# Building Operational Excellence in the Operation's Team

## Introduction

The success of every company depends of each employee's understanding of the key business components. Employee training and development will unlock the companies' profitability and reliability. When people, processes and technology work together as a team developing practical solutions, companies can maximize profitability and assets in a sustainable manner. Training and development is an investment in future success - give yourself and your employees the keys to success

It is strategically important that your operations team understands the fundamentals of operational excellence concepts. This is the difference between being in the best quartile of operational ability and being in the last quartile. There is vast difference in the operational ability of operating companies and most benchmarking studies have confirmed this gap in operational abilities.

The unit on stream time is an indication of operations training. A first quartile-operating unit's on steam factor is greater than 97%. If the on stream factor is below 97% a review of operation training and development is warranted. If on stream factor or average years of operating experience is declining a review of operations training and development should be considered.

Whether you have a team of new or seasoned employees, an introduction or review of these concepts is very beneficial in closing the gap if you are not in the best quartile, or maintaining a leadership position. Most studies show that a continuous reinforcement of best practices in operational principles is the most effective way to obtain the desired results. Training and learning should be an on going continuous life long goal.

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## Course Objective

There are many aspects of operational excellence. Partial list may include;

1. Safety
2. Reliability – Continuity of Operations
3. Quality
4. Cost
5. People Development

There are many discussions about the order of importance, but this order is defendable. The ones most questioned are cost and people development – where should they be placed.

1. Safety

Safety is no question the number one concern. No project or operation can be classified as excellence unless it is done safely. The Center for Chemical Plant Safety (CCPS) has conducted benchmarking studies that show a strong culture of safety awareness also has economic benefits as well as the social and humane benefits.

2. Reliability - Continuity of Operations

A stable reliable plant is the largest revenue source. A reliable plant that has high cost will make generate more revenue than a low cost plant that has multiple outages. The on stream factor is a benchmark of reliability. Industry average is 97%, but the top quartile approaches 100%. This three percent increased production is a significant difference in revenue.

3. Quality

Quality has two aspects. The first is the external aspect. To develop and maintain the reputation of producing quality products will allow you to charge a premium during the economic up turns and be able to maintain your key customers in a down turn.
The second is the internal aspect. There is an added cost of non quality production. Sometime the product can be reprocessed, with an added energy debit. If the product cannot be reprocessed it will need to be sold with a cost debit.

4. Cost

Cost control is a very important aspect of operational excellence. The two largest costs are feedstock and energy. A very small feedstock reduction can lead to a very large profit improvement. The industry averages three percent energy improvement per year. The top quartile will improve more than 3%.

5. People Development

Most people might rate this higher than fifth. It is a very important aspect of operational excellent, but talent can be acquired for a price. The best plan is to hire talented people, train them well, pay them well, and retain them, but few companies seem to be capable of accomplishing this task. People Development will insure that items one through four are optimized.

This course will guide the participates to develop key concepts and techniques to operate and troubleshoot key operational excellence fundamentals. These key concepts can be utilized to make operating decisions that can improve your unit's performance.

Many aspects of operations can be improved including, product recoveries, purities and energy utilization, and safety. This cannot be achieved without first an understanding of basic fundamental principles of design and operation. These principles need to be understood in advance of operating and trouble shooting a process unit operation for the operator or problem solving to be effective.

**What You Can Expect To Gain;**

- Guidelines on how to develop a 1st quartile safety program that has an added benefit of being a profit center
- Guidelines on how to improve plant reliability
- Find the benefits of a Quality System
- Understand your major costs and how to improve them
- People Development guidelines

**Syllabus**

**1. Introduction to Processing Industry Key Concepts**

- **A. Overview of the Chemical Processing Industry**
- **B. Safety for the Operations and Maintenance Groups**
- **C. Process Safety Management**
- **D. Hazard Analysis**
- **E. Introduction to Benchmarking**

**2. Plant Reliability**

- **A. Introduction to Plant Reliability**
- **B. Equipment Design for improved Reliability**

    1. **Boilers and Steam Systems**
    2. **Boiler Safety**
    3. **Furnaces**
    4. **Steam Turbines, Pumps and Compressors**
    5. **Piping and Heat Exchangers**
    6. **Distillation**
    7. **Relief Valve and Flare Systems**
    8. **Catalyst and Molecular Sieve Systems**
    9. **Electrical Systems**
    10. **Cooling Water Systems and Treatment**

11. Waste Water Systems
12. Process Control

3. A. Introduction to Quality
   B. Overview of Statistical Process Control

4. A. Introduction to Cost Control
   B. Feedstock
   C. Energy
   D. Develop Key Performance Indicators
   E. Managing Projects

      1. Define the Work
      2. Manage the Work Plan
      3. Build the Work Plan
      3 Manage Issues
      4. Manage Scope
      5. Manage Communication
      6. Manage Risk
      7. Manage Document
      8. Manage Quality
      9. Manage Metrics

5. A. People Development
   B. Team Building
   C. Training

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## Who Should Attend:

- People who are making day to day decisions regarding operation, design, and economics of processing plants;

    1. 1st Line Operations personnel,
    2. Operation Supervisors,
    3. 1st Line Maintenance personnel,
    4. Maintenance Supervisors,
    5. Senior Plant Supervisors,
    6. Operations Engineers
    7. Process Support Engineers,
    8. Design Engineers,
    9. Cost Engineers.

- Ideal for veterans and those with only a few years of experience who want to review or broaden their understanding in Processing Plant Operations.

- Other professionals who desire a better understanding of subject

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