

Project partners

In order to be considered for funding, projects must include at least one UK academic partner. The Academy will support with identifying UK/African partners by updating the spreadsheet below as requests come in and uploading to the 'How to apply' page of the website. Please note that UK industry partners are also welcome. If you would like further information and contact details for any of the partners listed below, please email africaengineers@raeng.org.uk

African Partners seeking UK Partners

	Organisation	Website	Project idea/summary	UK expertise required
1	Vaal University of Technology	https://www.vut.ac.za/	In South Africa, there is a significant initiative underway focusing on hydrogen and clean energy, which has received recent government approval. Vaal University of Technology are seeking a UK partner to establish a centre specialising in Fuel Cell and Hydrogen technologies to support the local industry. This centre will be established through some local funds. Our region not only hosts a substantial heavy mobility sector but is also surrounded by numerous energy-intensive industries, with	Energy (Fuel cell/hydrogen/renewable)

			steel manufacturing being a prominent player.	
2	Namibia University of Science and Technology, Namibia Institute of Space Technology (looking to partner as spoke university)	https://www.nust.na/	<p>Namibia, as a non-spacefaring nation, recognizes the growing significance of space engineering in the global context. In our pursuit of excellence in this field, we are eager to collaborate with esteemed UK universities renowned for their expertise in Space Engineering. We believe that partnering with these institutions can provide invaluable guidance and insight in shaping a cutting-edge Masters curriculum in Space Engineering.</p> <p>Our vision is to establish a world-class educational programme that equips our students with the knowledge and skills required to contribute to the burgeoning space industry. By aligning with UK universities with a rich history of space-related research and development, we aim to harness their experience and leverage their academic resources to create a curriculum that meets international standards.</p> <p>This collaboration is not only about academic exchange but also about fostering a long-term partnership in</p>	Space engineering (small satellites)

			<p>space education. By working together, we hope to bridge the gap in space engineering knowledge within Namibia and cultivate a new generation of experts who can drive our nation's space endeavours forward.</p> <p>We are eager to engage in fruitful discussions, share best practices, and explore collaborative opportunities that will benefit both our institutions. We firmly believe that this partnership will not only elevate the quality of education in Namibia but also contribute to the broader field of space engineering, creating opportunities for groundbreaking research and innovation.</p> <p>In conclusion, Namibia are seeking a UK partner in Space Engineering to develop a Masters curriculum that not only addresses our nation's needs but also aligns with international standards. We are excited about the potential of this collaboration and the positive impact it can have on our nation's space aspirations.</p>	
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3	The Technical University of Kenya	https://tukenya.ac.ke/	<p>The Technical University of Kenya (TUK) situated in Nairobi City are seeking a UK partner to collaborate under the HEPSSA programme to build capacity for Kenyan engineering students and staff in the areas of Mechanical, Electrical and Chemical Engineering.</p> <p>Under the project, TUK seeks to develop a virtual space for students and staff from various institution in sub-Saharan Africa to engage in collaborative projects to solve industry-based challenges. In addition, TUK intends to deliver a master's level curriculum in financial Engineering to train industry workforce or graduates with a first degree in a relevant area the engineering, management and finance knowledge necessary to work on engineering projects and in business and finance. It is envisaged that the virtual design hub will transcend geographical boundaries, allow students, faculty, and experts from around the world to collaborate and share knowledge for the benefit of humanity.</p>	Curriculum development and review, joint project supervision, external moderation (benchmarking) of academic processes in the areas of Mechanical, Electrical and Chemical Engineering.
4	Mbarara University of	https://www.must.ac.ug/	Catalytic conversion of greenhouse gases (GHGs), such as methane and carbon dioxide (CO ₂), into valuable	Researchers with experience in microbiology, chemical

	Science and Technology		<p>carbon nanotubes (CNTs) presents an opportunity for addressing both environmental aspects and the need for advanced novel nanomaterials. This approach seeks to mitigate the impact of GHG emissions on the climate while concurrently generating high-performance nanomaterials with numerous applications specifically in medical applications.</p> <p>By harnessing the power of catalysis, Mbarara University aims to transform CO₂, a major contributor to global warming, into a resourceful feedstock for the synthesis of CNTs, which possess exceptional structural properties. This process involves chemical reactions catalyzed by specific substances that not only drive the transformation but also dictate the properties of the resulting CNTs. Increasing studies of the antibacterial activity of CNT have prompted tremendous interest in the utilization of carbon-based nanostructured material as an alternative to currently existing antibiotics.</p> <p>Under this project, MUST are seeking a UK partner to study the</p>	engineering, materials science and nanotechnology.
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			<p>relatively new bactericidal aspects of nanomaterial, to develop a deeper understanding of the various physicochemical characteristics and antimicrobial nature of CNT that is still needed. MUST aims to apply the obtained CNT to work as an antimicrobial added to paints as an additive and used in various health centre walls and furniture to overcome microorganisms.</p>	
5	International Institute for Water and Environmental Engineering (2iE)	https://www.2ie-edu.org	<p>In the face of escalating climate change impacts, water resource management in the vulnerable Sahel region grapples with critical challenges like water scarcity, recurrent droughts, and over-extraction of groundwater. To address these issues, cross-sector collaboration is imperative, necessitating cutting-edge methods to adapt to climate change. Capacity-building and engaging local stakeholders are crucial for developing effective, region-specific solutions.</p> <p>The International Institute for Water and Environmental Engineering are seeking a UK partner for their proposed project "Machine Learning Assisted Groundwater Information for Climate Change Adaptation</p>	<p>Looking for a UK partner knowledgeable in Artificial Intelligence (AI) and Machine Learning (ML) modelling methods, online platforms, preferably with a background on their application to groundwater modelling.</p>

			<p>(MAGICCA)." This project utilizes Artificial Intelligence (AI) and Machine Learning (ML) methods to enable monitoring and forecasting of groundwater levels in the semi-arid landscapes of the West-African Sahel. MAGICCA is a commitment to uniting stakeholders, including researchers, water authorities and AI-focused businesses and start-ups, in revolutionizing water resource management. Our proposal leverages advanced AI and ML methodologies to establish a real-time monitoring system for groundwater levels, acting as both a data provider and a predictive tool for proactive decision-making. The hub-and-spoke organizational model, centred around 2iE Institute in Burkina Faso, alongside partner universities in Ghana, Senegal, UK and an industry partner in Burkina Faso, promotes collaboration and synergy, enriching the project with diverse perspectives. Collaboration with the industry partner underscores our dedication to capacity-building and knowledge exchange, bridging the gap between research and practical application. Through training programs and workshops, we aim to</p>	
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			empower university researchers and business practitioners, ensuring the project's long-term sustainability and fostering practical solutions to water management challenges.	
6	University of Liberia	https://www.ul.edu.lr	<p>The University of Liberia are seeking a UK partner with expertise in the areas of innovation and entrepreneurship initiatives and curriculum review and development.</p> <p>The proposed project has five key areas: curriculum review to enhance and modernise the current curricula including competency mapping and incorporating ethical and social impact. A joint research project is anticipated, to create interdisciplinary research teams focusing on cybersecurity threat analysis, blockchain, big data, machine learning and AI projects to solve big engineering challenges. Training and workshops are envisioned focusing on software engineering, cybersecurity, a data science bootcamp, and network engineering certificate programmes. Innovation and entrepreneurship initiatives include a tech incubator, hackathon and challenges, entrepreneurship course and</p>	

			<p>industry partnership collaboration. Finally a bilateral academia and industry secondment will bridge the gap between theoretical research and practical applications to facilitate technology transfer and innovation and develop interdisciplinary perspectives to enhance research capacity and impact.</p>	
7	Masinde Muliro University of Science & Technology	https://engineering.mmust.ac.ke/	<p>Engineering training in sub-Saharan Africa is faced with many challenges including inadequate facilities, limited industry-academia linkages, poor gender parity, static curricula design (with regards to global dynamism). Societal service delivery pressures trickle to the academia where more graduates increasingly need to be trained to keep up with industry demand. Universities focus on maintaining quality and improve knowledge delivery despite these challenges. Kenya is grappling with rapid growth of urban and peri-urban areas (previously rural areas) following approximately 10 years of the Devolution of Kenya Government. Specifically, these changes affect us as a training institution in rural community with several failing sugar industries.</p>	

			<p>Masinde Muliro University of Science & Technology are seeking a UK partner to assist in sharing experience of the state-of-engineering training at University through a peer-assessment relationship of engineering lecturers training effectiveness, equipment availability and university-industry partnerships.</p> <p>To address part of this concerns, firstly, we need to benchmark our engineering training needs and capacity to meet current demands. Secondly, we will focus on stimulating engineering lecturer's knowledge through industry-based attachments. This will increase transition of lecturers to Professional Practising engineering status. The focus on the students will be twofold, for high school students, we plan for mentorship outreach to high schools to inspire the youth, mainly girls, to choose to study engineering. For the current engineering students, we shall focus on entrepreneurial training to face the job market, this will be done through possible edits to the curricula as well as seminars and</p>	
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			talks, as well as open sessions with industry-based practitioners.	
8	Amoud University	https://amouduniversity.org/	<p>Amoud University are seeking a UK universities with technical and engineering expertise and strong faculties in engineering, technology, and relevant STEM fields.</p> <p>The proposed project is focusing on household sand filtration. The project idea is to design and implement a cost-effective household sand filtration system for improving water quality in communities with limited access to clean and safe drinking water. This innovative solution aims to address the pressing issue of waterborne diseases and contaminants that affect many underserved regions worldwide.</p> <p>The household sand filtration system will consist of a simple and affordable setup, utilizing locally sourced materials like sand, gravel, and a container for filtration. The water is poured into the container, passing through layers of sand and gravel, effectively removing physical impurities and potentially harmful microorganisms. Additionally, the system can be enhanced with an</p>	

			<p>optional activated carbon layer to remove chemical contaminants.</p> <p>This project seeks to empower communities of people living in rural areas around Borama, by providing them with the knowledge and tools to assemble and maintain these filters independently. Training and educational programs will be an integral part of the project, ensuring that users can manage and troubleshoot their filtration systems.</p> <p>By implementing household sand filtration systems, this project aims to reduce the prevalence of waterborne diseases, improve overall health, and promote a sustainable solution for clean water access. The long-term goal is to create a scalable and replicable model for addressing water quality issues in various regions, contributing to better health and well-being for communities in need.</p>	
9	University of Lunsar	https://www.universityoflunsar.edu.sl	The University of Lunsar in Sierra Leone are looking to partner with a UK institution with expertise in renewable energy system and design.	

			<p>The proposed project aims to introduce and promote solar drying techniques for fishes in coastal communities to enhance post-harvest handling practices, improve income generation, and foster sustainable fisheries. By utilizing solar energy to preserve fish, this project ensures longer shelf life, reduced spoilage, increased market value, and improved economic opportunities for fishermen and fisherwomen.</p> <p>With this project, we seek to address the challenges of post-harvest losses, limited market access, and low income that have traditionally hindered the economic growth and sustainability of fishing communities. By adopting solar drying technologies, we can mitigate these challenges and provide a viable and environmentally friendly solution that promotes sustainable fisheries practices, value addition, and improved livelihoods.</p>	
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UK Partners seeking African Partners

	Organisation	Website	Expertise
1	University of the West of England	https://www.uwe.ac.uk/	<p>University of the West of England (UWE), Bristol, UK has an active research community, which makes a significant contribution to advances in industry, commerce, health, and technology, both nationally and internationally. As well as making a major contribution to the social and economic development of Bristol and the region, the University focuses on partnerships and links with major employers providing opportunities for our students to get real world experience and develop the skills they need to succeed in their chosen career.</p> <p>UWE Bristol's Transforming Futures Research Strategy 2020-2030 will prioritise and grow internationally excellent and world-leading research with real-world impact, build on our strengths, prioritise challenge-based research, drive innovation and enterprise, and enhance the student experience. We will focus research around four major themes:</p> <ul style="list-style-type: none"> • Digital futures, spanning from Robotics to AI • Health and wellbeing work in biosciences, wellness, mental health, and ageing • Creative industries and technologies encompassing digital technologies and design • Sustainability and climate change resilience research in food security, future mobility and other pertinent topics relating to sustainability. <p>We are happy to collaborate in any of the above areas.</p>
2	Robert Gordon University	https://www.rgu.ac.uk/	<p>Expertise in process optimisation for material conversion processes, CO2 Life Cycle Impact Assessment, Life Cycle Costing and Asset Management.</p> <p>Robert Gordon University seeks to develop skills in environmental sustainability assessment and CO2 Life Cycle Impact Assessment (LCIA) and Life Cycle Costing (LCC). We would like to use a case study based on continuous reductive technology process for tyre conversion to commercial</p>

			products. We can then develop skills that will enable transfer of the knowledge to other processes that are relevant to partner organisations' countries.
3	Liverpool John Moores University	https://www.ljmu.ac.uk/	<p>Global demand for affordable housing is on the rise predominantly due to rapid urbanization, persistent economic challenges, high unemployment rates, poverty, and the effect of climate change. Unquestionably there is a disruption in affordable housing delivery. This can be addressed with the adoption of innovation that can potentially improve construction speed and quality, satisfy sustainability requirement, and reduce waste.</p> <p>Liverpool John Moores University propose a collaboration seeking to investigate, innovate and create a digitalisation pathways for more affordable housing construction in sub Saharan Africa. Cloud-Based Building Information Modelling, 3D-Printing construction and Modular Construction are widely recognised technologies, that can enhance, the rate at which affordable housing can be delivered. Training and associated costs, along scepticism from industry professionals suggest that further research can be undertaken to investigate the impact of innovation and digitisation in the increase of construction delivery. The project is proposing a triangulation of activities to introduce civil engineering and build environment graduates to innovation and digitation methods, which enhance engineering capacity in sub-Saharan Africa by improving the knowledge, skills and employability of African engineering graduates. Aims to build on the research and innovation capacity of higher education institutions in sub-Saharan Africa to improve the knowledge of engineering undergraduate students about self-build modern technologies and to stimulate ties with industry sector to increase the scale of impact in the housing delivery .</p>
4	Majico (looking to partner as additional UK partner)	https://www.majico.org/	<p>Majico are seeking an African partner with interest in water, sustainability, or engineering.</p> <p>Majico are a not-for-profit social enterprise founded by a team of materials scientists from The University of Cambridge. Over 3 years of work in East</p>

			<p>Africa, we have developed a novel sun-powered water kiosk that stores, purifies, and dispenses clean water. The solution dramatically reduces the cost of clean water and the plastic waste associated with bottled water practices. We are looking for African partners interested in a project in which our kiosks are used as a model to teach engineering and manufacturing to students through an impact pilot programme.</p>
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