

PRACTICAL

ENERGY EFFICIENCY, DESIGN, ENGINEERING AND AUDITING

JOHANNESBURG
10, 11 & 12 June 2015

Validation for CPD Points has been acquired from various Engineering Institutes in South Africa

A 3-day practical workshop presented by:

Terry Cousins
BSc Electrical Engineering

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TOTAL SAVING: R1,468

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- Practical Boiler Control and Instrumentation for Engineers and Technicians
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YOU WILL LEARN HOW TO:

- Establish an energy savings strategy for your organisation
- Put together practical energy efficiency plans for your firm that will save money
- Improve employee working conditions and productivity with minimal outlay
- Use the energy savings toolkit and checklist from the course in your workplace
- Assist in the reduction of greenhouse gases and improvement of the environment
- Apply proven key principles of energy savings techniques with minimal investment
- Readily conduct a simple energy audit of your workplace and collect good data
- Read and interpret data from different types of measurement equipment
- Look for opportunities to set demand-side energy management strategies
- Appreciate the importance to your organisation of choices with energy suppliers
- Interpret and analyse case study data and relate this detail to your facility
- Network with others to discuss alternatives and options for comparable processes

WHO SHOULD ATTEND:

- Building service designers
- Consulting engineers
- Electrical and instrumentation technicians
- Electrical contractors
- Electrical engineers
- Electrical inspectors
- Energy managers
- Maintenance engineers
- Project engineers


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Register **NOW**: Email the registration form to us at idc@idc-online.com
 For more information contact **011 024 5520/1/2/3/4/5** or visit www.idc-online.com

PRACTICAL ENERGY EFFICIENCY, DESIGN,

FREE REFERENCE MANUAL as a hard-copy and eBook

(VALUED AT R560)

Our delegates don't just receive photocopied notes!

You will receive the comprehensive fully illustrated reference manual, as a hard-copy and eBook version, filled with hundreds of pages of tables, charts, figures and handy hints.



ABOUT IDC TECHNOLOGIES

With a portfolio of over 300 workshops specialising in the fields of industrial data communications, electrical and mechanical engineering, automation and control, we have trained over 500,000 engineers, technicians and technologists over the last 20 years.

We have an enthusiastic team of professionals in offices conveniently located around the world, who are committed to providing the highest quality of engineering and technical training.

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An intensive, practical 3-day workshop presented by **Terry Cousins** BSc Electrical Engineering



Terry attended Wits University where he completed a BSc (Electrical Engineering) degree in 1977. After completing military service he joined ISCOR where he was involved in design, project and maintenance work on HT and LT distribution systems, design and manufacture of equipment for testing electrical motors and commissioning work on variable speed drives.

In 1981 he joined the Chamber of Mines Research Organisation. He was involved with the design, develop and manufacture of equipment for powering mechanised equipment in deep level gold mines. Projects included design, manufacture and testing of trailing cable, accelerated life testing of switchgear used in underground mines and development and testing of mobile distribution panels. In 1987, Terry was promoted to manager of the engineering branch.

In 1988 he co-founded TLC Software with two colleagues. The company's objective was to develop and market custom engineering software solutions for the industrial markets. He has been involved in the design and development of numerous products including an electrical power quality recorder, engine protection systems, appliance control unit, portable instrumentation and the design of electronics for various medical applications.

Terry is a senior member of the SAIEE, a member of the IEEE, and has authored several papers on various topics for local and international conferences and publications. He is a Green Star accredited professional with the Australian Green Building Council. Terry also has BComm and MBL degrees from the University of South Africa.

THE WORKSHOP

Reducing the energy costs at one's facility must surely be of the most effective and achievable strategies for lowering operating costs. This workshop gives you practical tools to identify and implement programs and projects to reduce energy consumption in the most effective and practical ways. You will be provided with the skills and latest knowledge on proven methods of making real savings in your energy bills. You can start such programs as soon as you wish, and start saving immediately thereafter.

You will be greatly surprised at the levels of energy losses and poor efficiency of some of the devices in your facility that consume power when the facility is operational. You will also be greatly surprised at the energy consumption of your facility when it is not operational.

BOTH OF THESE FACTORS ARE COSTING YOUR ORGANISATION - energy bills are generally at least 20% of the running costs of a business, so reductions in these bills are directly responsible for better profits.

You will be taught the fundamental principles of energy efficiency by way of looking for points of wastage, assessment of the cost of energy usage and benefits accruing from improved energy efficiency in the facility - of course, reference points are needed, so the workshop will also show you how to quickly and effectively perform an energy audit of your facility, demonstrating the use of installed instrumentation as well as measuring equipment deployed during the audit.

Once you have the correct information from the audit, you will be taught a simple method of cost analysis to help you make the right decisions for improvement, based on the principle of Rapid Return on Investment (RRI).

This will enable you to implement the optimum energy-efficient solution and thus to start saving money in some cases immediately, but at worst after a typically short period of time (perhaps 3 to 12 months).

Previous participants have been delighted with the immediate and long term sustainable savings they have been able to make as a result of attending this course.

Pre-requisites

A working knowledge of basic engineering principles is required. Adequate industrial experience in operating and maintaining energy-intensive equipment and processes will enable better appreciation of topics discussed.

*The fee for each workshop covers all materials
including workshop manual, lunches
and refreshments*

ENGINEERING AND AUDITING

THE PROGRAM

DAY ONE

PART ONE - MANAGEMENT OVERVIEW OF ENERGY EFFICIENCY

WHAT IS ENERGY EFFICIENCY?

- Energy and environment
- Energy forms and conversion
- Energy sources and energy sinks
- Can we make better use of the energy?
- How do we channel waste energy into useful output?
- Energy audit and principles

CASE STUDIES

- Schools, mines and factories

BASIC FINANCIALS

- Simple costings and ROI

PRACTICAL EXERCISES

- Examination of your facility
- Simple checklist on doing an energy audit

PART TWO - ENERGY EFFICIENCY AND ENERGY AUDITING

ENERGY EFFICIENCY IN PROCESSES USING FUEL DIRECTLY

- Improved efficiencies
- Reduction and re-use of heat wastage
- Recovery of exhaust heat from engines
- Energy efficient designs – equipment and buildings
- Cogeneration for better efficiency

ALTERNATIVE ENERGY SOURCES

- Fossil fuels
- Alternatives – renewable energy, hydrogen
- Green energy?
- Fuel cells

MAIN FORMS OF ENERGY

- Energy converted to electricity for direct use
- Electricity in metal smelting (electrolytic processes)
- Use of fuels for motive power
- Direct use of fuels for heating applications
- Use of fuels as part of a process
- Example from iron production (reduction process using coal)
- Conversion equipment and challenges

DAY TWO

ELECTRICAL ENERGY GENERATION

- Electricity as the preferred energy carrier
- Conversion systems for electrical energy
- Commonly used fuels
- Methods of improving conversion efficiencies
- Better equipment
- Waste energy recovery
- Process improvements
- Cogeneration for better efficiency
- Combined cycle process for gas turbines

ELECTRICAL ENERGY USAGE

- Sectors using the major portion of electricity
- Industrial, domestic, agriculture and agro-processing, mining and metals
- Better efficiencies in electricity usage
- Uses of electricity
- Motive power
- Lighting
- Space heating and cooling
- Better efficiencies in electricity usage

ENERGY EFFICIENT PRACTICES IN ELECTRICITY USE

- High efficiency motors
- Better T&D practices
- Role of power factor
- Motor rating and efficiency correlation
- Variable speed drives as energy-savers
- Lighting efficiency
- Efficient luminaires
- Use of daylight to supplement artificial lighting
- Intelligent buildings to reduce wastage of electricity

ENERGY EFFICIENCY IN CLIMATE CONTROL APPLICATIONS

- Need for climate control
- Industry and comfort examples
- Efficiency in heating
- Reducing heat loss through better design
- Efficiency in cooling
- Building design features to improve cooling
- The paradox of cooling
- Temperature reduction but no energy recovery
- Use of waste heat for cooling
- Comparison between compression refrigeration and absorption chillers
- Examples from industrial applications

DAY THREE

ENERGY COST STRUCTURE

- Identifying types of energy used
- Tariff structures
- Components of electric tariffs
- Factors in controlling electric costs
- Electric utility incentive programs
- Electric meters, Gas rates
- Oil, coal and other rates
- Steam and hot water rates
- Factors in controlling fuel costs

INTRODUCTION TO ENERGY AUDITS

- Purpose
- Know your process, fuels and major systems
- Compare energy usage
- Energy use index, energy cost index
- Where energy is used in facilities
- Lighting and HVAC energy use
- Data forms for recording information
- Collecting the actual data
- Walk-through inspections
- Assess energy and cost saving opportunities

INSTRUMENTATION FOR AUDITS

- Energy audit instrumentation
- Temperature-measuring instruments
- Combustion efficiency measurement
- Airflow and air leak measurement
- Thermography
- Ultrasonic leak detectors
- Data logging
- Light level meters for checking superfluous lighting
- Electric meters: voltages, current, power, energy, power factor
- Use of software tools in energy audits

AUDIT AREAS

- Building
- HVAC systems, motor systems, boiler systems, water systems
- Lighting
- Heat recovery areas

FINANCIALS AND COSTINGS

- Energy audit reports
- Simple economic measures
- The time value of money
- Cost and benefit analysis
- Rate of return, Life cycle costing
- After tax cash flows

SUMMARY, OPEN FORUM AND CLOSING

PRACTICAL SESSIONS

This is a practical, hands on workshop enabling you to work through practical exercises which reinforce the concepts discussed. At least 50% of the time will be spent on practical sessions and 20% of the remaining time will be practical case study material. The intention is to give you practical and useful information which you can apply to your work immediately you return.

To gain full value from this workshop, please bring your laptop/notebook computer.

ACTIVITIES

All attendees will be required to participate in the many practical activities of the workshop – measurements and calculations using active equipment and demonstration rigs, setting up energy savings programs for specific facilities, perusal and presentation of the findings of many case studies, basic electrical principles and measurement skills and a walk through audit of the training room or surrounding facility. These activities are carried out with complete safety and meet all relevant OH&S principles.

DELEGATE DETAILS

Contact: _____ Company Name: _____

Company Address: _____

Suburb: _____ Province: _____ P/Code: _____

Phone: _____ Fax: _____ Email: _____

ATTENDEES:

Mr/Ms: _____ Job Title: _____ Email: _____

Mr/Ms: _____ Job Title: _____ Email: _____

Mr/Ms: _____ Job Title: _____ Email: _____

Should you have more people interested in attending this workshop, please contact us via email: idc@idc-online.com

WORKSHOP DETAILS

JOHANNESBURG - 10, 11 & 12 June 2015
IDC Technologies, Midrand

Please register by 20 May to avoid disappointment

HOW DID YOU HEAR ABOUT THIS WORKSHOP? (PLEASE TICK)

- Received a brochure in the mail
- Received an email from IDC
- Searched online (Google, Yahoo etc)
- Recommended by a friend/colleague
- Other (please specify) _____

PAYMENT DETAILS

Please Note: Full payment is required prior to the commencement of the workshop.

Workshop Fee R10,000 x _____ delegates = R _____

EARLY BIRD BOOKING OFFER: (if booking on or before 13 May 2015)

YES, I qualify and would like to receive my 4 FREE eBooks
PLUS 10% OFF the registration price LESS 10% = R _____

+ VAT = R _____

TOTAL = R _____

I wish to pay by Electronic Bank Transfer

Company Order Number: _____

Please charge my Mastercard Visa Expiry Date: ____/____

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On the reverse of your card, above the signature, is a security number. In order to authorise your card transaction, we require the last 3 digits: _____

If the Cardholder's address is not the same as shown above please tick this box:

MORE INFORMATION

I am unable to attend this workshop but please rush me an IDC Technologies workshop directory.

REGISTER NOW:

Fax: (086) 692 4368 or (086) 566 3071

Mail: IDC Technologies PO Box 389, Halfway House 1685

Email: idc@idc-online.com

Web Site: www.idc-online.com

ENQUIRIES: Phone: 011 024 5520/1/2/3/4/5

WORKSHOP DETAILS

- Workshops start at 8:30am and finish at 5:00pm daily.
- Registration is from 8:00am on the first day.
- The workshop fees are per delegate and include a reference manual, handouts, lunches and all refreshments.
- Full payment is required prior to the commencement of the workshop.

EARLY BIRD BOOKING OFFER

Please note that the Early Bird Booking Offer is only available to those registrations received by 13 May 2015 and paid prior to the commencement of the workshop.

CONFIRMATION

Confirmation of receiving your registration will be sent within 48 hours. Official confirmation and details of the workshop will be sent to you prior to the workshop date. Please wait for official confirmation before making accommodation and/or travel arrangements.

CANCELLATION

A fee of 20% will apply for written cancellations received 7-14 days prior to the commencement of the workshop.

Cancellations received less than 7 days prior to the workshop are not refundable, however substitutes are welcome. Full payment will be charged for non-attendance or cancellations that are received in less than 7 days.

PLEASE NOTE

Venues to be confirmed upon registration. Venues are subject to change. Instructors may change without notice. IDC Technologies has no affiliation with suppliers or manufacturers and therefore presents a completely unbiased factual view of the industry.

100% MONEY BACK GUARANTEE

IDC Technologies' engineers have put considerable time and experience into ensuring that you derive the maximum value from each workshop. If you feel by lunch time of the first day

that the workshop is not appropriate, please let us know so that we can arrange a 100% refund of your fee.

CONTINUING PROFESSIONAL DEVELOPMENT (CPD)

Our programmes are designed to meet your continuing professional development requirements. All IDC courses are currently undergoing the CPD accreditation process. Where workshops have already been accredited, you will receive a certificate of attendance documenting the number of CPD hours you have achieved. This serves as important evidence of your continuing professional commitment to your career. Please check with your local office for the accreditation status of the course you wish to attend. As our courses are constantly updated and we are continually developing new workshops, the review process is constant.

www.idc-online.com