MACHAKOS UNIVERSITY
OFFICE OF THE DIRECTOR
(RESEARCH, INNOVATION AND TECHNOLOGY TRANSFER)

CALL FOR INTERNAL RESEARCH FUNDING PROPOSALS
9th Call | Financial Year 2026/2027

MAIN THEME

"Digital Transformation, Entrepreneurship, and Sustainable Development for an Inclusive and Resilient University"

1. Background and Context

Machakos University (MksU) is committed to promoting research that generates evidence-based solutions to institutional, national, regional and global challenges. In fulfilment of this mandate, the Directorate of Research, Innovation and Technology Transfer (RITT) hereby issues the 9th Call for Internal Research Funding Proposals for the Financial Year 2026/2027.

This call is designed to support rigorous, applied, and transformative research that directly inform university policy, enhance the quality of education, improve student welfare and outcomes, and contribute to the socioeconomic transformation of the surrounding community.

This Call is anchored on the overarching theme of digital transformation, entrepreneurship, and sustainable development, recognizing that Kenya's development trajectory is increasingly shaped by technological adoption, knowledge commercialization, and community-responsive university engagement.

2. Call Objectives

The 9th Internal Research Funding Call seeks to achieve the following key objectives:

- Generate original, evidence-based research findings that advance MksU's institutional effectiveness, academic quality, and operational efficiency.
- Stimulate multidisciplinary research that integrates technology, entrepreneurship, and community engagement to address local, national, and regional development challenges.

- Strengthen MksU's capacity for research commercialization, knowledge transfer, and intellectual property development.
- Support the adoption of data-driven decision-making tools and digital platforms that improve university administration, teaching, and student support.
- Build a pipeline of competitive research projects capable of attracting external funding from national, regional, and international grant bodies.
- Foster sustainable partnerships between MksU, industry actors, government agencies, and local communities through collaborative and applied research.
- Contribute to national policy development through evidence-based recommendations aligned with Kenya's development agenda.
- To build research and Innovation capacity among the University academic staff through structured, funded, and mentored research engagements.
- To produce peer-reviewed, publishable, and policy-relevant outputs that enhance the University's research profile locally and internationally.
- Promote collaborative research and innovation between and among various disciplines in the University.
- Support research and innovation in key priority areas in relation to the National and County Development Agenda and the University Strategic Plan.

3. Proposed Research Subthemes

Research proposals should be anchored within one of the following approved subthemes:

No.	Subthemes
1.	Timetabling Modules: Smart Scheduling Optimization
2.	ERP Solutions for MksU: Cloud-Based Integration
3.	University Learning Management System (LMS): AI-Driven Adaptive Learning
4.	Student Completion Rates: Early-Warning Systems
5.	Income Generating Units (IGUs): Sustainable University Enterprise
6.	University/Community Startups: Commercialization and Social Entrepreneurship
7.	Incubation Centre's: Digital Hubs and Venture Linkages
8.	Student Entrepreneurship: Mindsets, Barriers and digital Scaling
9.	University- Student Communication: Digital Information System
10.	University-Industry Linkages: Co-Created Curricular and Research Labs
11.	Smart agriculture: IoT-Enabled Precision Farming
12.	Student Academic Performance Versus Living Environment

3.1:Timetabling Module: Smart Scheduling Optimization

Addressing institutional scheduling complexity through algorithmic and AI-driven approaches.

Priority Research Areas:

- Design and testing of optimization algorithms for dynamic, conflict-free timetabling.
- Modelling faculty availability, room utilization rates, and student course preferences.
- Development of automated, real-time rescheduling systems for disruption management.
- Comparative analysis of timetabling systems in African universities and best-fit models for MksU.
- Integration of scheduling modules with existing university ERP and LMS platforms.

3.2: ERP Solutions for MksU: Cloud-Based Integration

Enhancing institutional governance and financial management through integrated enterprise systems.

Priority Research Areas:

- Cloud-based ERP integration strategies for cost efficiency and scalability in university environments.
- Real-time financial and operational decision-making frameworks using ERP analytics dashboards.
- Data migration, security, and change management in higher education ERP deployments.
- Total cost of ownership and return on investment analysis for ERP solutions in Kenyan universities.
- Stakeholder readiness assessment and institutional change management for ERP adoption.

3.3: University Learning Management Systems (LMS): AI-Driven Adaptive Learning

Innovating teaching and learning through intelligent, data-responsive digital platforms.

Priority Research Areas:

- AI-powered adaptive learning platforms that personalize content delivery to individual student profiles.
- Effectiveness studies of LMS-based blended and hybrid learning in Kenyan higher education.
- Student engagement analytics and predictive models for academic performance.
- Accessibility and equity in LMS adoption across student demographics.
- Gamification, micro learning, and competency-based approaches within LMS environments.

3.4: Student Completion Rates: Early-Warning Systems

Applying data analytics to proactively identify and support at-risk students.

Priority Research Areas:

- Development and validation of early-warning prediction models for student dropout.
- Analysis of academic, financial, psychosocial, and environmental risk factors.
- Design and piloting of targeted intervention frameworks for retention improvement.
- Impact evaluation of student support services on completion and graduation rates.
- Benchmarking MksU's retention outcomes against regional and international standards.

3.5: Income Generating Units (IGUs): Sustainable University Enterprise

Building the evidence base for university-run commercial and service enterprises.

Priority Research Areas:

- Case studies of university-run agribusinesses, consultancies, and innovation hubs.
- Governance models and financial sustainability frameworks for university IGUs.
- Market linkage strategies and value chain integration for university agricultural enterprises.
- Revenue reinvestment policies and the impact of IGUs on research and teaching quality.
- Performance measurement and accountability systems for university commercial units.

3.6: University/Community Startups: Commercialization & Social Entrepreneurship

Creating pathways for knowledge commercialization and community co-created social ventures.

Priority Research Areas:

- Seed funding frameworks and IP commercialization policy design for university spinoffs.
- Social entrepreneurship initiatives co-developed with local communities in health, agriculture, and digital inclusion.
- Technology transfer models and licensing mechanisms applicable to Kenyan universities.
- Measuring social and economic impact of community-embedded startup incubation.
- Gender-responsive and youth-inclusive entrepreneurship ecosystems around universities.

3.7: Incubation Centres: Digital Hubs and Venture Linkages

Strengthening physical and virtual infrastructure for entrepreneurial development.

Priority Research Areas:

- Models for digital incubation hubs integrating mentorship, co-working, and virtual acceleration.
- Venture capital linkage frameworks and angel investment networks for university startups.
- Benchmarking MksU's incubation readiness against leading African university innovation hubs.
- Success factors and failure analysis of technology and social enterprise incubatees.
- Policy frameworks for public-private co-investment in university incubation centres.

3.8: Student Entrepreneurship: Mindsets, Barriers, and Digital Scaling

Understanding and strengthening the entrepreneurial ecosystem for university students.

Priority Research Areas:

- Research on entrepreneurial mindsets, intentions, and self-efficacy among MksU students.
- Structural and attitudinal barriers to student-led business creation and growth.
- Digital platforms and e-commerce tools for scaling student-owned micro-enterprises.
- Role of entrepreneurship education curricula in shaping graduate business activity.
- Peer mentoring, alumni networks, and role model effects on student entrepreneurship.

3.9: University–Student Communication: Digital Information Systems

Improving the quality, speed, and inclusivity of institutional communication flows.

Priority Research Areas:

- Design and usability testing of mobile applications for academic information dissemination.
- Chatbot and AI-assisted student query management systems.
- Communication accessibility and digital equity considerations for diverse student populations.
- Feedback loop systems and student participation platforms for institutional governance.
- Crisis communication protocols and digital response strategies in higher education.

3.10: Industry–University Linkages: Co-Created Curricula and Research Labs

Building structured, mutually beneficial relationships between academia and industry.

Priority Research Areas:

- Models for co-created, industry-validated curricula addressing current and emerging skill gaps.
- Joint research laboratory frameworks and co-innovation arrangements with private sector partners.
- Structured internship and apprenticeship pipeline design and impact assessment.
- Measuring graduate employability outcomes linked to industry engagement programmes.
- Policy and regulatory frameworks enabling deeper industry-university collaboration in Kenya.

3.11: Smart Agriculture: IoT-Enabled Precision Farming

Applying emerging technologies to sustainable agricultural productivity and food security.

Priority Research Areas:

- IoT sensor networks and data platforms for precision water, soil, and energy management.
- Machine learning and remote sensing applications in smallholder and university farm contexts.
- Cost-benefit analysis of precision agriculture technologies for smallholder applicability.
- Climate adaptation strategies through data-driven agronomy and decision-support systems.
- Integration of smart agriculture modules into university agribusiness and demonstration farms.

3.12: Student Academic Performance Versus Living Environment

Examining the interplay between students' residential conditions and their academic outcomes.

Priority Research Areas:

- Quantitative and qualitative analysis of housing conditions, distance from campus, and GPA outcomes.
- Mental health, nutrition, and physical safety as mediators of academic performance.
- Comparative study of on-campus versus off-campus student academic and social integration.
- Socioeconomic status, peer networks, and environmental stressors as determinants of completion.
- Policy recommendations for student residential support and welfare programme design.

4.DURATION

The project should be carried out within a period of one (1) year. The funding of the project will be released based on regular satisfactory progress reports and proper accounting. Applicants are required to submit a detailed workplan indicating a clear framework for monitoring, evaluation and reporting.

5.BUDGET

The Grant seeks to support up to a maximum of Kenya shillings seven hundred thousand (Kshs. **700,000**). Note that the Grant does not support purchase of electronic equipment such as laptops, mobile phones, cameras, printers and related accessories. Besides, it cannot be used to support a research project in progress or a non-research related proposal such as income generating and production activities.

6. ELIGIBILITY

a) The applicant must be a full-time Machakos University academic staff.
b) The proposals must demonstrate clear strategies towards solving various societal problems.
c) The objectives of the proposals must be in line with national priorities as envisaged in the current National Development Agenda, Vision 2030, the National Science, Technology and Innovation Strategy as well as the Sustainable Development Goals and the Science, Technology and Innovation Strategy for Africa (STISA 2024).
d) The applicant(s) should have relevant qualifications and experience in the subject area of the proposed project.
e) Staff members who are Principal Investigators (PIs) in on-going Machakos University funded research projects are not eligible.
f) Applications must be received on or before the deadline.
g) Proposals MUST embrace a multi-disciplinary approach; a proposal submitted by only one applicant will not be considered.
h) A Tutorial Fellow who is yet to start PhD research work is NOT eligible as Principal Investigator.

Applicants should email a soft copy to ***admin.director-ritt@mksu.ac.ke*** and submit a hard copy to the office of the Director, Research, Innovation and Technology Transfer **on or before 30th May,2026**.

You may also visit the MksU website at www.mksu.ac.ke for more information and Guidelines for Proposal Writing

For any other information or inquiries please contact

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