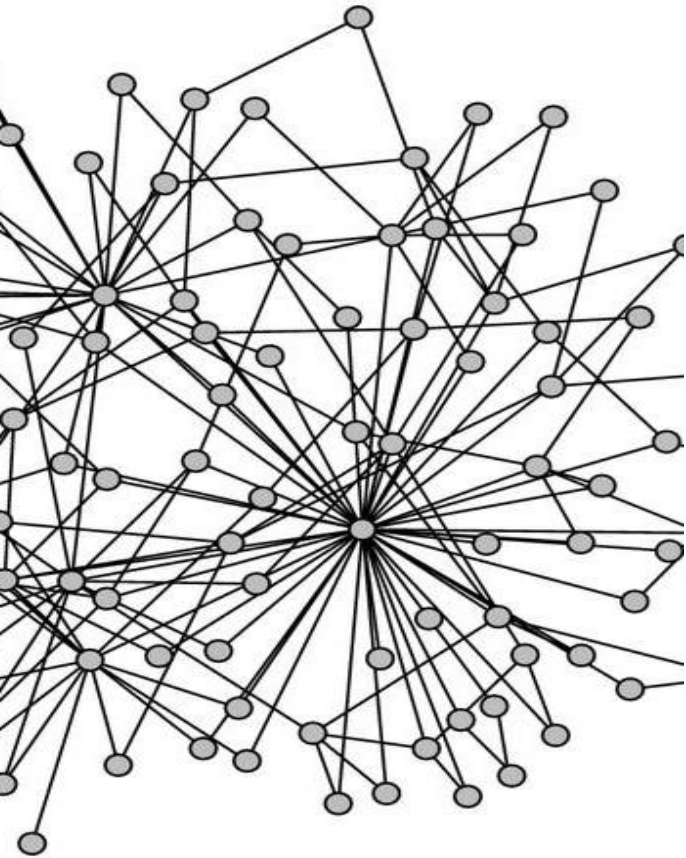




African Biomedical Engineering Consortium

Innovation through Education

**Promoting and sharing excellence in
Biomedical Engineering to improve the health
and wealth of Africa.**



Dr Atwine Daniel, (PhD, Mphil, MPH, MD)

Chair and Co-Founder, ABEC

ED, Soar Research Foundation and SRF Research and Training Centres

www.abec-africa.org



Who We Are

- The **African Biomedical Engineering Consortium (ABEC)** is a pan-African platform dedicated to strengthening healthcare systems across Africa through Biomedical Engineering (BME), innovation, research, and entrepreneurship.
- **Africa's healthcare systems face growing pressure** because of rising populations, increasing disease burdens, limited resources, and fragile infrastructure.
- **ABEC was created in response to a clear and urgent need:** Africa must build its own capacity to design, manage, maintain, and innovate medical technologies that truly fit local realities.
- **Biomedical Engineering (BME) offers powerful solutions:**
 - ✓ Locally designed medical technologies
 - ✓ Affordable healthcare innovations
 - ✓ Stronger hospital systems
 - ✓ Skilled technical human capital
 - ✓ Health-driven economic growth



How we respond

- **ABEC exists to build the people, systems, and partnerships that make this transformation possible.**
- We bring together universities, innovators, researchers, industries, entrepreneurs, governments, funders, and development partners to collaboratively build Africa's biomedical engineering ecosystem by Africans and well-wishers, for Africa.



Our Story

- **Inspired and supported by the United Nations Economic Commission for Africa (UNECA)**
- **Established during the first Innovators' Summer School held in Uganda in 2012** under the visionary leadership of Dr. Victor Konde and Patronage of Prof Arti Ahluwalia from University of Pisa who worked to replicate and contextualize her Euro-Asia BME promotion experience into the African context.
- **From a bold idea to strengthen biomedical engineering education and innovation to now a legally incorporated consortium** (2020, Reg No: 80020002433980, Uganda) with a continental footprint.
- **Core leadership**
 - Founding Directors:** Dr Atwine Daniel (Chair), Dr June Madete & Dr Philippa Makobore
 - Patron:** Prof Arti Ahluwalia
 - Vision-Bearer & Advisory:** Dr Victor Konde, UNECA



Vision, Mission and Goal

Our Vision

To promote and share excellence in Biomedical Engineering for improving the health and wealth of Africa through a strong regional academic and technological platform.

Our Mission

To build Biomedical Engineering expertise that improves healthcare systems across Africa.

Our Goal

To lay strong foundations of human capital in Africa with expertise in Biomedical Engineering across academia, research, industry, and innovation through modern and traditional learning platforms and the establishment of Biomedical Engineering programs in higher education.



What We Do



ABEC's work is organized under five strategic themes:



1 Innovations & Entrepreneurship

Nurture innovators who design, prototype, and commercialize context-appropriate medical technologies. Through annual Innovators' Summer Schools and design competitions, we empower students and researchers with entrepreneurial skills, mentorship, and industry exposure.



2 Biomedical Education

We support the development, harmonization, and quality assurance of Biomedical Engineering programs across African universities. ABEC developed one of Africa's first generic BME curricula in 2011 — a foundational framework that guided multiple universities in establishing BME programs.



3 Research & Dissemination

We promote high-impact research and knowledge sharing through publications, collaborations, and platforms that connect researchers across borders.



4 Membership & Alumni Network

We build a vibrant continental network of professionals, students, institutions, and partners committed to advancing biomedical engineering in Africa.



5 Operations & Administrative Support

We coordinate, mobilize resources, and ensure strategic growth and sustainability of the consortium.



What Makes ABEC Unique

ABEC is more than a network — it is a movement.

For over a decade, we have:

- Pioneered the establishment of Biomedical Engineering programs in African universities.
- Built a continental network of innovators, faculty, and institutions.
- Promoted harmonized BME education across multiple countries.
- Facilitated staff exchanges, academic mobility, and research collaborations.
- Created platforms where engineering meets real healthcare challenges. (Summer schools and design competition)
- Supported the emergence of strong innovation ecosystems within universities.
- Maintained strong collaboration with UNECA and global partners.

ABEC serves as a **multidisciplinary focal point** bridging healthcare needs, engineering excellence, entrepreneurship, and policy engagement.

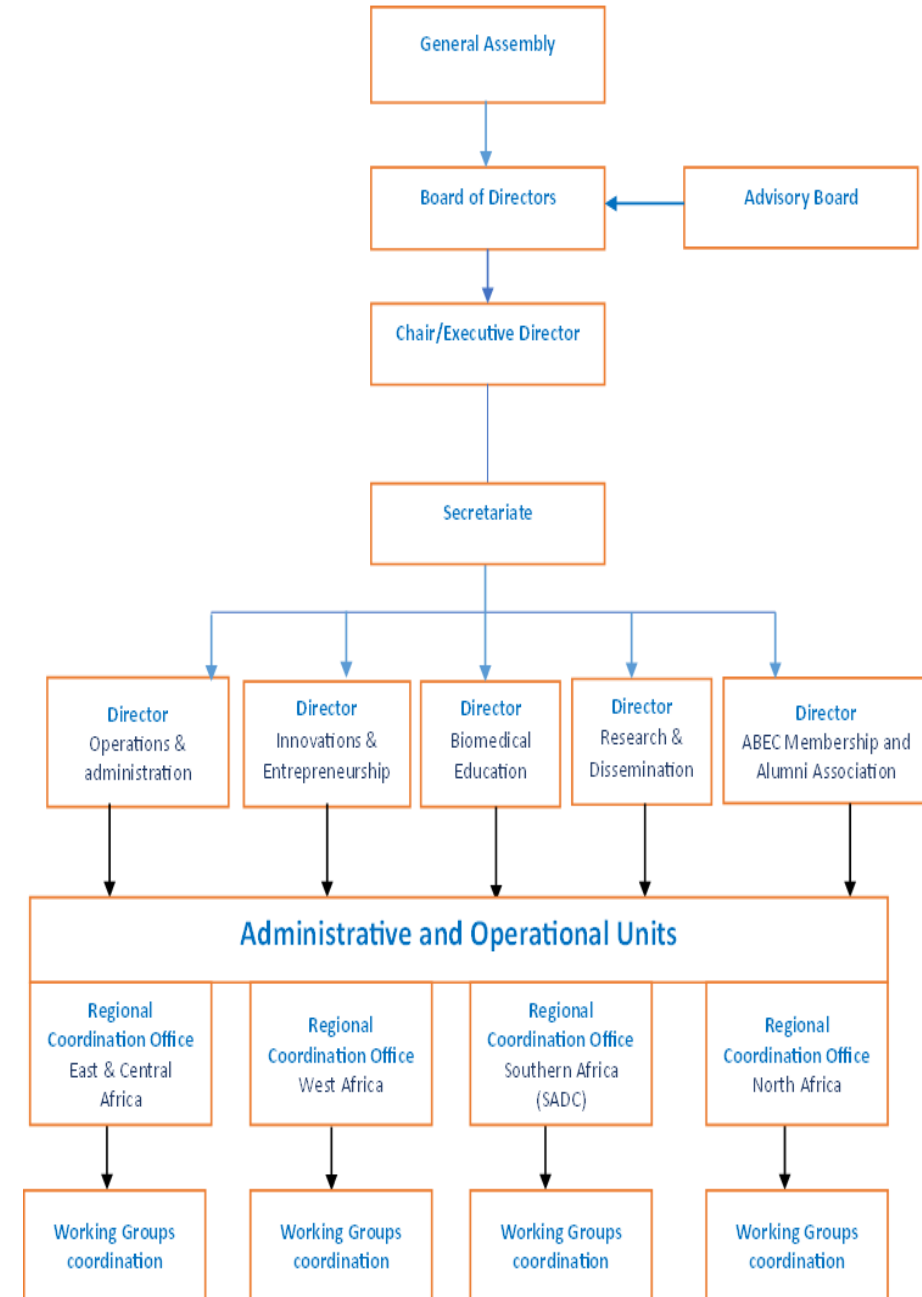


Governance & Leadership

ABEC operates through:

- A General Assembly (highest governing body)
- Board of Directors
- Secretariat and Divisional Directors
- Regional and Country Coordination Offices
- Advisory Board (including UNECA representation)

This structure ensures transparency, accountability, and strategic continental alignment.



Our Impact

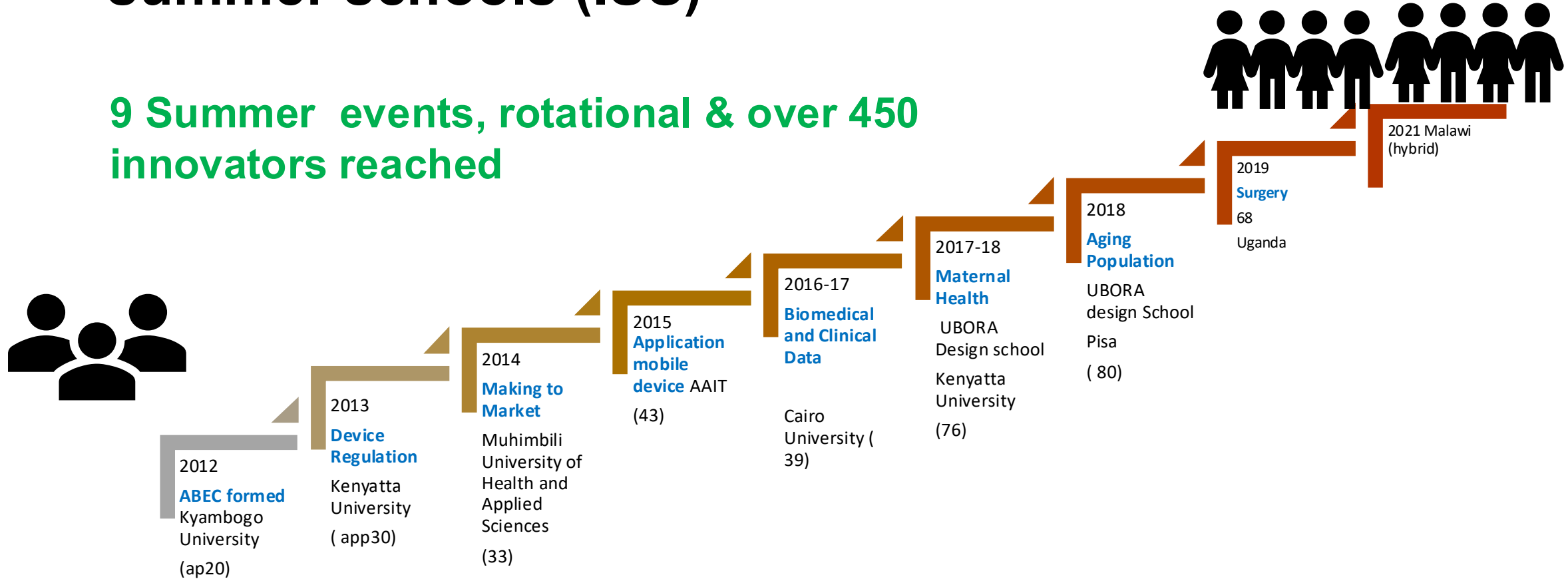


Impacts

- Developed Africa's early generic BME curriculum (2011).
- Supported establishment of BME programs in universities such as:
 - Mbarara University of Science and Technology (Uganda)
 - Kenyatta University (Kenya)
 - Addis Ababa University (Ethiopia)
- Organized annual Innovators' Summer Schools rotating across African countries (10 schools).

Need-driven Design competitions and Innovators summer schools (ISS)

9 Summer events, rotational & over 450 innovators reached



Events majorly supported by UNECA & its partners

ISS Model: Blending needs-based Innovation, training, mentorship, Rewards and Fun/Art/adventure





Contribution to BME knowledge

Biomedical Engineering for Africa

Edited by Tania S. Douglas



1. Douglas T. S., Haile D.A., Atwine D., Karanja Y., Madete J., Osuntoki A., Rushdi M., Ahluwalia A. (2017) **Building needs-based healthcare technology competencies across Africa.** *South African Journal of Science* 113 (7-8): 5-6.
2. Ahluwalia A., Atwine D., De Maria C., Ibingira C., Kipkorir E., Kiros F., Madete J., Mazzei D., Molyneux E., Moonga K. (2015). **Open biomedical engineering education in Africa.** *37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC).* Pages 3687-3690
3. Atwine D., Karanja Y., Wanjiku A., Arti A., De Maria C., Assefa D., Konde V., Khundi E., Makobore P.N., Moshi M., Nzomo M. (2020). **Nurturing next-generation biomedical engineers in Africa: The impact of Innovators' Summer Schools.** *Global Health* 3(2):4
4. Atwine D. (2019). **The Case for Biomedical Engineers in African Hospitals: A Clinician's Point of View.** In Biomedical engineering for Africa. T.S. Douglas, Ed. Cape Town. DOI: <https://doi.org/10.15641/0-7992-2544-0>



ABEC Spin-off consortiums/projects

UBORA Consortium



Open Biomedical Engineering
e-Platform for Innovation
through Education

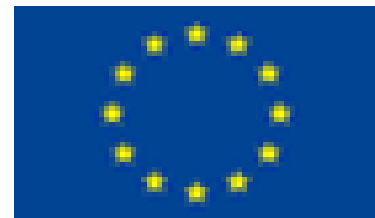
UBORA is an **platform for open -source co-design of new solutions** to face the current and future global healthcare challenges, by exploiting networking, knowledge on rapid prototyping of new ideas and sharing of safety criteria and performance data.

funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 731053".

ABEM: African Biomedical Engineering Mobility project (Consortium)



- ❑ 5-year project (2016-2021)
- ❑ **Vision:** Building Biomedical Engineering expertise to improve healthcare in Africa.
- ❑ **Mission:** Building human and institutional capacity in Africa for needs-based health technology research and development thereby creating a platform for sustained cooperation across Africa in research and university teaching in Biomedical Engineering.



Funded by the Intra-Africa Academic Mobility Scheme of the European Union



Proposed Areas for Funding Support

ABEC seeks strategic partnerships and funding to:

- Establish and strengthen BME programs in African universities
- Develop regional centers of excellence
- Implementation of Innovators' design competitions and supplemental education schools (summer schools)
- Support innovation incubators and biomedical startup acceleration
- Fund training-of-trainers programs and scholarships
- Develop harmonized continental BME curricula frameworks
- Research implementation, translation and commercialization platforms
- Build digital learning platforms and regional collaboration networks
- Medical device research regulation harmonization



Expected Impact

With scaled support, ABEC will:

1. Increase the number and quality of trained Biomedical Engineers in Africa
2. Reduce dependency on imported medical technologies
3. Strengthen local innovation ecosystems
4. Improve health service delivery outcomes
5. Create jobs and stimulate health-tech entrepreneurship
6. Contribute to Africa's health security and economic growth



Current membership

ABEC has:

- **Institutions:** 19 Universities, 1 European Partner University, 1 industrial partner, 1 Private Research & Innovation Contract Research Organization, 1 Strategic Partner and 1 Research organization
- **Members across countries:** in Egypt (1), Ethiopia (3), Kenya (3), Malawi (2), Nigeria (2), South Africa (3), Uganda (6), the United Republic of Tanzania (2) and Zambia (1).



19 member Universities

1. Addis Ababa University (Ethiopia)
2. Addis Ababa Institute of Technology (Ethiopia)
3. Cairo University (Egypt)
4. Dar Es Salaam Institute of Technology (Tanzania)
5. Jimma University (Ethiopia)
6. Kenyatta University (Kenya)
7. Kyambogo University (Uganda)
8. Makerere University (Uganda)
9. Malawi University of Science and Technology (Malawi)
10. Mbarara University of Science and Technology (Uganda)
11. Muhimbili University of Health and Allied Sciences (Tanzania)
12. Stellenbosch University
13. Technical University of Mombasa (Kenya)
14. University of Cape Town (South Africa)
15. University of Ibadan (Nigeria)
16. University of Eldoret (Kenya)
17. University of Lagos (Nigeria)
18. University of Malawi, The Polytechnic
19. University of Gondar, Ethiopia



Other partner institutions

ABEC European Partner: University of Pisa (Italy)

ABEC Industrial Partner: Uganda Industrial Research Institute (Uganda)

ABEC Private Research & Innovation Contract Research Organization: Soar
Research Foundation Limited

ABEC Research Organization: SRF Research and Training Centres

ABEC Strategic Partner: United Nations Economic Commission for Africa
(UNECA)



Who can join the ABEC Community

ABEC membership is open to:

1. Universities and academic departments
 2. Research institutions
 3. Companies and industries
 4. Entrepreneurs and innovators
 5. Students
 6. Philanthropists and funding agencies
 7. Governments and multilateral bodies
 8. Non-African institutions aligned with our mission
- We welcome both individuals and institutions who believe in strengthening healthcare through engineering excellence.



Membership Categories

- **Core Members** – Founding members and governance leaders.
- **Ordinary Members** – Voting members contributing to ABEC’s direction.
- **Associate Members** – Advisory participants.
- **Honorary Members** – Distinguished leaders recognized for outstanding contributions.
- **Institutional Members** – Universities, industries, research centers, and organizations.



Membership Fees

Students

Membership: Free until graduation.

Individuals (Non-students)

Life-time membership: **USD 300**

Regular membership yearly subscription: **USD 5**

Institutions

Life-time membership: **USD 600**

Or

Annual subscription: **USD 100**

Members receive an electronic certificate upon registration.



Benefits of Becoming an ABEC Member

1. Visibility and publicity across continental platforms
2. Career and professional development opportunities
3. Access to vast professional networks
4. Employment and collaboration opportunities
5. Reduced conference registration fees
6. Access to select ABEC resources
7. Easier recognition by funders and partners
8. Opportunities to advertise products, services, and innovations
9. Exposure to multi-country, multidisciplinary collaborations
10. Quarterly newsletters and updates
11. Membership certificate

Most importantly, you become part of a growing movement shaping the future of healthcare technology in Africa.



How Members Participate

- ABEC is participatory and member-driven.
- Members:
 - Engage in working groups under different divisions.
 - Contribute to strategic planning through the General Assembly.
 - Share funding and partnership opportunities.
 - Participate in country chapters and regional activities.
 - Receive quarterly updates and impact reports.



Our invitation to you

- Africa's healthcare future depends on locally driven innovation, strong academic programs, and collaborative ecosystems.
- Biomedical Engineering is not just a technical discipline, it is a strategic driver of health system resilience, innovation, and economic transformation.
- Through African-led collaboration, ABEC provides a scalable platform to build sustainable biomedical capacity across the continent.
- **We invite development partners, foundations, governments, and industry leaders to join us in transforming African healthcare through engineering excellence.**
- **ABEC invites you as a student, professional, institution, innovator, or partner to join us in building a stronger biomedical engineering community that improves health outcomes and contributes to Africa's economic transformation.**
- Together, we can design, build, and sustain healthcare solutions made in Africa, for Africa.



Where to find us

- ABEC operates from its coordination offices in **Mbarara City, Uganda,**

Contact details

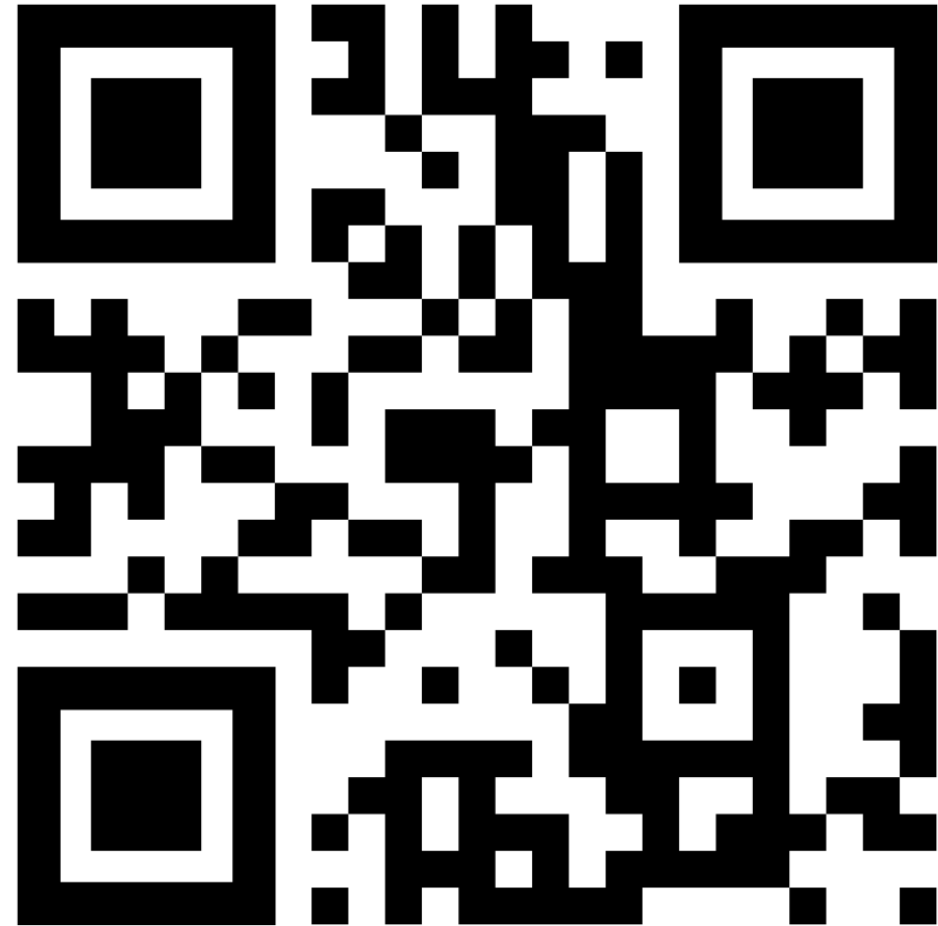
African Biomedical Engineering Consortium (ABEC)
Uganda Office
Mbaguta Cell, Ruharo
Mbarara City, Uganda
P.O. Box 1807, Mbarara

Website: www.abec-africa.org (Under re-development)

Alternative webpage: <https://soarresearch.org/abec>

Email: abec.uganda@gmail.com Tel: +256-759542376

Scan for more about ABEC





ABEC Facebook page





How to join ABEC movement

1. First, complete the application form: click link....
2. After application, information on payment of Membership and Annual subscription (if relevant) will be shared by email.
3. Upon confirmation of payment, an electronic membership certificate will be shared by email.

Join our social media platform to join our vibrant community of innovation lovers

Facebook page:

<https://www.facebook.com/abec.africa>

LinkedIn:

<https://www.linkedin.com/company/abec-african-biomedical-engineering-consortium/?viewAsMember=true>

Website: Under maintenance

ABEC LinkedIn





Scan Me To Join ABEC

