

LAB 1: New Electrical Laboratory in Renewable Energy Technology

Background:

This Lab was a result of World Bank funding through their Quick Win programme between 2009 and 2013. The project included the refurbishment of the Lab Building at Workshop W12 and purchase of new state of the art Electrical Equipment. Special emphasis was placed in acquiring renewable energy technology trainers which included:

- Solar PV Installation trainer;
- Wind Power Trainer; and
- Mini-hydropower trainer.

Also, these trainers are supported by a Weather Station which can give the weather parameters at any moment in time.



Lab Usage:

This Lab can be used to run even normal modules in Electrical Engineering at levels of Ordinary Diploma and Bachelor degree programmes.

Also, Professional short courses and Research can be undertaken in the following areas:

- Renewable Energy Technologies;
- Industrial process control including the use of Programmable Logic Controllers and Industrial Sensors;
- Electric Motors and Industrial Drive systems; and

- Energy Management including power factor correction.

Impact to Society:

This New Lab will help to increase the number of trained technicians and engineers who can be able to design, install, commission and also undertake repair and maintenance of renewable energy technology installations in the country. It will also help to upgrade skills and knowledge of professional engineers and technicians in the Energy and Industrial sectors of Tanzanian Economy. Not least, it can help the youth to gainfully employ themselves in the above mentioned fields.

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LAB 2: New Mechatronics Laboratory

Background

An official request from the Government of the United Republic of Tanzania was submitted to the Italian Government in December 2007 requesting for support to the Technical Education Sector in the United Republic of Tanzania. The Italian Government approved the programme and allocated funds for its implementation in October 2008. Dar es Salaam Institute of Technology is among the institutions that benefited from this project.

Among the supports that were funded by Italian Government to DIT is to supply, Installation and commissioning the Equipment for Mechatronics. Equipment were purchased and installed at workshop W 16-2. A list of equipment is shown below:

- i) Mechatronic Compact System for Practical Training;
- ii) Mobile Hydraulic Stand, Double Sided with Industrial Hydraulic Components;
- iii) Pneumatics Workstation;
- iv) Plc Workstation with Process Simulator;
- v) Plc Workstation with 6 Process Models;
- vi) Working Cell with Robot.



Use of Laboratory

This Laboratory can be used to run even normal modules in Mechanical Engineering and other Departments like Electronics and Telecommunication, Computer and Electrical Engineering Departments at levels of Ordinary Diploma and Bachelor degree programmes.

Also, Professional short courses and Research can be undertaken in the following areas:

- Hydraulics and Pneumatics;
- Automation;

Impact to Society and Institute

This New Laboratory will improve quality of teaching and learning and help to increase the number of trained technicians and engineers who can be able to design, connect, repair and maintenance of different hydraulics and pneumatics systems in the country. Impart the wide knowledge to our students and professionals in automation and manufacturing systems. It will generate funds to the institute through professional courses and hence boost partnerships and linkages with industries in innovation and students training.

LAB 3: Telecommunication Lab

Background

The telecommunication laboratory is aiming to improve the skills of the students that will graduate from DIT. The fund used to renovate and install the new training equipment at

workshop 15/1 was funded by Italian Government to DIT. The Italian government funded the equipment in the Electronics laboratory at workshop 15/2.

Some of the equipment installed in the W15/1 are listed below:

- i) Satellite trainer
- ii) Radar training system
- iii) Microwave and TV transmission trainer
- iv) Fiber optic workshop KIT and Fiber optics experiment board
- v) Spectrum analyzer and HI-FI Stereo trainer
- vi) Centralized antenna system trainer
- vii) Transmission lines and antenna

Use of Laboratory

The laboratory is used to run the modules in telecommunication engineering in the level of Ordinary Diploma and Bachelor degree programmes. Also researchers and postgraduate students may use the equipment to research on the areas of wireless communication, satellite communication and fiber networks.

Impact to Society and Institute

The laboratory will help the staff to perform experiments and upon receiving convincing results, then they can carry out the implementations and finally make quality and quantified publications of their applied research works.

The graduates that will use the equipment will gain both the knowledge and the related practical skills. As thus, they will be of the standard, which is productive to the society. With the gained skills, the graduates could perform their daily activities effectively and precisely as a result that will contribute much to the fostering of the country's economy.

The workshop may be used to run the professional and short courses in fiber optic and wireless communication and results in increasing the funds to the Institute.