COURSE OVERVIEW EE0999
Energy Technology Forecasting and Assessment

Course Title
Energy Technology Forecasting and Assessment

Course Date/Venue
Session 1: February 16-20, 2025/Boardroom 1, Elite Byblos Hotel Al Barsha, Sheikh Zayed Road, Dubai, UAE
Session 2: August 18-22, 2025/Fujairah Meeting Room, Grand Millennium Al Wahda Hotel, Abu Dhabi, UAE

Course Reference
EE0999

Course Duration/Credits
Five days/3.0 CEUs/30 PDHs

Course Description

This practical and highly-interactive course includes various practical sessions and exercises. Theory learnt will be applied using our state-of-the-art simulators.

This course is designed to provide participants with a detailed and up-to-date overview of energy modeling and saving. It covers the residential and commercial energy and building energy usage; the potential for energy conservation, energy audits and their purposes; the consumer awareness, energy efficiency ratings of buildings and calculating energy intensity; the energy versus power and refrigeration cycle; the control circuits, home electric wiring including energy building envelope; the building inspection, diagnosis and heat load calculation; the air sealing principles and finding air leakages; and the air sealing methods, material and the insulation types.

During this interactive course, participants will learn what to insulate and demonstrate floor and wall insulation; the windows characteristics and structure; the door types, efficacy, efficiency and light quality; the lighting energy efficiency including optimization of lighting; the cooling and summer comfort principles and the conservation measures; the cooling with ventilation and air conditioners; the proper sizing and selection of air conditioners; and the water heating and its efficiency, health and safety.

Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an in-depth knowledge on energy modeling and saving
- Discuss residential and commercial energy as well as building energy usage
- Describe potential for energy conservation, energy audits and their purposes
- Analyze consumer awareness, energy efficiency ratings of buildings and calculate energy intensity
- Distinguish the difference between energy versus power and review the refrigeration cycle
- Discuss control circuits, home electric wiring including energy building envelope
- Apply building inspection and diagnosis and calculate heat load
- Enumerate air sealing principles and find air leakages
- Illustrate air sealing methods and material as well as the insulation types
- Discuss what to insulate and demonstrate floor and wall insulation
- Define windows characteristics and structure
- Identify door types, efficacy and efficiency as well as light quality
- Discuss lighting energy efficiency including optimization of lighting
- Explain the cooling and summer comfort principles as well as the conservation measures
- Demonstrate cooling with ventilation and review air conditioners
- Describe proper sizing and selection of air conditioners and water heating and its efficiency as well as employ health and safety

Exclusive Smart Training Kit - H-STK®

*Participants of this course will receive the exclusive "Haward Smart Training Kit" (**H-STK®**). The **H-STK®** consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspects and considerations of energy modeling and saving for utility engineers and technicians, maintenance engineers and technicians, planning engineers, facility managers, energy engineers and other technical staff who are involved in electrical energy conservation and technologies for building design and material specification.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations: -

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

- The International Accreditors for Continuing Education and Training (IACET - USA)

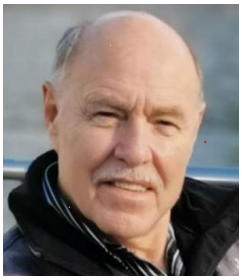
Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Course Instructor (s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



Mr. Fred Du Plessis is a **Senior Electrical Engineer** with over **30** years of extensive experience within the **Oil**, **Gas**, **Petrochemical**, **Refinery** & **Power** industries. His expertise widely covers in the areas of **Thermal Gas Power Generation**, **Power Station** Operations, **Power Generation Plant Outage** Management, **Power System** Analysis, **Power System** Generation & Distribution, **Electric Power System** Design, **Renewable Energy**, **Energy Storage** Technologies, Maintenance, Testing & Troubleshooting, **Transformer Protection**, **Transformer** Problem and Failure Investigations, **Power System Operation and Control**, Fault Analysis in **Power Systems**, **HV/MV Cable Splicing**, **High Voltage Electrical Safety**, **High Voltage Circuit Breaker** Inspection & Repair, **High Voltage Power** System, **HV Equipment** Inspection & Maintenance, **HV Switchgear** Operation & Maintenance, Resin / **Heat Shrink & Cold Shrink** Joints, **HV/LV Equipment**, ORHVS for Responsible and Authorized Person **High Voltage Regulation**, **Transformers** Maintenance, inspections & repairs, Commissioning of **LV & HV Equipment**, Oil Purification and **High Voltage Maintenance**, HT Switch Gear -Testing, Safe Operating, Maintenance, Inspection & Repairs on **LV & HT Cables** - Testing (Pulse & Megger), Line Patrol in **Low Voltage & Distribution**, **Transmission**, **Operating Principles up to 132KV**, Abnormal Conditions & Exceptions, Commissioning & Testing, **Transformer Inspections & Repairs**, **Live Line Work up to 33KV**, **Basic Power System Protection**, **High Voltage** Operating Preparedness Phasing (**110V to 132KV**), **HV Operating & Fault** Finding (up to 132KV), Maintenance & Construction Supervision, **VSD/VFD** Installations & Testing, **Electrical Panel Design**, **VSD/VFD Installations & Testing**, Instrument Installation and wiring, **AC/DC Supplies & Change Over Systems**, **AC & DC Winders** and VLF Testing, **Gas Turbines**, **Steam Turbine** with a **Station Generation**, **Project** Management & Project Controls, **Water Treatment & Reverse Osmosis** Plant Management and **Mechanical Maintenance** Management.

During Mr. Du Plessis's career life, he has gained his practical experience through several significant positions and dedication as the **Project Manager/Owner**, **Maintenance Manager**, **Project Excecution Manager**, **Commissioning & Operating Manager**, **Acting Operating Manager**, **Optimization/Commissioning Manager**, **Operating Support Manager**, **Operating Production/Shift Manager**, **Operations Lead Engineer**, **Electrical Engineer**, **Production/Maintenance Planner**, **Unit Shift Supervisor**, Principal **Plant Operator**, **Workshop & Maintenace Consultant**, Assistant **Electrical Supervisor**, Trainee **Motor Mechanic** and **Senior Instructor/Trainer** from various international **power station** companies like the Dunamis Energy, Peterhead Power Station, Lijaco Services, Eskom, Matla Power Station, Grootvlei Power Station, Ellisras Brick & Ceramic, Hlalisanani Mechanical Contractor, Matimba Power Station, Matimba Power Station, Eskom Kriel Power Station and Transvaal Provincial.

Mr. Du Plessis has a **Bachelor's** (with Honours) degree in **Operations Management**. Further, he holds certification in Red & Silver Seal Accreditation Power Generation – (ESETA), a SAMTRAC & NOSA **Auditor** – (NOSA), a **Certified Instructor/Trainer** and has further delivered various trainings, seminars, conferences, workshops and courses globally.

Course Fee

US$ 5,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

30% Lectures
20% Practical Workshops & Work Presentations
30% Hands-on Practical Exercises & Case Studies
20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0900	***Introduction to Residential & Commercial Energy***
0900 – 0930	***Understanding Building Energy Usage***
0930 – 0945	*Break*
0945 – 1030	***Potential for Energy Conservation***
1030 – 1100	***Energy Audits & their Purposes***
1100 – 1230	***Consumer Awareness***
1230 – 1245	*Break*
1245 – 1330	***Energy Efficiency Ratings of Buildings***
1330 – 1420	***Calculating Energy Intensity***
1420 - 1430	***Recap***
1430	*Lunch & End of Day One*

Day 2

0730 – 0815	***Energy versus Power***
0815 – 0900	***The Refrigeration Cycle***
0900 – 0915	*Break*
0915 – 1030	***Control Circuits***
1030 – 1100	***Home Electric Wiring***

1100 – 1230	***Energy & Building Envelope***
1230 – 1245	*Break*
1245 – 1330	***Building Inspection & Diagnosis***
1330 – 1420	***Calculating Heat Load***
1420 - 1430	***Recap***
1430	*Lunch & End of Day Two*

Day 3

0730 – 0830	***Air Sealing Principles***
0830 – 0930	***Finding Air Leakages***
0930 – 0945	*Break*
0945 – 1030	***Air Sealing Methods & Material***
1030 – 1100	***Insulation Types***
1100 – 1215	***What to Insulate***
1215 – 1230	*Break*
1230 – 1330	***Floor & Wall Insulation***
1330 – 1420	***Windows Characteristics***
1420 - 1430	***Recap***
1430	*Lunch & End of Day Three*

Day 4

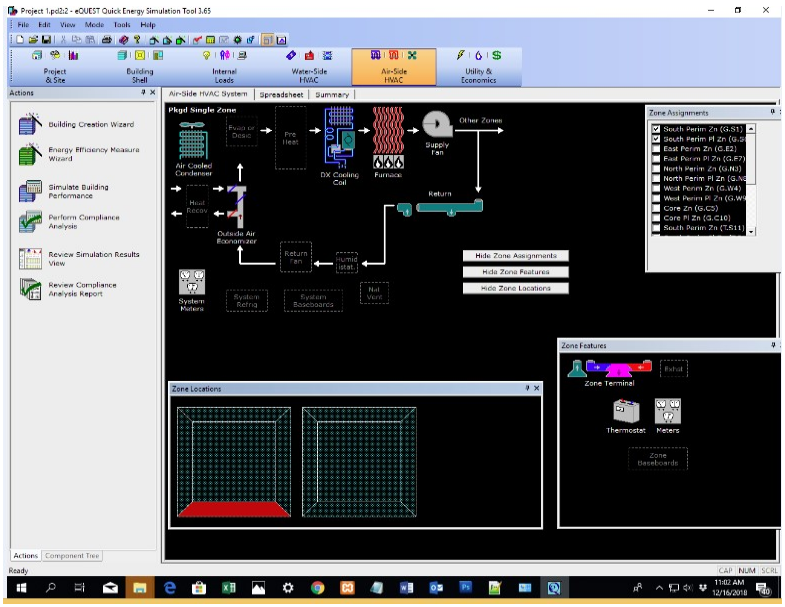
0730 – 0815	***Windows Structure***
0815 – 0930	***Door Types***
0930 – 0945	*Break*
0945 – 1100	***Lighting & Appliances***
1100 – 1130	***Efficacy & Efficiency***
1130 – 1215	***Light Quality***
1215 – 1230	*Break*
1230 – 1330	***Lighting Energy Efficiency***
1330 – 1420	***Optimization of Lighting***
1420 - 1430	***Recap***
1430	*Lunch & End of Day Four*

Day 5

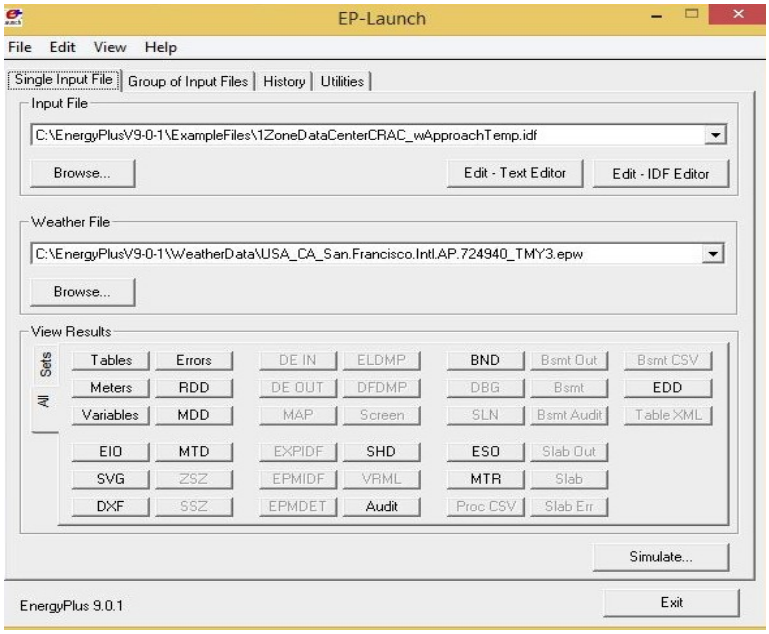
0730 – 0830	***Cooling & Summer Comfort Principles***
0830 – 0930	***Conservation Measures***
0930 – 0945	*Break*
0945 – 1100	***Cooling with Ventilation***
1100 – 1130	***Air Conditioners***
1130 – 1215	***Proper Sizing & Selection of Air Conditioners***
1215 – 1230	*Break*
1230 – 1330	***Water Heating & its Efficiency***
1330 – 1345	***Health & Safety***
1345 - 1400	***Course Conclusion***
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Simulators (Hands-on Practical Sessions)

Practical sessions will be organized during the course for delegates to practice the theory learnt. Delegates will be provided with an opportunity to carryout various exercises using our state-of-the-art simulators "eQuest and EnergyPlus" modeling software.



eQuest Modeling Software



EnergyPlus Modeling Software

Course Coordinator

Mari Nakintu, Tel: +971 2 30 91 714, Email: mari1@haward.org