# Admissions, Programme Duration & How to Apply

**Entry Requirements**

- A Bachelor's degree from an accredited institution (Minimum Second Class Lower or equivalent).
- Applicants with degrees in Materials Science, Materials Engineering, Mechanical Engineering, Electrical Engineering, Civil Engineering, Industrial Engineering, Biotechnology, Agricultural Engineering, or related disciplines are encouraged to apply.
- Applicants with science backgrounds including Physics, Mathematics, Chemistry, Biology, and Biochemistry may also be considered.
- Candidates with Master's degrees in related engineering and science disciplines are eligible to apply.

**Programme Duration**

- **Full-time: 2 Years**
- Research-intensive programme
- Includes thesis, **seminars, laboratory research,** and **industrial attachment**



ACADEMIC CITY UNIVERSITY

Fuel Your Ambition
**Apply Now**

#AskACity


**Academic City University – Ghana Campus**
Accra, Ghana
+233 26 269 3870 | +233 54 824 3844
admissions@acity.edu.gh

**Nigeria Admissions Office – Lagos**
2EB, Opp. Aswani Market, Osolo Way,
Aswani-Oshodi Industrial Scheme,
Isolo, Lagos, Nigeria
+234 805 033 0267
admissions.nigeria@acity.edu.gh

www.acity.edu.gh @acitygh


# MPhil Materials Science & Engineering

Advancing Materials Innovation Through Research and Discovery.



# About the Programme & What Makes It Unique

## About the Programme

Academic City's MPhil Materials Science and Engineering programme is a research-intensive postgraduate degree designed to develop advanced expertise in materials design, characterisation, processing, and innovation.

Students conduct original research, develop advanced laboratory and analytical competencies, and create innovative materials solutions that address industrial, environmental, healthcare, energy, and manufacturing challenges.

## What Makes It Unique:

- **Research-Driven Innovation:** Conduct advanced research in materials science, sustainable engineering, and emerging technologies.
- **Advanced Materials Focus:** Explore biomaterials, composites, renewable energy materials, advanced alloys, and next-generation engineered materials.
- **Sustainability-Centred Approach:** Develop environmentally responsible materials and solutions that support circular economy and green technology initiatives.
- **Industry-Relevant Research:** Address real-world challenges in mining, manufacturing, healthcare, construction, energy, and advanced materials development.
- **Advanced Laboratory & Computational Training:** Gain experience with modern characterisation techniques, modelling tools, AI applications, and industry-standard research methods.
- **Pathway to PhD & R&D Leadership:** Prepare for doctoral studies, innovation centres, research institutions, and advanced industrial research careers.

## Curriculum Overview

**Year 1 – Semester 1**

- Science and Engineering of Advanced Materials
- Advanced Thermodynamics of Materials
- Structure and Characterization of Materials
- Mechanical Behaviour of Materials
- Research Design and Communication

**Elective Courses**

- Biomaterials and Applications
- Composite Materials and Durability
- Renewable Energy Materials

**Year 1 – Semester 2**

- Computational Modelling, Simulation and AI in Materials Engineering
- Materials Selection and Engineering Design
- Electrical, Magnetic and Optical Properties of Materials
- Principles of Extractive Metallurgy
- Managing in Adversity

**Elective Courses**

- Metals and Alloys
- Phase Transformation and Kinetics of Materials
- Pyrometallurgy

**Year 2 – Research and Thesis Phase**

**Research Components**

- Seminar I
- Seminar II
- MPhil Thesis

## Key Pathways

- **Materials Research Scientist:** Conduct advanced research into materials development, characterization, and performance.
- **Advanced Manufacturing Specialist:** Develop innovative materials solutions for manufacturing, product development, and industrial processes.
- **Renewable Energy Materials Researcher:** Design materials for energy generation, storage, and sustainability applications.
- **Biomaterials Innovation Engineer:** Develop materials for healthcare technologies, medical devices, and biomedical applications.
- **Academic & Research Leader:** Contribute to materials science education, research, and scientific advancement.
- **Materials Technology Entrepreneur:** Transform research discoveries into commercially viable products and

## Top Industries

- Advanced Manufacturing
- Mining & Minerals Processing
- Renewable Energy
- Construction & Infrastructure
- Healthcare & Medical Devices
- Electronics & Semiconductor Technologies
- Research Institutes & Academia

