

INTRODUCTION

The School of Physical Sciences (SPS) is located at Chiromo Campus. It is composed of the Departments of Chemistry, Geology, Meteorology and Physics. Students may opt for additional courses from other schools in the College of Biological and Physical Sciences. The school offers several academic programmes that cater for the increasing needs of society. The school has fully equipped laboratories and libraries for teaching and research.

The School is home to various innovations, discoveries and new knowledge. Distinguished researchers within the school mentor students with a view to imparting expertise in scientific research. Further information regarding the activities of the school may be found from the various web sites of the component departments of the School of Physical Sciences.

ADMISSION REQUIREMENTS

(a) Pre-University/Bridging

The minimum admission criteria to bridging courses shall be Kenya Certificate of Secondary Education (KCSE) mean grade of C+ or its equivalent and at least a C- in the subject to be bridged or equivalent. The maximum number of courses to be bridged is two (2).

(b) Diploma

KNEC Diploma in Computer Science

Minimum of a mean grade of C- (C minus) at K.C.S.E with passes in Mathematics, Physics/Physical Sciences and English. The course duration is two years, spread over five semesters and a three month industrial attachment period.

(c) Undergraduate

Candidates for the degree of Bachelor of Science in any of the fields listed on the front cover page of this brochure should satisfy the prescribed minimum University of Nairobi general admission requirements. Besides meeting the minimum University of Nairobi general admission requirements, candidates for the School of Physical Sciences must fulfill any of the following:

(a) Kenya Certificate of Secondary Education (KCSE), or equivalent qualifications, with passes in at least three subjects from either of the following two alternatives (A or B), with the minimum grades shown:-

ALTERNATIVE A		ALTERNATIVE B	
Chemistry	C+	Physical Sciences	C+
Biology	C+	Biological Sciences	C+
Physics	C+	Geography	C+
Geography	C+	Mathematics	C+
Mathematics	C+		

- (b) Kenya Advanced Certificate of Education (KACE), or equivalent qualifications, with at least two Principal level passes in: Mathematics, Biology, Chemistry, Geography and Physics.
- (c) Ordinary/Higher National Diploma, or equivalent qualifications, in the fields of science or computer science with at least a pass.
- (d) Science/Technical Diploma from Teachers Training Colleges, or equivalent qualifications in science disciplines or in computer science, with at least a pass.

PROGRAMME DESCRIPTIONS

DEPARTMENT OF CHEMISTRY

(a) Bachelor of Science in Analytical Chemistry

Analytical Chemistry is the science of measurement and identification of chemical compounds that underlie most aspects of modern life and plays an essential role within the chemical industry.

The course enables the graduate to acquire specialized skills, techniques and methodologies of an analytical chemist, as well as a broad solid foundation in Chemistry. Analytical Chemistry has application in all areas of Chemistry.

Graduates of this course can be employed in manufacturing industry, the government, academic and research institutions.

(b) Bachelor of Science in Chemistry

The course is designed to provide comprehensive training in the major areas of Chemistry. These include Inorganic, Organic, Physical and Analytical Chemistry.

Graduates with Chemistry as their main subject in the Bachelor of Science degree programme can be employed in the government, parastatals and the private sector. Opportunities available for these graduates include laboratory based careers as well as administrative posts requiring a technical background such as factory management, customer advice and factory inspectorate.

(c) Bachelor of Science in Environmental Chemistry

The course is designed to enable graduates acquire knowledge and skills in environmental science and technology, and to be able to use these to help guide public policy and economic growth in ways that will improve livelihoods and protect the physical environment. Graduates of this course can be absorbed in industry, the government, consultancy and in research institutions.

They also qualify for certification/registration by the National Environmental Management Authority (NEMA) to Environmental Impact Assessment/ Environmental Audit expert status without further training. The first two years focus on foundation chemistry courses drawn from the basic branches of chemistry. The final two years focus on elements identified as pre-requisite for any environmental chemist.

(d) Bachelor of Science in Industrial Chemistry

The course is designed to bridge the gap between pure chemistry as taught and practiced in industry. A graduate of Bachelor of Science in Industrial Chemistry is equipped with application skills in the fields of chemical technology, some chemical engineering, research and development, business and environmental management.

Job opportunities for industrial chemists are in areas such as chemical plant design, quality control, business management, industrial training, research and development, consultancy and entrepreneurship.

Evening programmes in Chemistry

- (i) Bsc. Industrial Chemistry
- ii) Bsc. Chemistry
- iii) Bsc. Analytical Chemistry
- iv) Bsc. Environmental Chemistry

The above programmes are offered on Monday - Friday (5.30 pm - 8.30 pm) and on Saturdays (8.00 am - 5.00 pm)

DEPARTMENT OF GEOLOGY

(a) Bachelor of Education Science (Geology option)

This course is designed to train graduate teachers to teach science subjects in high schools and tertiary institutions. The student combines education and geology with any other science subject chosen from mathematics, physics, chemistry and geography during the four year course. Career opportunities available for graduates of this course include teaching in high schools and tertiary institutions, and public and private institutions offering geological training and related services.

(b) Bachelor of Education Science & Bachelor of Science (by Open and Distance Learning)

These degree programmes are offered by open and distance learning method and are ideal for working people who cannot leave their jobs for a long time.

(c) B.sc. in Environmental Geosciences

Environmental Geosciences course focuses on understanding the interactions between the lithosphere, hydrosphere, biosphere and atmosphere and thus seeks to provide remediation strategies for environmental hazards and problems. The aim of the course is to train geoscientists eligible for the traditional geosciences profession, but with a thorough understanding of environmental issues, to enable them to work in multi-disciplinary teams. Candidates seeking admission into the Bachelor of Science in Environmental Geosciences degree programme must meet the minimum University and School of Physical Sciences admission requirements.

(d) Bachelor of Science in Geology

The Department of Geology offers an undergraduate programme for the B.Sc. degree based on the course unit system. The programme allows students to specialize in Geology by registering for Geology

courses only in the third and fourth years of the B.Sc. programme. Students wishing to specialize in Geology are advised to select apart from Geology courses, appropriate courses in Chemistry, Mathematics, Physics, Meteorology and Geography in the 1st and 2nd years as recommended by the department.

DEPARTMENT OF METEOROLOGY

(a) B.Sc. in Atmospheric Science

The Atmospheric Science programme is a four year degree course designed to equip students with knowledge and skills in atmospheric science to help undertake tasks in such areas as Weather and Climate System Analysis, Environmental Pollution, Environmental Impact Assessment, Biometeorology, Tourism an Wildlife Agrometeorology, Renewable Energy Resources, Commercial Meteorology, Urban and Building Climatology, Agriculture and Food Security, and climate change.

Admission Requirements

- Candidates with KCSE Certificate or equivalent must have passed with minimum grade C+ in both Mathematics and Physics.
- Candidates with A-Level Certificates or equivalent must have obtained principal passes in Mathematics and Physics.
- Candidates with post O-Level Diploma Certificates must have obtained credit passes in Mathematics and Physics.

Career opportunities for graduates of B.Sc. Atmospheric Science exist in Kenya Government ministries of Transport & Communication, Defence, Environment and Mineral Resources, Agriculture, Water and Irrigation, Energy, Tourism and Wildlife, Science and Technology, Health, Universities, International Organizations such as UNEP, ICPAC, ACMAD, NASA & NOAA and development NGOs engaged in climate change related activities.

(b) B.Sc. Meteorology

The Bachelor of Science in Meteorology programme is a four year course developed to embrace new developments in the science of meteorology and the expanding areas of its application. The course is designed to equip students with the knowledge and skills in Weather and Climate System Analysis, Weather Forecasting, Early Warning for weather and climate related disaster risks reduction, Atmospheric Pollution, Environmental Impact Assessment, Biometeorology, Agrometeorology, Agriculture and Food Security, Hydrometeorology and Surface Water Resources, Renewable Energy Resources, Marine Meteorology, Aviation Meteorology Environmental Meteorology, and climate change.

Admission Requirements

- Candidates with KCSE Certificate or equivalent must have passed with minimum grade C+ in both Mathematics and Physics.
- Candidates with A-Level Certificates or equivalent must have obtained principal passes in Mathematics and Physics.
- Candidates with post O-Level Diploma Certificates must have obtained credit passes in Mathematics and Physics.

- Candidates with a credit level pass in WMO Class II Certificate Course will also be considered. Career opportunities for graduates of B.Sc. Meteorology exist in Kenya Government ministries of Transport & Communication, Defence, Environment and Mineral Resources, Tourism & Wildlife, Agriculture, Water and Irrigation, Energy, Science and Technology, Health, Universities and research institutions, International Organizations such as WMO, UNEP, ICPAC, ACMAD, NASA & NOAA, and development NGOs engaged in climate change related activities.

DEPARTMENT OF PHYSICS

(a) Bachelor of Science in Astronomy and Astrophysics

This degree course is designed to train graduates who will have the relevant skills to work in areas of Basic and Applied Space Sciences such as Satellite Space Stations (e.g. San Marco in Malindi), Astronomical Observatories and Aeronautical Engineering Departments, and Remote Sensing. This course is meant to form the basis for serious capacity building to attain the critical mass of expertise needed for the development of space science in Kenya, which ultimately will be critical to the establishment of a Kenya Space Agency, whose establishment is long overdue.

(b) B.Sc. Microprocessor Technology & Instrumentation

This program, designed in conjunction with the INDUSTRIAL ELECTRONICS UNIT (IEC) of the Physics Department, provides training in such current areas as Embedded Systems and related technologies as well as applications in business systems, industry, and biomedical and scientific research & instrumentation.

The course is made up of 48 units, each 15 weeks, covered over 8 semesters. There are five (5) areas of specialization.

- Industrial Electronics
- Computing
- Applied Telecommunications
- Biomedical & Radiometric Instrumentation
- Applied Physics

Admission Requirements

- The applicant must satisfy the minimum university admission requirements.
- In addition, a minimum of C+ (KCSE) or Principal pass (A level) in Physics and Mathematics is required.
- Diploma holders with a pass grade in Computer Studies, Science or Engineering related fields from a recognized institution will be considered.

(C) Bachelor of Science (Physics)

This is a four (4) year Degree Programme designed for candidates who are initially admitted into the School of Physical Sciences to study for a Bachelor of Science degree but wish to specialize in Physics in their third and fourth years of study.

Admission requirements

- Candidates must have attained the minimum University of Nairobi and School of Physical Sciences entry requirements.
- In addition, the prospective candidate must have a minimum of C+ in Physical Sciences and C+ in Mathematics.

Employment opportunities for Physics graduates

Career opportunities exist in Government ministries of Energy, Health, Public Works, Education, Transport and Communication Sectors, parastatals, ICT based organisations, manufacturing industries, research institutions and International Organisations.

Mode of Application

Application forms can be obtained from the University of Nairobi, **Main Campus, Gandhi Wing, Room G3**, upon payment of a non-refundable application fee of Kshs. 3,000. (Note: **Non-Kenyans pay 25% more on-all charges**). Application fees may be directly deposited into the UNES, UON ACCOUNT, BARCLAYS BANK, Westlands Branch AC No.03-073-1023948. Bankers Cheques will also be accepted. CASH PAYMENTS WILL NOT BE ACCEPTED.

Completed Application Forms should be returned to the Academic Registrar (Admissions Office), **Main Campus, Administration Block, 1st Floor, Room A116**, NOT LATER THAN the deadline set in the advertisements.

FEE STRUCTURE

KNEC Diploma in Computer Studies

Year of Study	Semester I	Semester II	Semester III	Yearly Total
Year 1	46,000	24,750	29,750	100,500
Year 2	33,570	24,750		58,320

B.S.c (Majors/minors)

Year of Study	Semester I	Semester II	Yearly Total
Year 1	96,500.00	72,000.00	168,500.00
Year 2	88,500.00	72,000.00	160,500.00
Year 3	76,500.00	60,000.00	136,500.00
Year 4	76,500.00	60,000.00	136,500.00

B.S.c (Microprocessor Technology & Instrumentation)

Year of Study	Semester I	Semester II	Yearly Total
Year 1	102,500	84,000	186,500
Year 2	96,500	72,000	168,500
Year 3	89,500	84,000	173,500
Year 4	89,500	84,000	173,500

B.S.c Astronomy and Astrophysics

Year of Study	Semester I	Semester II	Yearly Total
Year 1	102,500	72,000.00	174,500.00
Year 2	96,500	72,000.00	168,500.00
Year 3	76,500.00	60,000.00	136,500.00
Year 4	76,500.00	60,000.00	136,500.00

B.S.c Geology

Year of Study	Semester I	Semester II	Yearly Total
Year 1	96,500.00	72,000.00	168,500.00
Year 2	83,500.00	72,000.00	155,500.00
Year 3	71,500.00	60,000.00	131,500.00
Year 4	71,500.00	60,000.00	131,500.00

B.S.c Meteorology (Kenyan Students)

Year of Study	Semester I	Semester II	Yearly Total
Year 1	96,500.00	72,000.00	168,500.00
Year 2	88,500.00	72,000.00	160,500.00
Year 3	76,500.00	60,000.00	136,500.00
Year 4	76,500.00	60,000.00	136,500.00

B.S.c Meteorology (Foreign Students)

Year of Study	East African (US\$)	Other Foreigners (US\$)
Year 1	3890	4690
Year 2	4160	5060
Year 3	2395	2895
Year 4	2395	2895

B.S.c Industrial Chemistry

Year of Study	Semester I	Semester II	Yearly Total
Year 1	96,500.00	72,000.00	168,500.00
Year 2	88,500.00	72,000.00	160,500.00
Year 3	76,500.00	60,000.00	136,500.00
Year 4	76,500.00	60,000.00	136,500.00

For more information, contact:

Dean, School of Physical Sciences

P. O. Box 30197,00100

Tel: 254-20-4442482 or 254-20-4449004/5 ext.2120

Email: infoscience@uonbi.ac.ke, <http://www.uonbi.ac.ke>

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UNIVERSITY OF NAIROBI

COLLEGE OF BIOLOGICAL AND PHYSICAL SCIENCES

SCHOOL OF PHYSICAL SCIENCES

CERTIFICATE, DIPLOMA AND UNDERGRADUATE PROGRAMMES

1. Pre -University/Bridging

- Chemistry
- Physics

2. Diploma

- Diploma in Advanced Analytical Techniques - Chemistry
- Diploma in Computer Studies - Physics

3. Undergraduate

- Bachelor of Science
- B.Sc. (by Open and Distance Learning)
- B.Sc. Chemistry
- B.Sc. Industrial Chemistry
- B.Sc. Analytical Chemistry
- B.Sc. Environmental Chemistry
- B.Sc. Geology
- B.Ed. Science (Geology Option)
- B.Ed. Science
- B.Sc. Environmental Geosciences
- B.Sc. Meteorology
- B.Sc. Atmospheric Science
- B.Sc. (Physics)
- B.Sc. Microprocessor Technology & Instrumentation
- B.Sc. Astronomy and Astrophysics

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