DB
ENGINEERING
3315 Chokecherry Crescent, Mississauga, Ontario, CANADA, L5L 1B1
Tel: (905) 607-2402 Fax: (905) 608-0588 Email: dberkley@dbengineering.ca

ENERGY MANAGEMENT

TWO-DAY COURSE

PROGRAM

2010

DB
ENGINEERING
3315 Chokecherry Crescent, Mississauga, Ontario, CANADA, L5L 1B1
Tel: (905) 607-2402 Fax: (905) 608-0588 Email: dberkley@dbengineering.ca

Energy Management
Course Program

Day 1

9:00 a.m. **Opening Remarks**

9:10 a.m. **Introduction: Energy Management Overview**

- Why do energy management
- Energy management overview
- Project execution

9.30 a.m. **Successful Energy Management Program**

- General principles
- Barriers to Energy Management
- Keys to success
- The Team
- The Action Plan
- The Approach
- Self Evaluation

10:10 a.m. **Identification of Energy Efficiency Opportunities**

- Checklists
- Case studies

10:30 a.m. **Quantification of Energy Efficiency Opportunities**

- Compressed air systems
- Thermal insulation
- Case studies

11:00 a.m. **Coffee Break**

11:15 a.m. **Quantification of Energy Efficiency Opportunities (cont'd)**

- Waste heat recovery
- Exhaust air recirculation
- Adjustable speed drives
- High efficiency lighting
- Power factor correction
- Electrical load management
- Case studies

1:15 p.m. **Lunch Break**

2:00 p.m. **Quantification of Energy Efficiency Opportunities (cont'd)**

- Thermal Storage
    - Case definition
    - Equipment sizing
    - Case studies

DB
ENGINEERING
3315 Chokecherry Crescent, Mississauga, Ontario, CANADA, L5L 1B1
Tel: (905) 607-2402 Fax: (905) 608-0588 Email: dberkley@dbengineering.ca

2:30 p.m. **Quantification of Energy Efficiency Opportunities (cont'd)**

- Cogeneration
  - Objectives
  - Types
  - Schemes
  - Feasibility studies
  - Case studies

3:00 p.m. **Coffee Break**

3:10 p.m. **Quantification of Energy Efficiency Opportunities (cont'd)**

- Boilers, steam and condensate
  - Combustion
  - Boiler efficiency
  - Steam and condensate systems
  - Case studies

3:45 p.m. **Discussions**

DB
ENGINEERING
3315 Chokecherry Crescent, Mississauga, Ontario, CANADA, L5L 1B1
Tel: (905) 607-2402 Fax: (905) 608-0588 Email: dberkley@dbengineering.ca

Day 2

9:00 a.m. **Quantification of Energy Efficiency Opportunities (cont'd)**

- Pumps and Fans
  - Types
  - Performance curves
  - Case studies

9:45 a.m. **EMS and MT&F**

- EMS definition
- EMS architecture and characteristics
- EMS deliverables
- EMS example of reports
- MT&F definition
- Integration of MT&F in EMS
- Tools
- Live demonstration
- Case studies

10:45 a.m. **Coffee Break**

11:00 a.m. **Economic Analysis**

- Simple payback period
- Return on investment
- Benefit/cost ratio
- Internal rate of return
- Net present value and discounted cash flow
- Monte Carlo-based certainty analysis
- Case studies

12:00 p.m. **Energy Analysis**

- Objectives
- Types of analyses
- Structure of the analysis
- Procedures employed
- Example

12:45 p.m. **Lunch Break**

1;30 p.m. **Performance-based Contracting (ESCO)**

- Types
- Advantages and disadvantages
- Business model
- "Do and Do not……"

DB
ENGINEERING
3315 Chokecherry Crescent, Mississauga, Ontario, CANADA, L5L 1B1
Tel: (905) 607-2402 Fax: (905) 608-0588 Email: dberkley@dbengineering.ca

2:00 p.m. **Tools, standards and procedures**

- Awareness tools
- Survey sheets
- Calculation sheets
- Calculation programs
- Procedures
- Communication tools
- Portable measurement tools
- Self eveluation
- Reference tools

3:45 p.m. **Discussions**

4:00 p.m. **Closing Remarks**