



UNIVERSITY OF NAIROBI

## SCHOOL OF ENGINEERING



ISO 9001 : 2008 Certified

BSc. in Geospatial Engineering encompasses the following core areas of Geospatial Engineering:

- Geodesy and Geodynamics
- Positioning and Navigation
- Geo informatics and Visualization
- Land and Infrastructure management
- Topometry and Measurement Systems
- Geodynamics

### Degree Programmes Offered

- B.Sc. in Geospatial Engineering
- M.Sc. in Geospatial Engineering
- Ph.D

### Other Specialized Programmes Offered

- M.Sc Geographical Information Systems
- PGD Geographical Information Systems

### Fee Structure for Master of Geographical Information Systems

	1st Sem	2nd Sem
Year 1	135,000	96,500
Year 2	101,500	64,000

### Career Opportunities

- Cadastral surveying and digital cadastre
- Engineering surveying
- Hydrographic surveying
- Photogrammetric mapping
- Defence mapping
- Asset management and utilisation
- Environmental management
- Educational institutions
- Cartography
- GIS and GPS applications
- Land planning
- Business mapping
- Planning and urban development
- Remote sensing
- Spatial data management

### Contact Address

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of Environmental and Biosystems Engineering is broader and encompasses agriculture, the environment, food, forestry, aquaculture and bio-based production and processing systems in industries and rural development.

The BSc. in Environmental and Biosystems Engineering encompasses the following core areas of Environmental and Biosystems Engineering:

- Environmental Engineering
- Irrigation and Water Resources Engineering
- Power and Machinery Engineering
- Process and Food Engineering
- Structures Engineering

### Degree Programmes Offered

- B.Sc. in environmental and Biosystems engineering
- M.Sc. in environmental and Biosystems engineering
- PhD

### Fee Structure for Master of science environmental and Biosystems engineering

Sem 1	Sem 2	Total
101,500	81,000	182,500

### Career Opportunities

The programme produces graduates who are able to pursue careers in Processing Industries, Government Institutions (Ministries e.g. public works, Energy, Water, Transport, and Agriculture etc), Parastatal Organizations, Academic Institutions, International Organizations (ICRAF, World Vision etc) and Private Sector as Engineering Consultants

### Department of Geospatial and Space Technology

Geospatial Engineering is a professional discipline concerned with the measurement, analysis and graphic representation of dimensional geo-spatial relationships, as well as with design, construction, maintenance, and the use of geospatial databases.



- Solar and bio energy
- Internal combustion engines
- Stress analysis and failure
- Ceramic materials
- Sand casting and mould control
- Machine design sisal fibre extraction
- Road safety and wheel-soil interaction
- Wind-power
- Crack growth and propagation
- High pressure analysis
- Refractory materials and linings
- Plastics waste recycling
- Activated carbon filters
- Titanium metal production

### Degree Programmes Offered

- B.Sc. in Mechanical Engineering
- M.Sc. in Mechanical Engineering
- PhD

### Other Programmes offered in the Department

- M.Sc. in Energy Management
- PGD. in Energy Management

### Fee Structure for Postgraduate Diploma in Energy Management

1st Sem	2nd Sem	Total
115,000	117,500	232,500

### Fee Structure for Master of science in Energy Management

	1st Sem	2nd Sem	Project	Total
Year 1	155,500	125,000	105,500	386,000

### Fee Structure for Master of Science in Mechanical Engineering

Year 1	Year 2	Total
203,500	78,500	282,000

### Career opportunities

- Industries-** All Manufacturing & Processing
- Government Institutions-** Ministries of public works, Energy, Water, Transport
- Parastatal Organizations-** KPA, Kenya Airways, Kengen, KPLC, KPR
- Private Sector-** Banks, Audit Firms, Engineering Consultants, Hotels, Hospitals
- International Organizations-** UN bodies, Marine Industry,
- Military Forces, Police Force, Technical Institutions**

### Department of Environmental and Biosystems Engineering

Environmental and Biosystems Engineering programme prepares its graduates for careers requiring application of physical, biological, and engineering sciences to problems that involve environment and living systems. The scope

## Introduction

The School of Engineering is located on the main campus, along Harry Thuku road, directly opposite the main administration building of the University. Nearby landmarks include the Central police station, the Norfolk Hotel, and the Kenya National Theatre.

The School has five departments namely:

- Department of Civil and Construction Engineering
- Department of Electrical & Information Engineering
- Department of Mechanical and Manufacturing Engineering
- Department of Environmental and BioSystems Engineering
- Department of Geospatial and Space Technology

The School is the oldest in the University, having started way back in April 1956 as the then Royal Technical College, which evolved into the University of Nairobi by 1970. To date approximately 8,000 graduates have been awarded the B.Sc Engineering degree as well as numerous Master of Science and PhD degrees.

### Academic Programmes

All the five departments offer a five-year undergraduate study program leading to a Bachelor of Science degree in the respective fields of study. They also offer a Master of Science degree running for two years, as well as PhD programmes.

The School has been running a self-sponsored programme since 1998 which runs concurrently with the government sponsored programme.

The academic year runs from October to July with the graduation ceremony taking place every October.

### Admission Requirements into undergraduate program

The following will be eligible to apply for a course in any of the five departments:

- K.C.S.E. Applicants or Equivalent: For KCSE holders a minimum aggregate of C+ (plus). Additionally a grade of C+ in each of the cluster subjects, as follows:
  - Physics
  - Chemistry
  - Mathematics
  - Biology/Geography/any Group IV Subject\*

Woodwork

Drawing and Design

Metalwork

Aviation Technology

Computer Studies

\* *Home Science is no longer acceptable for admission*

- Advanced Level Certificate Holders :A minimum of 2 principal passes in mathematics and physics and a subsidiary level pass in Chemistry
- Higher Higher National Diploma (HND) or Equivalent. :Candidates with Higher National Diploma in the following broad areas of study; Environmental & Bio systems Eng) Civil Engineering, Electrical Engineering, Mechanical Engineering,Surveying,Geospatial Engineering etc.
- Ordinary Diploma or Equivalent: Candidates with a credit pass in the areas indicated in (c)
- Diploma from Science/Technical Teacher Training Colleges  
Candidates from Teacher Training Colleges with a Science Diploma in Mathematics and Physics.
- B.Sc./B.Ed. (Science) degrees or any other relevant degrees  
Candidates with Bachelor of Science or Education degrees (in Physics and Mathematics) from recognized institutions or any other relevant degree from a recognized institution.

### Fee Structure for undergraduate courses in school of Engineering

	1st Sem	2nd Sem	Other Charges
Year 1	80,000	80,000	24,700
Year 2-5	80,000	80,000	19,500

Note:

*The above fee is under review*

### Admission Requirements into Postgraduate programme - MSc.

Common Regulations for Masters' degrees, of the University of Nairobi shall apply. Admission to the MSc. degree in engineering is open to:

- A holder of at least second class upper division degree of Bachelor of Science in any of the Engineering disciplines of the University of Nairobi
- A holder of a Bachelor of Science Degree of the University of Nairobi in a discipline closely related to the selected M.Sc. option who has in addition relevant practical experience to be assessed by a departmental panel
- A holder of similar qualifications from other institutions recognized by the Senate as equivalent to a Bachelor of Science Degree of the University of Nairobi.

## Department of Civil and Construction Engineering

The Civil Engineering profession deals with the design and construction of infrastructure, utilities and buildings of present and the future. Our BSc. in Civil Engineering is a challenging and stimulating degree programme that is accredited by Engineers Registration Board for the purpose of registration as a Registered Engineer in Kenya.

The major areas of Civil Engineering covered include:

- Structural Engineering,
- Transportation Engineering,
- Geotechnical Engineering,
- Hydraulics
- Water and Environmental Engineering
- Hydrology and Water Resources Engineering.
- Civil Engineering Construction
- Construction Management

### Degree Programmes Offered

B.Sc. in Civil engineering

M.Sc. in Civil engineering

PhD.

### Fee Structure for Master of science in Civil Engineering

Year 1	Year 2	Total
202,500	127,500	330,000

### Career Opportunities

Civil engineers can specialize in any of the diverse aspects of their profession, such as Project management, Structural Engineering, Construction, Environmental analysis, Design and Transport planning.

***Public Sector:*** All departments and public corporations dealing with civil engineering infrastructure and buildings viz: Ministry of Roads, Works, Water, and Local Government.

***Private Sector:*** Engineering consultants, Construction Companies, Management Companies, Banks

## Department of Electrical and Information Engineering

Electrical and Electronic Engineering is a professional engineering discipline that deals with the study and application of electricity, electronics and electromagnetism. The field first became an identifiable occupation in the late

nineteenth century with the commercialization of the electric telegraph and electrical power supply.

The BSc. in Electrical and Electronic Engineering encompasses the following core areas of Electrical and Electronic Engineering:

- Power
- Optoelectronics
- Digital electronics
- Artificial intelligence
- Analogue electronics computer science
- Control systems
- Electronics
- Signal processing
- Telecommunications.

### Degree Programmes Offered

B.Sc. in Electrical and Electronic Engineering

M.Sc. in Electrical and Electronic Engineering

PhD.

### Fee Structure for Master of science in Electrical and Electronic Engineering

Sem 1	Sem 2	Project	Total
155,500	125,000	105,500	386,000

### Career Opportunities

- Electrical power Generation
- Electrical power Distribution
- Electrical power Systems Control
- Telecommunications system engineering and development, inclusive of both fixed and mobile (wireless) telecommunications
- Telecommunications Systems Management
- Internet physical infrastructure engineering
- Computer Software Development and Engineering
- Consumer Electronics
- Microwaves and Antenna Engineering
- Microelectronics Fabrication
- Control Systems and Robotics

## Department of Mechanical and Manufacturing Engineering

In 2003, the University of Nairobi senate ratified the change of name of the Department to Mechanical and Manufacturing engineering to reflect the content and intent of the Department's academic, research and consultancy services and to keep in tune with the expanding global challenges and demands.

The BSc. in Mechanical Engineering encompasses the following core areas of Mechanical Engineering: