Each winning

team received a plaque with the MksU and Hackfest logos, category, and team name.

- Gift Hampers and Resources: Winners received branded gifts and technical tools from Odo, GuildCode, Chalosoftware Systems Hub, and GitHub.
- Mentorship and Incubation: GuildCode mentored five teams to build real products, while Hackquest provided incubation for five blockchain projects.
- Internships: Chalosoftware Systems Hub and GuildCode offered internships to top participants.
- Global Exposure: Uzuzi Hub and PMI-Kenya connected three winners to international innovation opportunities at the Agile Innovation Week.

Conclusion

The MksU Hackfest 2025 was a true success, bringing together talent, creativity, and collaboration. It strengthened Machakos University's position as a center of innovation and showed the great potential of young minds in shaping the future of technology and entrepreneurship.



Participants during the Hackfest

STAFF AND STUDENT MOBILITY

Machakos University signed an Inter-Institutional Agreement with Riga Technical University (RTU) under the EU Erasmus+ KA171 Mobility Programme (2022–2027). This collaboration provides an important opportunity for our staff to gain international exposure through academic and professional exchange.

In line with the programme guidelines, the coordinator nominated 8 eligible staff members for participation based on the selection criteria provided by Riga Technical University.

In line with the programme guidelines, the coordinator nominated 8 eligible students for participation in the Spring Semester (February 2026 – June 2026).

MACHAKOS UNIVERSITY CHAMPIONS THE FUTURE OF INNOVATION WITH TRAINING ON INTELLECTUAL PROPERTY AND ARTIFICIAL INTELLIGENCE



Machakos University continues to position itself at the forefront of innovation and technological advancement. On 26th November 2025, the University marked another milestone as the Office of the Director of Research, Innovation and Technology Transfer hosted a dynamic and forward-looking training session on **Intellectual Property Rights**, spotlighting the rapidly evolving nexus between **Artificial Intelligence (AI)** and **Intellectual Property (IP)**.

The event was officially opened by **Prof. CPA Florence S. Memba**, representing the Vice Chancellor, **Prof. Joyce Agalo**, who underscored the University’s unwavering commitment to nurturing a culture of creativity and safeguarding innovation. Also present were **Prof. Robert Arasa**, representing the Ag. DVC (RIL), **Prof. James Muola**, members of the University Management, staff, and enthusiastic students—demonstrating a united institutional drive toward strengthening research and innovation capacity.

Participants were treated to an illuminating and thought-provoking session led by our distinguished facilitator, **Mr. Fred Otswang’o**, whose expertise brought clarity to the increasingly important conversation on how emerging technologies are reshaping intellectual property landscapes. His insights empowered attendees with practical knowledge on protecting and managing innovations in an AI-driven world.

This impactful event reflects Machakos University’s strategic commitment to equipping its community with world-class skills, awareness, and tools needed to innovate responsibly and competitively. As the global shift toward digital transformation accelerates, the University remains steadfast in championing excellence and preparing innovators to thrive on the international stage.



Mr. Fred Otswang’o training on Artificial Intelligence and Intellectual Property



Members of staff attending the training

MACHAKOS UNIVERSITY DELIVERS 10TH PUBLIC LECTURE ON THE ROLE OF ARTIFICIAL INTELLIGENCE IN SHAPING HIGHER EDUCATION

A thought-provoking public lecture on Artificial Intelligence in Shaping Higher Education was delivered on 3rd December, 2025 by Prof. Felix Musau, Ph.D, Dean of the Riara School of Computing Sciences. The lecture examined the transformative role of Artificial Intelligence in teaching and learning, research, and institutional competitiveness within higher education.

The session featured an engaging panel comprising Dr. Eric Omuya, Dr. Benjamin Kikwai, and Ms. Jaqueline Madara from Machakos University, who offered practical insights and reflections on the opportunities and challenges associated with AI adoption in academia.

In his address, Prof. Musau emphasized that the integration of AI in universities is no longer optional but a strategic imperative. He highlighted how AI-powered tools such as ChatGPT, Kahoot, Grammarly, and advanced data analytics platforms are redefining learning experiences by enhancing personalization, efficiency, and student engagement. He further underscored the importance of ethical, transparent, and responsible use of AI, cautioning institutions to balance innovation with integrity and accountability.

Prof. Musau also demonstrated how AI can drive innovation, strengthen global competitiveness, and equip students with future-ready skills aligned to the evolving demands of the global workforce. He concluded by urging educators, students, and institutions to embrace AI proactively, integrate it meaningfully into academic processes, and align curricula with emerging digital competencies.

The lecture reinforced the critical role of Artificial Intelligence as a catalyst for transforming higher education and preparing graduates for a rapidly changing world.



Prof. Felix Musau, Ph.D. delivering the lecture



Panelists during the lecture



Members of staff and students during the address



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