

BSC. ENERGY AND ENVIRONMENTAL TECHNOLOGY

Introduction

JKUAT continuously reviews her programmes and continues to develop new ones in order to respond to technological and market driven developments so as to ensure that graduates can apply modern technologies in the industry. In the country, renewable energy uptake is at a low phase, which can partly be attributed to lack of specialists who can champion the exploitation and utilization of these resources. In addition, the recent discovery of oil resources as well as the growth of the energy sector and demand for sustainable energy has led to the development of this new academic programme, Bachelor of Science in Energy and Environmental Technology.

Sustainable exploitation of resources for energy and handling of the accompanying environmental challenges is critical for the realization of clean development. This programme incorporates units that address sustainable production, transmission and management of energy resources as well as sustainable handling of the environmental challenges. The programme addresses the energy industry's need for technical graduates who bring a unique mix of technology and environmental science skills and knowledge to the workplace that will set them apart from graduates of traditional technology programmes. It is designed to provide interdisciplinary approaches in order to produce graduates who can competitively offer solutions in all fields and areas in the energy and environment sector both locally and globally.

Admission Requirements

1. A candidate wishing to be admitted into the Bachelor of Science in Energy and Environmental Technology degree programme must satisfy the minimum University entry requirements and College of Engineering and Technology admission regulations.
2. In addition to the above, the candidate must have obtained a minimum grade C+ (plus) in each of the following subjects: Physics, Chemistry, Mathematics, and Biology or Geography OR C+ (plus) in each of the following subjects: Physical Sciences, Biological Sciences, Mathematics, and Geography or any of the Group IV subjects, which are Home Science, Art and Design, Agriculture, Aviation Technology, Computer Studies, Metal Work, Wood work, Building Construction, Power Mechanics, and Electricity, at K.C.S.E. or its equivalent.

3. Alternatively, admission shall be granted to holders of Diploma or Higher National Diploma in Engineering, Agriculture, Water, Pure and Applied Sciences and Environmental Sciences or any other relevant course (with Credit and above) from Jomo Kenyatta University of Agriculture and Technology or from other institutions recognized by the University Senate. Such candidates shall enter the programme at the second year of study for holders of Diploma or third year of study for holders of Higher National Diploma in Engineering, Agriculture, Water, Pure and Applied Sciences and Environmental Sciences or related fields, unless otherwise specified by the Department.
4. Holders of degrees in Engineering, Agriculture, Water, Pure and Applied Sciences and Environmental Sciences from JKUAT or institutions recognised by JKUAT senate in the above fields are also eligible for this programme.

YEAR 1

Semester I

HRD 2101	Communication Skills
SMA 2160	Mathematics-I
SPH 2160	Physics-I
ICS 2174	Introduction to Computer Science
EBT 2101	Introduction to Energy and Environmental Technology
EBW 2102	Technical Drawing
EBT 2102	Analytical Chemistry
HRD 2103	General Economics
SZL 2111	HIV/AIDS

Semester II

HRD 2102	Development Studies and Social Ethics
EBT 2103	Engineering Geology

SCH 2310	Environmental Chemistry
EGE 2230	Engineering Surveying
SPH 2161	Physics-II
SMA 2161	Mathematics-II
ICS 2175	Computer Programming-I
EBT 2104	Energy Fundamentals

YEAR 2

Semester I

EMG 2205	Fluid Mechanics 1
EEE 2235	Electrical Engineering-I
EBT 2201	Energy and Environmental Economics
EMG 2206	Engineering Thermodynamics I
EBT 2202	Energy, Environment and Climate Change
STA 2270	Statistics
EBW 2207	Remote Sensing
EMG 2130	Workshop Processes and Practice

Semester II

EEE 2236	Electrical Engineering-II
EBW 2204	Occupational Safety and Health
EMG 2301	Fluid Mechanics II
EMG 2204	Material Science
EMG 2230	Mechanics of Machines

EBT 2203	General Ecology
EBT 2204	Wind Energy Technology
EMG 2302	Engineering Thermodynamics II
EBE 2201	Internal Practical Attachment

YEAR 3

Semester I

EBE 2305	Design of Machine Elements
EBT 2301	Geothermal energy Technology
EBE 2508	Pollution and Waste Management
EBT 2302	Internal Combustion Engines
EBT 2303	Solar Energy Technology
EBT 2304	Ocean, Wave and Tidal Energy Technology
EBE 2504	Refrigeration and Air Conditioning
EBT 2305	Biomass Energy Technologies

Semester II

EBT 2306	Energy and Environmental Law, Policy and Planning
EBT 2307	Petroleum technology
EBE 2403	Engineering Instrumentation I
EBT 2308	Drilling and Production Technology
EBT 2309	Hydropower Technology
EBT 2310	Electrical Systems
EBT 2311	Steam Power Plants and Turbines Technology

EBT 2312 Energy Management and Auditing

EBT 2313 External Practical Attachment

YEAR 4

Semester I

EBT 2401 Energy Transmission and Storage

EBT 2402 Coal Technology

EBE 2303 Project Planning and Management

EBT 2403 Research Project - Proposal

EBT 2404 Biofuels and Bioenergy Technology Bioenergy

EBT 2405 Energy Conservation and Sustainability

EBT 2406 Systems Approach to Energy Technologies

Semester II

EBT 2407 Energy Policy and Planning

EBT 2409 Research Project - Implementation

EBE 2502 Environmental Impact Assessment & Audit

EBT 2410 Energy and Environmental Case Studies and Seminars

EBT 2411 Nuclear Energy Resources

HRD 2401 Entrepreneurship Skills