About FENC

In 1998 the University of Technology, Jamaica (UTech) was reorganized into five Faculties. Emerging from the rationalization of the university's academic and administrative units, the Faculty of Engineering and Computing (FENC) became an entity. FENC comprises the following schools:

- School of Engineering
- School of Computing and Information Technology

FENC is the second largest such faculty in the Caribbean region and it is also the second largest faculty within UTech.

Vision Statement

To be the preferred partner in providing education and training for engineering and computing scholarship in Jamaica and the Caribbean.

Mission Statement

Build an education and training framework that responds to local and regional needs by:

- Promoting excellence in staff, students and graduates.
- Emphasizing quality in teaching and research.
- Developing relevant curricula based on student-centred learning concepts.
- Fostering innovative use of technology in teaching methods and laboratory exercises.
- Maintaining a strong commitment to research, service and teamwork.
- Developing applied research projects for industrial renewal.
- Building collaboration with engineering and computing training institutions locally and internationally.

Application & Registration

1. Applications should be made on the prescribed form, which is available at the Student Affairs Office.
2. Course Participants are encouraged to register in advance by completing and submitting the application form
3. Final Payments should be made at least **two weeks** before commencement of the course. Payments are accepted in Cash, Debit/Credit Cards, or Manager's Cheques.

Cancellation

1. Courses may be cancelled where enrolment is insufficient, in which case, a refund of course fees will be made.
2. Student cancellation must be received one (1) week prior to the commencement of the course, failing which the individual or sponsor will be held responsible for the payment of fees.

Contact

Student Affairs Office

Faculty of Engineering & Computing

University of Technology, Jamaica

237 Old Hope Road, Kingston 6

Phone: (876) 970-5163, 970-5165

University of Technology, Jamaica

Faculty of Engineering & Computing

Introduction to PLC-Based Control Systems

"Solution Driven, Development Bound"

OBJECTIVE

This course was developed to introduce technicians, technologists and maintenance managers to the fundamentals of Programmable Logic Controllers (PLC) and Industrial Automation.

The course will provide an introduction to PLC theory and programming and will be delivered through lectures and highly interactive lab sessions.

Participants will be taken through:

- various design examples using various sensors and actuators
- techniques in PLC troubleshooting, fault isolation, wiring and simulation testing.
- the use of Omron and Toshiba PLC programming software in this course will provide participants with the necessary skills and knowledge required to program any other type of PLC system.

PRE-REQUISITES

This course requires attendees to have basic computing skills in addition to:

A pass in either GCE O'Level Mathematics; (A,B,or C) or CXC Mathematics; (grades 1, 2, or 3),
And a pass in Electrical Engineering Science or GCE O'level Physics

OR

A recognized diploma in Electrical and or Electronic Engineering.

OR

Completion of UTech's Electrical and Electronic Principles Module

OR

Experience as technicians and operators of equipment utilizing PLC in excess of 3 years

COURSE OUTLINE

Introduction to Automation and PLC Architecture

- History of Industrial Automation
- Elements of Industrial Automation
- Programmable Logic Controllers (PLCs) types
- PLC Architecture, CPU Scan Cycle and Instruction execution
- Analog and Digital Input and Output Modules
- PLC addressing system and communication

PLC Ladder Diagram Construction and Interpretation

- Relay Ladder Logic and Boolean Algebra
- OMRON and Toshiba Development Software
- PLC Ladder diagram Input and Output Addressing
- Timers and Counters Operation and Implementation

PLC Wiring and Troubleshooting

- Industrial sensors – Photoelectric, Inductive, Limit Switches, push-button etc
- Actuators – motors, lamps, solenoids, contactors etc
- PLC system simulation and testing
- Analog Interfacing
- Fault identification in the ladder diagram

Case Study Examples: Industrial PLC Automation

- Level Control
- Sorting
- Motor speed control with Variable Frequency Drives

DURATION: 54 hours

DELIVERY STRUCTURE

- Lectures
- Demonstrations
- Lab Sessions

ASSESSMENT PROCEDURES

Test in class	=	15%
Labs	=	20%
Assignment	=	15%
Final Exam	=	50%
Total	**=**	**100%**

AWARD

On successful completion of the course, that is, where a student gains a mark of 50% or above, the individual will be awarded a "Certificate of Competence".