



JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

COLLEGE OF ENGINEERING AND TECHNOLOGY (COETEC)

SELF-SPONSORED DEGREE PROGRAMMES IN ENGINEERING (2018 INTAKE)

Jomo Kenyatta University of Agriculture and Technology (JKUAT) invites applications for admission into the following programs in the College of Engineering and Technology (COETEC).

1. Bachelor of Science in Electrical and Electronic Engineering
2. Bachelor of Science in Electronic and Computer Engineering
3. Bachelor of Science in Telecommunication and Information Engineering
4. Bachelor of Science in Civil Engineering
5. Bachelor of Science in Geomatic Engineering and Geospatial Information Systems
6. Bachelor of Science in Mechatronic Engineering
7. Bachelor of Science in Mechanical Engineering
8. Bachelor of Science in Agricultural and Biosystems Engineering
9. Bachelor of Science in Marine Engineering
10. Bachelor of Science in Mining and Mineral Processing Engineering
11. Bachelor of Science in Geospatial Information Science (4 Year Program)

APPLICANTS ELIGIBILITY

The following shall be eligible for consideration for admission into the degree programme:

Candidates must 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 University Senate as equivalent to (i), (ii) or (iii) above.

DURATION

Each programme takes a total of ten semesters of sixteen weeks each and a total of 24 weeks of practical industrial attachment except for Bachelor of Science in Geospatial Information Science, and Bachelor of Science in Water and Environment Management, which take four years.

COURSE BRIEF

Electrical and Electronic Engineering

The degree program is designed to produce a graduate engineer who has knowledge in the core areas of electrical and electronic engineering. These include electronics, telecommunication, control, electrical machines and power systems. In the final two years, the students specialize in either light current or heavy current option. The students are expected to learn a systematic and analytical approach to electrical and electronic engineering to enable them to carry out design, implementation, maintenance and research work. The career paths are wide and varied and the graduates can find work in industries such as aviation, manufacturing, telecommunication, media (electronic and print), building/construction, power and energy management.

Electronic and Computer Engineering

This is a discipline that embodies the science and technology of design, construction, implementation and maintenance of software and hardware components of modern computing systems and computer-controlled equipment. It combines both electronic engineering and computer science. This field of engineering not only focuses on how computer systems themselves work, but also how they integrate with other systems. A graduate engineer will have extensive understanding of electronic devices such as microprocessors, local and wide area networks and even supercomputers that form the basis for worldwide communications. The graduates will be equipped with the skills necessary to design, implement and maintain electronic and computer systems and develop software for a wide variety of engineering applications. The graduates can find work in fields such as telecommunications, transportation, manufacturing, and computer hardware and software development.

Telecommunication and Information Engineering

The degree program is designed to provide qualified manpower in the rapidly growing telecommunication and Information Engineering field and to facilitate research, design, development and production of new ideas, processes and products in this field. The graduates will have an in-depth knowledge in various new communication and information technologies such as mobile phones and facilities for data transfer including facsimile, e-mail, internet and video/data.

Civil Engineering

Civil Engineering involves the research, design and construction of Buildings, Bridges, Roads, Dams, Airports, Water Supply and Wastewater Systems, Transportation Systems, Underground and Coastal Structures, Environmental systems, Tunnels, etc. The BSc Civil Engineering degree program aims at producing Engineers with competence in the fields of structural, geotechnical, highway, transportation, environmental and water engineering. The course produces Engineers who can design, construct and supervise projects in the various broad areas listed above and engage in research work.



Geomatic Engineering and Geospatial Information systems (GEGIS)

This degree programme aims at providing graduate engineers with expertise in application of modern engineering mapping, computing and space technology tools. These include Geospatial Information Systems (GIS), satellite Remote Sensing, satellite based Global Positioning Systems (GPS), digital mapping and imaging, Navigation and other computer based data management and visualization technologies. Such tools are applied in acquisition, assessment, processing, management, analysis, modeling and dissemination of land/location/position based or associated (geo-referenced) information including satellite derived information. Graduates of this program can find work in the physical, built, industrial and business environments.

Mechatronic Engineering

The degree program aims at producing graduate engineers with an in-depth understanding of modern manufacturing technologies combined with expertise in automation, robotics, electronic and computer-based technologies. The study of Mechatronic Engineering involves integrated aspects of Mechanical and Electrical/Electronic Engineering and controls. It has a strong emphasis on design of efficient systems for manufacturing, including automation. The course aims at providing engineers to lead in multi-disciplinary design teams on products and processes that have both mechanical and electronic dimensions. Graduates of this programme work in several industries including manufacturing, aviation, chemical, food processing, automobile, power generation, electronics, etc.

Mechanical Engineering

The program aims to produce graduate engineers with expertise in Design, Manufacturing/Production and maintenance of mechanical systems, processes and products. The program has a very strong emphasis in engineering design. In the final two years, graduates can specialize in Thermo fluids, Automotive or Production Engineering. Graduates of this program can find work in a wide range of industries such as in manufacturing, aviation, oil industry, building services, vehicle manufacturers, power generation and transmission, etc.

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.

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.

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 minerals resources from the earth in response to man's needs. Mineral processing engineering involves separating valuable elements of material from unwanted waste material from the ore body. Besides the core units, a student will take elective units in either mining or mineral processing engineering. Each student undergoes mandatory industry based practical attachment at the end of the second, third and fourth year of study. Graduates of this programme will work in the various areas of the mining industry as well as in other industries dealing with materials processing.



Environment and Water 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.

Geospatial Information Science

This 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. 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.

More details on all the programs listed above should be obtained at <http://www.jkuat.ac.ke> under the sub-title “REGULATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE DEGREE IN ENGINEERING”.

Application forms can be obtained upon payment of a non-refundable application fee of KShs. 1,500/- and returned by Friday, 16th March, 2018 duly completed with official results slip/certificate to:

Principal, College of Engineering and Technology, JKUAT
P.O. Box 62000-00200, Nairobi
Tel. 067-5870001-4 Ext. 2110/2111/2113/2114 or 020-2626338
Email: principal@eng.jkuat.ac.ke
Website: <http://www.jkuat.ac.ke>

