



# Sugar Milling Research Institute

## Sugar Technology Training from a Provider's perspective

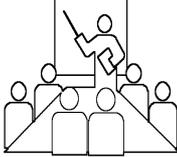
©SMRI



## Introduction

- Growing awareness of the close relationship between training and profit
- Training should be seen as an investment rather than an expense
- SMRI offers several training courses each aimed at satisfying a particular need

©SMRI

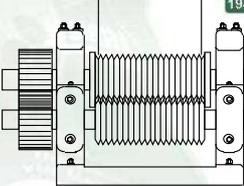
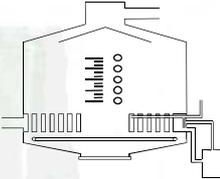
## SMRI Training Courses

- Ten-Week Course in Sugar Engineering
- One-Week Introductory Course in Sugar Technology
- Two-Day Elementary Course in Sugar Technology (on-site)
- Two-Week Course for Laboratory Managers
- Laboratory Analyst Training (on-site)
- Customised Training




## Ten-Week Course in Sugar Engineering

- **Purpose**  
An intensive course tailored for technical graduates and diplomates working in any of the functions of production, processing, engineering, maintenance and research
- **Content**  
  - Sugar Machinery
  - Sugar Technology
  - Factory Performance Calculations
  - Practical Cane-to-Crystal Project
  - Special Written Project
  - Engineering Maintenance
  - Process Control
  - Plant Visits




### Ten-Week Course in Sugar Engineering

- **Why is this course so popular?**
  - A rigorous coverage of subjects
  - Mix of in-depth theoretical and practical learning
  - Lecturers are experts/leaders in their fields
    - SMRI staff
    - Consultants and
    - Technologists within the industry
  - Regular examinations after each section

**Course allows delegates to “fast track” their understanding and ability to optimise operations and solve factory problems**

Highly respected and sought after course internationally

© SMRI



## One-Week Introductory Course in Sugar Technology

- **Purpose**

Primarily intended as an orientation for graduates and diplomats who have recently joined the sugar industry  
Has become increasingly popular with staff in supportive roles as well as suppliers and customers
- **Content**

Factory Terminology	Cane Evaluation
Cane Preparation	Milling & Diffusion
Juice Heating & Evaporation	Juice Screening
Clarification & Filtration	Sugar Boiling
Crystallisation & Centrifugation	Performance Calculations
By-Products	Steam & Power
Sugar Refining	Sugar Quality
Boiler Water Treatment	Effluent Treatment
Plant Visits	




## Two-Day Elementary Course in Sugar Technology

- **Purpose**

Aimed at staff who are not directly involved in production but who would like to know the basics of the sugar manufacturing process.

Delegates included artisans, agricultural personnel and administrative staff

Engineering and maintenance workers find this course particularly interesting as gives a deeper insight into their role and impact
- **Content**

Overview of all raw house and refinery operations





## Two-Week Laboratory Manager Course

- **Purpose**  
This course has been tailored for technical graduates and diplomates involved in laboratory management/supervision
  - The sugar industry runs on figures
  - Requested by and developed together with our industry partners
- **Content**  
Product Analysis and Laboratory Operations  
Factory Performance Calculations  
pH & Inversion  
Sugar Quality  
Cane Testing  
GC & HPIC Analysis  
NIRS Analysis  
Boiler Feedwater Analysis




## Laboratory Analyst Training

- **Purpose**  
Practical Laboratory Analyst Training is very effective in terms of broad based competency development and skills upgrading
- **Content**  
**Training focuses on the following essential methods (to be adjusted according to a mill's requirements):**
  - Raw and refined sugar pol, moisture, colour, turbidity and conductivity ash
  - Molasses pol and Brix
- **Training is competency based:**
  - Demonstration and explanation of each step by the trainer
  - Analysts performing each test on one SMRI check sample under supervision
  - Analysts evaluated by comparison of results to SMRI results





## Customised Training

- **Purpose**

Customised training courses are tailored to individual customers' needs and are presented on-site at sugar mills, for example:

- Sugar Technology for Customers
- Milling Theory & Practice
- Sugar Refining
- Factory Performance Calculations
- Chromatographic Theory & Operation
- Diffusion
- etc.




## Comments Received

- Lower extraction – is this due to training
- Qualified Sugar Technologists leaving industry
- May need to revive the Sugar Technology Diploma/Degree – stopped in early 80's
- Missing level of training - Supervisors





## Formal Training

- Operator – Industrial Training Centre
- Artisan – STC, Normal Channels
- Supervisor – ??
- Management – SMRI

©SMRI



## Comments Received

- Lower extraction – is this due to training
- Qualified Sugar Technologists leaving industry
- May need to revive the Sugar Technology Diploma/Degree
- Missing level of training – Supervisors
- Managers from outside of sugar processing may benefit from 1 on 1 training

©SMRI



## Possible solutions?

- Based on a needs assessment
- Revive the Sugar Technology Diploma/Degree?
- Involvement with University (UKZN Engineering)
  - Elective
  - Lectures
  - Under-graduate engineering practicals to include sugar themes
  - Research Projects
  - Post-Graduate study
- Supervisor Training Course
- MBW Course
- Audit training
- Trouble-shooting checklists
- e-Learning



## Sugar Milling Research Institute

Leading and Supporting the Industry for 60 years

