Curriculum Vitae

Prof Stephen A. AKINLABI, ***BEng, MEng, DEng, PGDLL, MCOREN, FHEA, CEng. MIMechE***

Associate Professor of Mechanical Engineering,
Department of Mechanical Engineering,
College of Engineering, Colorado State University,
Alamosa Campus, Colorado State
Physical address: 102 Porter Hall,
208 Edgemont Blvd, Alamosa, CO 81101
Email: Stephen.Akinlabi@colostate.edu / saakinlabi@gmail.com
Mobile: +1 (301) 793-2701

CORE SKILLS

As a Professor of Mechanical Engineering, I possess strong leadership and management abilities, allowing me to effectively guide teams and projects. My proficiency in time management ensures that I can balance multiple responsibilities efficiently. I have advanced analytical skills and a proactive, strategic approach to problem-solving. I excel at working collaboratively within multidisciplinary teams, fostering a dynamic and communicative environment. My openness to positive changes and unwavering focus on business values further enhance my ability to drive success and innovation in both academic and professional settings.

EDUCATIONAL QUALIFICATIONS

DEng. in Mechanical Engineering (2017)

University of Johannesburg, Department of Mechanical Engineering Science, Johannesburg, South Africa.

Achievements:

- Completed groundbreaking research entitled ***"Experimental study and finite element analysis of laser beam-formed steel for enhanced structural integrity,"*** contributing to the advancement of manufacturing processes, specifically in laser beam-forming of steel, which led to the development of innovative and efficient methods for shaping steel components with enhanced structural integrity.
- Published eleven (11) papers in reputable journals, establishing expertise in materials engineering and manufacturing.

M. Eng. in Mechanical Engineering (2005)

University of Port Harcourt, Department of Mechanical Engineering, Port Harcourt, Nigeria.

Achievements:

- Completed groundbreaking research entitled "Condition Monitoring for an Industrial Pump for Predictive Maintenance: A Case Study," resulting in the enhancement of industrial pump reliability and the ability to predict potential issues before they escalate, allowing for timely interventions, reducing unexpected breakdowns, and minimizing costly downtime, resulting in increased overall equipment reliability and availability.

- Developed advanced skills in the use of vibration meters, (relevant technology, and tools), enhancing overall proficiency.

B.Eng. (Honors) in Mechanical Engineering (1997)

Federal University of Technology, Department of Mechanical Engineering, Akure, Nigeria.

Achievements:

- I graduated with honors, showcasing my commitment to academic excellence.
- Engaged in [specific extracurricular activities], demonstrating a holistic approach to education.
- Published eleven (2) papers in reputable journals, establishing expertise in interdisciplinary research.

Post Graduate Diploma in Labour Law (PGD.LL) (2017)

University of Johannesburg, Faculty of Law, Johannesburg, South Africa.

Achievements:

- I gained in-depth knowledge of labor law principles, enhancing my legal acumen.
- Applied labor law expertise to address violations in the workplace, ensuring compliance.

PROFESSIONAL EXPERIENCE

ACADEMIC ACHIEVEMENT – OVER 12 YEARS

Associate Professor of Mechanical Engineering

Department of Mechanical Engineering, College of Engineering, Colorado State University, Alamosa, CO-81101. United States of America (2024 - present).

Teaching Experience:

Mechatronics & Measurement
Taught Concepts:

- Comprehensive analysis and design of mechatronic and measurement systems integrating mechanical, electronic, and computer technologies.
- Application of electronics in mechatronics, emphasizing circuit design and signal processing.
- Data acquisition systems, including sensor integration, signal conditioning, and data analysis techniques.
- Microcontroller programming and interfacing, including development of embedded systems for control and automation applications.

Approach:
Engaged students through hands-on laboratory experiments, real-world problem-solving projects, and simulations to bridge theoretical concepts with practical applications.

Mechanics of Solids
Taught Concepts:

- Stress and strain analysis under various loading conditions.
- Elastic and plastic deformation of materials and structural elements.

- Application of failure theories and energy methods in design contexts.

Approach:
Emphasized problem-solving and experimental approaches, including labs to connect theory to material behavior under real-world loading.

Introduction to Engineering Materials
Taught Concepts:

- Experimental techniques to study the mechanical and thermal properties of metallic, plastic, and ceramic materials.
- Atomic and microstructural analysis to relate material properties to performance.
- Material selection criteria for engineering applications.

Approach:
Implemented lab-based experiments and design challenges to foster understanding of material behavior and selection in engineering design.

Machine Design
Taught Concepts:

- Stress analysis and failure theories applied to the design of mechanical components.
- Design principles for shafts, bearings, gears, and fasteners.
- Integration of mechanical components into complete system designs.

Approach:
Encouraged students to engage in iterative design projects involving real-world constraints, supported by industry-standard tools and peer reviews.

Engineering Design Practicum
Taught Concepts:

- Capstone design principles with a focus on transitioning from academia to professional engineering roles.
- Multi-disciplinary teamwork to solve open-ended design challenges.
- Integration of industry standards, project management, and effective communication in design solutions.

Approach:
Supervised student teams in capstone projects, emphasizing design iteration, professional documentation, and client presentations.

Research Themes and Scholarly Interest:

Laser-based material processing and additive manufacturing; Characterizations and Mechanical behaviour of Processed materials; Mechanical and Manufacturing systems; Welding processes: Friction Stir Welding, Laser Welding, MIG and TIG welding; Advanced coating technologies and surface engineering; Numerical Study of Processed Materials.

Associate Professor of Mechanical Engineering

Northumbria University, Department of Mechanical & Construction Engineering, Newcastle upon Tyne, United Kingdom.
(August 2022 – 2024).

Teaching Experience:

1. **Module: KB4041: Materials and Manufacturing**
    - Delivered comprehensive instruction covering materials science, engineering, metals, polymers, mechanical properties, applied metallurgy, bio-advanced materials, and manufacturing processes.
    - I ensured a solid understanding of materials science, manufacturing processes, and engineering applications.

2. **Module: KB5037: Engineering Project Management**
    - Provided instruction on engineering project management, covering product development, requirements, marketing, branding, intellectual property, project quality management, resource planning, risk analysis, and leadership in projects.
    - Equipped students with essential skills for effective project planning and execution in engineering contexts.

3. **Module: KB7007: Engineering Technology Management**
    - Taught the fundamentals of engineering operations management, offering tools for product and process design, manufacturing processes, and resource efficiency.
    - Focused on enhancing students' business processes for improved efficiency.

4. **Module: KB6000: BEng Investigative Research Project**
    - Guided final-year BEng students in investigative project work, fostering independent research and problem-solving skills.
    - Facilitated the application of theoretical knowledge to real-world engineering challenges.

5. **Module: KB7052: MEng Engineering Management Research Project**
    - Supervised MEng students in engineering management research projects, ensuring high academic standards.
    - Encouraged critical thinking and original contributions to the field of engineering management.

Research Achievement and Experience:

1. **Multidisciplinary Research Conducted:**

- Conducted cutting-edge research in materials and manufacturing processes, specializing in laser-based material processing, additive manufacturing, and waste management.
- Explored secondary research areas in energy studies and composite development from waste and fiber reinforcement.

2. **Publication Record:**
    - Published over 450 peer-reviewed articles in reputable journals, contributing significantly to the academic community.
    - Contributed to book chapters in peer-reviewed edited books, extending the dissemination of research outcomes.

3. **Awards and Recognition:**
    - Honored with awards for outstanding research contributions, highlighting the recognition of the quality and significance of the work.

Academic Leadership Experience:

1. **Department Impact Lead (Facilitator for REF 2029):**
    - Spearheaded the coordination and facilitation of impact case studies for the Research Excellence Framework (REF) 2029.
    - Demonstrated leadership in showcasing the real-world impact of research outcomes.

2. **Line Manager and Mentorship:**
    - I served as a line manager, providing direction, mentorship, and support to early-career colleagues within the department.
    - Foster a collaborative and growth-oriented environment, contributing to professional development.

3. **Personal Tutorship:**
    - Held the role of personal tutor for undergraduate and postgraduate students, offering academic guidance and pastoral support.
    - Maintained open communication channels and assisted in navigating academic challenges.

4. **Research Supervision:**
    - Supervised final-year undergraduate and postgraduate students in their research endeavors.
    - Ensured a conducive and supportive research environment, facilitating successful completion.

Developed Teaching Skills:

Teaching first-year mechanical engineering students has developed my communication, presentation, analytical, and critical-thinking skills. The demanding role has improved my time management, adaptability, and leadership abilities. Collaborating with faculty, fellow teaching assistants, and students has improved my teamwork. Providing constructive feedback and navigating unexpected challenges have enhanced my crisis management skills. Integrating educational technologies has expanded my digital literacy and fostered a positive learning environment. These skills have broader applications in various professional contexts.

Developed Research Skills:

With a strong literature review foundation, I can conduct comprehensive reviews, analyze complex problems, offer innovative solutions, manage projects successfully, and adapt to changing research needs and methodologies, demonstrating my adaptability and dynamic approach to academic inquiry.

Developed Technical Skills:

Experienced academic with technical expertise in materials and manufacturing, including friction stir welding, material characterization, experimental design, data analysis, and lab safety. Contributed to joining technologies, influenced research and innovation, and prioritized safety measures for students and colleagues.

Full Professor of Mechanical Engineering

Department of Mechanical & Mechatronics Engineering, First Technical University, Ibadan, Nigeria.

2022

Research Achievements and Experience:

1. ***Welding Processes:***
   - Led innovative research in friction stir welding, laser welding, MIG, and TIG welding, optimizing parameters for superior weld quality.
   - Spearheaded experimental studies resulting in enhanced welding efficiency and effectiveness.
   - Explored innovative techniques to elevate welding processes.

2. ***Characterizations and Mechanical Behavior of Processed Materials:***
   - Conducted comprehensive studies on material characterizations and mechanical behaviors.
   - Applied advanced techniques for microstructural analysis, hardness testing, and mechanical property assessments.

3. ***Numerical Study of Processed Materials and Processes:***
   - Conducted impactful numerical simulations for material processing, integrating results for a holistic understanding.
   - Contributed to process optimization through a combination of numerical insights and experimental data.

Academic Leadership and Achievements:

- Provided visionary leadership, shaping departmental curriculum development.
- Forging collaborations with industry and research institutions, elevating the department's research profile.
- Published high-impact research articles and presented findings at national and international conferences.
- Strengthened community ties through workshops, seminars, and STEM education outreach programs.

Senior Researcher and Lecturer

Walter Sisulu University, Department of Mechanical Engineering, Butterworth Campus, South Africa.

2019 – 2022

Research Achievements and Experience:

1. Laser-based Material Processing of Titanium Alloys:

- Conducted cutting-edge research tailored for aerospace applications, optimizing laser parameters for durability and performance.
- Published findings in reputable journals and presented at national and international conferences.

2. Additive Manufacturing with Titanium Alloy Powder:

- Spearheaded initiatives in additive manufacturing for biomedical applications.
- Collaborated with industry partners and medical professionals to align research with healthcare requirements.
- I oversaw studies on material characterizations and mechanical behaviors.

3. Numerical Studies of Processed Materials and Processes:

- Conducted impactful numerical simulations, integrating insights with experimental results for a comprehensive understanding.
- Mentored postgraduate students and research assistants, fostering a collaborative research environment.

Key Achievements:

- Delivered lectures and practical sessions, supervising postgraduate students, and updating module curricula.
- Successfully secured research grants, fostering collaborations with industry partners.
- Published research articles in approved journals, contributing to the academic and scientific community.

Full Professor of Mechanical Engineering (Adjunct)

Pan African University for Science and Technology Institute (PAUSTI), Department of Mechanical & Mechatronics Engineering, Nairobi, Kenya.

2020 – 2024

Teaching Experience:

Advanced Manufacturing Processes

- Developed and delivered lectures for "Advanced Manufacturing Processes," focusing on non-conventional machining processes.
- Designed a curriculum aligning with industry trends and postgraduate students' specific needs.
- Facilitated student research projects, encouraging exploration of innovative applications.
- Actively contributed to curriculum development committees and academic forums.

Key Achievements:

- Established a research-oriented approach within the module, increasing student interest in cutting-edge technologies.
- Facilitated student participation in conferences, promoting research findings and networking opportunities.
- Contributed to the continuous improvement of the Mechanical Engineering curriculum.

Associate Professor of Mechanical Engineering (Adjunct)

Covenant University, Department of Mechanical Engineering, Ota, Nigeria.

2018 – 2021

Teaching Experience:

Fracture Control for Design & Fundamentals of Fatigue in Metals

- Developed and delivered lectures for postgraduate modules on "Fracture Control for Design" and "Fundamentals of Fatigue in Metals."
- Designed curricula emphasizing real-world applications and industry best practices.
- Engaged students in critical discussions and collaborative projects, evaluating performance through assessments and examinations.

Key Achievements:

- Acknowledged for fostering critical thinking in fracture control and fatigue principles in engineering design.
- Contributed to curriculum development initiatives, ensuring alignment with industry standards.

Associate Professor of Mechanical Engineering **(Adjunct)**

University of Nigeria, Department Materials and Metallurgical Engineering, Nsukka, Enugu, Nigeria.

2018 - 2021

Academic Achievements:

- Conducted and engaging postgraduate seminars, mentored final-year students, and interacted with early-career academics.
- Presented insightful topics on academic progression and strategies for success.
- Mentored early-career academics, established Ph.D. opportunities, and collaborated on interdisciplinary proposals.

Key Contributions:

- I was recognized for fostering a collaborative academic environment during the visiting appointment.
- Facilitated knowledge exchange and contributed to the academic and professional development of students and early-career academics.
- Actively engaged in interdisciplinary collaboration, addressing societal challenges through research initiatives.

Senior Lecturer

University of Johannesburg, Department of Mechanical Engineering Science, Johannesburg, South Africa.
2017 - 2019

Teaching Experience:

Advanced Manufacturing Systems (Fourth-year Module):

- Developed and delivered comprehensive lectures and practical sessions for the "Advanced Manufacturing Systems" module.
- Integrated CNC machining, additive manufacturing, automation, and Industry 4.0 applications.
- Structured curriculum to include hands-on projects, industry case studies, and site visits.

Mechanics of Materials (Third-year Module):

- Lead the instruction in the "Mechanics of Materials" module.
- Focused on elastic and plastic deformation, stress and strain analysis, and material properties.
- Incorporate laboratory exercises, simulations, and case studies for practical understanding.

Manufacturing Methods (Third-year Module):

- Developed and delivered lectures for the "Manufacturing Methods" module.

- Covered various manufacturing processes, including casting, machining, forming, and additive manufacturing.
- Facilitated discussions on advanced manufacturing techniques and emerging trends.

Principles of Heat Transfer (Fourth-year Module):

- Led the instruction of the "Principles of Heat Transfer" module.
- Emphasized thermal conduction, convection, and radiation principles.
- Employed laboratory experiments, simulations, and real-world case studies.

Key Achievements:

- Integrated modern manufacturing concepts into the Advanced Manufacturing Systems module, aligning with industry advancements.
- Fostered a student-centered learning environment, encouraging critical thinking and practical application of theoretical knowledge.
- Collaborated with industry partners to expose students to state-of-the-art manufacturing facilities and technologies.
- Contributed to the continuous improvement of the department's teaching methodologies and curriculum development.

Senior Postdoctoral Researcher

University of Johannesburg, Department of Mechanical Engineering Science, Johannesburg, South Africa.

2016 - 2017

Research Achievements and Experience:

Experimental Study and Finite Element Analysis:

- Led research on the experimental study and finite element analysis of laser beam-formed steel.
- Investigated the effects of laser beam forming parameters on mechanical properties and structural behaviors.

Key Achievements:

- Designed and implemented experimental protocols for laser beam forming.
- Developed finite element models to simulate and optimize the laser beam-forming process.
- Published research papers in reputable journals and presented findings at conferences.
- Collaborated with interdisciplinary teams and provided mentorship to graduate students.

Lecturer **(Adjunct)**

University of the Witwatersrand, Aerospace and Mechanical Engineering, Johannesburg, South Africa.
2014-2015

Teaching Experience:

Mechanical Engineering Drawing (First-year Module):

- Developed and delivered lectures for the "Mechanical Engineering Drawing" module.
- Utilized computer-aided design (CAD) tools to prepare students for modern engineering practices.

Key Achievements:

- Introduced hands-on activities to enhance students' understanding of symbolic representation.

- I received positive feedback for incorporating real-world examples into the curriculum.

Lecturer

University of Johannesburg, Department of Mechanical Engineering Science, Johannesburg, South Africa.
2014-2015

Teaching Experience:

Applied Fluid Mechanics for Second-year Students:

- Developed and delivered engaging lectures for the "Applied Fluid Mechanics" module.
- Utilized multimedia resources, simulations, and practical demonstrations.

Key Achievements:

- Implemented innovative teaching methods, including computational fluid dynamics (CFD) software.
- Fostered a collaborative learning environment and contributed to curriculum development.

Lecturer **(Adjunct)**

Ithemba Institute of Technology, Johannesburg, South Africa.
2013

Teaching Experience:

Engineering Graphic and Design (EGD):

- Led the instruction of the "Engineering Graphic and Design (EGD)" course to high school matriculation students.
- Developed and delivered comprehensive lesson plans, ensuring alignment with curriculum standards and educational objectives.

Key Achievements:

- Recognized for fostering a conducive learning environment.
- Implemented strategies to enhance students' practical skills in technical drawing.

Independent Academic Consultant **(Adjunct)**

University of South Africa, College of Science, Engineering, and Technology, Department of Mechanical and Industrial Engineering Johannesburg, South Africa.
2013-2018

Academic Consulting Experience:

Curriculum Development:

- Crafted and developed academic curricula focusing on "Introduction to Reliability-Centred Maintenance."
- Created modules covering functions, functional failures, and comprehensive exploration of failure modes and failure effect analysis.
- Addressed critical aspects of failure consequences within the context of maintenance engineering.

Key Achievements:

- Successfully designed and implemented curricula aligned with industry standards.
- Received positive feedback from faculty and students.

Research Assistant/PhD

University of Johannesburg, Department of Mechanical Engineering Science, Johannesburg, South Africa.
2011-2016

Research Experience:

- Collaborated with a multidisciplinary research team on applications of lasers in manufacturing processes.
- Conducted literature reviews, staying abreast of the latest advancements and emerging trends in laser technology and its industrial applications.
- I assisted in designing and setting up experiments to evaluate the effectiveness of lasers in various manufacturing applications, including cutting welding, and surface treatment.
- Operated and maintained laser equipment, ensuring precision and accuracy in experimental procedures.
- Collected and analyzed experimental data, utilizing statistical methods and software tools to derive meaningful insights.
- Contributed to the preparation of research reports, papers, and presentations for internal reviews and conferences, highlighting key findings and implications.
- Collaborated with senior researchers and faculty to identify areas for further investigation and improvement in laser-based manufacturing processes.
- Engaged in regular discussions and knowledge-sharing sessions with the research team, fostering a collaborative and intellectually stimulating environment.
- I participated in workshops and seminars related to laser technology and manufacturing advancements to expand my knowledge and skills.
- Supported graduate students and peers in understanding experimental procedures and data analysis techniques.

Key Achievements:

- Conducted literature reviews and assisted in the experimental setup.
- Published research papers and engaged in interdisciplinary collaboration.
- Supported graduate students and peers in understanding experimental procedures.

Lecturer

University of Johannesburg, Department of Mechanical Engineering Science, Johannesburg, South Africa.
2011-2013

Teaching Experience:

Physics for First-Year Engineering Students:

- Delivered foundational knowledge of physics concepts to first-year engineering students.
- Developed a comprehensive curriculum that covered classical mechanics, thermodynamics, electromagnetism, and introductory quantum mechanics, tailored to the academic needs of first-year engineering students.
- Utilized engaging teaching methods, including interactive lectures, demonstrations, and practical experiments, fostering a dynamic and participatory learning environment.

Mechanical Engineering Drawing for First-Year Engineering Students:

- Emphasized fundamental principles and practical applications.

Key Achievements:

- Foster an interactive learning environment.
- Actively participated in departmental meetings.

Research Assistant

Nelson Mandela Metropolitan University (Now Nelson Mandela University), Department of Mechanical Engineering, Port Elizabeth, South Africa.
2009-2010

Research Experience:

- Collaborated on the "Friction Stir Welding of Titanium Alloys" project.
- Conducted literature reviews to stay abreast of current research trends and findings related to friction stir welding and titanium alloys.
- Assisted in experimental setup and data collection, meticulously documenting procedures and ensuring adherence to safety protocols.
- Conducted material characterization and analysis of friction stir-welded titanium alloy samples using [mention specific techniques or instruments].
- Analyzed experimental data, contributing to the interpretation of results and drawing conclusions to inform the project's overarching goals.

Teaching Experience:

Effective Communication for Engineers Module offered by first-year Engineering Students.

- I instructed and facilitated the "Effective Communication for Engineers" module for first year engineering students, emphasizing the development of communication skills essential for engineering professionals.
- Designed and implemented lesson plans, ensuring alignment with the curriculum objectives and the specific needs of foundation year students.

Key Achievements:

- Conducted literature reviews and assisted in the experimental setup.
- Published research findings and engaged in academic seminars.

INDUSTRY EXPERIENCE

Project Controller | Shell Petroleum Dev Company, PH | 2003 – 2008

Project Management:

- Led the design, construction, and installation of major gas pipelines, including EGGS 1 and 2, NCTL, and KCTL, contributing to the successful completion of projects totaling 279 km.
- Established data deliverable schedules, ensuring efficient information flow for NCTL (96 km), EGGS 1 (89 km), EGGS 2 (56 km), and KCTL (38 km) pipeline projects.

Corrosion Management:

- Reviewed corrosion strategies for NCTL, EGGS 1 and 2, and KCTL pipeline projects, ensuring long-term structural integrity.

- Approved corrosion management drawings, enhancing project reliability and adherence to industry standards.

Data Management and Quality Assurance:

- Ensured accurate and up-to-date information in the master data register, promoting best practices in data quality.
- Coordinated information management gap analysis and audits, aligning projects with SPDC's Technical and Operational Excellence guidelines.

Procurement and Logistics:

- Liaise with stakeholders for procurement, minimizing downtime, and optimizing resource allocation.
- Coordinated transportation logistics, ensuring efficient project operations.

Field Service Engineer | Fasunanne Nigeria Ltd, PH | Nov. 1999 – Dec. 2002

Project Coordination and Supervision:

- Developed Gantt charts for effective monitoring of inspection and installation activities.
- Coordinated routine inspection and maintenance activities, optimizing resource allocation.

Service Inspection Reporting:

- Prepared comprehensive service inspection reports, ensuring accuracy and completeness in documentation.

Health, Safety, and Environmental (HSE) Management:

- Coordinated and managed HSE activities, ensuring compliance with safety protocols.

Teacher | St. Andrews' Secondary School, Port Harcourt, Nigeria | 1998 – 1999

Subjects Taught:

Physics, Chemistry, Mathematics, Additional Mathematics, Integrated Science, Technical Drawing, Agricultural Science.

Mech. Engineer Trainee | Port Harcourt Refining Company Ltd., Nigeria | 1997-1998

Maintenance Planning and Execution:

- Implemented a comprehensive maintenance planning system, reducing downtime and optimizing resource allocation.
- Developed and maintained a detailed project schedule using MS Project.

Reporting and Documentation:

- Generated monthly activity reports, collaborating with cross-functional teams to ensure accurate representation of maintenance metrics.

Machine Shop Operations:

- Conducted various turning operations on the center lathe, ensuring optimal machine performance.

Cooling Towers/Utility Maintenance:

- Implemented preventive and corrective maintenance procedures for enhanced equipment longevity.

Oil Movement:

- Executed maintenance activities on both static and rotating equipment.

Power Plant Utilities/Wastewater Treatment:

- Led the maintenance of transmission mechanisms, ensuring proper alignment, and conducting routine checks.

Process/Production:

- Systemically replace worn-out parts, ensuring optimal functioning of rotating equipment.

Industrial Trainee | NAPIMS-NNPC, Victoria Island, Lagos, Nigeria | 1994-1995

Bid List Management:

- Conducted a comprehensive review and compilation of bid lists, contributing to successful project outcomes.

Budget Monitoring and Cash Call Management:

- Vigilantly monitor project budgets using MS Project, ensuring financial transparency and adherence to budgetary constraints.

Joint Venture Site Visits:

- Conducted on-site visits to oversee and monitor project activities, providing real-time updates to stakeholders.

KEY SKILLS

During my industry work experience as a project controller, field service engineer, mechanical engineer trainee, and industry trainee, I have honed a comprehensive set of skills. My expertise in project management and corrosion management ensures the integrity and efficiency of various projects. I am adept at data management, procurement, and logistics, facilitating smooth operations and resource allocation. My proficiency in service inspection reporting and HSE (Health, Safety, and Environment) management ensures compliance with safety standards and regulations. Additionally, I have developed strong capabilities in teaching, training and education, maintenance planning and execution, and machine shop operations, which have all contributed to my well-rounded professional background.

Funded Research / Grant Awards

1. *CSIR – NLC Research Grants (2012-2014)*

- Secured three consecutive research grants totaling ZAR 566,000.00 (Y1-ZAR 216 000, Y2-ZAR 155 000, and Y3-ZAR 195 000) from CSIR-NLC for "Laser-based additive manufacturing of functionally graded titanium metal matrix composites. (**Research Co-PI**).

2. *NRF-sponsored Bilateral SA-Zambia Research Project (2012-13)*

- Awarded ZAR 199,200.00 for the project "Laser processing of Ti alloys (**Research Co-PI)**.

3. *TESP Eskom Research Grants (2011-2012)*

- Successfully secured ZAR 300,000.00 for projects on "Friction Stir Welding of Aluminium to Copper." (**Research Co-PI**).
- Successfully secured ZAR 60,000.00 for projects on "Laser Beam Forming of Structural Steel," awarded in 2013. (**Research PI**).
- Successfully secured ZAR 30,000.00 for projects on “Laser Beam Welding of Structural Steel," awarded in 2015. (**Research PI**).

4. *African Laser Centre (ALC) Research Grant (2013)*

- I received ZAR 35,000.00 for the research project "Laser forming of steel sheet" (**Research PI**).

5. ***Technology Innovation Agency (TIA) Research Grant (2019-2020)***

- Secured ZAR 590,000.00 for the Bilateral SA-Zambia Scale-up Fund for "Laser beam forming of complex curvatures. (Research Co-PI).

6. ***Travel Grants:***

- ZAR 25,000.00 from the School of Mechanical, Industrial, and Aeronautical Engineering Rink Pool Research Grant for conference attendance to present a paper at the 2nd International Conference of Engineering and Applied Sciences, Toronto, Canada (**Research PI**).
- Travel grant of ZAR 45,000 from Educad (the Educational Partner for Africa) to attend the Autodesk University Conference in Las Vegas, USA (**Research PI**).
- To present accepted publications at the 15th International Conference on Metal Forming in Palermo, Italy (Research PI), the National Research Foundation awarded a travel grant of ZAR 25 000.00 from the Knowledge Interchange Collaboration (KIC).
- The National Research Foundation awarded a travel grant of ZAR 25 000.00 from the Knowledge Interchange Collaboration (KIC) in June 2017 to support travel to present accepted research papers at the International Mechanical Engineering Congress & Exposition (IMECE 2017) in Tampa, Florida, USA, respectively (Research PI).
- Travel grant of ZAR 20 370 from the School of Mechanical & Industrial Engineering, University of Johannesburg to support the attendance of the 8th International Conference on Advances in Civil, Structural, and Mechanical Engineering CSM 2019, Birmingham, UK **(Research PI)**.
- Travel grant of ZAR 50,000.00 from Knowledge Interchange Collaboration (KIC) to attend and present accepted conference articles at the 16th Global Conference **(Research PI)**.

7. New Initiative Funding (2017)

- Successfully secured R60,000 in funding from the University of Johannesburg for Postgraduate Studies, Research, and Innovation (**Research PI**).
- An incentive fund of R40,000 was awarded by the National Research Foundation to rated researchers. January 2019 (**Research PI**).

Records of UK Grants

1. EPSRC (NIA) grant (**£569,602.22**) for a project entitled Development of Cutting Tool Materials for Machining of Titanium Alloys: An Engineered Approach. (**Bid development: Project Lead**).
2. The Royal Society grant (**£438,499.76**) for a project entitled Sustainable packaging solution: HDPE-PBS blend reinforced with nanocellulose coated with CaCO3. (Bid is **awaiting a response from the project lead.**).
3. The Royal Society granted **£48,768.02** for a project entitled Additive Manufacturing of High Heat Resistance Titanium-Hafnium Carbide Composites for Aerospace Applications. (Bid is **awaiting a response from the co-investigator.**).
4. Faculty research grant (**£3,000**) to support research entitled Machining of Titanium Alloy (**Bid approved, Principal Investigator**).
5. Foreign Commonwealth and Development Office (FCDO) grant (**£65,756.84**) for a project entitled Circular Economy in Offshore Wind Energy: System Evaluation and Capacity Building. (**Bid approved, Co-Investigator**).
6. Defence and Security Accelerator (DASA) grant (**£248,102.36**) for a project entitled Development of bio-coated shape memory polymer composites (SMPC) for potential application in defense and security (**Bid unsuccessful, Co-Investigator**).
7. The Association of Commonwealth Universities (ACU) grants **£8,187.60** for networking and knowledge exchange through conference participation. (**Bid unsuccessful—Principal Investigator**).

8. RIS Internal grant (**£22,944.49**) for the purchase of portable research equipment and support research. (**Bid unsuccessful—Principal Investigator**).
9. British Council grant (**£46,747.14**) for a project entitled Accelerating the Adaptation to Renewable Energy to Tackle Climate Change in Pakistan (**Bid unsuccessful, Co-Investigator**.
10. The Royal Academy of Engineering grant (**£113,945.41**) for a project entitled Waste Management and Valorization Education for Capacity Developments towards a Sustainable Environment in Nigeria (**Bid unsuccessful, Co-Investigator**).

Research Contributions and Footprints

- **Patent**: Kyle Elsmore, Esther T. Akinlabi, Daniel M. Madyira and Stephen A. Akinlabi. Circumferential Tensile testing jig design. Provisional Patent filled. SA Patent No. 2014/06600- September 2014.

- **Publications**: Authored 500+ papers in refereed journals and conference proceedings.
- **Scopus ID (h-index-27**: https://www.scopus.com/authid/detail.uri?authorId=48560939000
- **Google Scholar (h-index-35)**: https://scholar.google.ca/citations?user=eM-3VVoAAAAJ&hl=en
- **ORCID ID**: https://orcid.org/0000-0002-9809-4425
- **NRF Rating**: C3 NRF-rated researcher.

2025 Published Papers

1. Fredrick Madaraka Mwema, Job M Wambua, Arize C Igwe, **Stephen A Akinlabi**, Tien-Chien Jen, Esther Akinlabi. Mechanical Response of Four-Star-Honeycomb Hybrid Metamaterial Under In-Plane Loading. **Adv. Eng. Mater. 2025, 27, 2401886**; Published by Wiley

2. Noah E El-Zathry, **Stephen Akinlabi**, Wai Lok Woo, Vivek Patel, Rasheedat M Mahamood, Ibrahim Sabry. Enhancing friction stir-based techniques with machine learning: a comprehensive review. ***Mach. Learn.: Sci. Technol. 6 (2025) 021001***; Published by IOP Publishing Ltd

3. Fredrick Mwema, Job Wambua, Michael O Bodunrin, **Stephen Akinlabi**, Tien-Chien Jen, Esther Akinlabi. Thermal fluctuations on the corrosion behaviour of 17-4PH stainless steel alloys fabricated via material extrusion additive manufacturing technique. ***Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications***; 239 (4), 746-759; SAGE Publications.

4. Frank Haile, Arize C Igwe, Job Wambua, Fredrick Mwema, **Stephen A Akinlabi**, Esther T Akinlabi. Material Extrusion Additive Manufacturing of Composite Laminates: Printability and Characterizations. ***Applied Research***; 4 (1) e202400265; Wiley publisher

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mechanical performance in PEEK-HA composites. ***ADVANCES IN MATERIALS AND PROCESSING TECHNOLOGIES*** https://doi.org/10.1080/2374068X.2025.2531545, Taylor & Francis

9. Peter Omoniyi, Uttam Acharya, **Stephen Akinlabi**, Tien-Chien Jen, Esther Akinlabi. Taguchi-Grey relational analysis driven multi-objective optimization of weld bead geometry and hardness in laser welded Ti6Al4V Alloy. International Journal on Interactive Design and Manufacturing (IJIDeM) (2025) 19:423–434 https://doi.org/10.1007/s12008-024-01880-5

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2. Kazeem, R., Jen, T-C., Akande, G., **Akinlabi, S.** & Akinlabi, E. Performance evaluation of hybrid biodegradable oils as a lubricant during cylindrical turning of AISI 304 austenitic stainless steel. In: ***AIMS Materials Science***. 11, 2, p. 256-294 39 p. 7 Mar 2024.

3. Kazeem, R. A., Aregbesola, D. S., Jen, T. C., Akande, I. G., **Akinlabi, S. A.** & Akinlabi, E. T., Multi-response optimization of process parameters for sustainable machining of AISI 1018 steel with palm kernel oil-assisted minimum quantity lubrication technique. In: ***International Journal on Interactive Design and Manufacturing.*** 18, 2, p. 771-787 17 p. 1 Mar 2024.

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13. Job Wambua, Guillaume Zoppi, Wai-Lok Woo, Fredrick Mwema, **Stephen Akinlabi**, Michael Bodunrin, and Esther Akinlabi. Effect of Turning Parameters on Cutting Forces, Maximum Principal Stress, and Maximum Interfacial Temperature on Medium Carbon AISI 1045 Steel: Simulation and Comparative Studies. Macromolecular Symposia, First published: 21 June 2024 https://doi.org/10.1002/masy.202300189

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2023 Published Papers

1. Akinlabi, E. T., Omoniyi, P. O., Jen, T-C., Mahamood, R. M., Mwema, F., **Akinlabi, S. A**. & Abima, C. S. Characterizing the Effect of Post Weld Heat Treatment on the Mechanical Properties of Laser Beam Welded Additive Manufactured Ti6Al4V. ***Proceedings of the ASME 2023 International Mechanical Engineering Congress and Exposition.*** *Volume 4: Advanced Materials: Design, Processing, Characterization and Applications; Advances in Aerospace Technology. New Orleans, Louisiana, USA. October 29–November 2, 2023.* American Society of Mechanical Engineers (ASME), 5 p. V004T04A032, 29 Oct 2023.

2. Ikumapayi, O. M., Ogedengbe, T. S., Laseinde, O. T., Kazeem, R. A., Afolalu, S. A., **Akinlabi, S. A.** & Akinlabi, E. T. A Brief Study into Renewable Energy Technologies. In: ***E3S Web of Conferences*** 391, 01083 (2023) https://doi.org/10.1051/e3sconf/202339101083;ICMED-ICMPC 2023.

3. Okokpujie, I. P., Onokwai, A. O., Onokpite, E., Babaremu, K., Ajisegiri, E. S. A., Osueke, C. O., Akinlabi, S. A. & Akinlabi, E. T. Modelling and optimisation of intermediate pyrolysis synthesis of bio-oil production from palm kernel shell. In: ***Cleaner Engineering and Technology***. 16, 100672. 1 Oct 2023.

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5. Ikumapayi, O. M., Laseinde, O. T., Ogedengbe, T. S., Akinwumi, A. O., Oluwafemi, J. R., **Akinlabi, S. A.** & Akinlabi, E. T. An Overview of Composites materials and their Machinability in Transport Industries. In: ***E3S Web of Conferences***. 391, 12 p., 01090. 5 Jun 2023.

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8. Ikumapayi, O. M., Ogedengbe, T. S., Laseinde, O. T., Kazeem, R. A., Afolalu, S. A., Ogundipe, A. T., **Akinlabi, S. A.** & Akinlabi, E. T., A concise review on the Suitability of Nano-Refrigerants for Residential Refrigeration Systems (RRS). In: ***E3S Web of Conferences***. 391, 16 p., 01084. ICMED-ICMPC 2023, 5 Jun 2023.

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In: ***Journal of Ambient Intelligence and Humanized Computing.*** 14, 8, p. 9793-9805 13 p. 1 Aug 2023.

23. Kazeem, R. A., Petinrin, M. O., Akhigbe, P. O., Jen, T-C., Akinlabi, E., **Akinlabi, S. A.** & Ikumapayi, O. M. Forecast of the Trend in Sales Data of a Confectionery Baking Industry Using Exponential Smoothing and Moving Average Models. In: ***Mathematical Modelling of Engineering Problems*.** 10, 1, p. 1-13 13 p. 28 Feb 2023.

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25. Mahamood, R. M., Jen, T. C., **Akinlabi, S. A.,** Hassan, S. & Akinlabi, E. T. Introduction to additive manufacturing technologies. ***Advances in Additive Manufacturing: Artificial Intelligence, Nature-Inspired, and Biomanufacturing***. Kumar, A., Mittal, R. K. & Haleem, A. (eds.). Amsterdam: Elsevier, p. 3-13 11 p. 19 Jan 2023.

Current Industry Partnerships and Projects

Responsive Engineering (Fabio Cosenza)

- Investigation of failure mechanisms of cutting tools employed in the machining of Titanium Alloy.
- Optimization of processing parameters of machining of titanium alloy.

The NTG Group and Abs Precision (Dr Chris Ainsley)

- Development of cutting tool for the machining of titanium alloy.

Mentorship and Supervision of Postgraduates

Mentorship

- Currently undergraduate Mentees: **8**
- Current postgraduate Mentees: **17**

Supervision

- Final Year B.Eng. Projects: Successfully completed **34 projects**.
- Master's Qualification Supervision: Supervised **30 completed dissertations**, with **6 ongoing master's project supervision**.
- PhD Qualification Supervision: Supervised **8 completed thesis**, with **1 ongoing PhD supervision**.

Distinctions and Awards

- **Teaching Award (May 2024):** The Northumbria University 2024 Student-Led Teaching Award recognizes my outstanding contribution to teaching. This award places me within the top 9% of academics in the Faculty of Engineering and Environment.
- **Fellowship of Higher Education Academy (FHEA**), UK (**awarded April 2024**): The award was given in recognition of teaching excellence and commitment to higher education standards.
- **Best Paper Award** at the 8th International Conference on Advances in Civil, Structural, and Mechanical Engineering.
- **Exceptional Researcher Award** (**2019 Chancellor's Honor List**) at Covenant University.

- **Distinguished Researcher (2020)** at the Department of Mechanical Engineering, Walter Sisulu University.

Keynote Addresses and Professional Memberships

- Delivered keynote addresses at international conferences.

Professional Memberships:

- Fellow of the Higher Education Academy (**FHEA**) UK.
- Chartered Engineer (**CEng**) UK.
- Member, Institution of Mechanical Engineers (**MIMechE**) UK.
- Member, Engineering Council of South Africa (**MECSA**) South Africa.
- Member, South African Institution of Mechanical Engineers (**SaimechE**) Nigeria.
- Member, Council for the Regulation of Engineering in Nigeria (**COREN Reg.**) Nigeria.

Research Collaborations and International Research Visits

- Engaged in extensive research collaborations at national and international levels.
- Conducted research visits to renowned institutions worldwide.

Leadership and Management Roles

- Currently serving as Departmental Impact Lead at Northumbria University, Newcastle upon Tyne. (2023 -till date)
- Academic module leader for KB5037 (Engineering Project Management) KB7007 (Technology Engineering Management) and deputy module leader for KB4041 (Materials and Manufacturing). (2023 – till date)
- Research group lead: MAMS Research Group, University of Johannesburg 2015-2020
- Field Service Engineer (Manager): Fasunanne Nigeria Ltd., Port Harcourt, Nigeria (November 1999–2002).
- Computerized Maintenance Management Service (CMMS) Engineer (Team Leader): Shell Petroleum Development Company, Port Harcourt, Nigeria (Jan 2003-Dec 2006).
- Project Data Controller (Team Leader): Shell Petroleum Development Company, Port Harcourt, Nigeria (Jan 2007-Dec 2008).
- Assistant Pastor: The Divine Favour Baptist Church, Elengbu, Port Harcourt, Nigeria (2003–2005).
- Pioneer Pastor and Coordinator: Teenage Ministry of the Divine Grace Baptist Church, Woji, Port Harcourt, Nigeria (August 2005 to November 2007).

Outreach and Public Engagement

Organized international academic conferences and actively participated in the Engenius Program, promoting engineering to learners.

- Principal organizer on Sustainable Material Process and Manufacturing (SMPM) at the Mechanical Engineering Department, University of Johannesburg in 2017.
- Engenius Programme in collaboration with the Engineering Council of South Africa (ECSA).

Other community engagement activities include:

1. Leader, Young Adult connect group of Westgate Baptist Church, Newcastle upon Tyne, United Kingdom (2022-date).
2. Member, Board of Ministers, the Pacesetters Church, Melville, Johannesburg, South Africa (February 2012 to 2018).

3. Coordinator of the Couples' Fellowship, Dominion Family Church, Melville, Johannesburg, South Africa (2012–2013).
4. Coordinator of the Home Cell Fellowship, the Pacesetters Church, Melville, Johannesburg, Soth Africa (2013–2018).
5. Coordinator, Jabulani Khakibos Kids (JKK Boys): ages 8–22 (total number of boys: 32). Location: #1 High Street, Berea, Johannesburg, South Africa (2011–2017).
6. Leader, New Convert class, Church on the Way, University Road, Port Elizabeth, South Africa (2009–2011).
7. Member, Leadership Board, Church on the Way, University Road, Port Elizabeth, South Africa (2009–2011).
8. Sunday school teacher, Bethel Baptist Church, Idimu, Lagos (1990–1997).
9. Sunday school teacher, Faith Baptist Church, Port Harcourt, Nigeria (1997–1999).
10. Sunday school teacher, The Divine Grace Baptist Church, Woji, Port Harcourt, Nigeria (1999–2003, and 2005–2008).