

ELECTRICAL AND BIOMEDICAL ENGINEERING

1 Introduction

Demand for technical personnel to manage and maintain hospital biomedical equipment is very high, as revealed by ATC staff research visits to many public and private hospitals in Tanzania. This demand is caused by the increase in country population, increase of number of hospitals, advancement in technology and increases of different types of human diseases such as; malaria, HIV/AIDS pandemic, diabetes, blood pressure, tuberculosis and cancer .



Dr. Masambu from Ministry of Health being introduced to some Biomedical equipment and tools by Mr. Schuster who is a Biomedical Expert. On his left is ATC Rector, Dr. Eng. R. Masika.

In collaboration with NACTE, Arusha Technical College has developed a three-year course curriculum to meet this demand. Successful completion of this programme leads to the award of Ordinary Diploma in Electrical and Biomedical Engineering.

To date the college has enrolled 53 students of which 24 are in NTA level 4, 16 in NTA level 5 and 13 in NTA Level 6. NTA Level 6 are expected to complete their studies in July 2014.



Electrical & Biomedical Engineering students doing practice in the workshop.

2 Course Contents

The programme consists of fundamental and core modules. Fundamental modules prepare the graduate for both engineering and managerial duties. Core modules follow:

Core Modules (NTA Level 4)
Basic Electricity
Analogue Electronics
Workshop Technology and Practice.
Printed Circuit Board Techniques
Electrical Measurements I
Occupational Health and Preventive Measure
Digital Electronics
Workshop Technology and Practice II
Electrical Measurements II
Industrial Training

Core Modules (NTA Level 5)
DC Machines
Analogue Electronics Devices and Circuit
Computer Aided Design Tools
Workshop Practice I
Electromagnetism
Control Engineering
Transformer
Digital Electronics II
Power Electronics
Workshop Practice II
Electrical Power Utilization
Hospital safety and Biomedical Engineering
Industrial Training

Core Module (NTA Level 6)
Analogue Electronics Design
Applied Microcontrollers
Diagnostic Medical Equipment
Human Physiology & Diagnostic Measurement
Automation
Biomedical Technician Project I
Therapeutic Medical Equipment
Hospital Equipment Repair Lab
Hospital Electrical /Mechanical Systems
Medical Imaging equipment
Refrigeration and Air conditioning
Biomedical Technician Project II
Industrial Practical Training

3. Workshops and Laboratories

The college has well equipped workshops and Laboratories for conducting practical training. In addition, the practical training done in college workshops and laboratories is supplemented by various health facilities visits and ten weeks practical training done yearly in health Institutions.

4. Future Plans

The college expects to establish Bachelor in Biomedical Engineering in the near future.

5. Short Courses

Department is conducting short courses on Hospital Equipment Repair and maintenance to market requirements, and for continuing education of Biomedical Technologists.



The American Biomedical Technology Aid (BETA Int'l) Mr. Daniel Schuster (centre) demonstrates to the Deputy Minister for Education and Vocational Training, Hon. Philipo Mulugo (R) how Blood Pressure Measurement machine works. ATC Rector, Dr. Eng. R. Masika, looks on at left.



Biomedical Toolkits assigned to each team of 2 students for practical training in college laboratory. Third-year students also practice weekly repair at local hospitals.

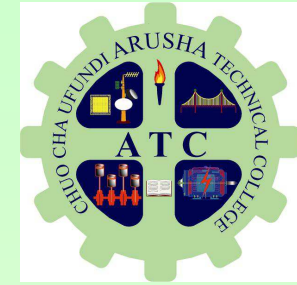


Biomed student tests and measures circuit parameters after soldering components on PCB during practical exercises.



EBE students observe ECG heart rhythm while learning measurement and calibration science. Biomedical ECG machines are just part of ATC medical equipment.

ARUSHA TECHNICAL COLLEGE



ELECTRICAL ENG DPT

ELECTRICAL & BIOMEDICAL ENGINEERING PROGRAMME



His Excellency, Tanzanian President Jakaya Kikwete, listens to third-year Electrical and Biomedical Engineering student, Magdalena Michael. She explains medicine-infusion syringe pump that she co-designed in hardware and software with fellow student, Sharifu Rajabu, as microprocessor project.

FOR FURTHER INFORMATION

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