

UNDERGRADUATE OPPORTUNITIES AT THE COLLEGE OF ENGINEERING AND TECHNOLOGY

In addition to the students admitted through the Joint Admissions Board (JAB), the College of Engineering and Technology is offering limited number of places in all programmes to self-sponsored students. These are:

- **Bachelor of Science in Civil Engineering**
- **Bachelor of Science in Electrical and Electronic Engineering**
- **Bachelor of Science in Electronic and Computer Engineering**
- **Bachelor of Science in Telecommunication & Information Engineering**
- **Bachelor of Science in Geomatic Engineering and Geospatial Information Systems (GEGIS)**
- **Bachelor of Science in Geospatial Information Science (GIS)**
- **Bachelor of Science in Mechanical Engineering**
- **Bachelor of Science in Mechatronic Engineering**
- **Bachelor of Science in Mining & Mineral Processing Engineering**
- **Bachelor of Science in Marine Engineering**
- **Bachelor of Science in Agricultural & Biosystems Engineering**
- **Water and Environmental Management (4 years)**

If you are seriously thinking about becoming a professional in these competitive disciplines, the College of Engineering and Technology, JKUAT is offering you the opportunity.

ABOUT JKUAT

Location and Site: JKUAT is located 35km North-East of Nairobi on the Nairobi-Thika Highway. It is only 10kms from Thika town. The University is well served by public transport. There are frequent commercial services by buses, mini-buses and matatus, which ply the superhighway. Many employees and some students commute daily to the University from Thika town and Nairobi city. All the faculties, schools and institutes of the University are together on the same grounds. The beautiful JKUAT grounds are expansive with ample open space filled with a wide variety of trees and ornamental plants. It is a quiet place which has an environment conducive to academic pursuits.

History: JKUAT is one of the public universities in Kenya and has a strong focus on technology. The institution started as a technical college; as a co-operation project between the Government of Japan and the Government of Kenya. It has since then grown tremendously. It is now a leading and a prestigious institution of higher learning in the region, offering training at undergraduate, Masters and Doctor of Philosophy levels. Since its inception as a college, to its establishment as a University, the students have been completing their programmes on schedule.

Organization: The University consists of the College of Engineering and Technology, Faculty of Science, Faculty of Agriculture, the School of Architecture and Technology, School of Human Resource Development and Institute of Computer Science and Information Technology; all of which are academic units; there are several non-academic institutes for research and extension activities.

ABOUT THE COLLEGE OF ENGINEERING AND TECHNOLOGY

Programmes in the College of Engineering and Technology fall under three Schools, viz;

- School of Civil, Environmental and Geospatial Engineering;
- School of Electrical, Electronic and Information Engineering, and
- School of Mechanical, Manufacturing and Materials Engineering
- School of Biomechanical and Environmental Engineering

ABOUT THE PROGRAMMES

1. Civil Engineering

The programme aims at producing Civil Engineers with technical training in the general fields of structural, geotechnical, high transportation, environmental and water engineering. Internal practical attachment within the University and external practical attachment in the industry complements the theoretical and external practical attachment in the industry complements the theoretical and laboratory training. Students are required to carry out an engineering research project in their final year under supervision of an academic member of staff.

2. Geomatic Engineering and Geospatial Information Systems (GEGIS)

A Geomatic Engineer is a professional person with academic qualifications and technical expertise obtained in a training that uses modern engineering tools to practice the science of measurement; to acquire, assess, process, analyze and present land and geo-referenced information (in the form of maps, plans, etc.); to use that information for the purpose of planning and implementing the efficient administration of the land, the sea and structures thereon, and to investigate the advancement of such practices. Subjects areas covered include General Land Surveying, Engineering Surveying, Geodetic Sciences, Mapping, Geographic Sciences, Economics, Environmental Sciences, Land Economics and Development, Law and Professional Studies. Geomatic Engineering takes into account the relevant legal, economic, environmental and social aspects affecting projects.

3. Geospatial Information Science (GIS)-4 year programme

Geospatial Information Science (GIS) is a 4 year course that brings together the disciplines of computing, surveying, mapping, cartography and visualisation, environmental science and statistics for the collection, analysis and modelling of spatially based or associated information. GIS is a rapidly developing discipline, and is applied in order to address problems and offer optimal solutions in an increasing range of applications where spatial, location / position based information is important. This includes but is not limited to sustainable environmental and natural resources management, exploration and mining, land ownership, urban and regional planning, facilities and utilities management, asset management, health planning, demographic marketing etc. Indeed, over 80% of all data handled today is location / position based or associated. The programme places emphasis on modern techniques of geodesy, digital mapping, Remote Sensing, cartography, Geo-information, Satellite Positioning such as Global Positioning System (GPS) but also offers adequate foundation on traditional geo-information data acquisition and processing techniques.

4. Electrical and Electronic Engineering

During the first three years, the students undertake mathematics, basic electrical and electronic principles and general studies courses. In the final two years, the students choose to specialize either in light current option or heavy current option. The students are expected to learn a systematic and analytic approach to electrical and electronic engineering to enable them to carry out design and research work. They are also expected to develop the right attitude towards the needs and aspirations of the society as well as a sense of responsibility.

5. Electronic and Computer Engineering

Computers are essential ingredients of modern engineering systems, in computer-aided design and communication networks, and in process control of modern manufacturing plants. Electronic and Computer engineers need to be familiar with computer architectures and hardware, and must possess good analytical skills and a broad background in Electrical Engineering. The Electronic and Computer Engineering degree aims to give the graduates a combination of expertise from computer science, computer engineering, software engineering, electronic systems and electronic components. The graduates will possess the skills

needed to design and maintain electronic and computer systems for a wide variety of engineering applications. They will also be skilled in software engineering.

6. Telecommunication and Information Engineering

The Telecommunication and Information Engineering degree programme is designed to meet the demand for building capacity for qualified manpower and to facilitate research, design, development and production of new ideas and new products in this field. This will provide access to many of the new technologies of mobile, radio, rural and remote communication facilities for voice, data, facsimile, email, internet and video/data. The application of information systems (preparation, collection, transmission, retrieval, storage, access, presentation and transformation) will form the core. It is the first course of its kind available in East Africa for undergraduate.

7. Mechanical Engineering

The programme emphasizes on application of mechanical engineering concepts particularly in design and manufacturing. All units taken in first, second and third year are common. In the fourth and fifth year of the program a student takes elective units in a chosen area of specialization, i.e., automotive or production engineering. A student undergoes a mandatory practical training attachment, each of eight weeks, on at the University at the end of the second year and the others at the end of third and fourth years of study including units of practical training in the engineering workshops during the academic semesters. A student must undertake, in their final year of study, a suitable engineering project under supervision of a member of academic staff.

8. Mechatronic Engineering

This subject gives a thorough understanding of modern engineering and manufacturing combined with specialist skills in electronics and computer based technology. The study of Mechatronic involves aspects of Electrical, Electronic and Mechanical Engineering together with an understanding of manufacturing methods. Modules on the course include: Computer Aided Engineering, including Computer Aided Design, Drawing and Manufacturing, Engineering systems, Engineering Analysis, Electronic Devices and Circuits, Control Systems Analysis. The course aims to equip engineers to lead or work in multi-disciplinary design teams on products that involve both a mechanical and electronic dimension. For instance, modern precision equipment (such as computer disk drive) combine mechanical and electronic design. Robotics is also part of the field.

9. Marine Engineering

This degree program is designed to provide qualified manpower that can develop and maintain ship propulsion units, ship structures and all support machinery, as well as initiate manufacturing projects or improve existing maritime operations. The curriculum is designed to meet the standards of the International Maritime Organization. The graduates of this program will work in the high seas as well inland. In addition to covering the academic and practical content, students also undergo cadet training, to acquire the necessary life skills, as well as some IMO-prescribed mandatory courses.

10. Mining and Mineral Processing Engineering

This programme aims at producing engineers specialized in both mining and mineral processing. Mining engineering is basically the process of taking mineral resources from the earth in response to man's needs. On the other hand, mineral processing engineering involves separating valuable elements of material from unwanted waste material from the ore body, in the most economical way. In the first three years of the programme, all the students will cover common units mainly in mathematics, applied science, fundamental engineering principles and principles of mining and mineral processing engineering. In the fourth and fifth year of study, besides the core units, a student will take elective units in either mining or mineral processing engineering. Each student will undergo a mandatory eight-week industry-based practical attachment at the end of the second, third and fourth year of study.

In the final year of study, every student must undertake a suitable engineering project under the supervision of a member of the academic staff.

11. Agricultural and Biosystems Engineering

This programme aims at producing specialized Engineers combining biological and technical skills to address issues in agro-industrial development and the consequent environmental problems. The programme allows students to major in Soil, Water and Environmental Engineering or Biomechanical and Processing Engineering options during the fourth and fifth year of study. Graduate engineers of this programme are equipped with necessary knowledge and skills for sustainable utilization of natural resources, optimal design and management of bio-production and processing systems, and harnessing and management of energy systems. Graduates find jobs in both private and public sectors in various engineering fields and in particular bio-processing systems design, design and production of bio-processing machines and structures, waste management, irrigation and drainage engineering, soil and water conservation and environmental management.

12. Water and Environmental Management

This is a 4-year programme aimed at producing graduates with the necessary knowledge and skills for sustainable land development and natural resources utilization. The graduates of this programme apply the knowledge of mathematics, sciences and management principles to diagnose and analyze problems that require sound environmental solutions and to solve problems in production systems. The graduate will find jobs in both government and public sectors as Water and Environmental managers involved in sustainable exploitation of natural resources for Agricultural and Industrial Development.

STRUCTURE OF THE PROGRAMMES

Duration: Each program will take a total of ten (10) semesters of sixteen (16) weeks each and a total of twenty-four (24) weeks of industrial training.

Courses: There are eight (8) course units in every semester.

Mode of Study: These are full-time programmes at JKUAT main Campus.

Regulations: All the College and University regulations for the degree programmes will apply.

Examinations: Examinations are taken at the end of every semester for the courses taken in that semester. The University and College Examination rules and regulations will apply.

APPLICANTS ELIGIBILITY

You are eligible to apply if you have attained any of the following qualification:

(i) Kenya Certificate of Secondary Education (KCSE) with at least a mean aggregate of grade **C+ (plus)**; and the following minimum grades in the individual cluster subjects:

Alternative A – Mathematics C+(plus), Physics C+(plus), Chemistry C+(plus), English/Kiswahili C+ (plus), and C+ (plus) in any of the subjects in Group II, III, IV or V; **Alternative B** – Mathematics C+(plus), Physical Sciences B(plain), Biological Sciences C+(plus), English/Kiswahili C+(plus) and C+ (plus) in any of the subjects in Group II, III, IV or V, **or** equivalent qualification obtained in other examination systems **or**

(ii) Kenya Advanced Certificate of Education (KACE) or the A-level with at least two principal passes in Mathematics and Physics; with a total score of at least nine (9) points, **and** at least a credit pass in Chemistry at the KCE or its equivalent **or**

(iii) Ordinary Diploma from an institution recognized by the JKUAT Senate, having been awarded by JKUAT or, by the Kenya National examinations Council (KNEC), or any other external examinations body recognized by the University Senate as being of equivalent status. In addition, the diploma holder must have had satisfactory mean/subject grades at O-level or equivalent.

or

(iv) A holder of any other qualifications recognized by the Senate as equivalent to (i), (ii), or (iii) above.

HOW TO APPLY

You will be able to obtain application forms from the office of the Principal, College of Engineering and Technology, JKUAT, upon payment of a non-refundable fee of KShs. 1,500/= for Kenyans and US\$ 50.00 for foreign students. Applications for Engineering programmes are ongoing.

TUITION FEES

The estimate for the tuition plus examination fee is KShs. 118,111/= per semester for Kenyan citizens and 20% over and above for non-citizens.

ENQUIRIES

Additional information is available from:

The Principal, College of Engineering and Technology

J.K.U.A.T

P.O. Box 62000-00200 NAIROBI

Tel: 067 5352184/067 5352034/067 5352117/067 5352182/067

5352711 Ext. 2110/2111/2112/2113

067 5352038 or 020 2626338 (Direct Lines)

Email: principal@eng.jkuat.ac.ke

Website: <http://www.jkuat.ac.ke>



JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY COLLEGE OF ENGINEERING AND TECHNOLOGY (COETEC)

SELF-SPONSORED B.Sc. DEGREE PROGRAMMES

VISION:

To be a University of Global Excellence in Training, Research and Innovation for Development

MISSION:

To offer accessible quality training, research and innovation in order to produce leaders in the fields of Agriculture, Engineering, Technology, Enterprise Development, Built Environment, Health Sciences, and other Applied Sciences to suit the needs of a dynamic world.

- School of Civil, Environmental and Geospatial Engineering
 - Department of Geomatic Engineering and Geospatial Information Systems
 - ✓ B.Sc. Geomatic Engineering and Geospatial Information Systems
 - Department of Civil, Construction and Environmental Engineering
 - ✓ B.Sc. Civil Engineering
- School of Electrical, Electronic and Information Engineering
 - Department of Electrical and Electronic Engineering
 - ✓ B.Sc. Electronic and Computer Engineering
 - ✓ B.Sc. Electrical and Electronic Engineering
 - Department of Telecommunication and Information Engineering
 - ✓ B.Sc. Telecommunication & Information Engineering
- School of Mechanical, Manufacturing and Materials Engineering
 - Department of Mechanical Engineering
 - ✓ B.Sc. Mechanical Engineering
 - Department of Mechatronic Engineering
 - ✓ B.Sc. Mechatronic Engineering
 - Department of Marine Engineering and Maritime Operations
 - ✓ B.Sc. Marine Engineering
 - Department of Mining, Materials and Petroleum Engineering
 - ✓ B.Sc. Mining and Mineral Processing Engineering
- School of Biomechanical and Environmental Engineering
 - Department of Soil, Water & Environmental Engineering
 - ✓ B.Sc. Water and Environmental Management
 - Department of Agricultural and Biosystems Engineering
 - ✓ B.Sc. Agricultural and Biosystems Engineering