

ACCRA TECHNICAL UNIVERSITY

RESEARCH REPORT

2022-2023

VOLUME 2



ACCRA TECHNICAL UNIVERSITY (ATU)
DIRECTORATE OF RESEARCH, INNOVATION, PUBLICATION AND TECHNOLOGY TRANSFER (DRIPTT)

ATU RESEARCH REPORT (2022-2023)

VOLUME 2, 2023

Contents

04 FOREWORD BY VICE CHANCELLOR

06 MESSAGE FROM DIRECTOR OF DRIPTT

08 BRIEF HISTORY OF ACCRA TECHNICAL UNIVERSITY (ATU)

09 MANDATE, VISION AND MISSION

10 THE JOURNEY SO FAR

13 ACADEMIC LEADERSHIP

16 RESEARCH AFFILIATIONS AND COLLABORATION AT A GLANCE

33 FACULTY RESEARCH PUBLICATION TRENDS (2022-2023)

40 EXTERNAL RESEARCH GRANTS, FUNDING, AND RELATED ACTIVITIES

54 ATU RESEARCH AND INNOVATION FUND (ARIF)

73 APPLIED RESEARCH CONFERENCE

77 FACULTY OF APPLIED SIENCES EXHIBITION

82 FACULTY OF ARTS EXHIBITION SKILLS EXHIBITION

85 ATU SKILLS EXHIBITION

88 RESEARCH VISIBILITY

93 RESEARCH AWARDS AND ACHIEVEMENTS

95 CONFERENCES, SEMINARS AND WORKSHOP ATTENDED BY STAFF

104 INTRODUCTION AND BRIEF BACKGROUND OF DRIPTT

106 STRATEGIC PLAN ACHIEVEMENT AND ACTIVITIES IN DRIPTT



FOREWORD BY
AG VICE-CHANCELLOR

Engr. Prof. Amevi Acakpovi

[PhD ESE, MSc EE, BSc CEE, SMIEEE, VP IEC NC,
Chairman-AFSEC

The second edition of the Accra Technical University (ATU) Research Report (2022–2023) highlights the substantial and varied contributions of our esteemed researchers, scholars, and emerging scientists. This report validates the significant impact that applied research at ATU is making on both individual and collective futures, showcasing the dedicated efforts of ATU researchers in achieving three primary research objectives: excellence, societal relevance, and academic integrity.

The report addresses five critical themes: Agenda 2063 which outlines a vision for transforming Africa into the continent's future powerhouse; Sustainable Development Goals in Ghana (SDG-Ghana, 2017); 2030 UN Sustainable Development Agenda; the goals of Ghana's Centennial National Development Plan (Agenda 2057); and the ATU Strategic Plan (2021–2025). Agenda 2030 envisions a world where all people would enjoy peace and prosperity, aligning with the Sustainable Development Goals. This Research Report clearly demonstrates how Ghana can creatively meet these goals by promoting economic growth, ensuring social inclusion, and protecting the environment.

Furthermore, the Report outlines the unique challenges faced by developing nations and showcases our commitment to conducting practical research that addresses complex societal problems. It also highlights achievements aligned with our mission, vision, and mandate. Our faculty's research, grounded in global trends, adopts an interdisciplinary approach to addressing real-world challenges. Consequently, the report emphasizes solution-driven research projects conducted by collaborative teams, illustrating the increasing importance of multi-stakeholder partnerships and networking in advancing impact-oriented applied research; a key pillar of our Strategic Plan (2021–2025).

ATU has steadfastly committed to leveraging Engineering, Applied Sciences, Applied Arts, Business, Technology, and Innovation for development and the well-being of the environment, society, and individuals. This commitment is realized through the enhancement of research strengths and the active development of networks and partnerships that maximize societal impact. In line with the Strategic Plan (2021–2025), the Directorate of Research, Innovation, Publication, and Technology Transfer (DRIPTT) has taken a lead role in implementing ATU's research agenda. Additionally, DRIPTT has facilitated the establishment of local, national, and international relationships to foster

interdisciplinary and multi-sectoral collaborations between academia and industry. The profiles in this report highlight the distinct and overlapping areas of knowledge disciplines, detailing collaborations and partnerships between academia and industry in our collective pursuit of socially meaningful research.

Moreover, the ATU Research and Innovation Fund (ARIF), established in 2020, has shown remarkable progress. ARIF's activities underscore ATU's core mission to enhance multidisciplinary, action-based research, contributing to the technical and vocational capacity needed for the development of Ghana and Africa.

The interdependence of industry and academic research is evident in the mission of technical universities. Such collaborations foster comprehensive ecosystems that benefit both the economy and society. The extensive nature of research covered in this report exemplifies this synergistic approach. It is crucial to recognize the diverse roles of research funders, organizations, policymakers, and other stakeholders within this ecosystem. Prioritizing one type of research over another could disrupt this balance. DRIPTT's Research and Development (R&D) programme at ATU aims to advance technology for beneficial commercial products, innovative processes, and new technologies.

A close examination of this Research Report reveals that ATU's scholars, academics, and researchers are making significant strides in applied research across four key impact areas: quality of life, societal well-being, economic and capital development, and knowledge expansion and innovation. On behalf of the University Governing Council and ATU Management, I extend my deepest gratitude and appreciation to all our dedicated researchers and administrators, whose academic endeavors continue to position ATU prominently on the global research map.

> *ATU has steadfastly committed to leveraging Engineering, Applied Sciences, Applied Arts, Business, Technology, and Innovation for development and the well-being of the environment, society, and individuals.*



MESSAGE FROM DIRECTOR OF DRIPTT

Prof. Nana Yaw Asabere
[PhD CST, MSc ICT, BSc CS, MIEEE, MALCS, MIIPGh]

Universities play a vital role in providing evidence-based solutions and innovations on a global scale through their diverse research activities and capacities. As a result, ATU has a special position and responsibility for conducting cutting-edge applied research as a Technical University in Ghana. Over the past two (2) years, there has been noticeable improvement in almost all measures of research impact and excellence. The quantum of national and international research contracts and consulting assignments that have expanded, as well as the productivity and effect of researchers, are indications of improvement and achievement of the objectives of Pillar 2 (Impact-Oriented Research and Innovation) in ATU's Strategic Plan. It has always been my goal as Director of DRIPTT to build on the advancements DRIPTT has made, thus far, since its founding and to expand the scope of ATU's research, innovation, publishing, and technology transfer. As such, it is anticipated that these improvements would establish ATU as a beacon of research excellence throughout Africa and beyond.

Academic research at technical universities is changing in form and substance in recent times . Within the framework of thematically limited fields of study, academic disciplines form the basis of the research ecosystem. Regarding the entire range of applied research, the five ATU faculties exhibit significant diversity of measurable areas of specialized research concentration. Particularly, noteworthy and significant areas of ATU's comparative strength are found in several fields in Engineering, Technology, Humanities and Social Sciences.

In this second edition of the ATU Research Report (2022–2023), its content includes details of the ATU Research and Innovation Fund (ARIF) and external grants, research activities, research awards and achievements, research visibility, and a summary of academic staff members' high-impact publications indexed in Web of Science, Scopus. Unarguably, all nations are currently driven to expand and grow by the creation of new knowledge. Therefore, if research outputs from universities are not strategically directed towards the growth of countries, they may lose their relevance to contribute to national development.

Throughout the period under review, staff members successfully secured financing and research grants from UK, Germany, USA, and Ghana for a total of four (4)

creative projects, either ongoing or completed. Seven (7) ARIF allocations, concentrating on applied research in various domains in Engineering, Technology, Applied Sciences and Applied Arts, were granted by the Vice-Chancellor in 2022 and a further two (2) in 2023. Details of the status of these projects are illustrated in this Report.

In conclusion, by concentrating on research development planning, strategic research communication, advancing Pillar 2 of ATU's Strategic Plan (2021–2025), and attracting international grants, ATU aspires to improve its national and international academic rankings. In order to encourage the adoption and application of research advances at ATU, DRIPTT plans to continue to concentrate on Impact-Oriented Research and Innovation (Pillar 2) and work in conjunction with all ATU employees in the upcoming years.

Long Live Ghana!

Long Live ATU!!

> *Regarding the entire range of applied research, the five ATU faculties exhibit significant diversity of measurable areas of specialized research concentration. Particularly, noteworthy and significant areas of ATU's comparative strength are found in several fields in Engineering, Technology, Humanities and Social Sciences.*



BRIEF HISTORY OF ACCRA TECHNICAL UNIVERSITY ATU

Accra Technical University (ATU), formerly known as Accra Technical Institute, was the first technical university to be established in Ghana. It was originally founded in 1949 as a technical school during the Gold Coast era and put into operation as Accra Technical Institute in 1957 when Ghana gained independence. Under President Dr. Kwame Nkrumah's guidance, the Institute changed its name to Accra Polytechnic in 1963 and became a major force behind the nation's industrialization drive. Following the enactment of PNDC Law 321 of 1992 the Polytechnic was elevated to the status of a tertiary institution in 1992/1993.

The elevation stipulated that the University would have the authority to provide Higher National Diplomas (HNDs), through the National Board for Professional and Technical Examination (NABPTEX), under the Higher Education Council (HEC). After PNDC Law 321 was repealed in 2007 and the Polytechnic Act (Act 745) came into effect, polytechnics gained the authority to grant Higher National Diplomas (HND), Diplomas, Certificates, and other degrees they may deem fit; all of which were to be accredited by the National Accreditation Board (NAB).

Accra Polytechnic was, thus, renamed Accra Technical University and granted Technical University status by the Technical University Act, 2016, (Act 922) along with nine (9) other Polytechnics. The elevation was intended to improve technical education with a focus on creating highly skilled graduates who were shaped in professionalism and excellence in a variety of technical programmes, both in theory and in practice. The university now has sixteen (16) departments spread across five faculties: Faculty of Engineering, Faculty of Built Environment, Faculty of Applied Sciences, Faculty of Applied Arts, and Faculty of Business.

MANDATE, VISION, MISSION, CORPORATE GOVERNANCE, SHARED VALUES AND ACADEMIC PHILOSPHY OF ATU

Mandate

By the provisions of the Technical University Act 2016 (Act 922), as amended, ATU is mandated to provide higher education in engineering, science and technology-based disciplines, technical and vocational education and training in applied arts and related disciplines in accordance with the following principles:

a. Higher education shall be made equally accessible to all persons suitably qualified and capable of benefiting from education and training offered at a technical university;

b. Programmes of study shall take into consideration the multiplicity of scientific theories and methodologies;

c. Use competency-based and practice-oriented approach in teaching, organization and delivery of courses;

d. Develop strong linkages and collaboration with relevant industries, businesses, professional bodies and technical experts in the delivery of programmes;

e. Offer programmes and courses within the mandate of a technical university; and

f. Provide opportunities for skills development applied research and publication of research findings.

Our Vision

To be recognized as the top Technical University in Ghana, with strong regional influence.

Our Mission

To advance technical knowledge by creating a conducive environment for applied research, quality teaching and competency-based training, with a high impact on industry and business creation.

Corporate Governance

The University's governing body with ultimate responsibility for the affairs of the University, is the Governing Council. This is done in collaboration with the Management Board, the Academic Board, and other departments, units and committees. The governance structure of the University is enshrined in its Statutes (which stems from the Technical University Act) from which Governing Council and aforementioned departments and committees derive their powers.

Shared Values

Integrity, Creativity and Excellence (ICE)

Philosophy

Every individual has a natural inclination towards learning and the ability to develop competency in at least one skill that would contribute to the development of the individual and society. We believe in Education-for-work through the acquisition of relevant skills and competencies in ICT, Leadership and Entrepreneurship for the world of work.



2017: DEVELOPMENT AND ESTABLISHMENT OF MPEHUASEM CAMPUS (SECOND CAMPUS)

Following its inauguration by President Nana Akufo-Addo on December 6, 2018, Management of ATU outdoored a new campus established at Mpehuasem in the Nsawam District of the Eastern Region. The opportunity presented itself after a tree-planting exercise that was held on Friday, June 25, 2021. The new campus which spans 160 acres will be, upon completion, an ultramodern school facility which houses five laboratories.

Currently, the Engineering and Technology blocks are near completion, and some students have started holding lectures on the campus. As a technical university, the Faculties of Engineering and Built Environment will now have practical work sessions with the newly procured modern equipment and machinery

Mechanical Engineers will be privileged to have much of their needs met under the Aviation Industry Corporation of China (AVIC) programme where two machine centres, lathe and milling machines, power hacksaws and sensitive drilling machines have been made available. The laboratories at the Mpehuasem, campus which are of international standards, can be used by both Higher National Diploma and Bachelor of Technology (B Tech) students. The Government has funded an electronic laboratory that has capacity for 30 students at a session and 75 students are expected to be trained in the laboratory daily. There are laboratories for Automotive Engineering, Welding and Fabrication, Electrical/Electronic Engineering, Interior Design, Upholstery Technology, and the Computerized Numerical Control Machine Centre.

2023: ESTABLISHMENT ATU GRADUATE SCHOOL

About
The ATU Graduate School was established in September 2023, in line with the University's vision to be recognized as the foremost Technical University in Ghana, with a strong regional influence. The Graduate School is currently headed by a Coordinator who administers and provides direction to the School towards achieving its set mandate within the broader vision and mission of the University.

Aim
The Graduate School aims to provide industry-tailored and research-driven programmes focused on problem solving, innovation, design thinking, discovery, dissemination, and practical application of new knowledge; and to be recognized for equity and excellence in regional, national, and global engagements.

Vision
The vision of ATU's Graduate School is to promote excellence, innovation, quality, and topnotch academic experience in research output and graduate education. To realize a student-centered experience, faculty members incorporate educational, scholarly, professional goals, and potentials of individual students into the design of curriculum, research, mentoring and coaching.

Mission
The Graduate School's mission is to ensure a rich and diverse environment, focused on problem solving, integrity, creative activity, and the discovery, dissemination, and practical application of new knowledge; and to be recognized for equity and excellence in regional, national, and global engagement and contributions.

Extended Values
Anchored on the above core values, the Graduate School thrives on the following extended values:

- **Creativity**

Our University community comprises scholars who are creative and generate new knowledge through rigorous inquiry and critical analysis of evidence and are continually open to new information in advancing understanding and practice within our disciplines and our local and global communities.

- **Respect**

The ATU Graduate School honours the dignity of each person and treats its clients with respect. The School strives to engage in civil discourse and foster an inclusive community. The School seeks the broadest diversity of thinking, exchange of ideas informed by evidence, and avoidance of assumptions, preconceptions, and subjectivity.

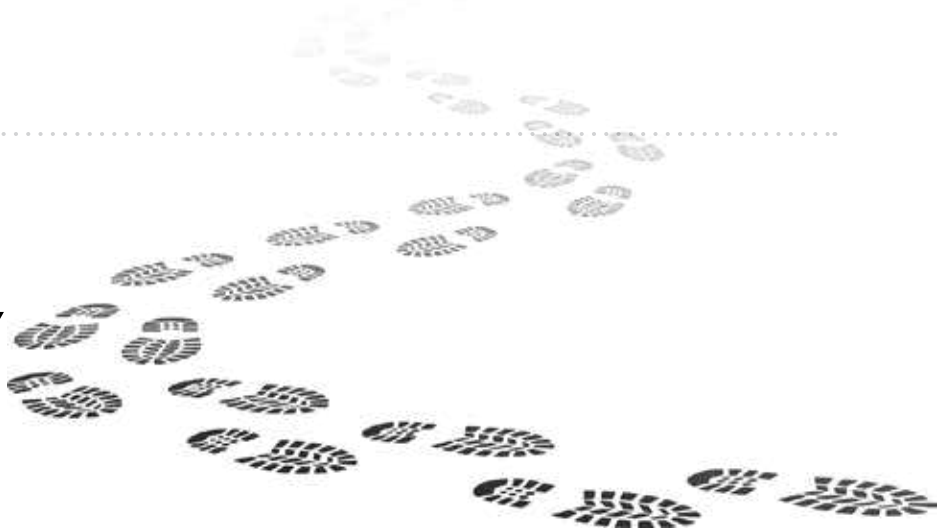
- **Responsibility**

ATU Graduate School responsibly meets its obligations and holds itself accountable for its decisions, actions, and their consequences.

- **Integrity**

The ATU Graduate School will persist by cultivating a culture of trust, integrity, transparency, accountability, and respect. The school will be open to changing or rejecting normative hypotheses based upon new evidence, in the interest of advancing knowledge. The School will effectively incorporate new knowledge into its professional practice. Although our decisions are informed by evidence, they are guided by the highest ethical standards, assuring that our behavior reflects our values.

THE JOURNEY SO FAR



- **Discovery**

The ATU Graduate School seeks to create new knowledge and understanding, and foster creativity and innovation, and to apply new knowledge and understanding for the benefit of communities, society, and environment.

- **Excellence**

The ATU Graduate School strives to give the best in all endeavours.

Services Offered by the Graduate School

The Graduate School offers industry-driven Master's (M.Tech., MSc, M.En.g, M.A., MBA, M.Com., M.Phil.) and Doctoral programmes (D.Tech., D.Sc., D.Eng., DBA, Ph.D.). These programmes have been carefully designed to meet the career needs of students, as well the developmental needs of Ghana and Sub-Saharan Africa (SSA). Other ancillary services include but not limited to:

- Workshops
- Seminars and Conferences
- Capacity Building Programmes
- Consultancy
- Exchange Programmes
- Training via short Courses
- Exhibition of creative works and inventions

Target Markets

The target market of the Graduate School includes but not limited to:

- Bachelors' Degree Holders
- Masters' Degree Holders
- On-the-job Professionals/Staff/Technicians in Industry
- International Students
- Industry Partners and Players
- Institutional Markets: NGOs, CSOs, Government Agencies and International Organizations
- Informal Sector Players

Governance

The School is governed by the Board of Graduate Studies. The Board, chaired by the Dean, provides the oversight and vision of the Graduate School. The Board has three sub-committees: Graduate Programmes Development and Admissions Committee, Graduate Examinations Committee and Doctoral Technical Committee.

- The Dean provides leadership and administrative oversight to the School. The Dean provides leadership for the School and ensures effective management, as well as the attainment of its mandate. The Dean is assisted by a Vice Dean, who deputizes for the Dean in all managerial and administrative matters.
- The Deputy Registrar of the School is responsible for all administrative and human resources.
- The Graduate Programmes Development and Admissions Committee has oversight responsibility for admissions, approving new graduate programmes, accreditation of faculty to teach graduate level courses and supervision of graduate research.
- The Graduate Examinations Committee has oversight responsibility for approving examiners, examining theses and dissertations, determining thesis and dissertation results, monitoring, and evaluation of performance on graduate programme delivery.
- The Doctoral Technical Committee is primarily responsible for supporting the implementation of the University's Doctoral programmes. The Committee has oversight responsibility for issues related to Doctoral studies as coordinated by the School of Graduate Studies.

ACADEMIC LEADERSHIP IN THE UNIVERSITY

KEY OFFICERS

S/N	NAME	DESIGNATION/POSITION
1.	**Prof. Amevi Acakpovi**	Ag. Vice-Chancellor
2.	**Prof. Felix Kutsanedzie**	Ag. Pro Vice-Chancellor
3.	**Dr. (Mrs.) Sylvia Beatrice Oppong-Mensah**	Registrar
4.	**Mr. Frank Owusu Boateng**	Director of Finance
5.	**Dr. (Mrs.) Florence Plockey**	University Librarian
6.	**Ing. Mubarak Kataali Abubakari**	Director of Works and Physical Development
7.	**Mr. Godsway Oyiadzo**	Director of Internal Audit

ACADEMIC DEANS AND HEADS OF DEPARTMENT

FACULTY OF ENGINEERING

S/N	NAME	DESIGNATION/POSITION
1.	**Dr. Tina Wemegah**	**Ag. Dean - Faculty of Engineering**
2.	Dr. Moro Adams	Head - Mechanical Engineering Department
3.	Dr. Stephen Bani	Head - Electrical/Electronic Engineering Department
4.	Mr. David Amoah	Ag. Head - Civil Engineering

ACADEMIC DEANS AND HEADS OF DEPARTMENT

FACULTY OF APPLIED SCIENCES

S/N	NAME	DESIGNATION/POSITION
5.	**Prof. (Mrs.) Alice C. Mensah**	**Dean - Faculty of Applied Sciences**
6.	Prof. George Osei-Adjei	Head - Medical Laboratory Technology Department
7.	Prof. (Mrs.) Phyllis Otu	Head - Science Laboratory Technology Department
8.	Mr. Edwin Mends-Brew	Head - Applied Mathematics and Statistics Department
9.	Mr. Wisdom Torgby	Head - Computer Science Department

FACULTY OF BUILT ENVIRONMENT

S/N	NAME	DESIGNATION/POSITION
10.	**Mr. Seth E. Allotey**	**Dean - Faculty of Built Environment**
11.	Mr. Gladstone Kportufe	Head - Building Technology Department
12.	Mr. Kennedy Nutassey	Head - Interior Design and Upholstery Technology Department

FACULTY OF APPLIED ARTS

S/N	NAME	DESIGNATION/POSITION
13.	**Dr. (Mrs.) Vivian Biney-Aidoo**	**Dean - Faculty of Applied Arts**
14.	Dr. Andrew Gordon	Head - Hotel Catering and Institutional Mgt. Department
15.	Dr. Collins Kwaning Owusu	Head - Liberal Studies and Communication Tech. Dept.
16.	Mrs. Catherine Adu	Head - Fashion Design and Textiles Department

FACULTY OF BUSINESS

S/N	NAME	DESIGNATION/POSITION
17.	**Dr. Shani Bashiru**	**Dean - Faculty of Business**
18.	Prof. Elikem Chosniel Ocloo	Head - Marketing Department
19.	Dr. Musah Osumanu Doumbia	Head - Procurement and Supply Chain Mgt. Department
20.	Dr. Ibrahim Zubairu	Head - Accounting and Finance Department
21.	Dr. (Mrs.) Emelia Ohene Afriyie	Head - Management and Public Admin. Department

ACADEMIC DEANS AND HEADS OF DEPARTMENT

STUDENT AFFAIRS AND INTERNATIONAL PROGRAMMES

S/N	NAME	DESIGNATION/POSITION
22.	Prof. Ernest Christian Winful	Dean - Directorate of International Programmes, and Institutional Cooperation (DIPIC)
23.	Mr. Martin Owusu Amoamah	Dean - Students Affairs

ACADEMIC DIRECTORS AND DEAN - ATU GRADUATE SCHOOL

S/N	NAME	DESIGNATION/POSITION
23.	Prof. Nana Yaw Asabere	Director - Directorate of Research, Innovation, Publication and Technology Transfer (DRIPTT)
24.	Prof. Frank Frimpong Opuni	Dean - Graduate School
25.	Dr. Henry Kwadwo Hackman	Director - Directorate of Quality Assurance and Academic Planning (DQAAP)

RESEARCH AFFILIATIONS AND COLLABORATION AT A GLANCE

UNIVERSITY-WIDE GLOBAL RESEARCH AFFILIATIONS/COLLABORATIONS



COUNTRY	NUMBER	%	GLOBAL STRENGTH
Ghana	256	59	National - 59%
Australia	6	1	
Benin	4	1	
Canada	1	0	
China	44	10	
Demark	8	2	
Egypt	3	1	
France	4	1	
Germany	3	1	
USA	11	4	

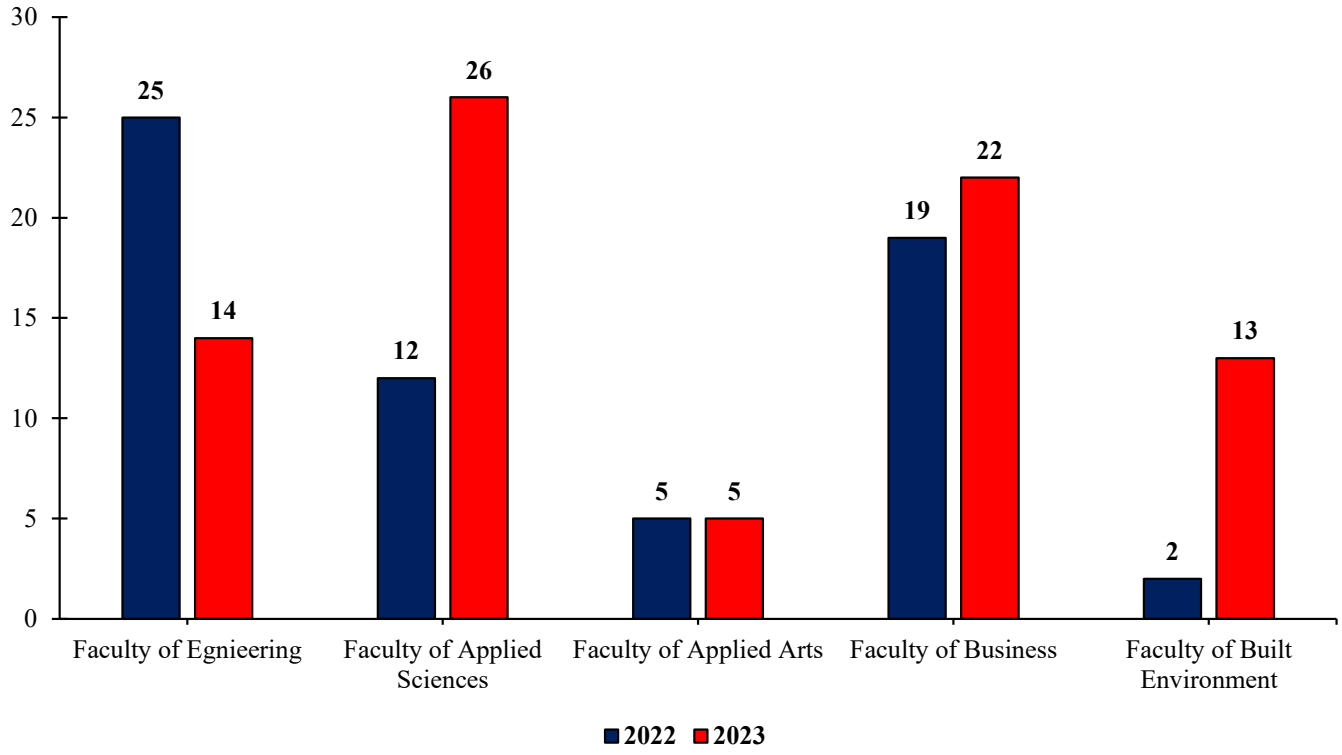
COUNTRY	NUMBER	%	GLOBAL STRENGTH
Hungary	6	1	International - 41%
India	9	2	
Ireland	2	0	
Kenya	1	0	
Malaysia	2	0	
Nigeria	8	2	
Pakistan	1	0	
Republic of Korea	2	0	
Russia	5	2	
Saudi Arabia	1	0	
Senegal	3	1	
South Africa	18	4	
Switzerland	2	0	
United Kingdom	33	8	
Vietnam	1	0	
TOTAL	**434**	**100**	

ANALYTICAL TRENDS OF GLOBAL RESEARCH PUBLICATIONS (2022-2023)

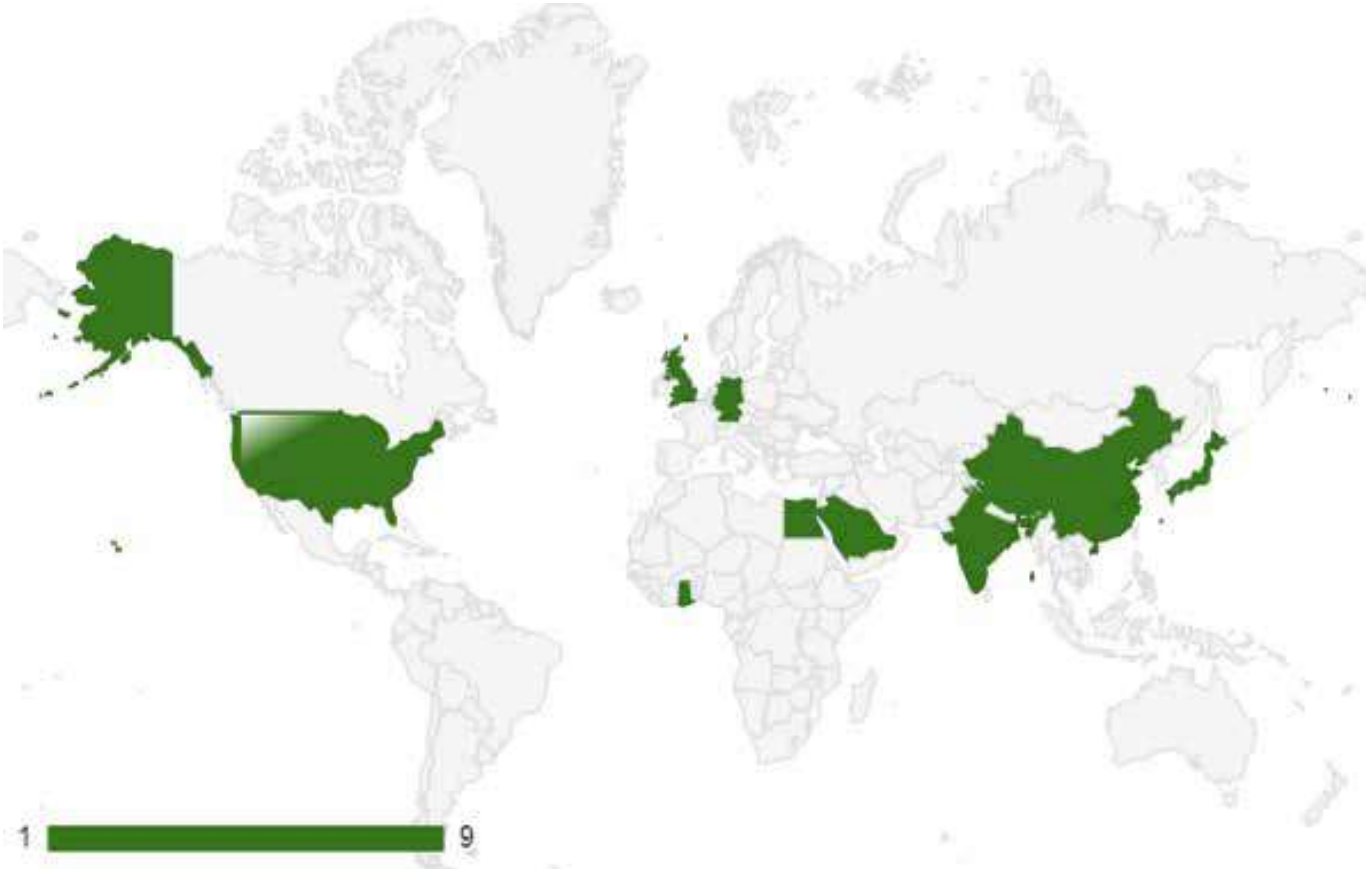
Year	Faculty of Engineering	Faculty of Applied Sciences	Faculty of Applied Arts	Faculty of Business	Faculty of Built Environment	Total Per Year
2022	25	12	5	19	2	63
2023	14	26	5	22	13	80
Total Per Faculty in 2 Years	**39**	**38**	**10**	**41**	**15**	**143**

Across all academic faculties **- 64 publications** were recorded in **2022** and **79 publications** were **recorded in 2023,** which approximately **represents 24% increase** from **2022 to 2023.**

Further details of publications indexed in Web of Science, Scopus, or high-impact equivalency is available in the ATU Research Publications Bulletin (2022-2023), Volume 3.



Faculty of Engineering – Department of Mechanical Engineering: Global Research Affiliations/Collaborations



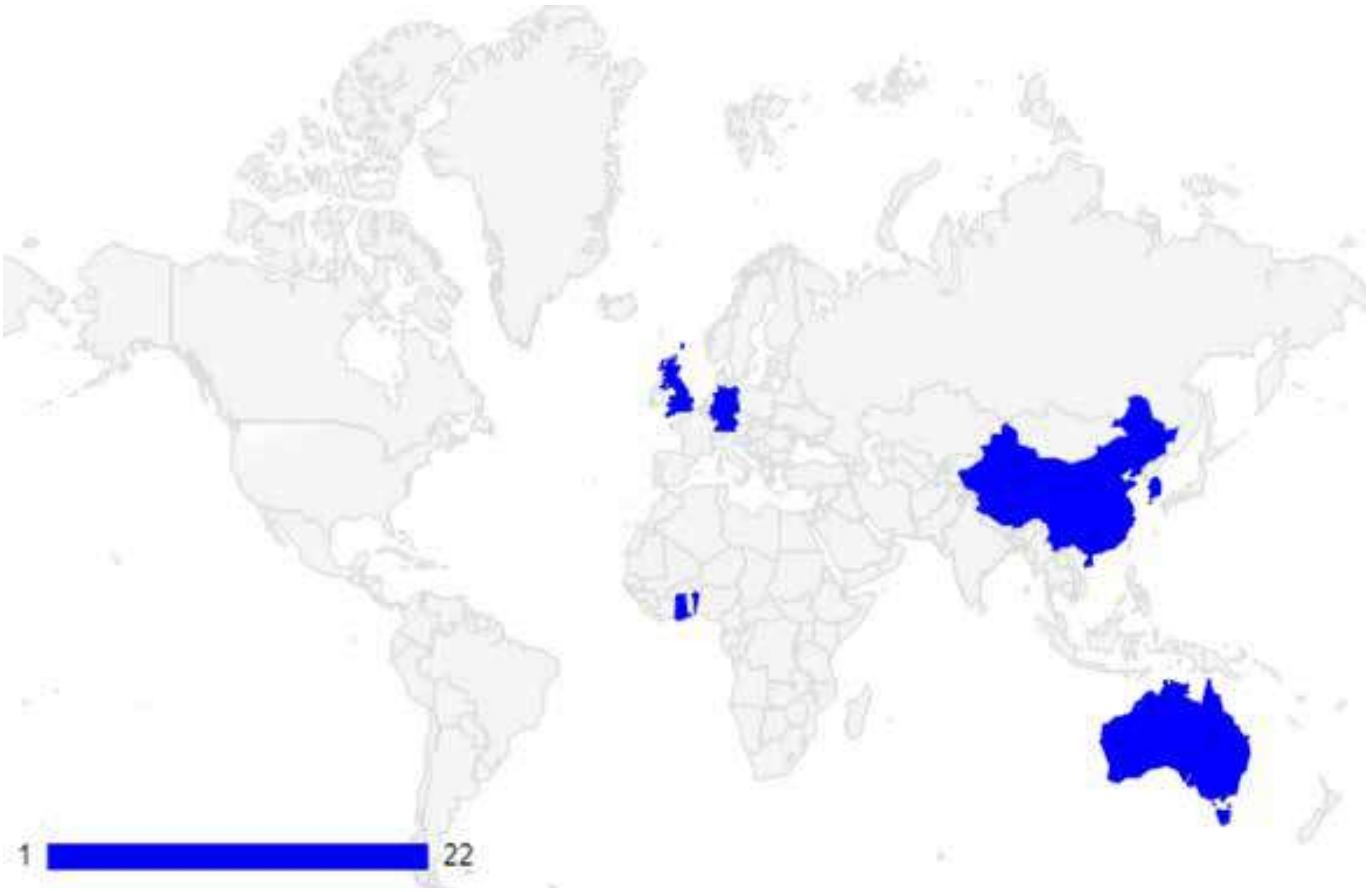
COUNTRY	NUMBER	%	GLOBAL STRENGTH
Ghana	3	12	National - 12%
China	9	36	
USA	1	4	
Japan	3	12	
Egypt	3	12	
United Kingdom	1	4	International – 88%
India	3	12	
Germany	1	4	
Saudi Arabia	1	4	
TOTAL	**25**	**100**	

Legend

Authors Affiliations

No Affiliations

Faculty of Engineering – Department of Electrical/Electronic Engineering: Global Research Affiliations/Collaborations



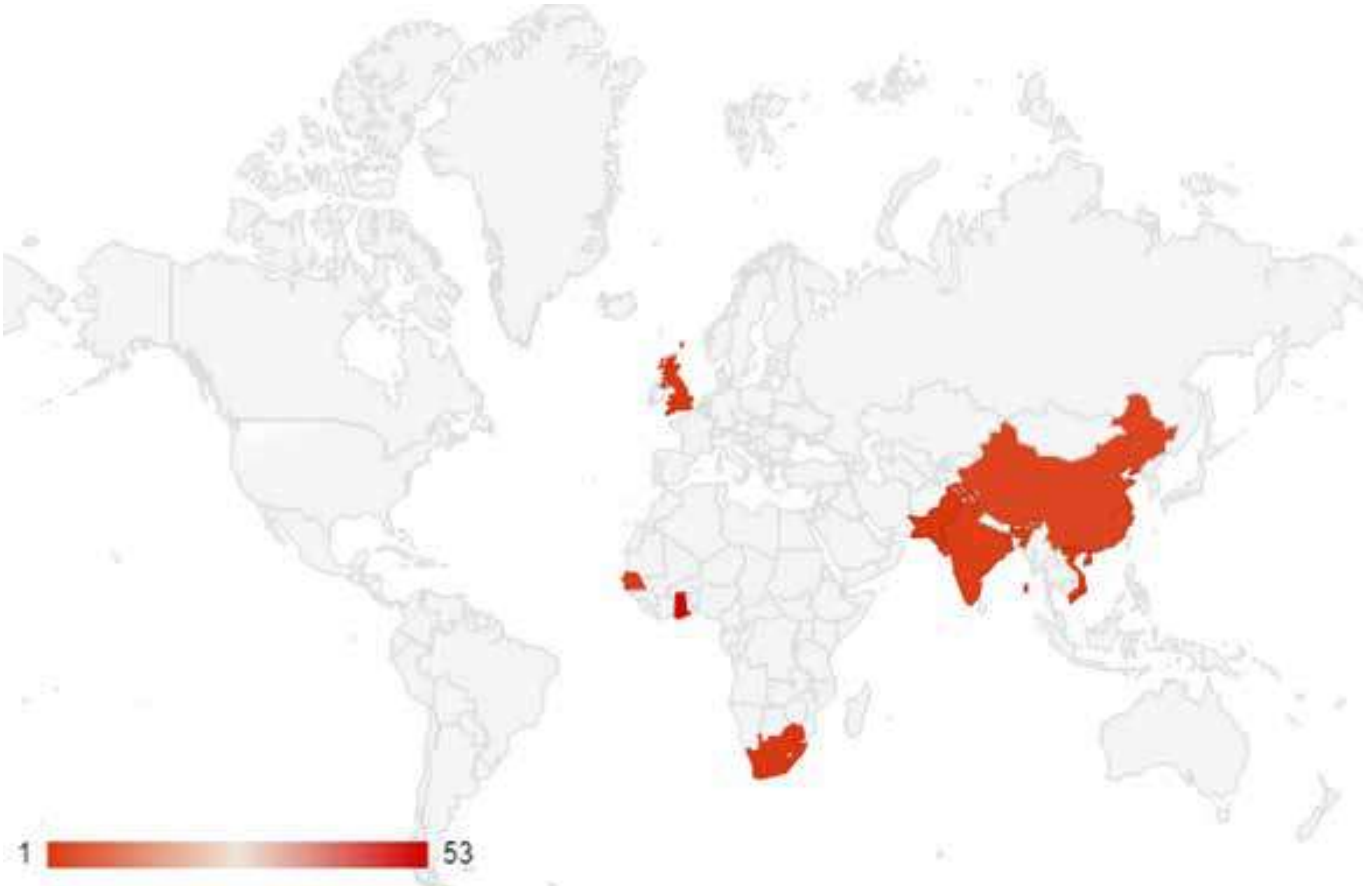
COUNTRY	NUMBER	%	GLOBAL STRENGTH
Ghana	22	52	National - 52%
China	9	21	
Australia	1	2	
United Kingdom	3	7	
Benin	4	9	
Germany	1	2	International - 48%
Republic of Korea	2	5	
UAE	1	2	
TOTAL	**43**	**100**	

Legend

Authors Affiliations

No Affiliations

Faculty of Engineering – Department of Civil Engineering: Global Research Affiliations/Collaborations



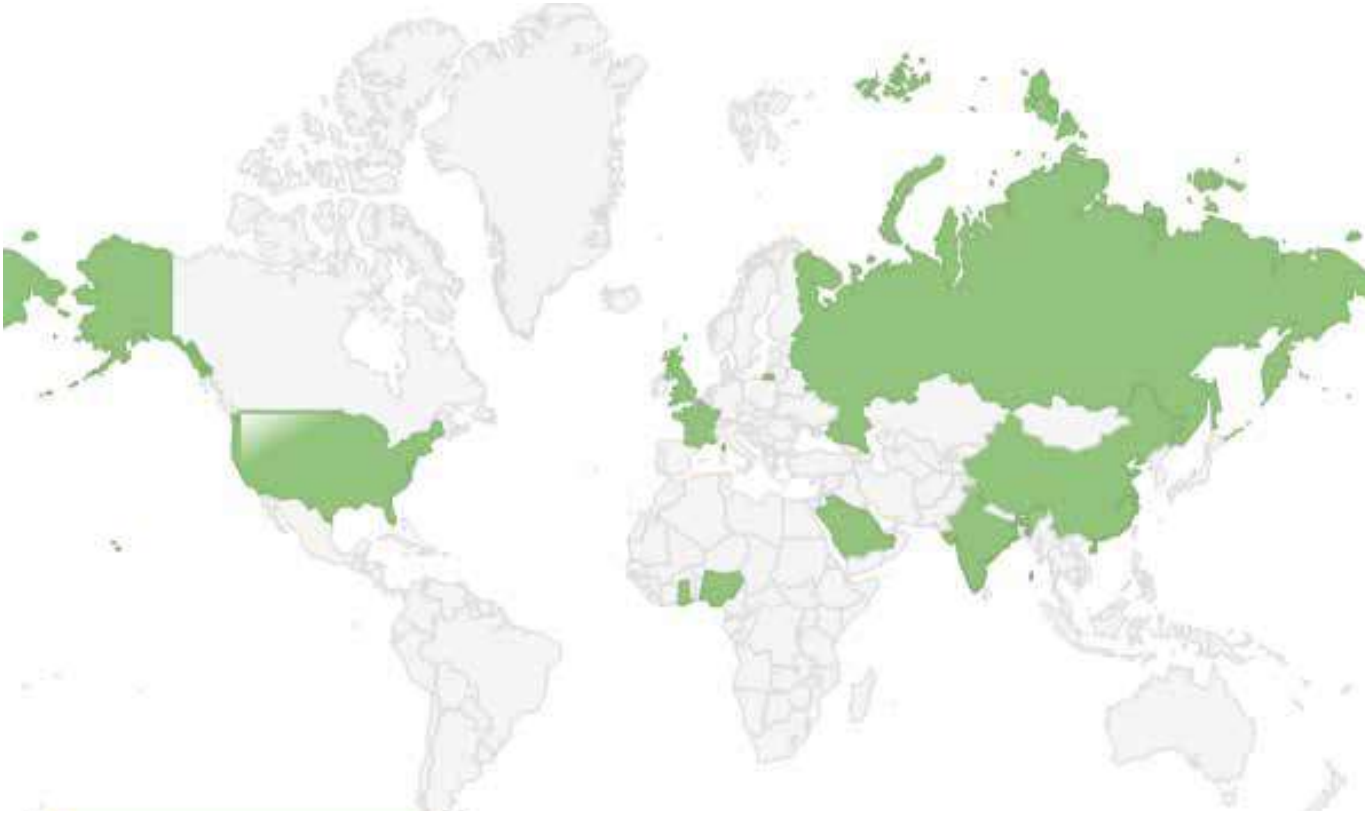
COUNTRY	NUMBER	%	GLOBAL STRENGTH
Ghana	53	82	National - 82%
China	3	5	
Vietnam	1	2	
South Africa	1	2	
Pakistan	1	2	
United Kingdom	1	2	International - 18%
India	2	3	
Senegal	2	3	
TOTAL	**64**	**100**	

Legend

Authors Affiliations

No Affiliations

Faculty of Applied Sciences – Department of Science Laboratory Technology (SLT): Global Research Affiliations/Collaborations



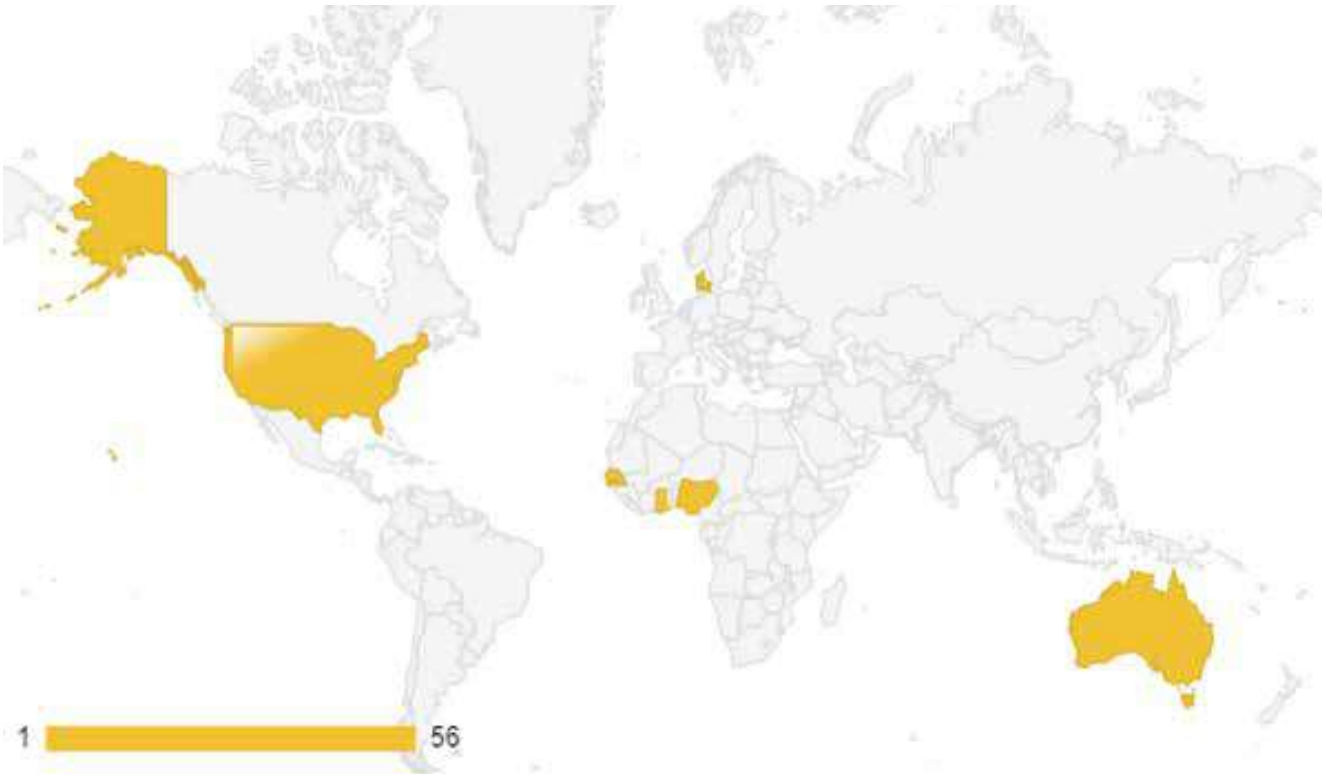
COUNTRY	NUMBER	%	GLOBAL STRENGTH
Ghana	26	42	National - 42%
China	15	25	
Russia	4	7	
USA	2	3	
Nigeria	1	2	
United kingdom	7	11	International - 58%
France	2	3	
India	1	2	
Saudi Arabia	1	2	
France	2	3	
TOTAL	**61**	**100**	

Legend

Authors Affiliations

No Affiliations

Faculty of Applied Sciences –Department of Medical Laboratory Technology (MLT): Global Research Affiliations/Collaborations



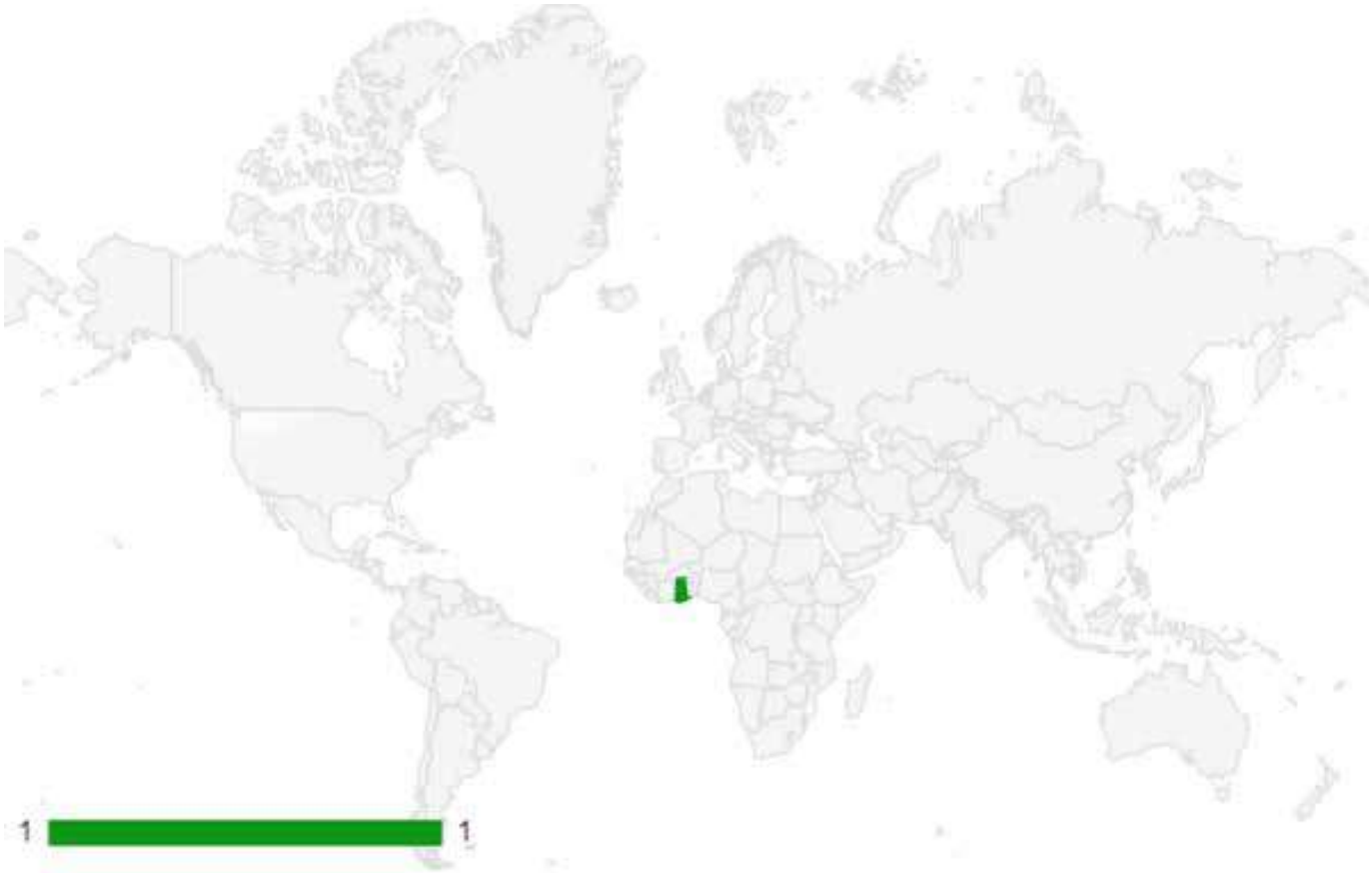
COUNTRY	NUMBER	%	GLOBAL STRENGTH
Ghana	56	79	National - 79%
USA	3	4	International - 21%
Australia	5	7	
Nigeria	2	3	
Denmark	4	6	
Senegal	1	1	
TOTAL	**71**	**100**	

Legend

Authors Affiliations

No Affiliations

Faculty of Applied Sciences – Department of Applied Mathematics and Statistics: Global Research Affiliations/Collaborations



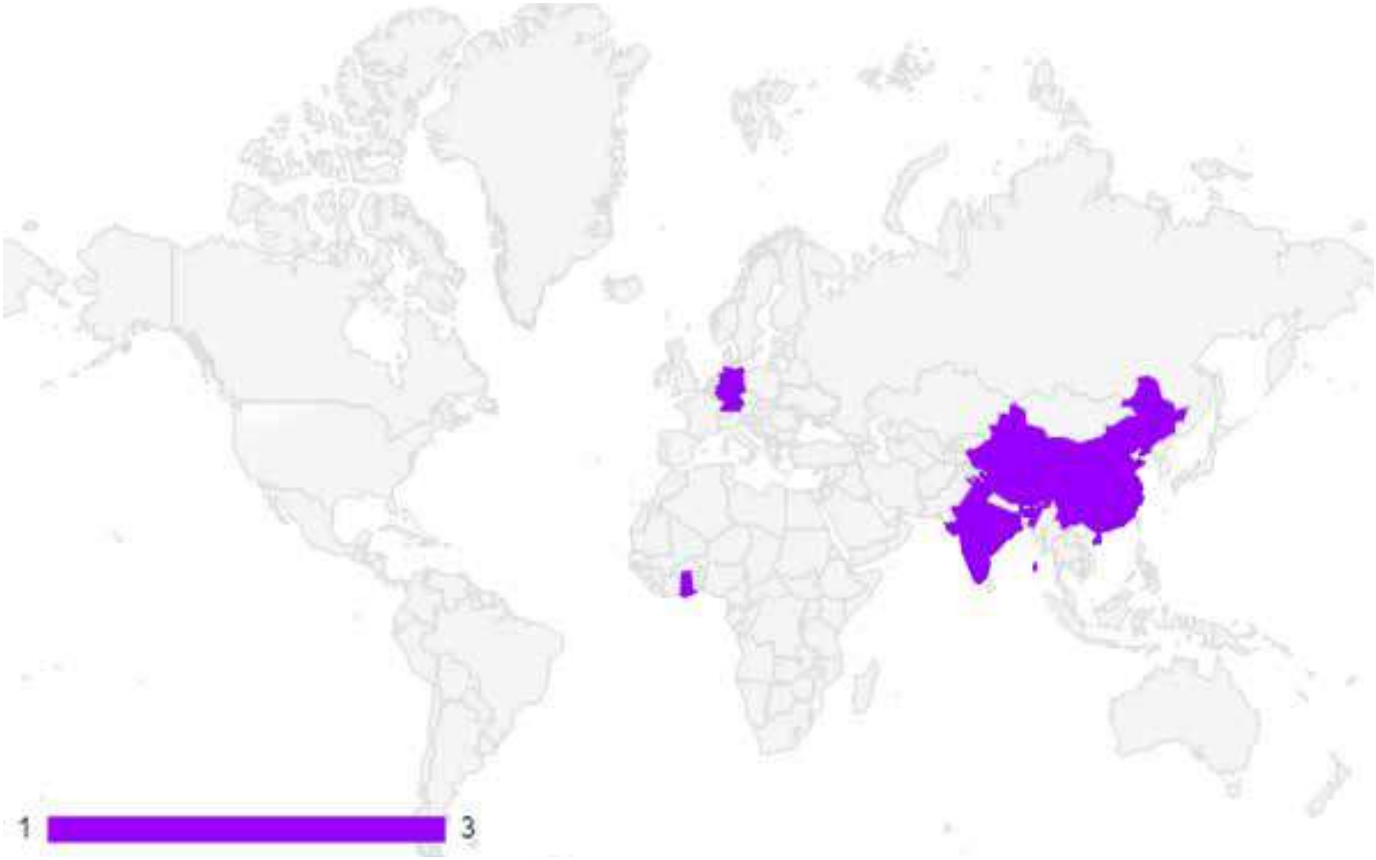
COUNTRY	NUMBER	%	GLOBAL STRENGTH
Ghana	1	100	National - 100%
TOTAL	**1**	**100**	International - 0%

Legend

Authors Affiliations

No Affiliations

Faculty of Applied Sciences – Department of Computer Science: Global Research Affiliations/Collaborations



COUNTRY	NUMBER	%	GLOBAL STRENGTH
Ghana	2	29	National - 29%
China	3	43	International - 71%
India	1	14	
Germany	1	14	
TOTAL	**7**	**100**	

Legend

Authors Affiliations

No Affiliations

Faculty of Business - Department of Marketing: Global Research Affiliations/Collaborations



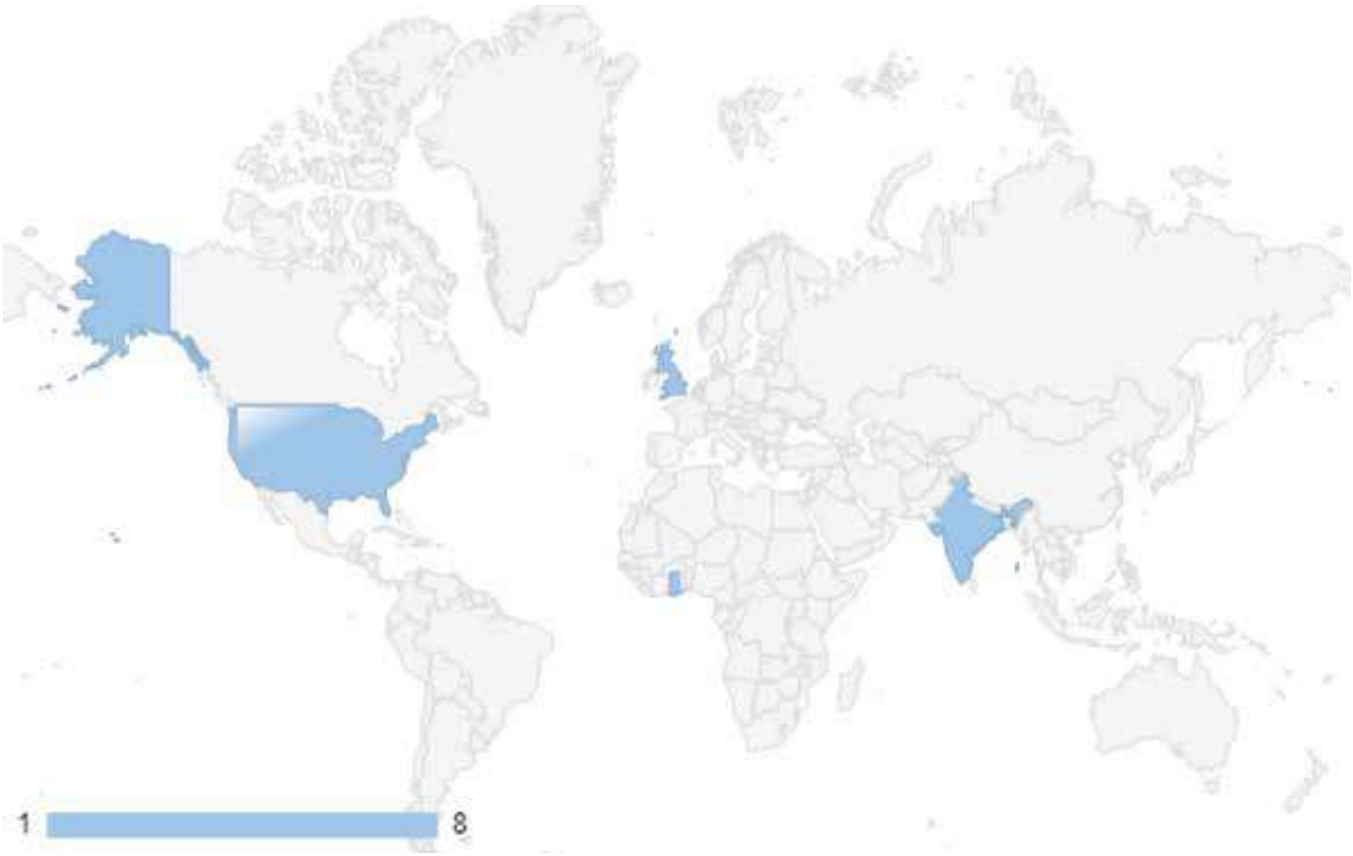
COUNTRY	NUMBER	%	GLOBAL STRENGTH
Ghana	40	67	National - 67%
China	5	8	
Nigeria	1	2	
South Africa	1	2	
United Kingdom	9	15	
Kenya	1	2	
Canada	1	2	
Malaysia	1	2	
TOTAL	**59**	**100**	**International - 33%**

Legend

Authors Affiliations

No Affiliations

Faculty of Business - Department of Accounting and Finance: Global Research Affiliations/Collaborations



COUNTRY	NUMBER	%	GLOBAL STRENGTH
Ghana	4	29	National - 29%
USA	1	7	
United Kingdom	8	57	
India	1	7	
TOTAL	**14**	**100**	**International - 71%**

Legend

Authors Affiliations

No Affiliations

Faculty of Business - Department of Procurement and Supply: Global Research Affiliations/Collaborations

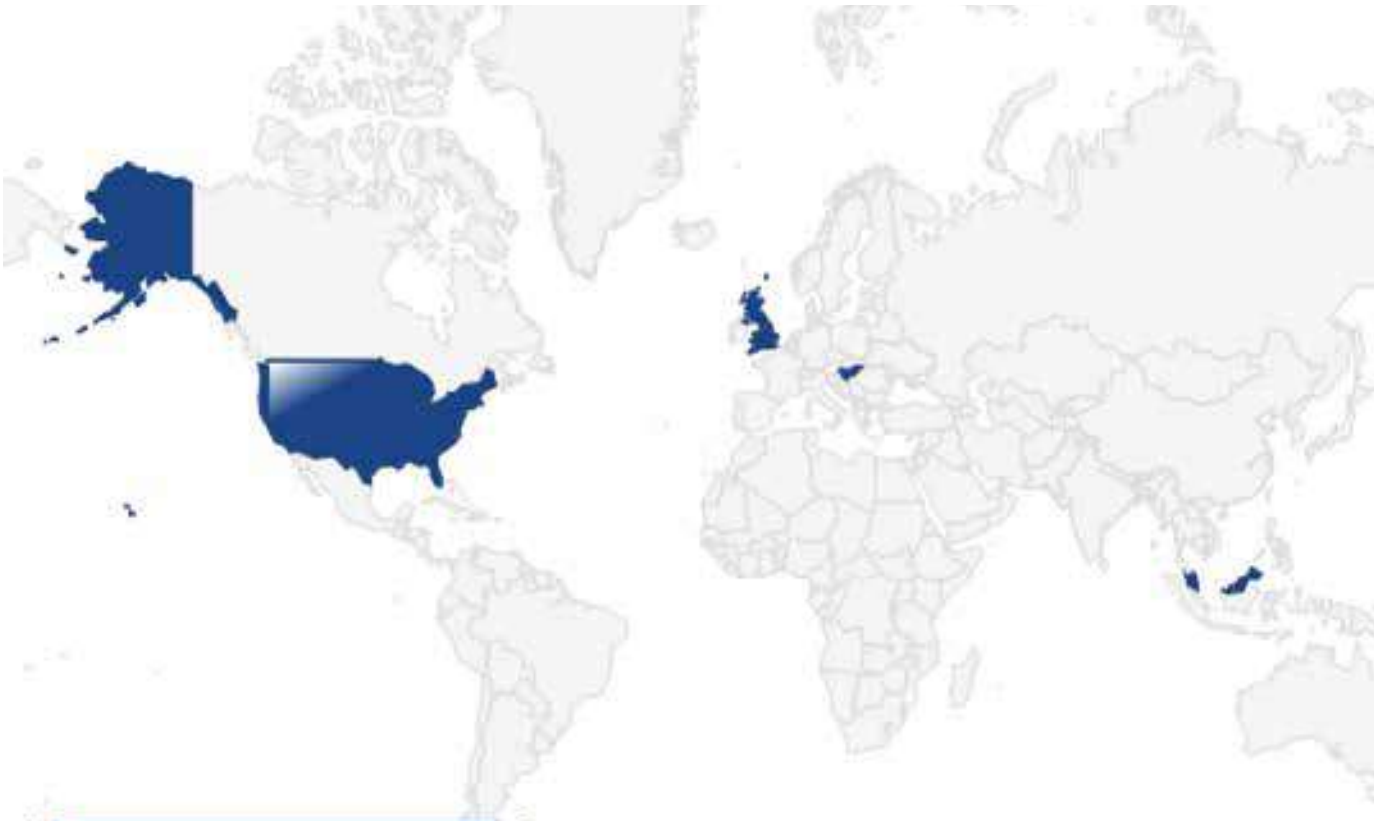


COUNTRY	NUMBER	%	GLOBAL STRENGTH
Ghana	12	75	National - 75%
India	1	6	
Denmark	3	19	
TOTAL	16	100	International - 25%

Legend

Authors Affiliations

No Affiliations



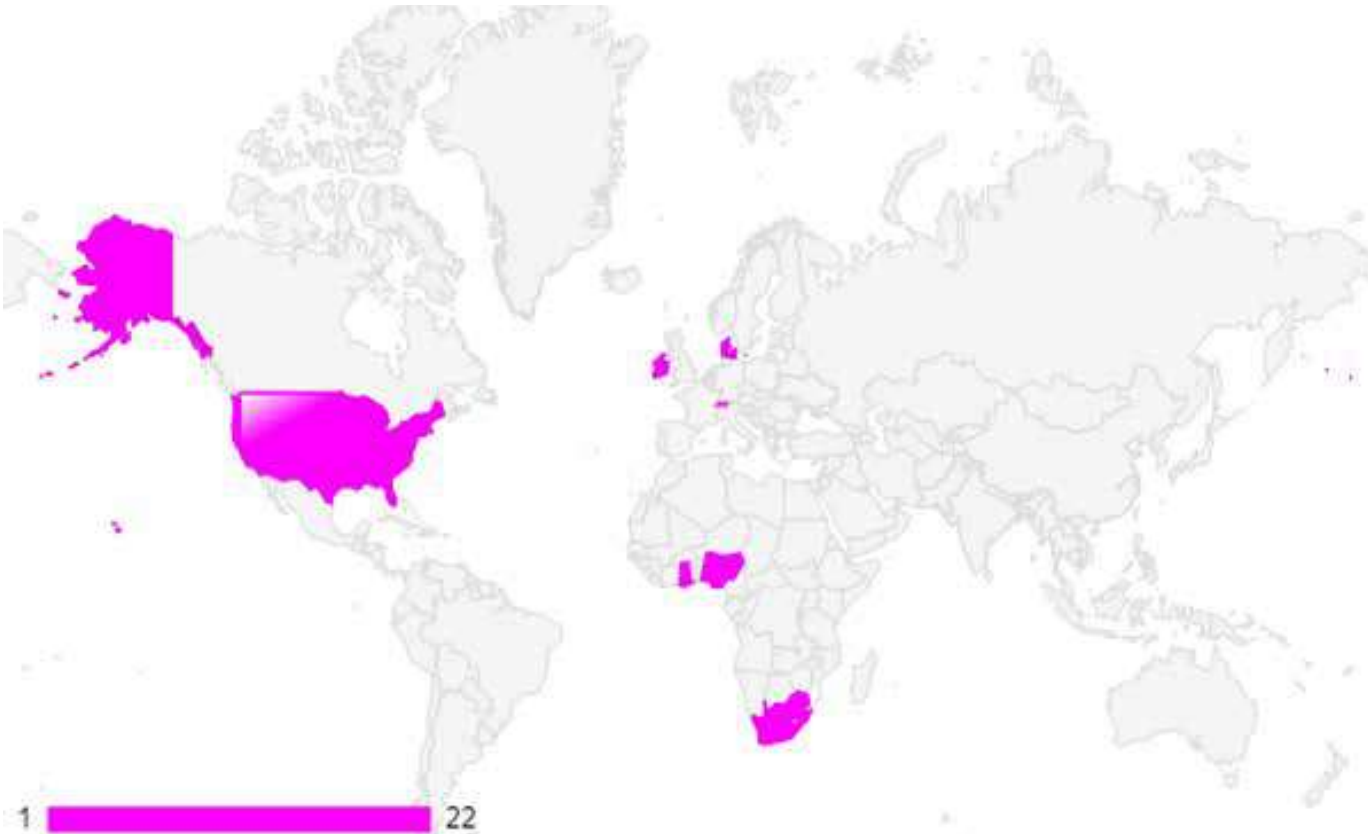
COUNTRY	NUMBER	%	GLOBAL STRENGTH
USA	3	23	International - 100%
United Kingdom	4	31	
Hungary	5	38	
Malaysia	1	8	
TOTAL	13	100	National - 0%

Legend

Authors Affiliations

No Affiliations

Faculty of Built Environment – Department of Building Technology: Global Research Affiliations/Collaborations



COUNTRY	NUMBER	%	GLOBAL STRENGTH
Ghana	22	50	National - 50%
USA	1	2	
South Africa	14	32	
Denmark	1	2	
Nigeria	3	7	International - 50%
Switzerland	1	2	
Ireland	2	5	
TOTAL	**44**	**100**	

Legend

Authors Affiliations

No Affiliations

Faculty of Applied Arts - Department of Fashion Design and Textiles: Global Research Affiliations/Collaborations



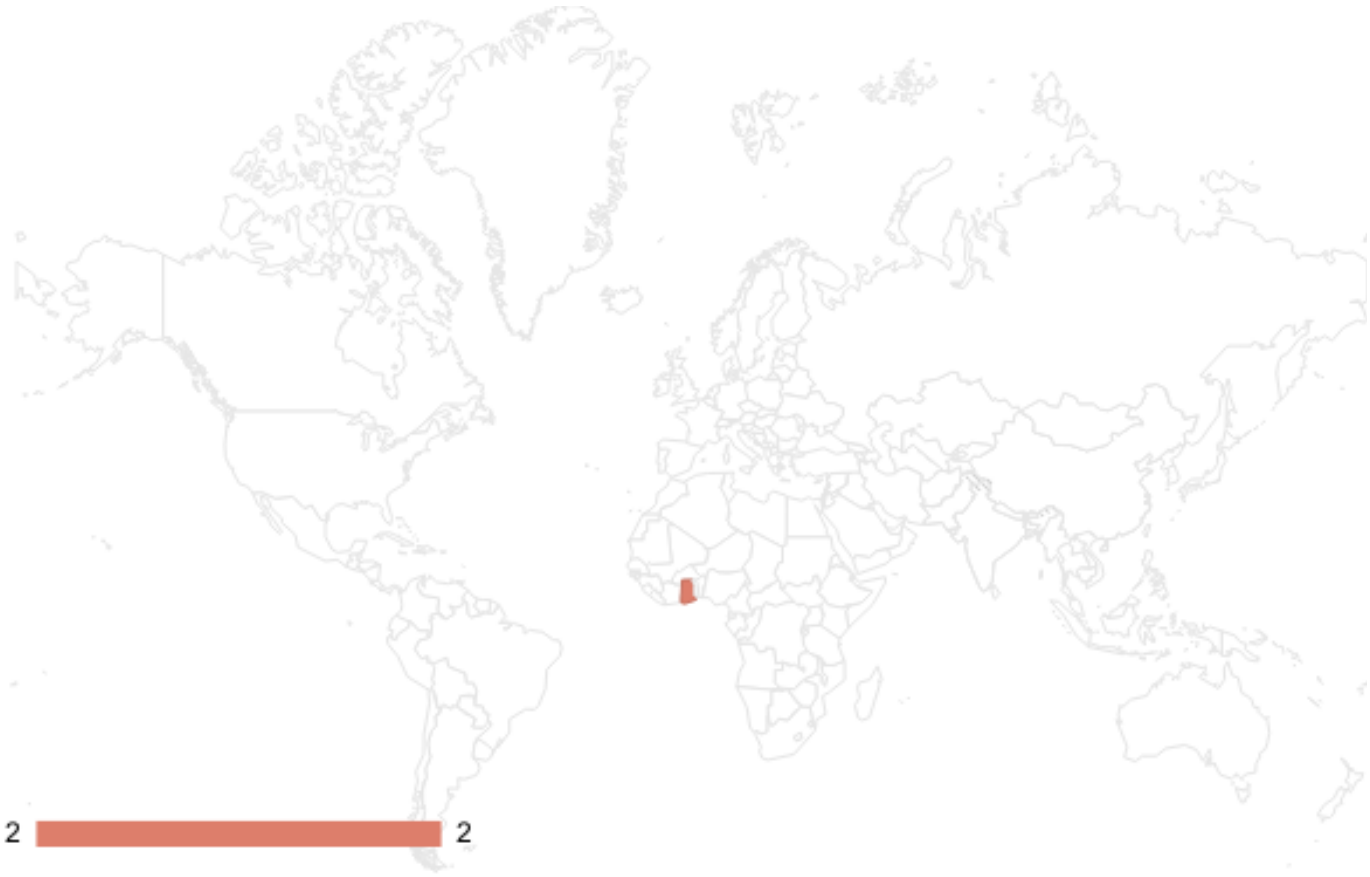
COUNTRY	NUMBER	%	GLOBAL STRENGTH
Ghana	15	75	National - 75%
Russia	1	5	
Nigeria	1	5	
South Africa	2	10	
Switzerland	1	5	International - 25%
TOTAL	**20**	**100**	

Legend

Authors Affiliations

No Affiliations

Faculty of Applied Arts - Department of Liberal Studies and Communication Technology: Research Affiliations/Collaborations



COUNTRY	NUMBER	%	GLOBAL STRENGTH
Ghana	2	100	National - 100%
TOTAL	**2**	**100**	**International - 0%**

Legend

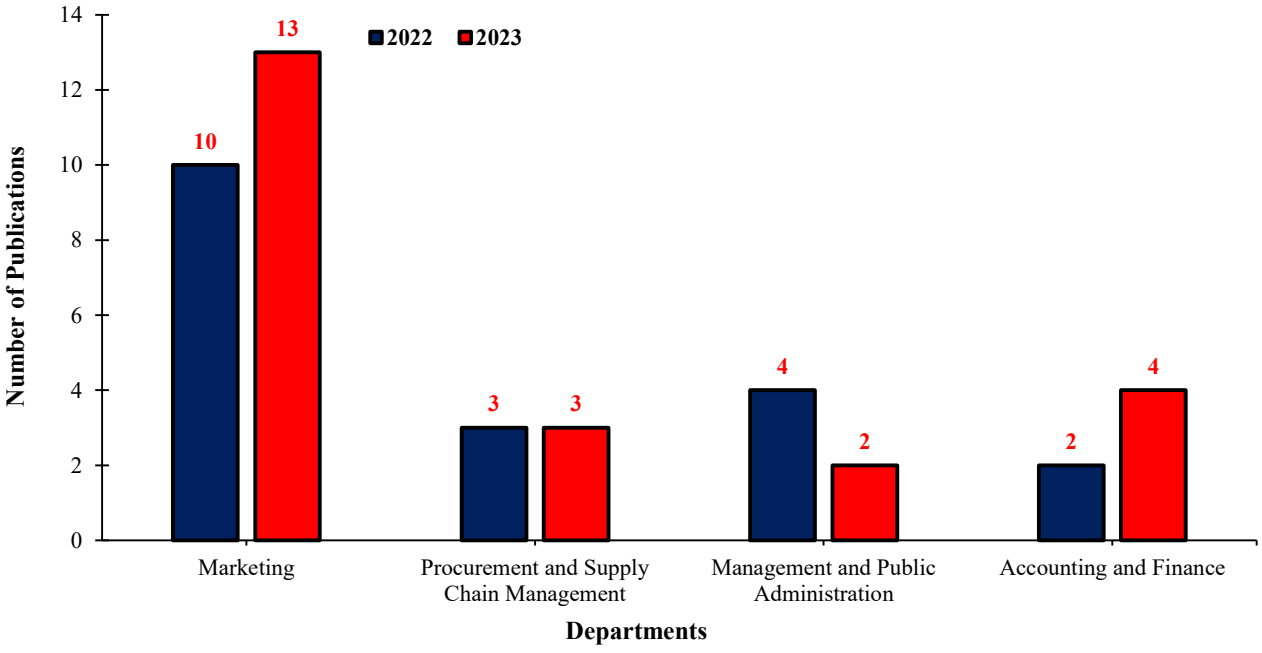
Authors Affiliations

No Affiliations

FACULTY RESEARCH PUBLICATION TRENDS (2022-2023) IN REPUTABLE/ HIGH IMPACT (WEB OF SCIENCE AND SCOPUS) OUTLETS

FACULTY OF BUSINESS

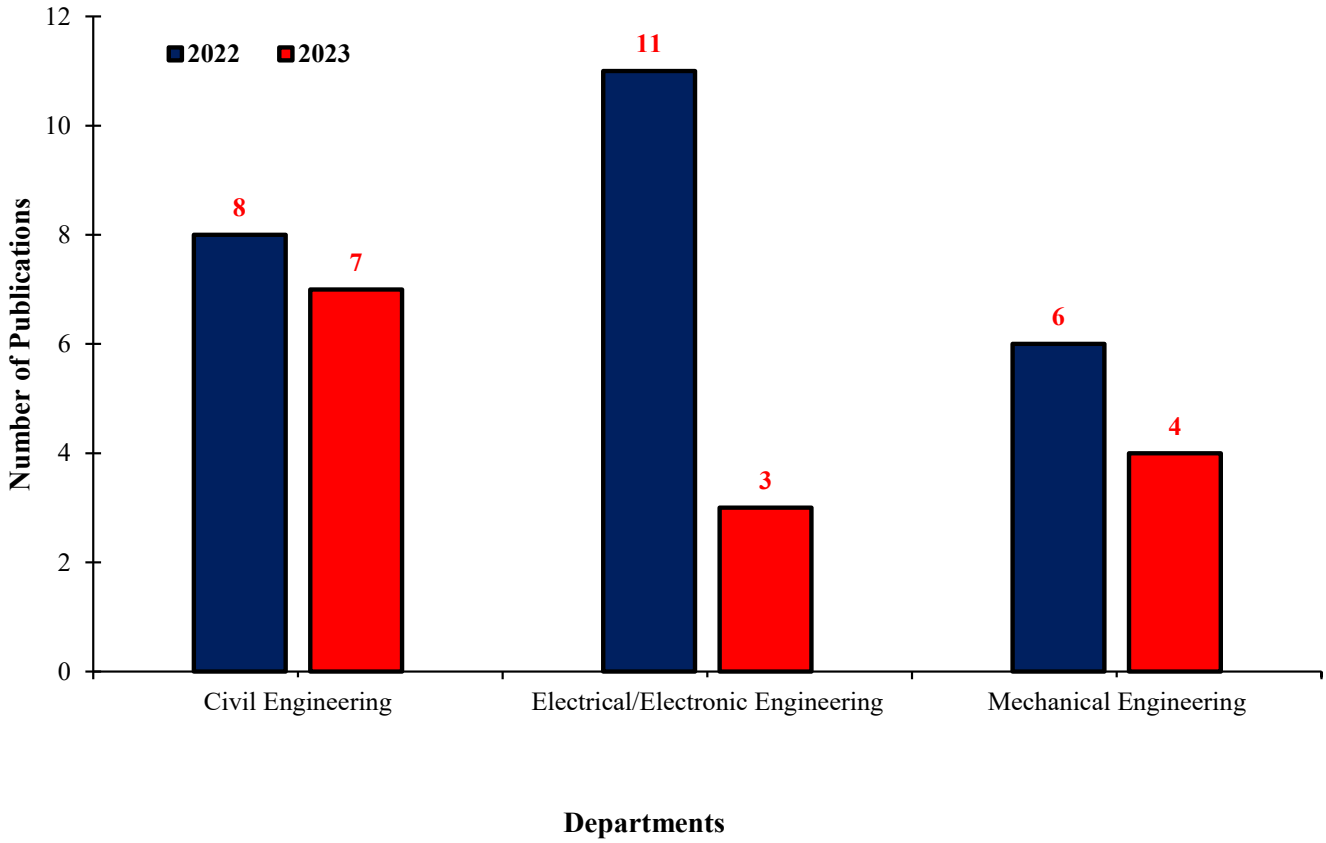
[TOTAL = 41, HIGHEST – MARKETING DEPARTMENT: 23 (56%)]



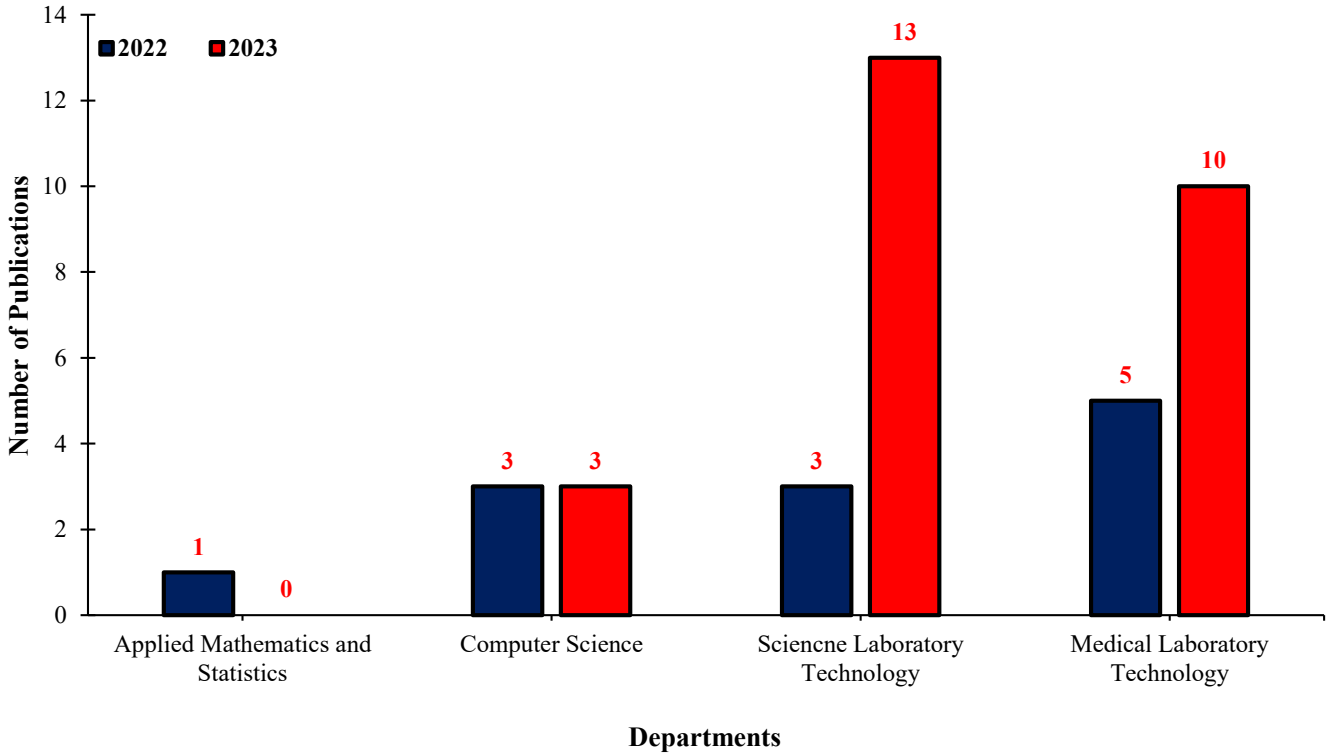
Scopus Clarivate Web of Science™

FACULTY OF ENGINEERING

[TOTAL = 39, HIGHEST – CIVIL ENGINEERING DEPARTMENT: 15 (38%)]



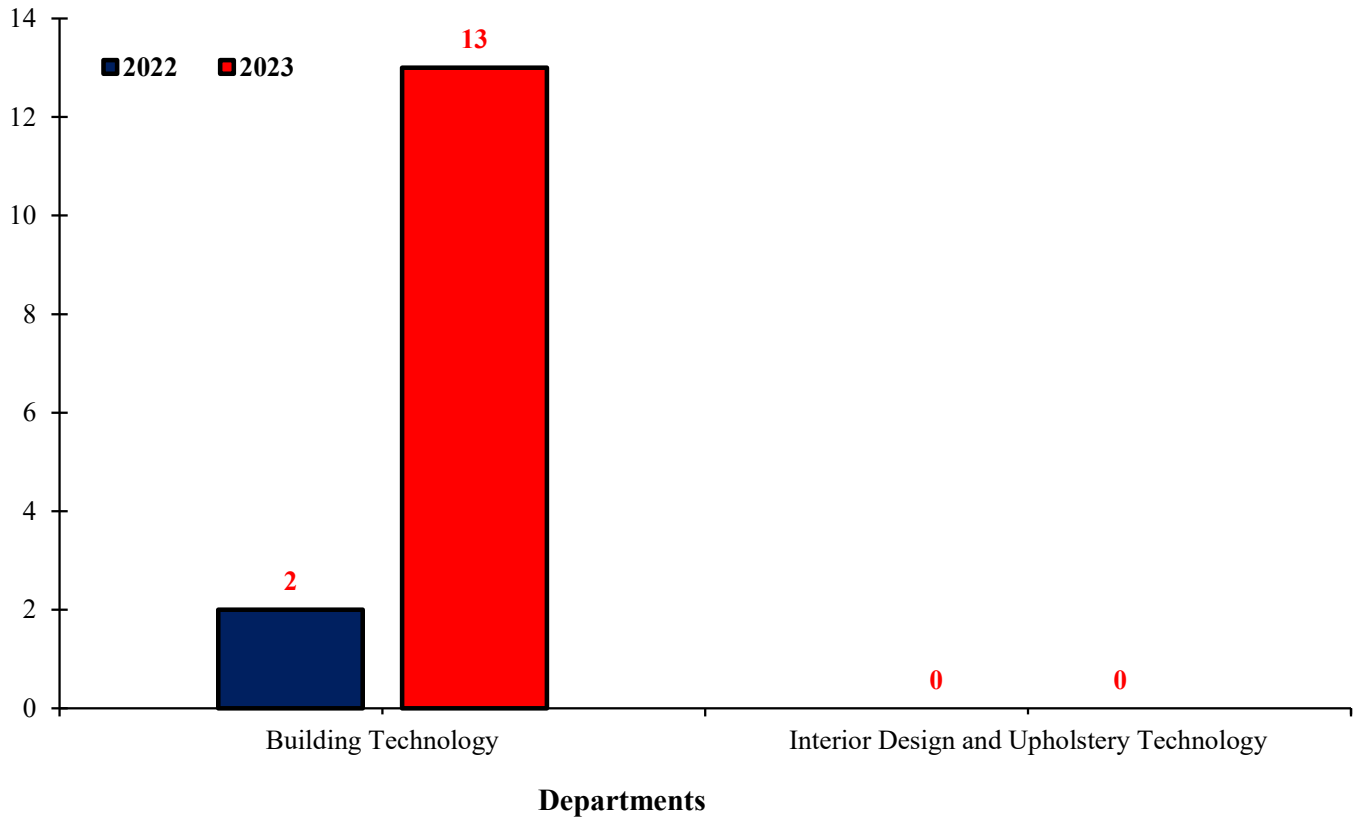
FACULTY OF APPLIED SCIENCES
[TOTAL = 38, HIGHEST – SCIENCE LABORATORY TECHNOLOGY DEPARTMENT: 16 (42%)]



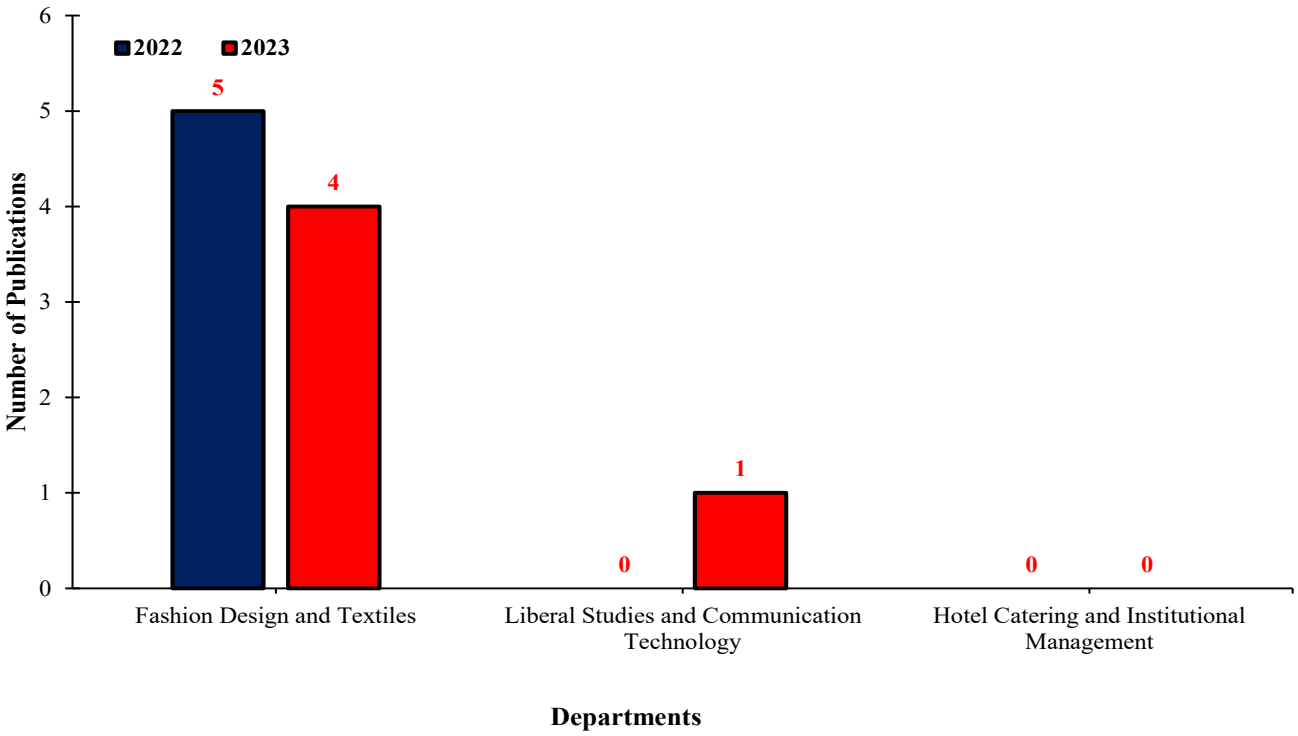
Scopus Clarivate Web of Science™

FACULTY OF BUILT ENVIRONMENT

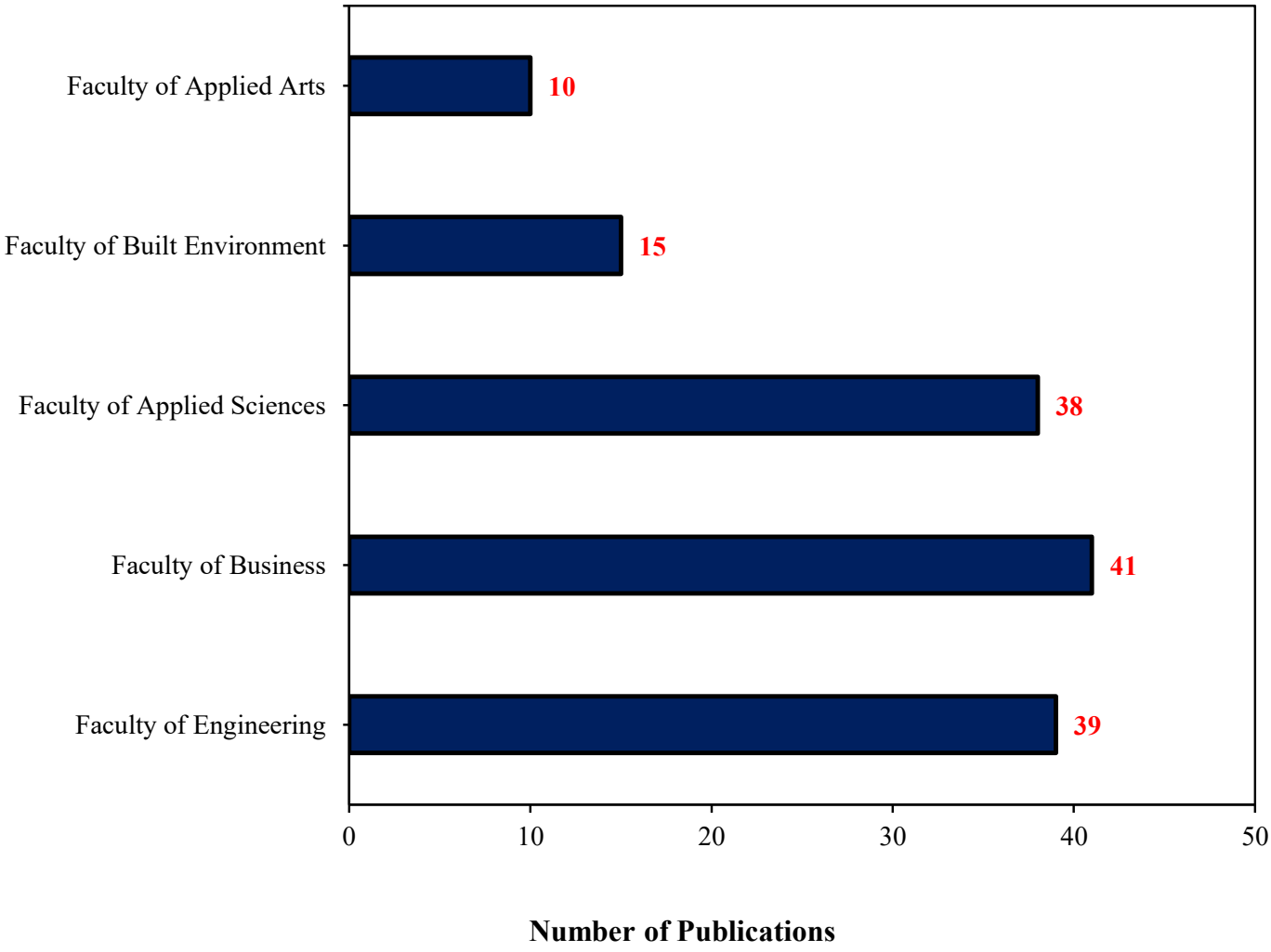
[TOTAL = 15, HIGHEST – BUILDING TECHNOLOGY DEPARTMENT: 15 (100%)]



FACULTY OF APPLIED ARTS
[TOTAL = 10, HIGHEST – FASHION DESIGN AND TEXTILES DEPARTMENT: 9 (90%)]



ALL FACULTIES
[TOTAL = 143, HIGHEST – FACULTY OF BUSINESS: 41 (29%)]





EXTERNAL RESEARCH GRANTS, FUNDING, AND RELATED ACTIVITIES



GRANT PROJECT ONE (1)

Title of Project: African Health Research and Innovation Research (AHRIP)
Project Period: January 2023 – December 2023

Project Partners: Design Thinking Ghana Hub (DTGH)

ATU Project Team Members: Prof. (Mrs.) Alice Constance Mensah (PI), Dr. Henry Hackman, Dr. Archibald Danquah-Amoah, Prof. George Osei-Adjei, Mr. Michael Tagoe, Mr. Samuel Azumah, Mr. Joshua Okrah Mensah, Mr. Alex Abrokwah and Dr. Clement Tengey

Grant Provider: Research and Innovation Systems for Africa (RISA) / Foreign, Commonwealth & Development Office (FCDO), UK

Grant/Funding Award: USD 150,800.00

Summarized Project Description

This project aimed to close the gap between research and development in the health sector while harnessing the potential of young, emerging leaders in health innovation.

Its primary objective was to empower these innovators and provide them with the requisite skills to apply Design Thinking to local health challenges, by integrating locally-adapted health solutions into healthcare delivery systems. Specifically, the project advocated for the inclusion of Design Thinking in health research, ensuring that innovations led by local women are incorporated into healthcare services.



Some staff of ATU and representatives from British Council









In collaboration with Design Thinking Ghana Hub (DTGH), a variety of methods were utilized, including bootcamps and online workshops that adopted a "hands-on, learning-by-doing" approach. These sessions were structured around a Design Thinking Curriculum which guided the students in creating user-centric healthcare innovations. This initiative promoted interdisciplinary collaboration and knowledge sharing within the academic community.

As a result, 22 prototypes were developed and showcased at an Innovation Fair organized by the ATU Project Team and RISA in October 2023 at the Auditorium in ATU. Some of the highlighted prototypes included:

1. LabMate: A mobile app for monitoring the calibration, maintenance, daily controls, and troubleshooting of laboratory equipment.
2. Sustainable Blood Warmer: A device powered by sustainable energy, featuring various electrical components, with a user manual.
3. Health Access Mobile App: An application providing convenient and cost-effective access to healthcare services with minimal user assistance.
4. Biometric Health Identification System: A system that integrates patients' fingerprints with medical insurance or national ID cards.
5. Cancer Detection Device: A portable machine that detects lumps and cancerous formations in breasts.
6. Portable Wearable Dialysis Machine: A device designed to alleviate backache associated with traditional dialysis methods.
7. 7. Automated Waste Segregator: An innovative dustbin capable of automatically segregating hospital waste.
8. Atmospheric Dehumidifier: A device designed to reduce humidity or moisture content in the atmosphere.





GRANT PROJECT TWO (2)

Title of Project: Empowering Automobile Mechanics With Skills In Programming And Diagnosing of Modern Vehicles
Project Period: 11th April 2023 - 30th June 2024
Project Partners: Ghana National Association of Garages (GNAG)
ATU Project Team Members: Prof. Amevi Acakpovi (PI) and Dr. Peter Nyanor
Grant Provider: Ghana Skills Development Fund (GSDF)
Grant/Funding Award: Gh₵ 1,624,145.20

Summarized Project Description



Accra Technical University (ATU) is committed to providing skills-oriented and competency-based education as part of its core mandate. ATU also aims to offer skills training in emerging trends through on-the- job training, enhancing our community's professional capabilities. A key element of our strategy involves forging strong partnerships with industry to facilitate a continuous cross-transfer of knowledge and skills between academia and industry professionals. One such collaboration is with the Ghana National

Association of Garages (GNAG), an association of mechanics dedicated to providing timely training to its members. GNAG boasts of a widespread membership across the country, including 16 zones within the Greater Accra region alone.

This project, specifically, targets providing advanced skills to automobile mechanics who are members of GNAG, enabling them to professionally service modern vehicles in Ghana. The increasing complexity of modern automobiles has challenged GNAG members, often rendering them jobless or forcing them to depend on external diagnostic experts.

By offering hands-on training, this project seeks to equip the participating mechanics with skills to perform automobile diagnostics independently; thereby reducing the time spent on repairs and increasing workshop efficiency. This enhancement in their capabilities will not only boost their productivity but also improve the safety of the vehicles they service. The project aims to train 320 automobile mechanics across the 16 zones of the Greater Accra region, providing each participant with a diagnostic machine in order to facilitate their new skills practically.





GRANT PROJECT THREE (3)

Title of Project: Systems Change Program (SCP) - Employability

Project Period: June 2022 to May 2024

Project Partners: AFOS Foundation,Education Collaborative – Ashesi University

Grant Provider: Education Collaborative

ATU Project Team Members: Prof. Nana Yaw Asabere (Project Lead), Prof. Ernest Christian Winful (Project Co-Lead), Ms. Salamatu Mahamah Braimah (Career Centre Lead), and Mrs. Regina Acquah-Bentil (Career Centre Co-Lead)

Grant/Funding Award: USD 5,000

Summarized Project Description



The Project seeks to equip lecturers of higher educational institutions through training, job shadowing, mentorship, funding, etc. to be able to provide soft skills training to their students in order to make them employable. In the case of ATU, examples of the project's interventions include establishment of a career center that supports students with the writing of Curriculum Vitae (CV) and cover letter writing, elevator pitching among others.



GRANT PROJECT FOUR (4)

Title of Project: Learning Mobility for Higher Education Students and Staff

Project Period: January, 2023 - December, 2024

Project Partners: The Hague University of Applied Sciences (THUAS), The Netherlands

ATU Project Team Member: Prof. Ernest Christian Winful, Dr. Emelia Ohene Afriyie, Prof. Frank Opuni Frimpong

Grant Provider: ERASMUS

Grant/Funding Award: €22,000

Summarized Project Description

This project, funded through a grant from ERASMUS, seeks to provide an exchange programme through learning mobility between selected ATU students and THUAS. The interactions and deliberations were meant to solidify the existing relations between ATU and THUAS, strike new partnerships, and ensure sustenance of the relationship. It also gave two students the opportunity of six-month study stay at The Hague University of Applied Sciences. Three (3) lecturers from ATU also traveled to THUAS and two lecturers from THUAS also traveled to Ghana (each group for a period of one week).



GRANT PROJECT FIVE (5)

Title of Project: Graduate Employability Within Higher Education Framework

Project Period: January to September, 2022

Project Partners: University of Huddersfield, University of Bolton, Accra Technical University, British Council and Social Enterprise Ghana

ATU Project Team Members: Prof. Samuel Nii Odai, Prof. Ernest Christian Winful, Prof. Elikem Chosniel Ocloo, Prof. Frank Frimpong Opuni, Dr. Emelia Ohene Afriyie, Dr. Kofi Opoku-Asante, and Mr. Josiah Nii Adu Quaye

Grant Provider: British Council

Grant/Funding Award: ₵100,000

Summarized Project Description

This project involved exploratory research with young people to develop a new understanding of the meanings that work hold for them and the unique challenges they face in securing appropriate work. The collaborating institutions were Accra Technical University, University of Huddersfield, British Council, Social Enterprise Ghana, and University of Bolton. and the study aimed at generating new insights into the experiences, attitudes, barriers and strategies of young people as they navigate the social reality of securing meaningful work.



By adopting a solution/strengths-based approach with young people as partners, recognizing their local knowledge, experience, creativity, and skills the project sought to:

- Develop skills led resource training programme that will equip young people with contemporary employability skills and knowledge presented within the modern enterprise;
- Support the development of young people in participatory peer research, enabling sense-making and draw on their creativity to co-produce strategies for change and skill development;
- Deliver an innovative dissemination strategy with policymakers, practitioners, communities, and young people; and
- Work closely with local partners to maximize opportunities for ownership, engagement with findings and for co-production of sustainable skills-based outcomes.

GRANT PROJECT SIX

Title of Project: Enhancing Awareness and Utilization of Social Enterprise and Entrepreneurship

Project Period: March to June, 2022

Project Partners: University of Huddersfield, University of Bolton, Accra Technical University, British Council and Social Enterprise Ghana

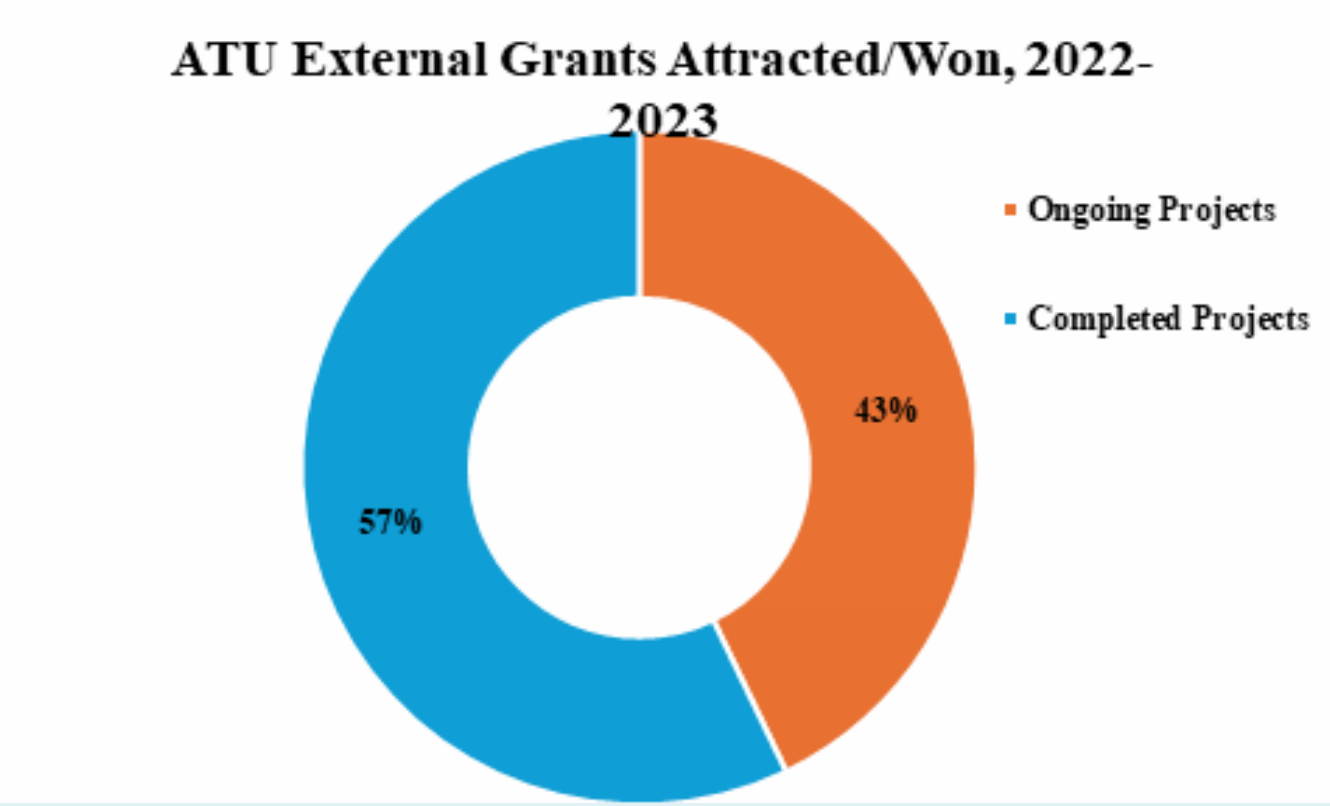
ATU Project Team Members: Prof. Samuel Nii Odai, Prof. Ernest Christian Winful, Prof. Elikem Chosniel Ocloo, Prof. Frank Frimpong Opuni, Dr. Emelia Ohene Afriyie, Dr. Kofi Opoku-Asante, and Mr. Josiah Nii Adu Quaye

Grant Provider: British Council

Grant/Funding Award: ₵20,000

Summarized Project Description

The project involved exploratory research through the creation of a sensitized atmosphere relating to how young graduates could utilize social enterprise and entrepreneurship before and after graduation.


ATU External Grants Attracted/Won, 2022-2023
Ongoing Projects
Completed Projects
43%
57%

EXTERNALLY FUNDED RESEARCH AND PARTNERSHIP PROJECTS AT A GLANCE

Title of Project	Department	Donor	Principal Investigator/ Project Lead
African Health Research and Innovation Research (AHRIP)	Applied Mathematics and Statistics, Science Laboratory Technology, Electrical/Electronic Engineering, and Public Relations Directorate	Research and Innovation Systems for Africa (RISA) / Foreign, Commonwealth & Development Office (FCDO), UK, January, 2023 – December, 2023 **$150,800.00**	Prof. (Mrs.) Alice Constance Mensah
Empowering Automobile Mechanics With Skills in Programming and Diagnosing Modern Vehicles	Mechanical Engineering, and Electrical/Electronic Engineering	Ghana Skill Development Fund (GSDF) 11th April 2023 - 30th June 2024 **GH₵ 1,624,145.20**	Prof. Amevi Acakpovi
Systems Change Program (SCP) - Employability	Computer Science, Accounting and Finance, Faculty of Business, Guidance and Counselling Directorate	Education Collaborative June 2022 to May 2024 **$5000.00**	Prof. Nana Yaw Asabere
Learning Mobility for Higher Education Students and Staff	Accounting and Finance, Marketing, and Management and Public Administration	ERASMUS January, 2023 - Date **€22,000**	Prof. Ernest Christian Winful
Graduate Employability Within the Higer Education Framework.	Accounting and Finance, Marketing, and Management and Public Administration	British Council **£100,000**	Prof. Ernest Christian Winful
Enhancing Awareness and Utilization of Social Enterprise and Entrepreneurship	Accounting and Finance, Marketing, and Management and Public Administration	British Council **£20,000**	Prof. Ernest Christian Winful

MAJOR PROJECT FUNDING AND GRANT PARTNERS

MAJOR PROJECT FUNDING AND GRANT PARTNERS





ATU RESEARCH AND INNOVATION FUND (ARIF)

The first call for ARIF was launched in February 2020 by the Vice-Chancellor, Prof. Samuel Nii Odai, with the core mandate of enhancing multidisciplinary, action-based research to contribute towards building the necessary technical and vocational capacity for the development of Ghana, in particular, and Africa at large.

The establishment of the fund was driven by the desire of ATU to contribute to the reduction of poverty and the improvement of the livelihoods of Ghanaians. Currently, the total amount for ARIF is Gh₵ 20,000 for a period of one academic year. Details of ARIF projects from 2022 – 2023 are illustrated below.

ARIF 2022 RESEARCH PROJECTS



Project Title 1: Design and Implementation of a School Directory System for Visualization, Identification and Location of Public Senior High Schools (Scope: Greater Accra Region, Ghana)

Grant ID: ARIF-2022-01

Investigators: Joseph Eyram Dzata (PI)[1], Joseph Agyiri[1], Gare Lawson[2], Sampson Kuworye[1], Charles Hormeku[1], and Daniel Opoku-Mensah[3]

[1]Department of Computer Science, Faculty of Applied Sciences, Accra Technical University (ATU)

[2]Raycom Technologies Limited, Accra, Ghana

[3]Department of Geography Urban Planning and Environmental Studies, Concordia University, Montreal, Canada

Project Status (Completed, Publication Process Ongoing, Software Product Available)

Secondary school education, essentially, empowers young people to improve their economic standing. According to the United Nations (UN) Sustainable Development Goals (SDGs), adopted in September 2015, nations must ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (SDG 4).

In Ghana, a Computerized School Selection and Placement System (CSSPS) has been developed since 2005 to automatically place students according to results they obtain from the Basic Education Certification Examination (BECE). Even though this system is very helpful, it does not provide students with location and other relevant information when it comes to selection of schools. In most cases, their teachers during their final year in Junior High School (JHS), make the choices for them, leaving the parents out of the picture.

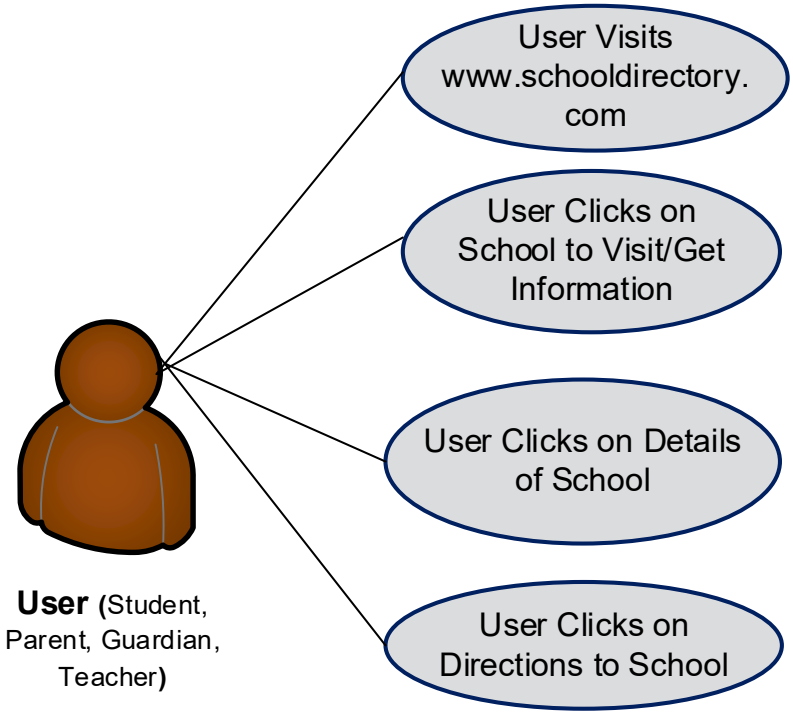
Due to the importance of effective senior high school education, it is necessary students are provided with details (e.g. location, contact details, etc.) of which SHS to select and the accurate location of the school.

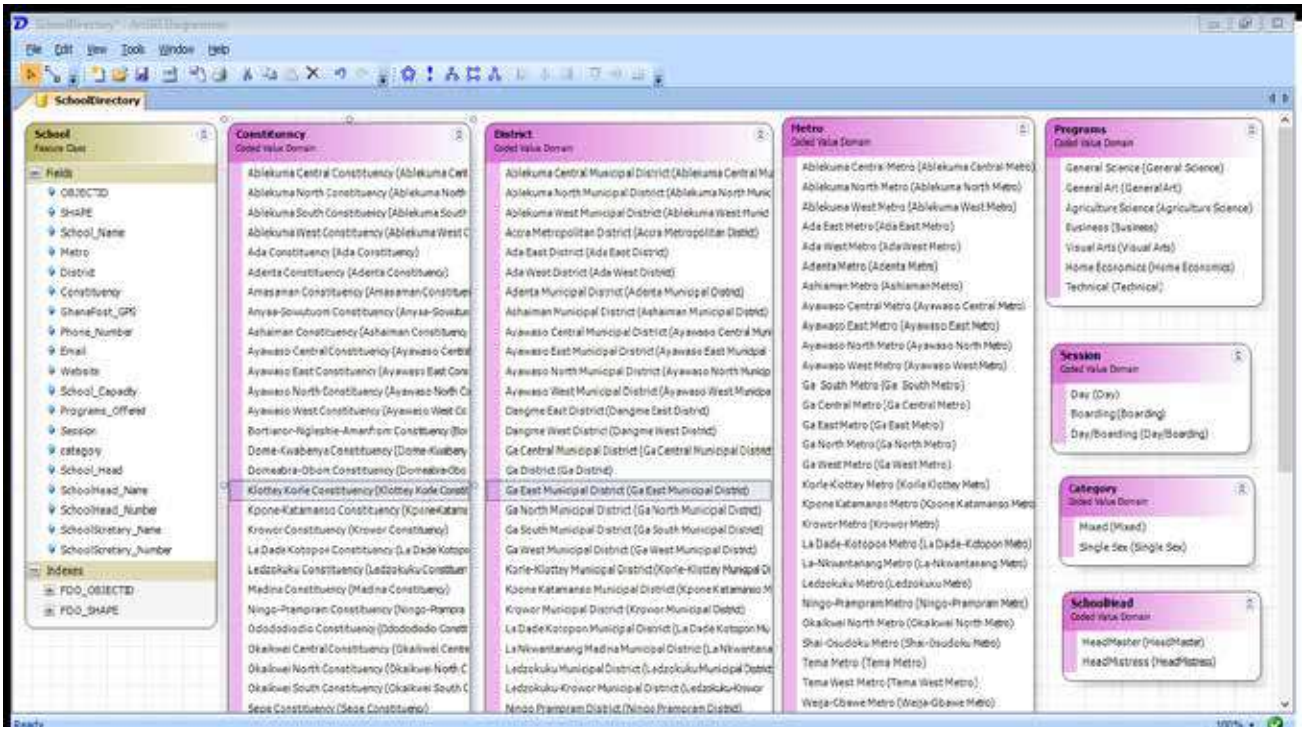
It is essential that the right and proper tools are utilized with the help of an integrated system using Geographic Information System (GIS).

The project proposes a digital SHS Locator web-based map integrated with GIS purposely for data collection, visualization and planning, with the aim of helping relevant stakeholders to locate and retrieve appropriate information of various public SHSs. The project provides users with the information they need on public SHSs in the Greater Accra Metropolis, such as name of school, address, phone number, location, contact information, number of staff, the region, and any professional affiliation(s). With the use of GIS tools like ArcGIS, Geodatabase, ArcMap, and ArcCatalog, these schools are classified according to their specialization, size, activity, and location.

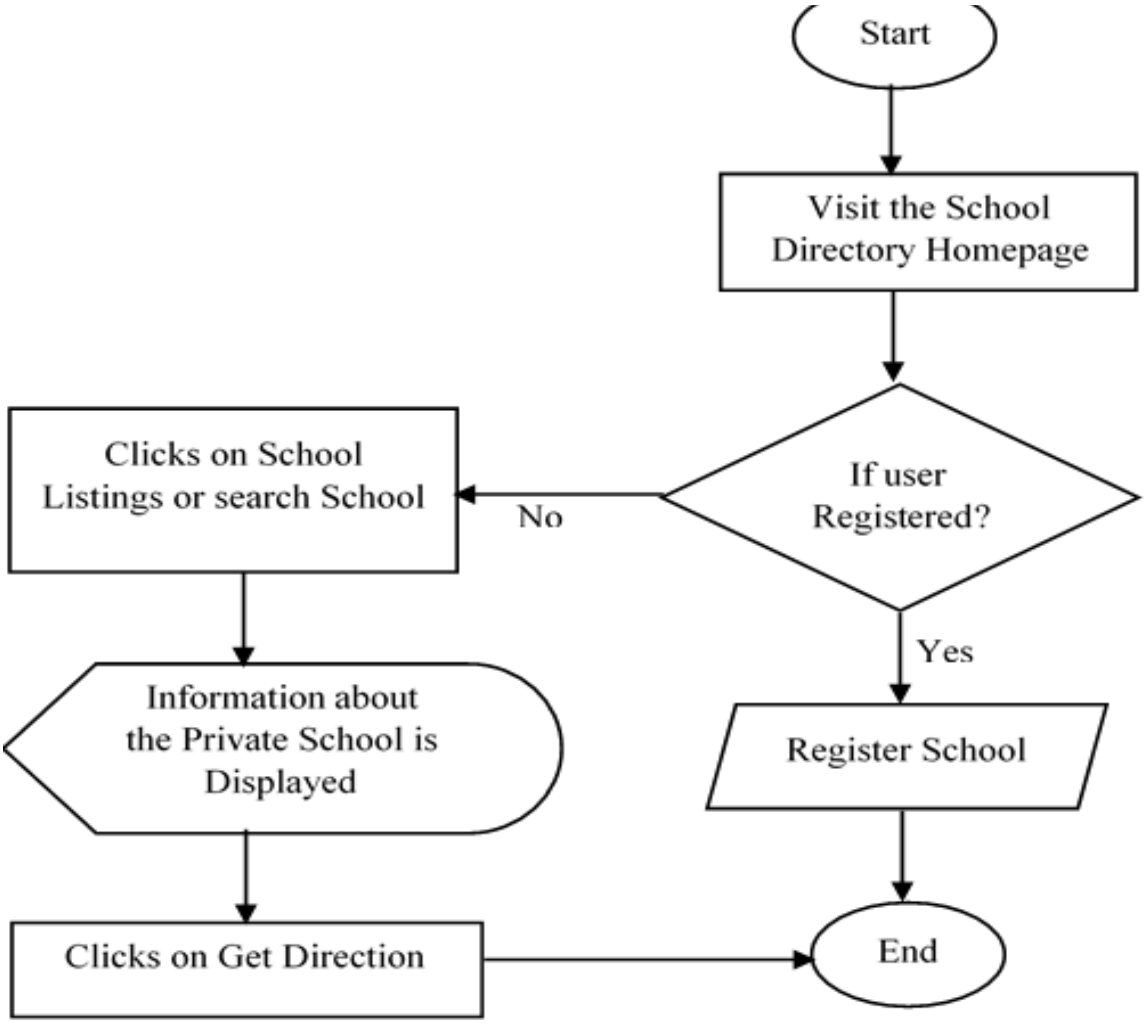
One important aspect of this project is to assist parents/guardians who require immediate, time-sensitive, non-geographically limited access to information and locations about public SHSs.

Use Case Diagram





Modelled Feature Class in ArcGIS Diagrammer



Flowchart Diagram



Project Title 2: Automated Hospital Emergency Care Stretcher

Grant ID: ARIF-2022-02

Investigators: Peter Kwadjo Nyanor **(PI)**1, Moro Adams1, and Justice Nyarko2

1Department of Mechanical Engineering, Faculty of Engineering, Accra Technical University (ATU)

2Drone Centre, Accra Technical University (ATU)

Project Status (Ongoing – Phase 2)

Project Summary:

This project aims to reduce or eliminate the effort needed in transporting patients during emergencies and in between wards by health professionals. The first part of this project sort to replace nurses with physically challenged persons who will wheel patients around the hospital relieving nurses to attend to other issues. This is also to create employment opportunities for the physically challenged in society. The first prototype of the Hospital Emergency Stretcher Wheeled by a Disabled Person is as shown below.

The phase was to automate the patient movement on the stretcher using voice control. In the second phase the wheelchair is replaced by voice command to control and move patients between wards. The reduce the effort in pushing and the number of nurses needed for such task. The CAD and realized prototype are as shown below.



Hospital Emergency Stretcher Wheeled by a Disabled Person





Voice Controlled Hospital Emergency Stretcher



Project Title 2: Design and Fabrication of Re-Enforced Epoxy Resin Sawdust for Fish Pond

Grant ID: ARIF-2022-03

Investigators: : Isaac Asempah (**PI**)[1], Tina Wemegah[2], and Moro Adams[1]

[1]Department of Mechanical Engineering, Faculty of Engineering, Accra Technical University (ATU)

1Department of Mechanical Engineering, Faculty of Engineering, Accra Technical University (ATU)

Project Status (Ongoing – Phase 2)

Project Summary:

This project is aimed at the use of sawdust reinforced with epoxy resin to fabricate fish ponds. Among others, the research also focusses on acquiring findings on the physical and chemical properties of the composite, the material's durability and chemical reactions in various temperatures (especially in hot temperatures) as this may have effect on aquatic life. In this work, the composite materials were prepared from a mixture of epoxy resin and sawdust with three.

Different sawdust sizes namely, 2.5 mm (coarse), 2.0 mm (medium) and 0.5mm (fine) respectively with varied epoxy loadings. For each sawdust type, three samples were prepared by mixing three different epoxy loadings with varied sawdust loadings in order to achieve the best composite material with the best tensile strength. Water absorption rate was tested of the various sawdust particle sizes. Sawdust particles were dried and soaked in water for 24 hours at room temperature.



Re-Enforced Epoxy Resin Sawdust Fish Pond



Removal of Artifact From Mold



Tensile Test of the Epoxy Resin Sawdust Composite

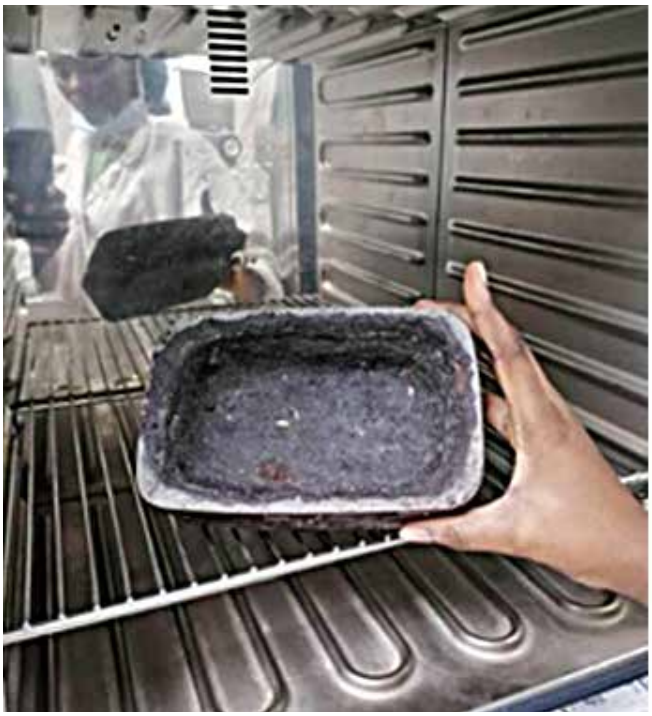
Water Quality Analysis

Description	Date Analyzed	TPC (cfu/ml)-dilution Average	Y&M(cfu/ml)-dilution Average	Colloform(cfu/ml)-dilution Average	Remarks
TWBP	14.08.23	< 100	< 10	< 10	Satisfactory
TWAP	14.08.23	< 100	< 10	< 10	satisfactory

TWBP (Treated Water Before Pouring into the pond).

TWAP (Treated Water After Pouring from the pond).

The test results indicated that water absorption reduced with increase in particle size. The fine sawdust proved the best among the rest of the other sawdust types; and thus, was selected for the construction of the artifact. The test also showed that, the coarser the sawdust the more epoxy loadings required which was not economically viable. Water quality analysis was carried out to check for the contamination in water after filling the best sample with water and then exposing it to varying temperatures (60OC, 80OC and 100OC) and soaking times (15 minutes, 30 minute and 60 minutes). There was no contamination of the water after this test which indicates that it can support aquatic life. The material's tensile strength and thermal stability was also investigated to test the strength and durability of the artifact at different temperatures. The recorded tensile stress of the artifact was encouraging, and the material was thermally stable after exposure to a temperature of 45 degrees Celsius in an oven for a period of 10 minutes.



Tensile Test of the Epoxy Resin Sawdust Composite



Project Title 4: EMG-Controlled Prosthetic Hand

Grant ID: ARIF-2022-04

Investigators: Richard Barnes Asamoah **(PI)[1],** Nina Pearl Doe[2], Justice S. K. Nyarko[3] and Jacob Golightly[3]

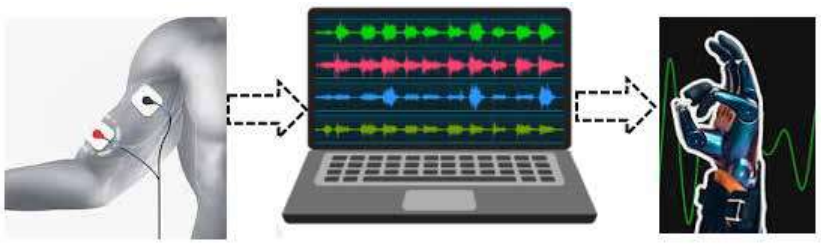
3Department of Computer Science, Faculty of Applied Sciences, Accra Technical University (ATU)

3Drone Centre, Accra Technical University (ATU)

Project Status (Ongoing – Phase 2)

Project Summary:

Electromyography (EMG) is a recording of the electrical activity of the muscle typically from the skin surface. The recorded waveforms provide insights into the dynamic aspects of muscle activities. The real-time analyses of oscillatory EMG components during biceps and triceps movements allow the control of an electric device attached to the human hand. Amputees or the handicapped can communicate with their environment using human-machine interface (HMI) which utilizes physiological biceps and triceps signals. This project demonstrates a system that makes use of EMG for the control of hand prostheses.



EMG-Controlled Prosthetic Hand



Project Title 5: Analysis and Optimization of Heat Enhancement for Hydrogen Fuelled Micro Pin-Fin Planar Combustor for Thermo-Photovoltaic Application Using Response Surface Methodology

Grant ID: ARIF-2022-05

Investigators: Stephen Edem Bani **(PI)**, Evans Kanyi-Koi Quaye, Sydney Lloyd Abbey, Benjamin Addo-Mensah, and Douglas Ayittey

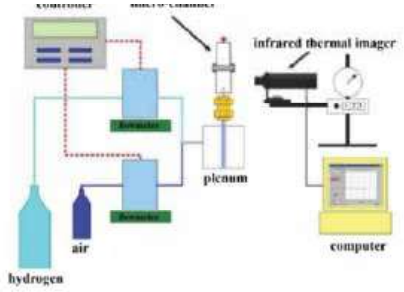
Department of Electrical/Electronic Engineering, Faculty of Engineering, Accra Technical University (ATU)

Project Status (Ongoing – Phase 3, Publication Process Ongoing)

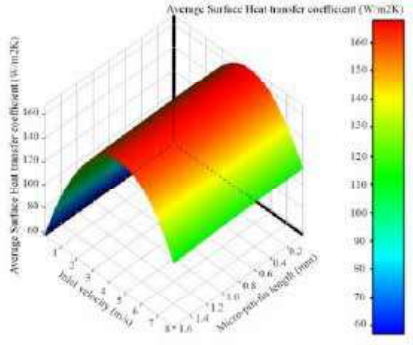
Project Summary:

Micro-Electrical Mechanical Systems (MEMS) driven by micro power generators have inherent challenges even though they have several advantages, such as low power consumption and low unit cost. When it comes providing sustainable, highly efficient, and environmentally friendly electrical power, MEMS technology is a sure way to ensure its long-term viability. One method of generating electrical power for MEMS is through thermo-photovoltaic systems (TPVS).

To generate electricity from thermal radiation, TPVS employs a heat source, an optical system (emitter and filter), and photovoltaic cells. To accomplish this, a competent team of experts from ATU and abroad has been assembled to design, fabricate, and optimize the operations of a TPVS in order to undertake this economically viable technology of meeting the power supply needs of many MEMS technologies in the country. Project duration and cost will be moderate in scope to achieve the set targets. After successfully executing this project there is no doubt that it will establish ATU as the foremost university in this interesting research field in the country. It will also provide a solid foundation for future research projects.



Experimental Set-up Schematic Diagram



Response Surface Model Showing How Inlet Velocity and Micro-Pin-Fin Length Affect Average Surface Heat Transfer Coefficient



Project Title 6: Synergistic Bioactivity of Medicinal Herbs Applied in Topical Pharmaceutical Products

Grant ID: ARIF-2022-06

Investigators: Andrew Gordon **(PI),** Reuben Essel Arhin, Diana Ahu Prah, Alhassan Saeed, Jerry Xola Sosu, and Leslie Owusu Ansah

Department of Science Laboratory Technology (SLT), Faculty of Applied Sciences, Accra Technical University (ATU)

Project Status (Ongoing – Phase 3)

Project Summary:

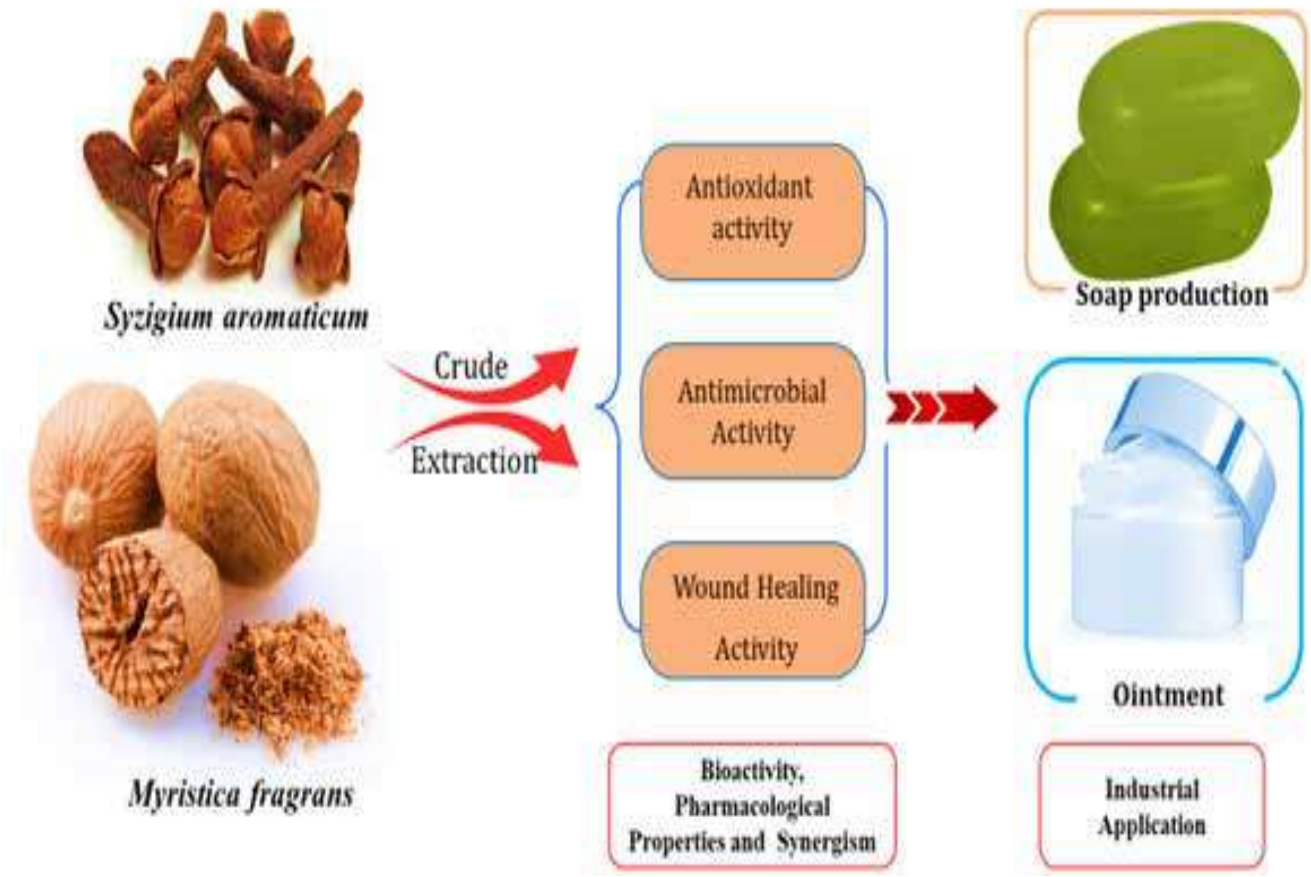
The remarkable benefits of medicinal plants in creating potent medications cannot be overstated. These plants produce secondary metabolites with therapeutic properties that are crucial to the development of highly effective medications. (Li et al., 2020). Well-known among these are Syzygium aromaticum (Cloves) and Myristica fragrans (Nutmeg).

This study is aimed at producing proven medicinal soaps and ointments for topical treatment of skin ailments, skin enhancement, and wound healing. Skin ailments like warts, acne, and contact dermatitis are common problems in many societies including Ghana. These ailments can deform personal looks and lead to low self-esteem. They may also lead to more serious conditions if poorly managed.

Synergistic Bioactivity of Syzegium Aromaticum Flower and Myristica fragrans seeds extracts applied in Topical Pharmaceutical Products

Without doubt, herbal extracts are the ideal remedy for treating skin and soft tissue infections. Their effectiveness in healing these ailments is unparalleled, and they have been utilized for centuries for this very purpose. Similarly, treatment with a natural product regime has been reported to be generally cheaper and safer. A significant number of topical drugs used to treat common skin ailments contain sulfur or salicylic acid which may mar the appearance of the skin after treatment.

Knowing the side effects of synthetic medications, the search for natural alternatives is on the increase. Herein, a novel synergy in the bioactivity of the combined extracts from Syzegium aromaticum flower and Myristica fragrans seeds extracts was evaluated. The combined extract exhibiting augmented therapeutics was formulated into topical pharmaceutical products (Herbal Soap and Ointment).



Synergistic Bioactivity of Syzegium Aromaticum Flower and Myristica fragrans seeds extracts applied in Topical Pharmaceutical Products



Project Title 7: Quantitative Assessment of Quality Management Systems in Medical Imaging Facilities in Ghana (Case Study of Ultrasound Imaging Facilities)

Grant ID: ARIF-2022-07

Investigators: Ahmed Mohammed Gedel (PI), Eric Naab, and Mohammed Sanda, Robert Amissah Eshun, and Carl Wuaku

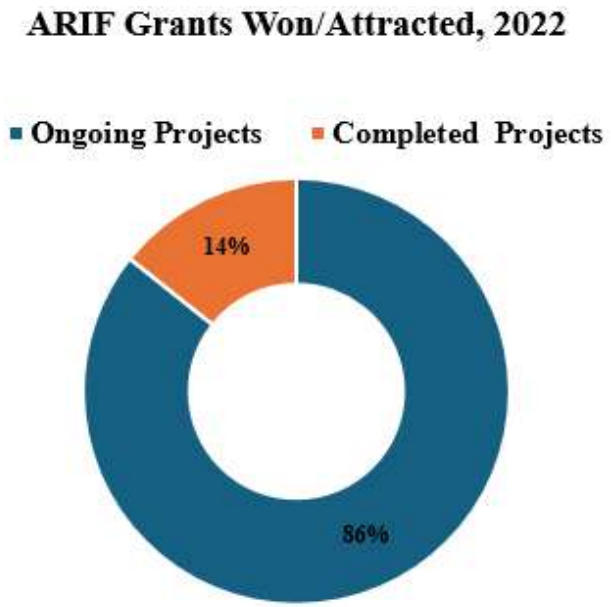
Department of Science Laboratory Technology (SLT), Faculty of Applied Sciences, Accra Technical University (ATU)

Project Status (Ongoing – Phase 1)

Project Summary:

The goal of a Quality Management System (QMS) in medical imaging facility is the commitment to providing high-quality professional patient care in pursuit of efficient healthcare delivery. In Ghana, there are approximately 1,100 ultrasound diagnostic facilities, with the Greater Accra region accounting for over 70%. None of these facilities, however, follows the specified requirements for acceptance testing, commissioning tests, frequent quality assurance, quality control, and maintenance. The goal of the study is to assess the current state of quality management systems in a few selected ultrasound imaging facilities in the Greater Accra Region, as well as to develop a software-based approach for monitoring and evaluating the effectiveness of ultrasound imaging facilities' quality management systems. The project will distribute questionnaires to sampled facilities in the Greater Accra Region using a software-based technique.

Finally, the research will aid in the establishment of a QMS that has the potential to assist regulators and stakeholders in monitoring and evaluating ultrasound imaging facility activities in the country utilizing the software and protocols created.



ARIF 2022 AT A GLANCE

Title of Project	Department	Donor	PI
Design and Implementation of a School Directory System for Visualization, Identification and Location of Public Senior High Schools (Scope: Greater Accra Region, Ghana)	ATU ARIF-2022-01	Mr. Joseph Eyram Dzata, Computer Science Department	Completed
Automated Hospital Emergency Care Stretcher	ATU ARIF-2022-02	Dr. Peter Kwadjo Nyanor, Mechanical Engineering Department	Phase 1 out of 4
Epoxy Resin Reinforced Sawdust Composite for Potential Application in Aquaculture	ATU ARIF-2022-03	Dr. Isaac Asempah, Mechanical Engineering Department	Phase 3 out of 4
Brain Computer Interface for Real-Time Prosthetic Hand Control.	ATU ARIF-2022-04	Dr. Richard Barnes Asamoah, Electrical/ Electronic Engineering Department	Phase 1 out of 4
Optimization of a Cylindrical Micro Combustor Filled with a Porous Media for Thermophotovoltaic Application	ATU ARIF-2022-05	Dr. Stephen Bani, Electrical/Electronic Engineering Department	Phase 3 out of 4
Synergistic Bioactivity of Medicinal Herbs Applied in Topical Pharmaceutical Products	ATU ARIF-2022-06	Dr. Andrew Gordon, Science Laboratory Technology Department	Phase 3 out of 4
Quantitative Assessment of Quality Management Systems in Medical Imaging Facilities in Ghana - Case study in Ultrasound Imaging Facilities	ATU ARIF-2022-07	Mr. Ahmed Mohammed Gedel, Science Laboratory Technology Department	Phase 1 out of 4

ARIF 2023 RESEARCH PROJECTS



Project Title 1: A Physico-chemical Characterisation of Shallow Aquifers of the Keta Basin

Grant ID: ARIF-2023-01

Investigators: Prodeo Yao Agbotui **(PI)**[1], Mark Brookman-Amissah[2], Anthony Woode[1], and Anthony Awusi[3]

1Department of Civil Engineering, Faculty of Engineering, Accra Technical University (ATU)

2Department of Building Technology, Faculty of Built Environment, Accra Technical University (ATU)

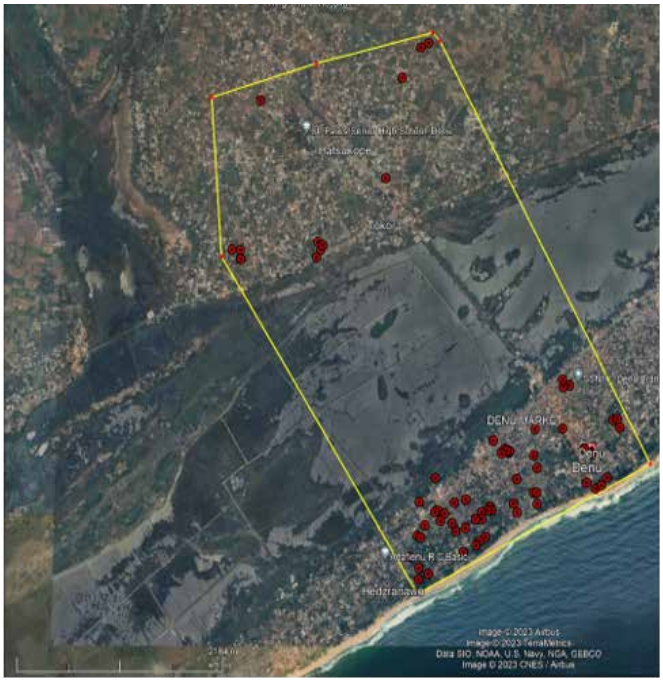
3Department of Geological Engineering, University of Mines and Technology, Tarkwa

Project Status (Ongoing – Phase 3)

The Keta Basin is an important aquifer in Southern Volta. Water from the aquifer is used for domestic supply and vegetable farming in the area. Previous works have characterized the water evolution and source of the deeper Cretaceous Limestone and Basement aquifers to the neglect of the shallow aquifers, which is economically accessible and could become the main water supply source for the area. This work hypothesizes that since the shallow aquifers are recharged and are vulnerable to agricultural contamination, it lends itself to being better characterized via geochemical signature analyses and discrimination for constraining sources of ions in the aquifer. This work aims to discriminate and group the water types in the shallow aquifer, via geochemical sampling of wells and rainwater, and hydraulic head monitoring for groundwater directional mapping. The findings will inform Municipal Health Directorates about the geochemical content of groundwater and their potential impact on the health of inhabitants. Secondly, the Municipal / District Assembly will use the anthropogenic sourcing of the ions to plan and regulate farming and fertilizer application area. Additionally, this project is expected to develop a base hydrogeological conceptual model for the management and protection of groundwater resources in the study area.

Activities to Date
Site Reconnaissance and Sampling of Boreholes

Seventy-one (71) wells were identified for the project during site visits to the project area (Adafienu and Denu and their respective beaches, and Tokor and Hatsukope) on October 21, 2023 and November 12, 2023 to identify and mark wells and well owners willing for studies to be undertaken using their wells (see below for well locations pinned on google earth pro).



Wells Located and Pinned Using Coordinates on Google Earth Pro



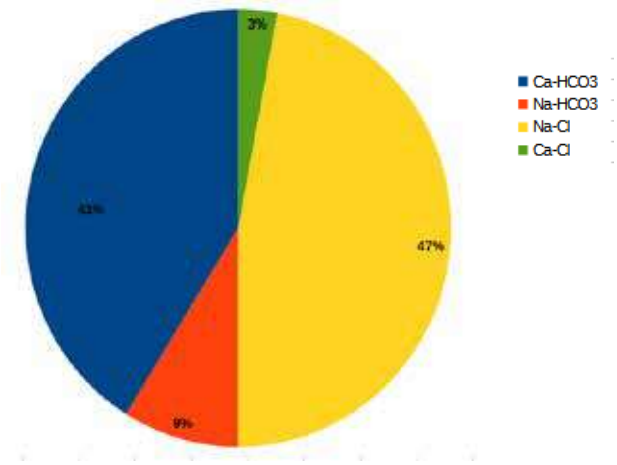


Sampling And Field-Testing Round. (A) Sample Open Well at Adafienu At 6.09078N, 1.13705E, (B) SEC Testing of Retrieved Sample From Well.

Later in December 2023, samples were retrieved from 34 wells marked for this project (see below – sampling and field-testing round). On the field, specific electrical conductance and pH were monitored. The samples were then preserved, stored on ice and sent to the City Revamp Environmental Services Laboratories for testing for major and minor ions.

Geochemical Discrimination of Sampled Waters and Classification of the Water Types

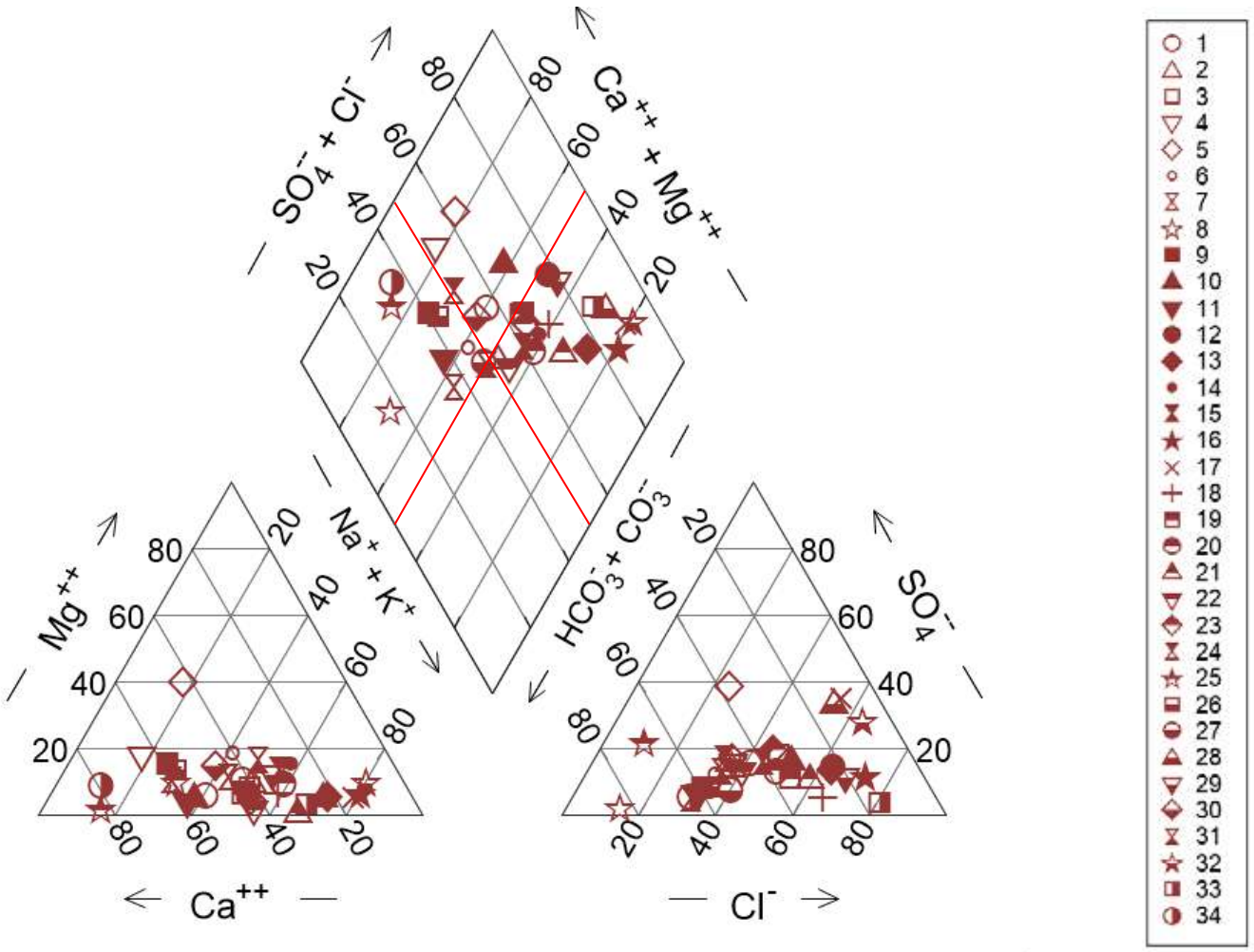
There are four (4) main water types from the analyses as: Na-Cl, Ca-(HCO3)2, Na-HCO3, and Ca-Cl2 with percentage dominances of 47, 41, 9 and 3% respectively (see below – summary of water type distribution). The discrimination plots of the samples are shown below.



Summary of Water Type Distribution

Future Activity

The research team plans to mobilize to undertake the last and physical aspect of the project.



Groundwater Facies and Discrimination Plot



Project Title 2: Improved IoT-Based Electronic Health Record System in Schools Using Machine Learning

Grant ID: ARIF-2023-02

Investigators: Felix Nartey (PI)[1], Gare Lawson[1,2,] and Daniel Opoku-Mensah[2]

.

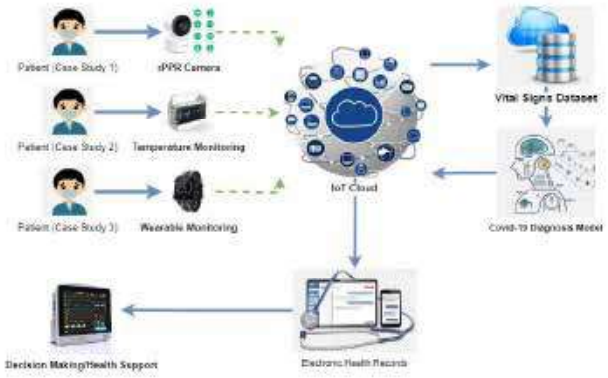
[1]Department of Computer Science, Faculty of Applied Sciences, Accra Technical University (ATU)
[2]DexAfrica, Accra

Project Status (Ongoing – Phase 3)

The process of utilizing Internet of Things (IoT)-Based Electronic Health Records (EHRs) using Machine Learning technology to automate real-time patient-centred records ensures efficient security to authorized users. In this era of pandemics, predictive healthcare systems are necessary in private and public healthcare delivery for early prediction of cancer, COVID-19, hypertension, and fever in schools.

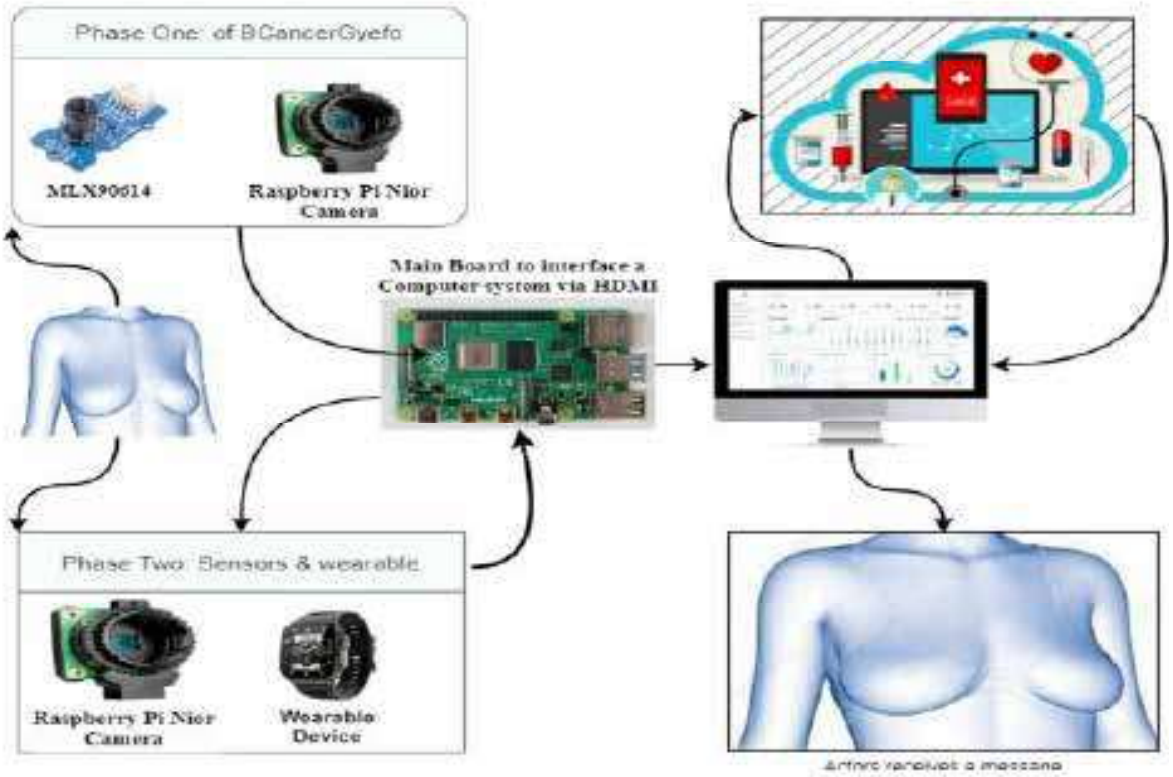
IoT-Based EHRs brings healthcare delivery to the doorsteps of educational facilities, thereby, reducing time required to access healthcare and reducing physical contact between healthcare seekers and providers. This study proposed a real-time intelligent IoT-based EHRs system called InsHome HMS which generates vital signs of students within the educational environment using contactless sensors (Raspberry Pi Noir Camera, rPPG camera), and contact wearable sensors composed of enzymatic sensor, immunosensor, and nanosensor to detection cancer (Leukaemia). There is an in-built EWS plots system which determines the condition and further triggers the

criticality (abnormality) in health status after capturing the physiological data. For effective prediction of



Smart Health Working Environment

health status by the proposed system, vital sign dataset was used to train a model for the proposed system. Among the best performing models, the random forest algorithm proved a better model, with an accuracy of 99.66%, and error rate of 0.34%. The proposed InsHome HMS seeks to improve health prediction in institutional homes for the overall well-being of users.



Smart Breast Cancer Detector



ARIF 2023 AT A GLANCE

TITLE OF PROJECT	Donar	PI	STATUS
A Physico-Chemical Characterisation of Shallow Aquifers of the Keta Basin	ATU ARIF-2023-01	Dr. Prodeo Yao Agbotui, Civil Engineering Department	Phase 3 out of 4
Improved IoT-Based Electronic Health Record System in Schools Using Machine Learning	ATU ARIF-2023-02 Mr. Felix Nartey, Computer Science Department	ATU ARIF-2023-02 Mr. Felix Nartey, Computer Science Department	Phase 3 out of 4

APPLIED RESEARCH CONFERENCE FOR TECHNICAL UNIVERSITIES IN GHANA (2022)



The Applied Research Conference of Technical Universities of Ghana (ARCTU-G) is a platform for researchers to discuss important scientific, technical, innovative, and entrepreneurial research questions, share results of recent research findings, make new or renew friendships, and work together to develop new chapters in applied research towards the fight against poverty, hunger, malnutrition, and disease burdens in Africa and beyond. The conference is also intended to provide opportunities for departments and faculties in Technical Universities to exhibit their innovative products to the general public.

From July 6 – 7, 2022, Accra Technical University hosted the 2nd ARCTU-G, together with its partner Universities: Ho Technical University, Koforidua Technical University, Cape Coast Technical University, Takoradi Technical University, Kumasi Technical University, Sunyani Technical University, Tamale Technical University, Wa Technical University and Bolgatanga Technical University under the theme "Sustainable Technologies, Innovations and Entrepreneurial Development." The two-day conference was launched in the University Auditorium and various venues on ATU campus were used. It encompassed the following formats: panel sessions, presentation sessions, poster sessions, and exhibitions.

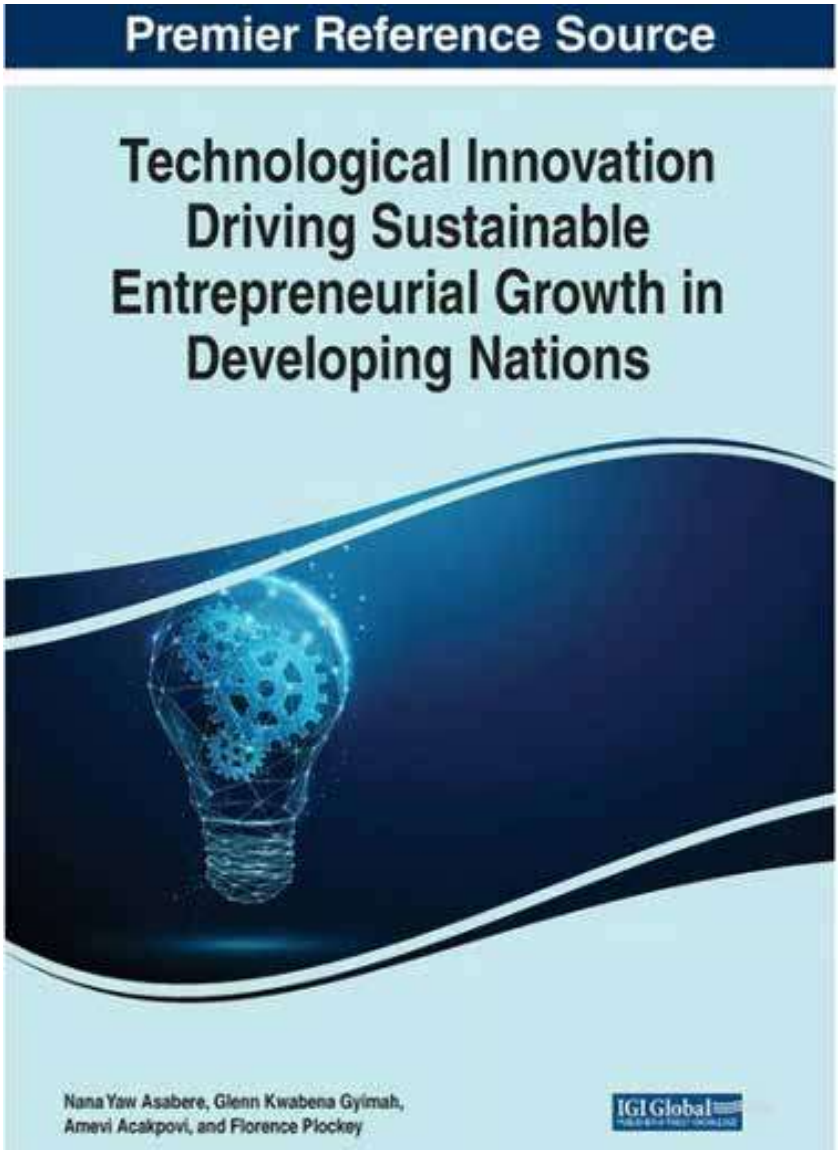
In relation to target participants, the conference aimed specifically at bringing together participants from academia, business, and other stakeholders interested in the interplay between entrepreneurial education and sustainable economic development. It therefore provided a forum for researchers and practitioners alike to interact and exchange ideas. Thus, the event was designed to be a response to the popular request for bridges of communication between the worlds of academia and industry.

In terms of contributions, the conference was both entrepreneurial and innovative. Apart from the presentations participants were encouraged to contribute actively and let their voices be heard in interactive formats. Emphasis was given to networking possibilities and partner search.

The road map for Ghana's Sustainable Development appears well set out in the global and regional agenda towards higher education as the panacea. Some of these agenda include the transition to Sustainable Development Goals (SDGs) – with the promise of technologies, innovation, and entrepreneurial education for all, through what is now known as Education 2030 Framework for Action (EFA), and Agenda 2063 of the Africa Union (AU). It was in this context that the Vice-Chancellors of Technical Universities (VCTU), Ghana structured the 2nd Annual Applied Research 2022 Conference under the theme "Sustainable Technologies and Entrepreneurial Development" into the following five sub themes:

- Innovation in Science and Health
- Information and Communication Technologies
- Innovation in Engineering Technologies
- Entrepreneurial, Industry and University Linkage
- Applied Art and Technology

Asabere, N. Y., Gyimah, G. K., Acakpovi, A. and Plockey, F. (2023). Technological Innovation Driving Sustainable Entrepreneurial Growth in Developing Nations. IGI Global.



The Local Organizing Committee Members of the 2nd Applied Research Conference for Technical Universities were:

1. Dr. Regina Appiah (Lecturer, Marketing Department - Co-Chairperson)
2. Dr. Florence Plockey (University Librarian - Co-Chairperson)
3. Prof. Nana Yaw Asabere (Director, DRIPTT – Member)
4. Rev. Dr. Glenn Kwabena Gyimah (Ag. HOD, RIG - Member)
5. Dr. Sylvester Hatsu (Director, ICT – Member)
6. Ms. Fausta Kilian Ganaa (Deputy Registrar/Director, PR - Member)
7. Dr. Francis Gyedu (Deputy Registrar, Head of University Examinations. - Member)
8. Dr. Emmanuel Akoi-Gyebi (Lecturer, Building Technology Dept. - Member)
9. Dr. Gideon Adotey (Lecturer, Science Laboratory Technology Dept. - Member)
10. Mrs. Catherine Adu (HOD, Fashion Design and Textiles Dept. - Member)
11. Ms. Juliana Tay (Junior Assistant Registrar, Public Relations Directorate - Secretary)
12. Mrs. Sebrina Adjei-Frimpong (Senior Assistant Registrar, EEE Dept. - Assistant Secretary)

FACULTY OF APPLIED SCIENCES SKILLS EXHIBITION (2022)



Prof. Alice Constance Mensah

Dean, Faculty of Applied Sciences



Mr. Johnson Opoku-Boateng

AGI Executive Director (Guest Speaker)

The conversion of polytechnics into technical universities in September 2016, and the enactment of the ATU statutes in May, 2018, gave rise to the Faculty of Applied Sciences. The mandate of Technical Universities is based onAct 922 (2016), and this mandate seeks to provide higher education using competency-based training. It requires training to be practice-oriented and designed to provide opportunities for skills development. Also, technical universities are expected to focus on technology development, innovation technology transfer to respond to industry needs and learner interests.

The Faculty of Applied Sciences, as envisioned in the Legislative Instrument that established ATU, is to offer an amiable learning, teaching and research environment capable of producing middle-level specialists in science. In conformance to the above mandate, as part of the 5-year strategic plan of ATU, the faculties are required to provide opportunities for skills development in innovative and emerging technologies. This is in addition to strengthening competency-based skills development in TVET, by showcasing creativity and innovation of staff and students through an annual skills exhibition.

Another objective is for the faculty to teach students to acquire scientific knowledge and methodologies; equip students with practical skills, technical knowhow to use modern technologies, entrepreneurial skills and values for the 21st Century and Fourth Industrial Revolution (4IR). With the above in mind, the Faculty of Applied Sciences is focused on the transfer of existing scientific knowledge to practical applications, like technology or inventions.



The Faculty of Applied Sciences' innovative research exhibition occurred from June 1, 2022 to June 2, 2022 at the Accra Technical University Auditorium under the theme "Innovative Technologies in Applied Sciences". Various departments in the faculty displayed their research products.

Prof. Edmund Ameko and Saeed Alhassan in the Science Laboratory Technology (SLT) Department exhibited liquid smoke producing chamber (pyrolysis chamber). Different flavours of liquid smoke were produced from biodegradable waste such as sugarcane husks, coconut husks, coconut shell, saw dust, palm nut kernel, and palm nut husks.

The produced liquid smokes had several applications. The product was used for atomization and marination of tilapia, salmon, and herrings. The smoked fish had different flavours depending on the flavour of the liquid smokes used. Liquid smokes have several advantages over the traditional direct fire smoking. The inhalation of smoke on clothing is eliminated. The polycyclic aromatic hydrocarbons and tar are removed from the product. Also, with the use of liquid smoke, excessive use of fire wood and the accompanying deforestation be minimized.





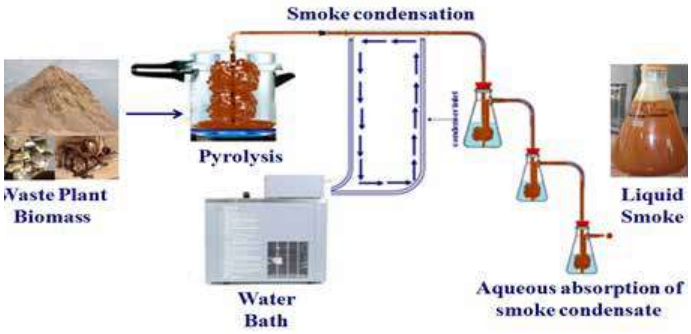


Oil Drum Oven and Chorkor Smoker





Emission of Excessive Heat, Smoke, Particulate Matter, Greenhouse Gases and PAH Pollution Creates an Unhealthy Working Environment for the Processors

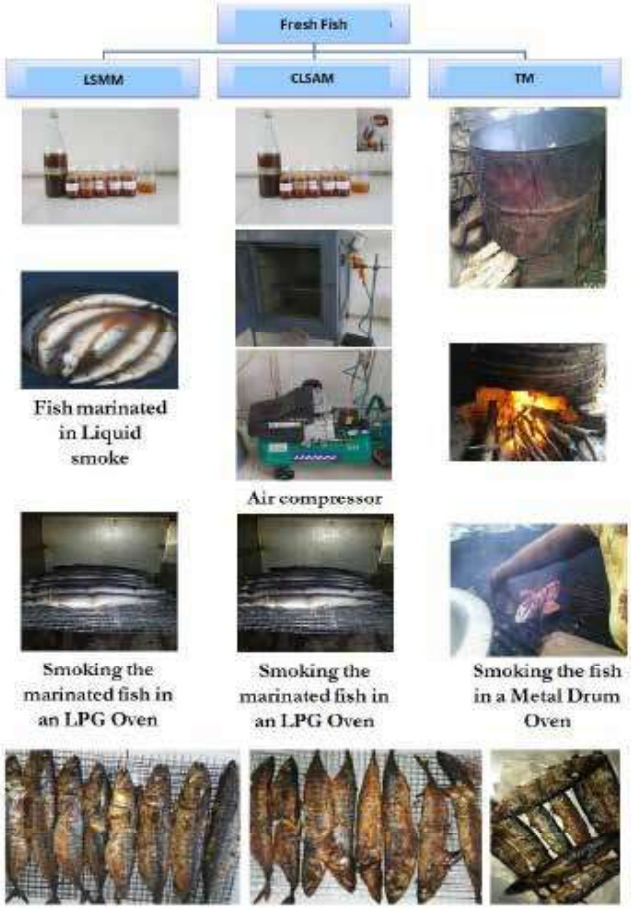


Production of Liquid Smoke

The liquid smoke was also used as fertilizer to stimulate the growth of maize at varying concentration using the hydroponic method. Liquid smokes were observed to stimulate the growth of maize better than water alone.



Maize Seedlings Irrigated with the Liquid Smoke



Liquid Smoked Herrings from the Various Smoking Methods

Furthermore, the biochar (charcoal) that remained after pyrolysis also served as fertilizer. Biochar is well known in the agriculture industry.





The Medical Laboratory Technology Department exhibited some medically important microorganisms. These includes parasiticworms such as Dracunculus medinensis, Strongyloides stercolaris, Taenia spiecs, Echinococcus granulosis, malaria parasites and hydatidcyst. Fungi such as Trychophyton rubrum, Aspergillus niger, Rhizopus stolonifera, Penicillium species were also displayed. In addition, there was on spot free medical screening for patrons of the exhibition. Participants were offered free screening for malaria, typhoid fever, hepatitis B. There was also blood typing for those who wanted to know the blood group.



On Spot Free Medical Screening for Participants and Patrons of the Exhibition

The occasion also attracted some exhibitors who came to display their products. Some of the items displayed includes rapid bacteria identification kits such as chromogenic media and analytical profile index (API- ENTEROTUBE II system).



The Enterotube II system

Academic staff in the Computer Science Department, namely: Wisdom Torgby, Joseph Agyiri, Joseph Dzata and Prof. Nana Yaw Asabere mentored and trained students (Razak Moazu, Esther Afful, Joshua Nyarko Boateng, Samspon Kuworye and Gare Lawson) in their Department to develop and exhibit the software products below:



VISION-BASED ARTIFICIAL INTELLIGENCE PEOPLE COUNTER SYSTEM

People counting is an important part of business management for retailers, as it helps them to determine the number of potential shoppers in their space at any given point in time. Therefore, a human detection and tracking system, in real-time, that has a classification and sorting algorithm with feedback is very crucial for people counting. Retailers' challenges include movement, time of shoppers entering and exiting, shoppers detection, and monitoring. This system has been trained and tested with unique algorithms in order to achieve this purpose.

The main aim of this project is to develop an artificially intelligent, vision-based system to help retailers to tracking of shoppers easier. To verify the time and date customers attend a shop, each customer is given a unique ID, and the objects are detected through a camera.

To develop this system, we considered the functionalities below:

- **Object Detection:** Object tracking using a special dataset of objects, with a unique classification algorithm to detect the object revealing its identity. The artificial intelligence vision-based system is in stages. It works on the basis of computer vison functionalities such as object detection and classification using a camera.

Vision Object Detection: The input source is mainly the camera connected via IP address or a node. This captures data in real time, providing the system with a live video for analysis.

Real-time Video Processing Using Computer vision: The video fed into the system is processed into two formats which are thermal imaging and masking. For better analysis, processing morphology functions such as eroding, background subtraction, image dilation and Gaussian blur were used. The object detection and analysis were obtained by using a dataset loaded with customed Haar cascade classifiers for different objects. This gives the object name output. The above proposed system will aid management of businesses to properly plan and thereby improve security.



Graphical User Interface (GUI) of the Proposed System

FACULTY OF APPLIED ARTS SKILLS EXHIBITION (2022)

The Faculty of Applied Arts organized an Exhibition on 16th and 17th June, 2022 at the University's main Auditorium. Invited guests included Prof. Samule Nii Odai (Vice-Chancellor), Prof. Amevi Acakpovi (Pro Vice-Chancellor), Dr. (Mr.) Sylvia Beatrice Oppong-Mensah (Registrar), Industry Partners and Senior High School Students from Kanda Technical Institute, Generic Cosmetics, Kinbu SHS School, Accra High School and many more.



Leather works – Bags, Shoes and Slippers



Toys made from Wax Printed Fabrics

PRODUCTS FROM THE HCIM DEPARTMENT



Banana and Mango Drink, Carrot Flakes



Tom Brown and Hausa Koko Powder in plastic containers and sachets



Assorted Protein Platter



Salad Bar

UNIVERSITY (ATU) SKILLS EXHIBITION (2023)



People counting is an important part of business management for retailers, as it helps them to determine the number of potential shoppers in their space at any given point in time. Therefore, a human detection and tracking system, in real-time, that has a classification and sorting algorithm with feedback is very crucial for people counting. Retailers' challenges include movement, time of shoppers entering and exiting, shoppers detection, and monitoring. This system has been trained and tested with unique algorithms in order to achieve this purpose.

The main aim of this project is to develop an artificially intelligent, vision-based system to help retailers to tracking of shoppers easier. To verify the time and date customers attend a shop, each customer is given a unique ID, and the objects are detected through a camera.



To develop this system, we considered the functionalities below:

- **Object Detection:** Object tracking using a special dataset of objects, with a unique classification algorithm to detect the object revealing its identity. The artificial intelligence vision-based system is in stages. It works on the basis of computer vison functionalities such as object detection and classification using a camera.

Vision Object Detection: The input source is mainly the camera connected via IP address or a node. This captures data in real time, providing the system with a live video for analysis.

Real-time Video Processing Using Computer vision: The video fed into the system is processed into two formats which are thermal imaging and masking. For better analysis, processing morphology functions such as eroding, background subtraction, image dilation and Gaussian blur were used. The object detection and analysis were obtained by using a dataset loaded with customed Haar cascade classifiers for different objects. This gives the object name output. The above proposed system will aid management of businesses to properly plan and thereby improve security.



Dr. Fred Kyei Asamoah, the Director General of the Commission for Technical and Vocational Education and Training, delivered an insightful speech on the role of technical universities in Ghana's economic development. He highlighted the significance of applied research and its impact on community development, urging researchers to implement strategies that will promote Ghana's growth as a developing nation.

Mr. Tsonam Cleanse Akpeloo, the Chief Executive Officer of SUKU Technologies and the Greater Accra Regional Chairman of the Association of Ghana Industries (AGI), encouraged students to cultivate a strong work ethic for their future ventures into the industrial world. The exhibits, ranging from intricate engineering models to sustainable design solutions, underscored the students' commitment to creativity and technical competence. Engaging demonstrations and presentations also provided deeper insights into the concepts.

Faculty members, industry experts, and guests were impressed by the caliber of work displayed, acknowledging the students' dedication and problem-solving abilities. The event facilitated networking opportunities and potential collaborations, reinforcing ATU's reputation for producing skilled graduates ready to excel in diverse fields. Adding a historic element to the exhibition, it also featured the first-ever book launch at the university by Prof. Amevi Acakpovi, Prof. Nana Yaw Asabere, Dr. Glenn Gyimah and Dr. Florence Plockey. Their book, titled **"Technological Innovation Driving Sustainable Entrepreneurial Growth in Developing Nations,"** published by IGI Global in 2023, aims to foster industrial evolution and promote innovative projects.













RESEARCH WORKSHOPS/SEMINARS

DRIPTT organized the following research seminars for staff

8th October, 2023 - Pathways for Career Progression in Academia, and Doing a Ph.D.- Why It's Important to Publish. This was facilitated by Prof. Dadson Awunyo-Vitor (KNUST).

1st November, 2023 – IP as a Tool for Commercialization and Technology Transfer. This was facilitated by Ing. Samuel Anum and Dr. Courage K. Besah-Adanu (both from the Ghana Industrial Property Office, Registrar General's Department).

1st November, 2023 – European Grant Opportunities. In collaboration with the Directorate of International Programmes and Institutional Cooperation (DIPIC), this was facilitated by Marta Anna Brignone, Program Manager, Education and Skills – European Union (EU) – Ghana Office.

8th December, 2023 – ATU Skills Exhibition on the theme "Applied Research and Innovation for Sustainable Development". This was facilitated by DRIPTT and Academic HODs. External guests and visitors were invited to grace the occasion.

19th December, 2023 – Faculty of Applied Arts Research Seminar in conjunction with DRIPTT: Quality Publications, Research Visibility and Grant Writing Part II.

24th August, 2022 – Faculty of Applied Arts Research Seminar in conjunction with DRIPTT: Quality Publications, Research Visibility and Grant Writing Part I.





RESEARCH VISIBILTY

Accra Technical University Rankings - AD Scientific Index 2024

Edit / Add / Institutional Submissions

Success Documents/Visuals of the Institution

UNIVERSITY DETAILS

Accra Technical University Ranking According to	# in 17,888 All Universities in World	# in 1,134 All Universities in Africa	# in 66 All Universities in Ghana
Total H index	7,863	441	22
Last 6 years H index	5,781	300	19
Total i10 index	7,590	417	22
Last 6 years i10 index	5,961	314	18
Total Citations	8,053	439	24
Last 6 years Citations	6,337	330	19

Accra Technical University Ranking According to	# in 9,838 Public Universities in World	# in 751 Public Universities in Africa	# in 32 Public Universities in Ghana
Total H index	5,117	356	20
Last 6 years H index	4,029	260	19
Total i10 index	4,990	344	19
Last 6 years i10 index	4,134	269	17
Total Citations	5,160	360	22
Last 6 years Citations	4,276	276	19

Accra Technical University Ranking According to	# in 23,189 all type institutions in World	# in 1,351 all type institutions in Africa	# in 84 all type institutions in Ghana
Total H index	11,147	523	28

Subject and ranking analysis of Accra Technical University scientists	Total number of scientists	Agriculture & Forestry	Arts, Design and Architecture	Business & Management	Economics & Econometrics	Education	Engineering & Technology	History, Philosophy, Theology	Law	Medical and Health Sciences	Natural Sciences	Social Sciences	Others
In World's Top 3% Scientists *	**0**	0	0	0	0	0	0	0	0	0	0	0	0
In World's Top 10% Scientists *	**0**	0	0	0	0	0	0	0	0	0	0	0	0
In World's Top 20% Scientists *	**0**	0	0	0	0	0	0	0	0	0	0	0	0
In World's Top 30% Scientists *	**1**	1	0	0	0	0	0	0	0	0	0	0	0
In World's Top 40% Scientists *	**1**	1	0	0	0	0	0	0	0	0	0	0	0
In World's Top 50% Scientists *	**3**	1	0	0	0	0	2	0	0	0	0	0	0
In World's Top 60% Scientists *	**6**	1	0	0	0	0	4	0	0	0	1	0	0
In World's Top 70% Scientists *	**9**	1	0	2	1	0	4	0	0	0	1	0	0
In World's Top 80% Scientists *	**18**	1	0	4	2	0	6	0	0	0	3	0	2
In World's Top 90% Scientists *	**41**	1	0	10	2	0	7	0	0	1	6	2	12
Total Scientists in Index	**75**	1	0	13	4	0	11	1	0	1	6	5	33

First 10 Best Scientists in Accra Technical University	World Rank

1

Felix YH Kutsanedzie — #301,680

Agriculture & Forestry / Agricultural Engineering



35 Publications * - 1868 Citations

Most Popular Article : Mesoporous silica supported orderly-spaced gold nanoparticles SERS-based sensor for pesticides de...

2

Nana Yaw Asabere — #607,545

Engineering & Technology / Computer Science



16 Publications * - 792 Citations

Most Popular Article : Benefits and challenges of mobile learning implementation: Story of developing nationsNY Asaberel...

3

Amevi Acakpovi — #608,487

Engineering & Technology / Electrical & Electronic Engineering



26 Publications * - 796 Citations

Most Popular Article : Review of hydropower plant modelsA Acakpovi, EB Hagan, FX FifatinInternational Journal of Compute...

4

Isaac Asempah — #747,259

Engineering & Technology / Mechanical Engineering

12 Publications * - 585 Citations

Most Popular Article : Injectable superparamagnetic ferrogels for controlled release of hydrophobic drugsJ Qin, I Asempa...

5

George Osei-Adjei — #801,693

Natural Sciences / Molecular Biology & Genetics



11 Publications * - 402 Citations

Most Popular Article : Transcriptional Regulation of the Type VI Secretion System 1 Genes by Quorum Sensing and ToxR in ...

6

Phyllis Naa Yarley Otu — #855,102

Engineering & Technology / Food Science and Engineering



10 Publications * - 479 Citations

Most Popular Article : Reviews on mechanisms of in vitro antioxidant, antibacterial and anticancer activities of water-s...

Frank Frimpong Opuni #969,040

Business & Management / Marketing



8 Publications * - 228 Citations

Most Popular Article : Short-Term Changes in Behaviors Resulting from COVID-19-Related Social Isolation and Their Influe...

Ernest Christian Winful #995,966

Economics & Econometrics / Financial Economics



8 Publications * - 289 Citations

Most Popular Article : Enhancing teachers' performance through training and development in Ghana education service (a ca...

Elikem Chosniel Ocloo #1,011,292

Business & Management / Marketing



7 Publications * - 513 Citations

Most Popular Article : Globalization and competitiveness: Challenges of small and medium enterprises (SMEs) in Accra, Gh...

Alice Constance Mensah #1,036,477

Natural Sciences / Mathematical Sciences



8 Publications * - 328 Citations

Most Popular Article : Characteristics of users and implications for the use of complementary and alternative medicine i...

SCOPUS VISIBILITY - FIRST TEN (10) RESEARCHERS IN ATU FROM HIGHEST H-INDEX

Author	Documents	h-index	Affiliation	City	Country/Territory
Kutsanedzie, Felix Y.H.	34	21	Accra Technical University	Accra	Ghana

Author	Documents	h-index	Affiliation	City	Country/Territory
Odai, Samuel Nii	61	15	Accra Technical University	Accra	Ghana

Author	Documents	h-index	Affiliation	City	Country/Territory
Asabere, Nana Yaw	37	11	Accra Technical University	Accra	Ghana

Author	Documents	h-index	Affiliation	City	Country/Territory
Asempah, Isaac	19	11	Accra Technical University	Accra	Ghana

Author	Documents	h-index	Affiliation	City	Country/Territory
Osei-Adjei, George	19	10	Accra Technical University	Accra	Ghana

Author	Documents	h-index	Affiliation	City	Country/Territory
Acakpovi, Amevi	67	9	Accra Technical University	Accra	Ghana

Author	Documents	h-index	Affiliation	City	Country/Territory
Otu, Phyllis Naa Yarley	14	8	Accra Technical University	Accra	Ghana

Author	Documents	h-index	Affiliation	City	Country/Territory
Botchway, Felix Abekah	26	6	Accra Technical University	Accra	Ghana

Author	Documents	h-index	Affiliation	City	Country/Territory
Opuni, Frank Frimpong	12	4	Accra Technical University	Accra	Ghana
Appiah, Michael	10	3	Accra Technical University	Accra	Ghana

Author	Documents	h-index	Affiliation	City	Country/Territory

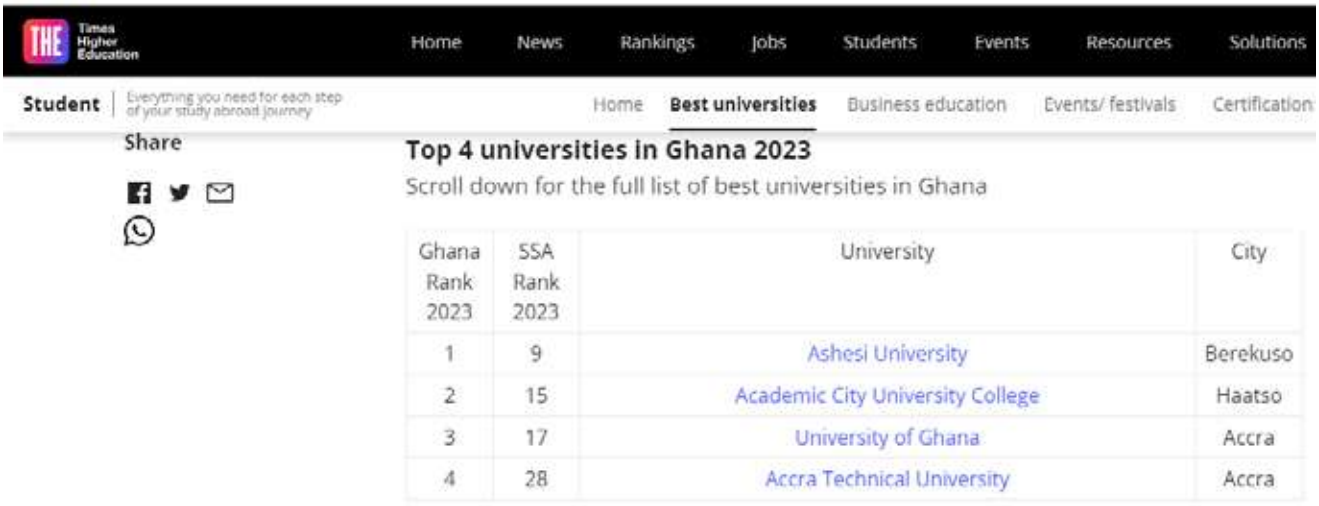
RESEARCH AWARDS AND ACHIEVEMENTS



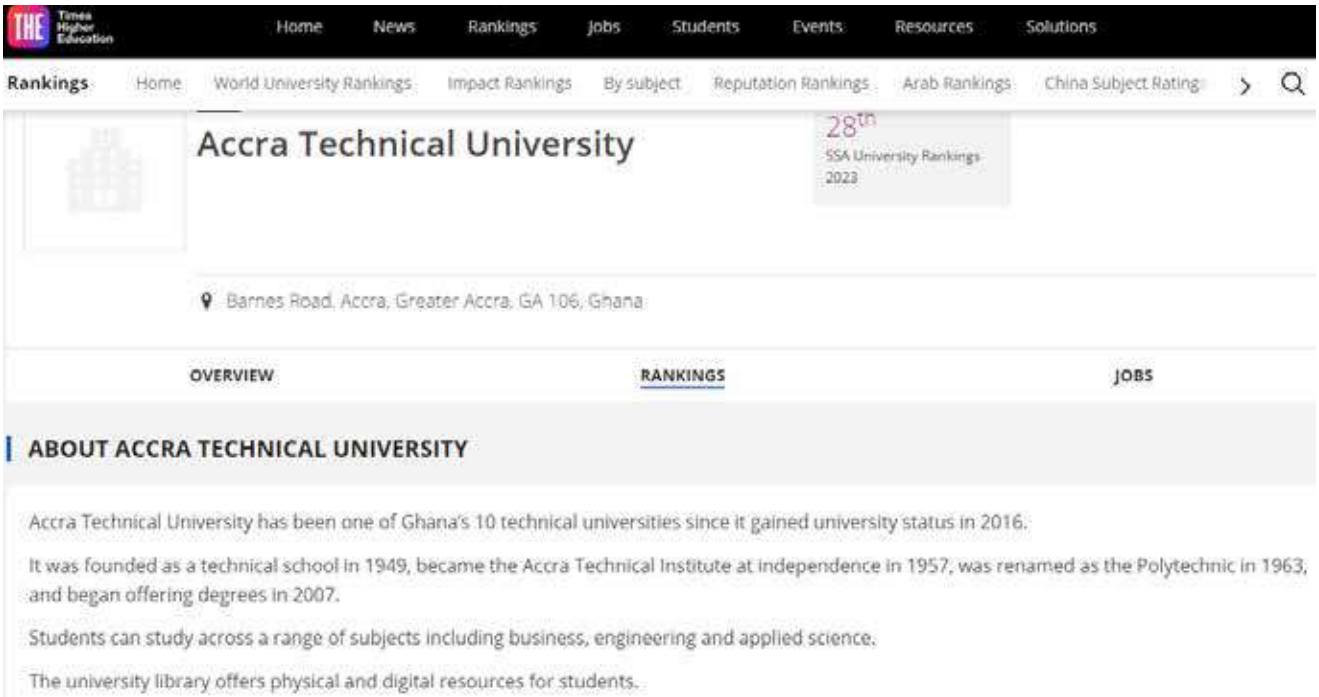
Accra Technical University (ATU) was honored with the Best Sustainable Development Goals (SDG) Research Award at the inaugural Think Energy SDGs Awards. The ceremony took place on Friday, June 30, 2023, at the La Palm Royal Beach Hotel in Accra, marking ATU as the first Technical University to receive this distinction. The award ceremony was the climax of the 4th Africa Energy and Sustainability Summit, which is organized annually by African Global Response Energy Environment Limited (AGREE Ltd.) in collaboration with the SDGs Advisory Unit of the Office of the President, the Ministry of Energy, Ghana, and supported by the Ghana National Gas Company Limited. On Wednesday, July 5, 2023, Mr. Humphrey Tetteh, Chief Executive Officer of AGREE Ltd., visited ATU to personally present the award to the university's management. During a meeting held in the ATU Council Chamber, Mr. Tetteh awarded the plaque to the Acting Vice-Chancellor, Professor Amevi Acakpovi.

ATU RANKINGS IN TIMES HIGHER EDUCATION (THE)

ATU was ranked the 4th best university in Ghana and 28th out of 88 universities in Sub-Saharan Africa (SSA). This was revealed in the pioneering Times Higher Education SSA University Rankings 2023, which were announced on June 26, 2023.



Ghana Rank 2023	SSA Rank 2023	University	City
1	9	Ashesi University	Berekuso
2	15	Academic City University College	Haatso
3	17	University of Ghana	Accra
4	28	Accra Technical University	Accra



CONFERENCES, SEMINARS, AND WORKSHOP ATTENDED BY STAFF

OFFICE OF THE VICE CHANCELLOR

S/N	STAFF NAME	NAME OF CONFERENCE, WORKSHOP OR SEMINAR	LOCATION	YEAR
	Prof. Amevi Acakpovi	• 2023 Annual Conference of the International Association of Meteorological Education and Sciences at the Nanjing University of Information Science and Technology Conference	Nanjing, China	2023
		• ATUPA Annual International Conference	Accra	2023
		Global Polytechnic Summit, St George, Utah, USA	St George, Utah, USA	2023
		Technical Universities Conference in Ghana	Accra	2022

MEDICAL LABORATORY TECHNOLOGY DEPARTMENT

S/N	STAFF NAME	NAME OF CONFERENCE, WORKSHOP OR SEMINAR	LOCATION	YEAR
1.	Dr Appiah Michael	• Annual sickle cell and Thalassemia conference (ASCAT)	London	2023
2.		• Continues Processional Development (CPD) • • The role of the medical laboratory scientist in the diagnosis of adrenal diseases. • • Antimicrobial resistance –mediated complications in wound infections. • • Ergonomic and workplace stress. • • Understanding the review of laboratory documents.	Ghana - Online	2023
3.	Mr. Augustine Sagoe	Strategic Leadership for Maximum Impact in a Secured Cyberspace	Accra Technical University	2023
		European Union Grants Opportunities	Accra Technical University	
		Weekend Session Stakeholder Engagement	Accra Technical University	2023
		Best Practices for Grant Proposals: A Comprehensive Guide for Grant Writers	Zoom: Accra Technical University	
		Post Assessment on LMS Training	Accra Technical University	2023
		Stakeholders Engagement: Weekend Session	Accra Technical University	2023
4	Mrs. Sheila Nortey	National Malaria Elimination Program – Lessons Learnt	Cape Town, South Africa	2022
		2. West Africa Postgraduate College of Medical Laboratory Scientific Conference (WAPCMLS)	La Palm Royal Beach Hotel, Accra	2022
		WAPCMLS – Ghana Branch Scientific Conference	British Council, Accra	2022

COMPUTER SCIENCE DEPARTMENT

S/N	STAFF NAME	NAME OF CONFERENCE, WORK-SHOP OR SEMINAR	LOCATION	YEAR
1.	Prof. Nana Yaw Asabere	• 2nd International Conference on Recent Advances in Computer Science and Information Technology, Department of Education, Lahore, Pakistan. • **Keynote Adresss**	Online	2023
2.		The Biennial International Academic Conference hosted by the School of Education and Leadership at the University of Ghana **Panelist**	University of Ghana, Legon	2023
3.		Training Seminar - Office of Research, Innovation and Consultancy (ORIC), Ghana Communication Technology University (GCTU), Accra. **Facilitator/Speaker**	Tesano, Accra	2023
4.		African Centre for Career Enhancement & Skills Support (ACCESS) Training Workshop	KNUST-Kumasi, Ghana	2023
		Executive Leadership Workshop – Strategic Leadership, Knowledge Management, Cyberscurity, and Digital Business	Dubai, UAE	2023
		African Centre for Career Enhancement & Skills Support (ACCESS) Training Workshop at KNUST	KNUST-Kumasi, Ghana	2022
		Maastricht School of Management (MSM) and Accra Technical University (ATU) Project Training Workshop, Project Number: OKP-TMT.20-00053	Accra Technical University (ATU)	2022
		Industry Academia Tech Dialogue (INDAC-TED) – IIPGh and AFOS Foundation (DigiCAP) **Panelist**	Accra Technical University	2022

CIVIL ENGINEERING DEPARTMENT

S/N	STAFF NAME	NAME OF CONFERENCE, WORKSHOP OR SEMINAR	LOCATION	YEAR
1.	Ing. Surv. Dr. Tina D. Wemegah	• International Federation of surveyors conference	Orlando, Florida, USA	2023
		Ghana Institution of Surveyors – Main AGM and conference	Accra, Ghana	2023
		Ghana Institution of Surveyors – Land Surveyors conference	Kumasi, Ghana	2023
		Licensed Surveyors Conference	Accra, Ghana	2023
2	Mr. John Boateng Nkansah	PhD Ambition Summer School	Nairobi, Kenya	2023
3.	Ing. Leticia Osae Adum	Engineering Skills in Disaster in Preparedness Technology Development Process and Commercialization	GhIE, Ghana, RWESCK, KNUST	2023

BUIDLING TECHNOLOGY DEPARTMENT

S/N	STAFF NAME	NAME OF CONFERENCE, WORKSHOP OR SEMINAR	LOCATION	YEAR
1.	Ing. Surv. Dr. Tina D. Wemegah	• International Federation of surveyors conference	Orlando, Florida, USA	2023
		Ghana Institution of Surveyors – Main AGM and conference	Accra, Ghana	2023
		Ghana Institution of Surveyors – Land Surveyors conference	Kumasi, Ghana	2023
		Licensed Surveyors Conference	Accra, Ghana	2023
2	Mr. John Boateng Nkansah	PhD Ambition Summer School	Nairobi, Kenya	2023
3.	Ing. Leticia Osae Adum	Engineering Skills in Disaster in Preparedness Technology Development Process and Commercialization	GhIE, Ghana, RWESCK, KNUST	2023

FASHION DESIGN AND TEXTILES DEPARTMENT

S/N	STAFF NAME	NAME OF CONFERENCE, WORK-SHOP OR SEMINAR	LOCATION	YEAR
1.	Dr. William Kwesi Senayah	• Master Trainer Course in the concept AdA - International	Accra, Ghana	2023
		12th Sustainable Education and Development Research Conference	University of Environment and Sustainable Development, Somanya	2023
		Workshop on Ghanaian Participation at the Magic Fashion Show – Las Vegas	Accra, Ghana	2023
		Sector Skills Bodies Media Engagement and Panel Discussion	Accra, Ghana	2023
		Training Workshop for Teaching Staff	Accra Technical University, Ghana	2023
		CBT- Program Development	Accra Technical University, Ghana	2023
		Faculty Research Seminar	Accra Technical University, Ghana	2023
		Workshop on CBT Programme Development for the Commission for TVET (CTVET)	Accra, Ghana	2022
		Workshop on Quality Editing of CBT Training Package	Accra, Ghana	2022
		Training Workshop for Teaching Staff	Accra Technical University, Ghana	2022
		Improving Research and Publication Towards Faculty Growth	Accra Technical University, Ghana	2022
		11th Sustainable Education and Development Reasearch Conference	KNUST, Kumasi	2022
		Validation Workshop – Textiles and Garments Value Chain	Accra, Ghana	2022

ACCOUNTING AND FINANCE DEPARTMENT

S/N	STAFF NAME	NAME OF CONFERENCE, WORK-SHOP OR SEMINAR	LOCATION	YEAR
1.	Rockson Mintah	Global Conference of Business and Economics Research (GCBER) 2023	Putrajaya, Malaysia	2023
		International Conference of Accounting and Business (iCAB 2023)	Johannesburg, South Africa	2023
		11TH African Accounting and Finance Conference -Annual AAFA Conference and Colloquium	Cairo, Egypt	2022
		5TH International Research Conference of the College of Humanities, University of Ghana	Accra, Ghana	2022
		Scientific Renaissance for Africa Seminar	Accra, Ghana	2022
		Training on Bibliometrics and Writing Good Research Articles for Publication.	Accra, Ghana	2022
		Professional Development Research Seminar (Academy of African Business and Development)	UPSA, Accra	2022
		Academic Writing Workshop With a Professional Proof Reader	UGBS, Accra	2022
		Grantsmanship Workshop	ORID UG, Accra	2022
		Predatory Journals and Other Menaces in Publishing	UG, Accra	2022
		Workshop on how to get published	Sage Publications, online	2022

MARKETING DEPARTMENT

S/N	STAFF NAME	NAME OF CONFERENCE, WORKSHOP OR SEMINAR	LOCATION	YEAR
1.	Prof. Elikem Chosniel Ocloo	7th World Research Summit for Hospitality and Tourism	Orlando, Florida, USA	2023

UNIVERSITY LIBRARY

S/N	STAFF NAME	NAME OF CONFERENCE, WORKSHOP OR SEMINAR	LOCATION	YEAR
1.	Dr. Florence Plockey Selikem Dorvlo Evelyn Tawiah Aggor Lorren Opoku Larbi Jennifer K. Antwi	2nd Applied Research Conference of Technical Universities in Ghana	Accra Technical University, Accra	2022
2.	Donus W. Buadi Selikem Dorvlo Obed Oduro Adjei	RemoteX training by CARLIGH	University of Ghana	2022
3.	Donus W. Buadi Selikem Dorvlo	EIFL and DSquare technologies training workshop	University of Ghana	2022
4.	Dr. Florence Plockey Selikem Dorvlo Mercy Ansah Donus Buadi Obed Oduro Adjei	LIBSENCE Open Science Symposium	Movenpic Ambassador Hotel, Accra	2022
5.	Dr. Florence Plockey Lorren Opoku Ansah Mercy Gifty Ansah Andrew Ofori Tannor	Ghana Library Association Biennal conference	University of Ghana Balme Library, Accra	2022
6.	All library staff	Institutional Repository workshop	E-resource lab, B-Tech library, ATU, Accra	2022
7.	Donus W. Buadi Selikem Dorvlo Jennifer Antwi	EIFL and CARLIGH training workshop on institutional repositories	AAU conference room, Accra	2022
8.	Donus W. Buadi Selikem Dorvlo Jennifer Antwi	EIFL and CARLIGH training workshop on institutional repositories	AAU conference room, Accra	2022
9.	Donus W. Buadi Selikem Dorvlo	CARLIGH workshop on e-resource management	University of Ghana	2023
10	Selikem Dorvlo Lorren Opoku-Larbi Donus W. Buadi	African Libraries and Information Associations and Institutions (AfLIA) biennal conference	Erata hotel, Accra	2023

UNIVERSITY LIBRARY

S/N	STAFF NAME	NAME OF CONFERENCE, WORKSHOP OR SEMINAR	LOCATION	YEAR
11.	Jennifer K. Antwi	International Applied Research Conference	Koforidua Technical University, Koforidua	2023
12.	Donus W. Buadi	AfLIA-SPARC workshop on library publishing	Erata Hotel, Accra	2023
13.	Dr. Florence Plockey	UNESCO Accra World Book Capital	Accra International Conference Centre, Accra	2023
14.	All library staff	Preparing manuscript for publication (by Library management)	E-resources lab, ATU library	2023
15.	Dr. Florence Plockey Donus W. Buadi	ATUPA conference	Accra International Conference Centre, Accra	2023
16.	Dr. Florence Plockey	Mortenson Associates Programme	University of Illinois, Urbana Champaign, USA	2023
17.	Dr. Florence Plockey	American Library Association Annual General Conference 2023	Chicago, Illinois, USA	2023
18.	Dr. Florence Plockey	iPRES Conference on Digital Preservation in Disruptive Times.	University of Illinois, Urbana Champaign, USA	2023
19.	Dr. Florence Plockey Lorren Opoku-Larbi	1st International Convention on Quality Assurance and Transformation of libraries	Miklin Hotel, Accra	2023
20.	Dr. Florence Plockey Edmund Ananga	Ghana Library Association	Koforidua Technical University, Koforidua	2023

INFORMATION AND COMMUNICATION TECHNOLOGY DIRECTORATE

S/N	STAFF NAME	NAME OF CONFERENCE, WORKSHOP OR SEMINAR	LOCATION	YEAR
1.	Dr. Sylvester Hatsu	International Applied Research Conference	Koforidua Technical University, Koforidua	2023
		ITWeb Security Summit	Johannesburg, South Africa	2022

ACKNOWLEDGEMENTS

RESEARCH, INNOVATION, AND PUBLICATIONS COMMITTEE OF ACADEMIC BOARD

1.	Prof. Felix Kutsanedzie	Ag. Pro Vice-Chancellor	Chairman
2.	Prof. Nana Yaw Asabere	Director, DRIPTT	Member
3.	Mrs. Sylvia Beatrice Oppong-Mensah	Registrar	Member
4.	Mr. Frank Owusu Boateng	Director of Finance	Member
5.	Dr. (Mrs.) Florence Plockey	University Librarian	Member
6.	Dr. Clement Tengey	Rep. Faculty of Engineering	Member
7.	Dr. Osei Antwi	Rep. Faculty of Applied Sciences	Member
8.	Ms. Mary Oseku-Afful	Rep. Faculty of Applied Arts	Member
9.	Mr. Charles Mensah	Rep. Faculty of Business	Member
10.	Dr. Isaac Aidoo	Rep. Faculty of Built Environment	Member
11.	Prof. Elikem Chosniel Ocloo	Rep 1. Academic Board	Member
12.	Prof. Frank Frimpong Opuni	Rep 2. Academic Board	Member
13.	Mrs. Deborah Adjei	Senior Assistant Registrar	Secretary

RESEARCH, INNOVATION, AND PUBLICATIONS COMMITTEE OF ACADEMIC BOARD

1.	Prof. Nana Yaw Asabere	Director, DRIPTT	Chairman
2.	Dr. Osei Antwi	Rep. Faculty of Applied Sciences	Member
3.	Dr. Prodeo Yao Agbotui	Rep. Faculty of Engineering	Member
4.	Dr. William Kwesi Senayah	Rep. Faculty of Applied Arts	Member
5.	Dr. Kofi Opoku-Asante	Rep. Faculty of Business	Member
6.	Dr. Isaac Aidoo	Rep. Faculty of Built Environment	Member
7.	Ms. Edith Mensah	Asst. Research Fellow, DRIPTT	Secretary
8.	Dr. (Mrs.) Florence Plockey	University Librarian	Co-opted Member
9.	Rev. Dr. Glenn Kwabena Gyimah	Ag. HOD – Research, Innovation and Grants	Co-opted Member

INTRODUCTION AND BRIEF BACKGROUND OF DRIPTT

About Us

The Directorate of Research, Innovation, Publication, and Technology Transfer (DRIPTT) was established in Accra Polytechnic (now Accra Technical University) in the year 2010 initially as the Research and Innovation Centre, headed by a Director. Other staff members of the Research and Innovation Centre included the Head of Research Department and Research Assistants.

The Research and Innovation Centre changed to DRIPTT during the transition to a technical university and enactment of ATU Statutes (2018). ver the years, DRIPTT has aided ATU staff to engage in cutting-edge applied research in the fields of engineering, applied sciences, applied arts business, and technology to tackle environmental and other socio-economic challenges in the country. Academic staff members in ATU have conducted innovative research and published their findings in high-impact journals as a result of support from the Directorate. Additionally, some ATU academic staff are also cited in Google Scholar, and highly reputable research visibility databases/networks such as Web of Science and Scopus. Among others DRIPTT has the mandate to put in place measures that will improve research visibility, research impact, and national and international university rankings of ATU. DRIPTT comprises the following departments:

Research Innovation and Grants (RIG) Department: This Department is responsible for all research and innovation-related issues such as grants, proposals, and research result dissemination in terms of publications.

Commercialization and Technology Transfer (CATT) Department: This Department is responsible for commercializing products, and innovations through exhibitions, conferences, patenting, etc.

CURRENT STAFFING IN DRIPTT IS AS FOLLOWS

S/N	NAME	RANK/DESIGNATION	QUALIFICATION
1.	Prof. Nana Yaw Asabere	Associate Professor, Computer Science Department Director - DRIPTT	Ph.D. Computer Science M.Sc. ICT, B.Sc. Computer Science
2.	Rev. Dr. Glenn Kwabena Gyimah	Lecturer, Mechanical Engineering Department Ag. HOD – Research Innovation and Grants	Ph.D. Mechanical Engineering M.Eng. Mechanical Engineering and Theory, HND Mechanical Engineering
3.	Edith Mensah	Assistant Research Fellow	HND Statistics BSc Statistics MSc Applied Statistics
4.	Paul Goddey	Senior Research Assistant	HND SLT BTECH SLT
5.	Louis Appiah Gyekye	Senior Research Assistant	HND Statistics BSc Statistics
6.	Millicent Oppong	Senior Admin. Assistant	HND Secretaryship and Management Studies
7.	Josephine Sonday	Research Assistant	HND Statistics HND Statistics

FUNCTIONS OF DRIPTT

DRIPTT is committed to ensuring that applied research in ATU is conducted most effectively and efficiently by providing the needed support services and by extension, identifying, developing, and protecting ATU's intellectual property and promoting technology transfer with the public and private sector.

The mission of DRIPTT is to provide effective and efficient research and innovation support services that are consistent with world-class universities to staff and students in ATU.

The core functions of DRIPTT include the following:

- Sourcing for funding for academic research, inventions, and other innovative activities;
- Assisting staff to write proposals to source funding (either internally or externally) for research projects or activities;
- Informing staff and students about research opportunities;
- Organizing workshops and seminars on how to plan, conduct, publish and present their research results and innovations; and
- Providing a platform for presenting research, inventions, and other innovative findings to the public.

DRIPTT BOARD

In accordance with the ATU Statutes (2018), DRIPTT functions through a Board which is composed of the following:

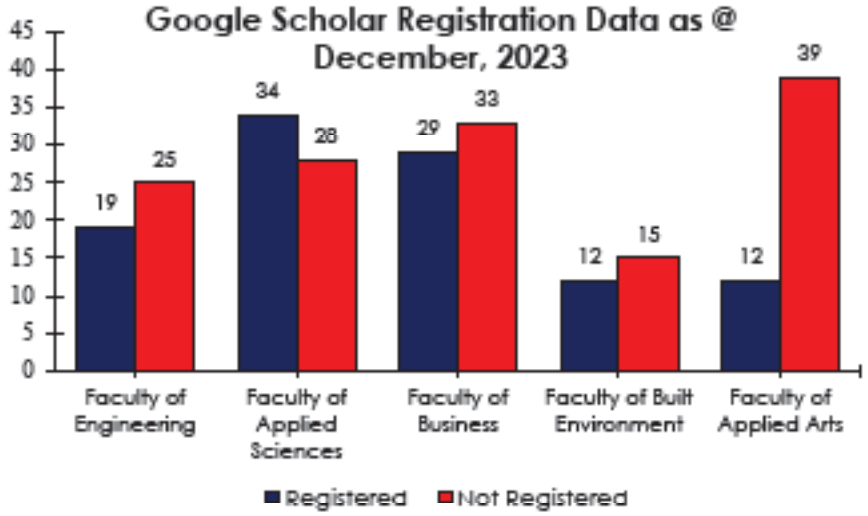
- Director
- Deputy Director(s)
- One representative from each Faculty/School/Institute
- Secretary to the Board who shall not be below the rank of Senior Assistant Registrar

STRATEGIC PLAN ACHIEVEMENTS AND ACTIVITIES IN DRIPTT

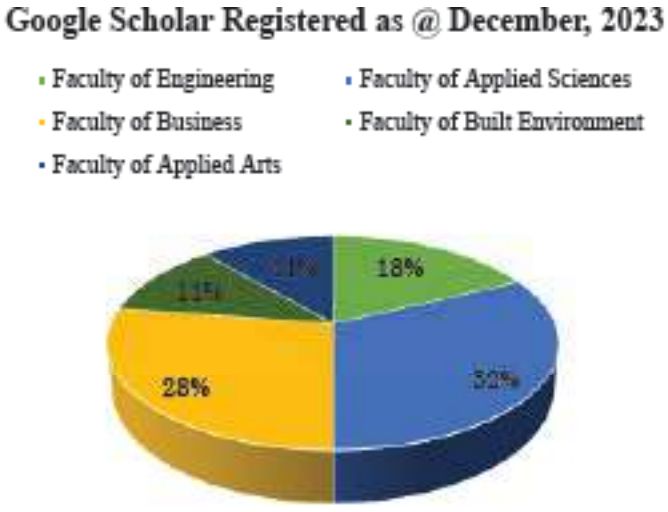
Pilar 1 – Enhancing Students' Experience and Pilar 2 - Impact Oriented Research Innovation

Research and Innovation

Research Visibility (Google Scholar)



As of December 2023, 106 out of 246 full time academic staff (43%) in comparison 33% in 2022 have been registered on Google Scholar. This is an increment by 10%.



An Institutional Repository (IR) for ATU has been developed to digitally archive research publications of staff and project work of students. Formatting guidelines for students' project work have also been published for students to follow.

The following documents have been published: **Research Report (2016-2021), Publication and Authorship Guidelines, and Research Publications Bulletin (2022).**

Active Registration on Funder Systems

Innovative UK KTN

Research Fund Beeline

Support for Proposal Development

For the year under review, DRIPTT supported and facilitated the following activities:

Proposal Writing Advisory Services;

Proposal Development;

Proposal Submission on Behalf of Applicants

OTHER DRIPTT ACTIVITIES

S/N	ACTIVITY	VENUE	DATE
1.	Tech Job Fair	Accra International Conference Centre	Wednesday, February 22, 2023
2.	ATU-AFOS Exposure Visit	Germany	6th -14th May, 2023
3.	Industry-Academia Tech Dialogue	University of Ghana Business School, Accra	Thursday, June 15, 2023
4.	Tech Entrepreneurship Forum	Holiday Inn Hotel, Accra	Wednesday, June 21, 2023
5.	Executive Leadership Workshop	Dubai	27th – 30th June, 2023
6.	Business Breakfast Meeting	IIPGH Office, Accra	Wednesday, June 28, 2023
7.	Ashesi University/ The Education Collaborative June Convening	Kempinski Gold Coast City Hotel, Accra	13th – 16th June, 2023
8.	Regional Workshop on Intellectual Property (IP)	Fiesta Royale Hotel, Accra	Thursday 5th October, 2023
9.	Ghana Jobs and Skills Project – Ministry of Environment, Science, Technology & Innovation (MESTI)	Aruba Hotel, Aburi	16th – 18th October, 2023

PILLAR 3

INDUSTRY AND COMMUNITY ENGAGEMENT

INSTITUTIONAL ADVANCEMENT

Through the ATU-AFOS DigiCAP Training Programme, ATU has signed an agreement with Ghana Statistical Service (GSS) for training in Data Science, Business Intelligence (BI), and highly technological Information Technology (IT) tools/software for their staff. The training takes place in the state-of-the-art ICT Flex Lab at ATU Campus as well as online.

ATU has also signed a partnership agreement with the German Institute of Business and Technology (GIBT) in Accra to train various stakeholders in Data Science and Business Intelligence.

The ATU-AFOS DigiCAP Training programme has trained and certified three (3) different cohorts of staff of the Ghana Statistical Service (GSS), consisting of the first cohort (40), second cohort (40), and third cohort (35) trainees per cohort respectively. Training for the fourth cohort of GSS staff numbering twenty-seven (27) is currently ongoing.

The ATU-AFOS DigiCAP Training programme has recruited eighteen (18) Junior Consultants (JCs) from DigiCAP alumni for a virtual internship with Ghanaian and German companies, pre-boot camp training in soft skills, boot camp for SMEs project scoping and assignment, one week of research on digital solutions to business problems of selected SMEs (sprint 1), and two weeks to develop and experiment solutions to the SMEs problems (Sprint 2).

Through the ATU-AFOS DigiCAP partnership with Ashesi University, ATU has established a Career Centre at the N-Block on the ATU campus to facilitate workshops and train students on their career-related activities.

The Ag. HOD – RIG in DRIPTT presented a paper at the ACCESS International Summer School and Conference 2023 in Abuja, Nigeria. In total, over the five days from 31st July – 4th August, more than 300 participants attended the event in person and online formats, under the theme "Cultivating New Frontiers in Employability Research for Skills and Career Enhancement".

The staff of DRIPTT is currently undergoing training on the four pillars of the African Centre for Career Enhancement and Skills Support (ACCESS), namely: Research Matters at the University, University Businesses Linkages, Employability Capacity building, and Entrepreneurship (AGEA).

The staff of DRIPTT were trained in Grant networking and team building under the ACCESS program.

The staff of DRIPTT were trained on Intellectual Property (IP) related issues both locally and internationally.

PILLAR 4

INTERNATIONALIZATION AND THE VISIBILITY OF THE UNIVERSITY

7th October – 11th November, 2023: Dr. Fatoumata Balde, a Professor from Université Alioune Diop de Bambey in Senegal visited DRIPTT and the Computer Science Department for teaching and research activities.

Prof. Nana Yaw Asabere, together with Prof. Amevi Acapkovi, Dr. Glenn Gyimah, and Dr. Florence Plockey edited a book titled Technological Innovation Driving Sustainable Entrepreneurial Growth in Developing Nations published by IGI Global.

Prof. Nana Yaw Asabere - Manuscript reviews for the following journals: IEEE Transactions on Neural Networks and Learning Systems, Mobile Information Systems, IEEE Transactions on Neural Networks and Learning Systems, IEEE Transactions on Emerging Topics in Computational Intelligence, Scientific Programming, IEEE Transactions on Artificial Intelligence, Advances in Human-Computer Interaction and Artificial Intelligence Review.

RESEARCH PUBLICATIONS

- Asabere, N. Y., Gyimah, G. K., Acakpovi, A. & Plockey (Eds.) (2023). Technological Innovation Driving Sustainable Entrepreneurial Growth in Developing Nations, IGI Global.
- Attuquayefio, S. & Asabere, N. Y. (2023). Mobile learning adoption: Using composite model measurement invariance to assess gender differences. Journal of Information Technology Management, Accepted. [Scopus Index].
- Asabere, N. Y. (2022). CoSPARP: Collaborative and Social-Personality Aware Recommendation of Programmes," Mobile Information Systems, 1-12, [Scopus Index].
- Asabere, N. Y., Gbagbe, G. E., Tawia, E. A., Amegashie, J. E., & Ayin, D. A. (2022). Pedagogically-improved blended learning of a chemistry course through a computerized virtual laboratory," International Journal of Online Pedagogy and Course Design (IJOPCD), 12(1), 1-21. [Web of Science: Emerging Sources Citation Index, Scopus Index].
- Asabere, N.Y., Fiamavle, E., Agyiri, J., Torgby, W.K., Dzata, J. and Doe, N.P. (2022). SARCP: Exploiting cyber-attack prediction through socially-aware recommendation. International Journal of Decision Support Systems Technology (IJDSS), 14(1), 1-21, [Web of Science: Emerging Sources Citation Index, Scopus Index].

PILLAR 5

AVAILABILITY OF APPROPRIATE INFRASTRUCTURE AND SYSTEMS

ATU-EIT-CREEI Sustainable Energy Service Center (SESC)

The Sustainable Energy Service Center (SESCs) is a sub-activity under the Improved Energy Auditing Activity of the Energy Efficiency and Demand Side Management Project.

AFOS Foundation – Digital Capacity (DigiCAP) ICT Flex Lab Centre

DigiCAP-ATU is one of the first ATU projects focused on the academic philosophy (ICT and entrepreneurship) and strategic plan of the university. DigiCAP-ATU has the main focus of establishing an in-demand and career-oriented IT certification training programme for ATU students, lecturers, and the general public, including marginalized groups (e.g., based on income, disability, gender, access to education, etc.).

ATU Career Centre

Accra Technical University has proposed in its 5-year Strategic Plan to enhance the employability skills of students through a Career and Skills Development Centre. The University's Career Centre works to enhance the employability and soft skills of students and alumni to prepare them to thrive in the currently competitive and technologically oriented world of work.

PILLAR 6

PILLAR 7: FINANCIAL RESOURCE AND MOBILIZATION AND PRUDENT MANAGEMENT

Resources mobilized and grants applied for by Prof. Nana Yaw Asabere, Director - DRIPTT for infrastructure and capacity development include:

DATE	PROJECT TITLE	VALUE AND FUNDING SOURCE
1ST JANUARY, 2022 – 31ST DECEMBER, 2023	Accra Technical University (ATU)-AFOS Foundation Digital Capacity (DigiCAP) Training Programme	€ 220,000.00 AFOS Foundation for Entrepreneurial Development Cooperation, Germany.
March 2023 - Date	Accra Technical University (ATU)-German Institute of Business and Technology (GIBT) – Digital Capacity Training (Data Science and Business Intelligence) of 230 Ghana Statistical Service (GSS) staff across all regions of Ghana.	GH₵ 368,000.00 Ghana Statistical Service (GSS).
March 2023 - Date	Accra Technical University (ATU)- Ashesi University	$ 10,000 (US) Education Collaborative

©2024
Accra Technical University
Public Affairs Directorate
Email: info@atu.edu.gh
https://atu.edu.gh
Tel: 0332095371