STUDY AREA

ENGINEERING

WHERE WILL KYU TAKE YOU?

KIRINYAGA UNIVERSITY

ENGINEERING

KYU is never boring. It's an opportunity to solve complex problems and make our planet a better place. The role of is an ever changing. They have a very critical part to play in overcoming the unprecedented challenges our world faces today. Challenges like food and water security, climate change, data security and our ageing population. When you study engineering at the Kirinyaga University you will be in the right place to discover life-changing solutions.

WELCOME TO KYU

KYU LIFESTYLE

KYU is a dynamic scientific and educational centre attracting the best graduates, scientists and lecturers. The University specifically focuses on integrating science, education and innovations, as well as establishing a creative environment for unlocking the potential of every student. Kirinyaga University locality is rich in Agricultural soils and endowed with tourist attractions within the vicinity of snow-capped Mount Kenya, located approximately 115 Km North East of Nairobi on Sagana- Embu-Highway making it accessible by both public and private transport. The serene environment makes it an ideal place for learning. A creative hub, KYU is a home for countless creative and innovative leaders and entrepreneurs.

CAMPUS LIFE

On campus you have access to a wide range of cafes, fresh foods, outlets and bars. The university is a home to clubs, societies and social groups-offering an opportunity to meet new people, socialize and be part of something new.

ACCOMMODATION

While the thought of moving away from home town to study might seem daunting task, we're here

KyU has hostels in a conducive environment whose security and safety are key to students' accommodation. The Campus environment is friendly for learning. Students enjoy in the campus a variety of quality meals sold at subsidized prices at the students mess. Students' health is well taken care of at the University Clinic. The presence of full time medical staff provides the much needed services to the students. The university Ambulance is always available to facilitate transfer of students to Referral Hospitals during emergencies.

YOUR PATHWAYS

We are proud to be the largest provider of enabling and marketed oriented programs in Kenya.

If you do not have the qualifications required for direct entry, we offer you the opportunity to access university studies, regardless of your background or level of previous education. The programs can be accessed through undertaking the bridging courses. The programs available cover those were not able to attain minimum qualifications for direct entry.

STUDENT JOURNEY

Your journey as a university student begins the minute you gain entry into a degree program.

Weather you choose to directly into the workforce once you complete your bachelor (or undergraduate) degree or continue studying is up to you. The option available to continue studying are vast. Even if you decide to take a break from studying you always come back if you would like to specialize in a new area, learn more, or refine a specific skill set.

Upon completion of your bachelor degree, you may wish to further your studies with honours-an additional year dedicated for research on specific area of interest. Honours programs are highly regarded, they can enhance prospects and prepare you for Higher Research Degree. Your next step in studying may include earning a Master of Philosophy or a Doctor of Philosophy in your area of choice. In doing so, you will open up an incredible opportunities to advance your career, champion breakthrough discoveries and solve the world's greatest challenges.

Additional coursework (non-research) prospects are also available after completing your bachelor degree. KyU offers 17 programs in the following areas: Engineering, ICT, Pure and Applied sciences, Hospitality and Textile Technology, Health Sciences and Business Enterprise with postgraduate degree options to expand your career options and follow a path with potential to make a global impact in your field of choice.

STUDY ABROAD

Are you adventurous? Keen to see the world and continue your studies at the same time?

Studying oversees is an experience that will stay with you forever. It's a chance to open up your world, expand your academic horizons and connect with people from around the globe. Whether it be a semester exchange, a short course or even an internship, there is an overseas experience out there to suit everyone.

Scholarships

Kirinyaga University offers scholarships internally and has created linkages with partners and other institutions that offer research funds. Through these research programs, we are able to open up a world of possibility for those who might have all the talent in the world, but sometimes lack the opportunity to develop and explore it.

Our scholarship programs provide:

- Scholarship for academic achievement
- Support for individuals with financial hardship and educational disadvantage
- Opportunities to travel, perform, play sport, relocate, or gain global experience

Many of our scholarships have been created as a result of philanthropic donations to the KyU, from individuals and organizations who share our belief that everyone with talent and dedication deserves the chance to pursue their dreams.

WHY ENGINEERING?

Engineers apply mathematics and science to find creative solutions to complex problems and bring exciting innovations to life. They are the people who make great ideas happen-finding quicker, better and more efficient methods to do things.

There is a world of opportunity out there as engineering technology is one of the only few fields that the Kenyan Bureau of Statistics predicts to keep growing into 2020 and beyond. Engineers work on huge range of task in industries like electronics, energy, biomedics and constructions. You could work for yourself, a big company, the government or organization such as Unilever. You also have flexibility to choose the kind of work to do, be it fieldwork, on-site, design or development or a corporate leadership role managing people and projects. Remarkably engineering is the most commonly held degree among the highest performing Fortune 500 CEOs-think of, Safaricom, Google, Microsoft, PayPal and Tesla Motors. Engineering touches many parts of modern life ad there is a need for a range of different professional specializations. From chemical to civil, environmental to electrical and electronic engineering, mechanical to material engineering-There is an area to match your passions.

ARE YOU LOOKING FOR

- An in-demand profession with fast progression
- High Starting salary
- Opportunities to solve the world's biggest problems
- Flexibility to work in and out of office
- Perhaps this could be your new

No. 1
Profession for career satisfaction (Engineering)[1]
No. 1
Job family on the rise (Architecture and Engineering)[2]
75 %
Of the fastest growing occupations now require Science, Technology, Engineering and Math Skills

NEW DEGREES

Our innovative engineering degrees offer exciting learning opportunities that are future-focused and related to real–world challenges

The unique structure of our programs offers opportunities and experiences unlike other Kenyan University. Through this training, Kirinyaga University graduates become bold, agile and entrepreneurial. They're big picture thinkers who are equipped to help solve the world's greatest challenges.

YEARS

1-4

Bachelor of Technology

BUILD AN ENGINEERING KNOWLEDGE-BASE

Lay the foundation for your future career with fundamental engineering and practice knowledge-a core requirement for professional recognition with Kenya Engineering Technology Registration Board (KETRB)

EXTEND YOUR PROFESSIONAL SKILLS

Our professional practice courses will prepare you for the professional world. Inbuilt into each year of degree, they can help you develop critical thinking, complex problem solving, communication skills and entrepreneurism

BROADEN YOUR KNOWLEDGE

Choose elective pathways to complement your engineering skills. Future-proof your career with complementary studies in design, computer science or entrepreneurship. Or go on international exchange and strengthen your global employability.

GET HANDS-ON EXPERIENCE

Not only will you learn hands on from day one with our professional practice courses, but you will be able to put your learning into practice through weeks of industry experience. Take up free membership with Kenya Engineering Technology Registration Board (KETRB) be paired with a mentor or attend

their networking events. Plus, you could choose to take an international humanitarian engineering or apply for a summer research scholarship.

PROJECT-BASED LEARNING

Put your engineering and high level problem-solving skills into practice with our capstone project courses. At the end of your degree you will test your skills with experimental or theoretical investigation or develop a solution to an engineering design problem.

BTECH (ELECTRONIC AND COMPUTER ENGINEERING)

Electrical and electronics engineers design build systems and machines that generate, transmit, measure, control and use electrical energy essential to modern life. As an electrical and electronic engineer you could help develop precision agriculture technology to increase production efficiency and even build smart grid systems to help manage alternative energy resources. Or, follow in the footsteps of our team of researchers and develop life changing medical technology-like the artificial organs.

COMBINE THIS DEGREE WITH

- Bachelor of Business
- Bachelor of Computer Systems Engineering
- Bachelor of Technology (Mechatronics)
- Bachelor of Mathematics
- Bachelor of Science (Physics)

CERREER EXAMPLES

- Telecommunication Equipment Designer
- Electrical Design Engineer
- Automatic Systems Designer

- Robotics Engineer
- Biomedical Instrumentation Engineer

ACREDDITAION

Professional recognition through Kenya Engineering Technology Registration Board (KETRB)

BTECH (CONSTRUCTION AND PROPERTY MANAGEMENT)

Construction and property Management has a remit to focus on the construction process and its management, including materials, construction processes for buildings and engineering works, project and construction management, contracts and legislation, health and safety, cost control, real estate and geodetics.

The construction process and its management is often not given due importance in research and study. There is greater demand, in the industry, for professionals who work in the management of the construction process of buildings and engineering works, who understand procurement systems and their legislative implications, who can the lead in the very important and topical issues of health and safety on site, who can assist developers and contractors with cost and value engineering, who can direct time and quality management of projects, who can assist in the resolution of construction disputes, and who understand the real estate market and its management.

It is active in research in Materials Engineering including cement bound materials and concrete, reinforced concrete structures, composites in construction, the durability performance of materials including concrete and composites, the use of waste materials including industrial by-products as cement replacement and additions in concrete and the appraisal and repair of reinforced concrete structures. It is also active in research in life cycle

analysis and service life design of structures, innovative construction systems and technologies in civil engineering applications and sustainable construction.

CAREER EXAMPLES

- Architectural technologist.
- Environmental engineer.
- Facilities manager.
- Financial manager.
- Further education teacher.
- Management consultant.
- Planning and development surveyor.
- Town planner.

ACCREDITATION

Professional recognition through Kenya Engineering Technology Registration Board (KETRB)

BTECH (MECHANICAL ENGINEERING)

Mechanical engineers design, manufacture and optimize specialist machines and processes.

They solve important problems using robotics, new advanced materials, the fundamental laws of Energy generation and transmission, and the computer control of physical systems-from nano to megaton scale. They work on everything from power plants, to air conditioners, aircraft engines and race cars. As a mechanical engineer, you could design self-driving farm machinery for ultra-efficient food production, or build revolutionary biomechanical solutions for people with disabilities. The possibilities are vast and exciting.

Combine this degree with

- Bachelor of Business
- Bachelor of Technology (Mechatronics)
- Bachelor of Mathematics
- Bachelor of Science (Physics)

CAREER EXAMPLES

- Mechanical engineering Designer
- Mechanical Systems Designer
- Mechanical Technology Engineer
- Operating Plant Manager
- Engineering Project Manager

ACREDDITATION

Professional recognition through Kenya Engineering Technology Registration Board (KETRB)

BTECH (RENEWABLE ENERGY)

One of the biggest challenges human being faces is the transition to a renewable energy economy

The success of this evolution depends on the creative solutions of a new generation of renewable energy engineers with specialized skills. Spanning the disciplines of chemical, electrical and mechanical engineering, this degree will equip you with to work across the whole spectrum of technologies for renewable energy capture, conversion, storage, delivery and management. You will also choose courses in related areas of climate change policy, law and economics and environmental sciences.

CERREER EXAMPLES

- Renewable Energy Engineer
- Renewable Energy Systems Designer
- Energy Management Consultant
- Energy Accounting/Auditing officer
- Energy Policy Development Officer
- Renewable Energy Innovation Engineer
- Building services Energy Engineer

ACREDDITAION

We are seeking provisional accreditation for this program through Kenya Engineering Technology Registration Board (KETRB)

BTECH (MECHANICAL VENTILATION AND AIR CONDITIONING)

This is an excellent program for a person with many different interests. Refrigeration and Air Conditioning requires a variety of skills in mechanical systems, electrical/electronic systems and system troubleshooting. You learn to repair and maintain commercial and industrial refrigeration and air conditioning systems. You also learn to install refrigerant vapour lines, liquid lines and other kinds of piping. Basic skills in oxy-fuel brazing are covered, as well as the design, installation and troubleshooting of electrical circuits and controls.

This program broadens yours skills and the opportunities you have to work with companies that specialize in heating, air conditioning and energy. Industry growth has resulted in high demand for skilled engineers to design, install, troubleshoot and repair countless types of freezing, cooling, dehumidifying and heating systems. Our program has been specifically

designed to address the changing employment and environmental needs of the industry. Our program provides you with theoretical and practical skills to install, service, maintain and update heating, refrigeration and air conditioning systems.

Air conditioning and refrigeration engineers use technical knowledge and practical skills to ensure that products such as heat pumps and refrigerant gases are handled in a safe and eco-friendly way, reducing the impact on the environment as much as possible. From maintaining a comfortable air temperature and humidity in a multi-screen cinema to keeping blood at the right temperature for lifesaving operations, the air conditioning and refrigeration industry covers a wide range of activities.

The work can be divided into two areas:

Refrigeration engineers install, service and maintain refrigeration systems in locations such as supermarkets, hospitals, food processing plants and research establishments.

Air conditioning engineers install, service and maintain systems and equipment which maintain the quality, temperature and humidity within buildings.

The work of an air conditioning and refrigeration engineer may involve:

- Undertaking preparatory work
- Inspecting, testing, certificating and commissioning
- Identifying and rectifying faults
- Providing functional and technical information to customers
- Maintaining effective working relationships with fellow workers
- Overseeing work activities

CAREER EXAMPLES

- Statistics provided by the BLS indicated that future job growth for air conditioning engineers might remain steady, since employment growth for mechanical engineers was estimated to grow 5% from 2014-2024.
- HVAC engineer
- HVAC service & HVAC controls engineers
- HVAC mechanical engineers
- Project managers
- Professional sales and business development managers
- HVAC Consultant
- Commissioning Engineer
- Building Automation Service Specialist

ACCREDITATION]

We are seeking provisional accreditation for this program through Kenya Engineering Technology Registration Board (KETRB)

Strong Demand for HVAC Services

Demand for HVAC services and products will likely increase in the coming years as customers replace or upgrade old equipment. This is good news for individuals pursuing any one of the number of HVAC career paths the industry has to offer. To learn more about training for this line of work, contact The Refrigeration School.

BTECH (WATER IRRIGATION ENGINEERING)

In this area, students study a broad range of topics related to irrigation, including the use of treated wastewater in irrigation, conjunctive use of surface and ground water, water policy, training tools for improving water management, and many others. Students studying this program focus on the evapotranspiration (ET) of agricultural crops and other vegetation based on weather station instrumentation and or lysimeter measurements or flux

systems, such as eddy covariance and Bowen ratio. It is important to estimate ET to understand water requirements and to lead to improvements in water management.

Graduate studies in Water Irrigation Engineering typically consider issues like the following:

- Soil-water-crop relationships
- Analysis for crop water requirements
- On-farm irrigation system design
- On-farm irrigation water management
- Design of water delivery and distribution systems
- Water control and measurement in irrigation systems
- Drainage of irrigated lands
- Environmental concerns related to irrigation and drainage – salt problem, nutrient leaching, and reduction of stream flows in rivers.

CAREER EXAMPLES

- Irrigation Engineer
- Consultant in design of irrigation Systems
- Hydrologist
- Environmental protection Specialist

ACCREDITATION

We are seeking provisional accreditation for this program through Kenya Engineering Technology Registration Board (KETRB)

BTECH (WATER SANITATION & HABITAT IRRIGATION)

This programme will equip you with a unique blend of civil engineering and public health policy skills. As a result, you'll be ideally placed to take up a senior position in public health ministries and public health departments in

countries of the global south, or to work with international development agencies and international non-governmental organisations (NGOs).

The training covers a wide range of technical aspects required to efficiently handle emergency situations with approaches aiming towards development. The training thereby facilitates integration of engineers and scientists in humanitarian operations and makes the participants aware of the close links between public health, water and sanitation in disaster-stricken populations.

The training course is subdivided into a theoretical part and a practical part. During the theoretical part, issues are covered from basic concepts in hydrogeology, water quality and treatment, geospatial data analysis, refugee camp planning, well construction and rehabilitation, waste water and solid waste management to environmental sanitation assessment: all courses include exercises and case studies. During the practical part, field work is carried out during three days: a water treatment and distribution network is constructed and water and bacteriological analysis, well testing and geophysical exploration are carried out.

Objectives

- identify, formulate and analyse issues of public health, water and sanitation;
- pass on technical concepts and discuss them with health professionals as well as with industrial leaders, politicians, local and national administrators;
- plan, implement and monitor a water and sanitation emergency programme in the context of a humanitarian operation;
- better understand the institutional context of a humanitarian situation and design an emergency response.

CAREER EXAMPLES

- Water Engineer

- Consultant in design of irrigation Systems
- Hydrologist
- Environmental protection Specialist

ACCREDITATION

We are seeking provisional accreditation for this program through Kenya Engineering Technology Registration Board (KETRB)

BTECH (MEDICAL ENGINEERING)

Medical engineers take new technology and create better solutions. With a BTech in Medical Engineering, you'll apply engineering principles and design processes to find innovative solutions to healthcare's biggest challenges. As a medical engineer you will strive to make medical treatment more effective, efficient, safer and affordable. You might work on the development of life-saving artificial organs, design of more advanced surgical equipment, prosthetic limbs, or electrical and computing systems for radiotherapy or dialysis. Our graduates are uniquely placed to save and improve lives around the world.

CERREER EXAMPLES

Depending on the area of specialization, a medical engineer could work with:

- Biomedical devices
- Surgical equipment
- Nanotechnology drugs and tests
- Prosthetic limbs
- artificial organs

ACREDDITAION

We are seeking provisional accreditation for this program through Kenya Engineering Technology Registration Board (KETRB)

A UNIQUE LEARNING EXPERIENCE

This program is the only degree to be offered in this region

BTECH (MATERIAL SCIENCE AND ENGINEERING)

Materials engineering is a multi-disciplinary field incorporating elements of applied chemistry and physics. The areas of nanoscience and nanotechnology are some of the most popular sub-disciplines of materials engineering and science. Besides using materials such as metals, ceramics, polymers, biomaterials, and others, materials engineers also discover and create new types of materials, making new technological advancements possible.

Materials Scientists and Engineers are involved in every aspect of technology, ranging from the design of materials appropriate for use in integrated circuits and biological applications to those materials needed for energy generation (both conventional energy sources and green sources) and for building bridges, roads, and buildings.

Upon graduation, students are prepared for a number of different careers paths. Many go on to graduate studies at prestigious universities. Others head directly into the workforce as engineers in Silicon Valley, the biotechnology sector, the aerospace or automotive fields, and energy-related industries. The objectives of the undergraduate program in Materials Science and Engineering are to educate graduates who have the following skills:

- Knowledge of the fundamental science and engineering principles relevant to materials design, development and engineering application

- Understanding of the relationship between nano/microstructure, characterization, properties and processing and design of materials
- Have the experimental and computational skills for a professional career or graduate study in materials
- Possess a knowledge of the significance of research, the value of continued learning and environmental/social issues surrounding materials
- Ability to communicate effectively, to work in teams, and to assume positions as leaders

CAREER EXAMPLES

- Biomedical engineer
- Higher education lecturer
- Manufacturing systems engineer
- Patent examiner
- Project manager
- Quality manager
- Secondary school teacher
- Metallurgical Engineer
- Material Production Researcher
- Manufacturing Engineer
- Materials Consultant

TYPICAL EMPLOYERS

Materials science and engineering graduates are employed in a range of sectors, including:

- Aerospace, armed forces and defence, automotive, manufacturing
- nuclear industry
- oil and gas
- pharmaceuticals

- telecommunications
- utilities

There are also opportunities in teaching and research, finance (e.g. accountancy, banking, stockbroking and consultancy), media and internet, advertising, the Civil Service and general administration. Developments in the field of nanotechnology and in the use of biomedical materials, high-performance textiles, composites and sustainable materials, are also creating more job opportunities.

ACCREDITATION

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