

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 Energy Efficiency Audits



"Solution Driven, Development Bound"

OBJECTIVE

This course in Energy Auditing is designed to teach engineers, technicians and other maintenance professionals the basic steps involved in conducting a successful energy audit.

The main focus of the course is on medium and small commercial facilities (including hotels, offices and schools). However, the steps covered in the course can be applied to large commercial and industrial facilities. Upon completion the participants will have learnt enough to be able to form ESCOs to conduct Energy Audits

PRE-REQUISITES

Participants should:

Have a bachelor's degree in engineering or equivalent

OR

Be a final year engineering student

OR

Be employed as a maintenance technician in any commercial or industrial facility.

COURSE OUTLINE

Introduction to Energy Management 2 hrs

- o The value of Energy Management
- o Principles of Energy Management
- o Energy Audits
- o Audit Planning
- o Audit Reporting

Energy Audit 3 hrs

- o Components of an Energy Audit
- o Specialized Audit Tools
- o Industrial Audits
- o Commercial and Residential Audits

Energy Efficiency 2 hrs

- o Definition
- o Benefits
- o Challenges
- o Opportunities
- o Funding

Economic Analysis 3 hrs

- o Characteristics of Capital Investment
- o Time Value of Money
- o Economic Analysis

Lighting 3 hrs

- o Lighting Fundamentals
- o Process to Improve Lighting Efficiency
- o New Technologies and Products
- o Daylighting
- o Common Retrofits
- o Energy Management/Conservation opportunities

HVAC Systems 3 hrs

- o Surveying Existing Conditions
- o Human Thermal Comfort
- o HVAC System Type
- o Building envelope (heat flow, walls, infiltration)
- o Energy Conservation Opportunities
- o Estimating HVAC Energy Consumption

Boilers and Fired Systems 3 hrs

- o Analysis of Boilers and Fired Systems
- Ovens
- Key Elements for Maximum Efficiency
- Fuel Considerations-
- Natural Gas
- Fuel Oil
- Direct Contact Technology for Hot Water

Production

- Energy Management/Conservation opportunities

Steam and Condensate Systems 3 hrs

- o Thermal Properties of Steam
- o Estimating Steam Usage and its value
- o Steam Traps and their applications
- o Condensate Recovery
- o Energy Management/Conservation opportunities

Electric Energy Management 4 hrs

- o Power Supply
- o Effects of Unbalance Voltage on the Performance of Motor
- o Motors
- o Power Factors
- o Electrical Formulas and Rule of Thumb
- o Determining Electric Motor Operating Load
- o Electric Motor Efficiency
- o Theoretical Power Consumption
- o Nameplates
- Energy Management/Conservation opportunities

Renewable Energy 3 hrs

- o Solar Energy
- o Wind Energy

Case Study/Practical Exercise 6 hrs

Exam Prep/Review 4 hrs

Evaluation 3 hrs

DURATION: 42 hours

DELIVERY STRUCTURE

- Lectures
- Demonstrations

ASSESSMENT PROCEDURES

The final score for each participant will be based on their completion of a comprehensive evaluation that will be conducted at the end of the course.

AWARD

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

RECOMMENDED TEXT

Handbook of Energy Audits, Ninth Edition, Terry Niehus, Al Thumann, William Younger, The Fairmont Press Inc.



(Rev. April 2016)