



# Living Program

## LP200 Root Cause Analysis

### Recommended for

Service, maintenance, machine repair, or plant/facility engineering staff of an industrial plant, OEM facility, institution, public utility or commercial building which uses rotating equipment. Managers and technicians at industrial plants and OEM facilities responsible for rotating equipment performance and reliability. Rotating equipment engineers, reliability engineers, millwrights, mechanics, and maintenance supervisors. Anyone interested in rotating equipment performance.

### Course objective

To equip students with Root Cause Analysis techniques in reliability and condition monitoring programs to enhance the scope and quality of on-site investigations.

To provide students training in specialized techniques to identify the true root causes underlying a problem and to ensure that results of the study includes realistic corrective action.

### 2009 course schedule

Feb. 23-24	Atlanta, GA
April 20-21	Denver, CO
April 27-28	Toronto, ON
May 4-5	Vancouver, BC
June 8-9	Philadelphia, PA
Oct. 19-20	Chicago, IL
Nov. 2-3	Montreal (French), PQ
Nov. 30-Dec. 1	Toronto, ON
Nov. 30-Dec. 1	San Diego, CA

### 2009 tuition

Public classes	\$795
On-site	
per class	\$10,995
# people	16
17+ people	\$295 per person

### Course description

The key elements of Root Cause Analysis process discussed include:

- Working from existing corporate information systems to capture events and incidents where RCA will be beneficial
  - Machinery failures resulting in actual or potential loss of plant output.
  - Machinery failure that represents a large or unbudgeted repair cost
  - Safety, health or environmental breaches
  - Repetitive failures that collectively represent an excessive maintenance cost.
  - A non conformance in maintenance strategy
- Prioritize incidents and formally launch the RCA study by defining the problem
- Collect and preserve evidence that will provide evidence on the incident
- Expose the causes of the incident by building a “why?” tree. In general each incident will have three types of root causes
  - Technical causes
  - Human causes
  - Organizational causes

Only when all three types of causes have been exposed, can the RCA be considered complete
- Propose practical actions that will address root cause of the incident and develop a business case for management approval of the resulting actions
- Following management approval, assign actions for implementation and track actions to completion
- Measure the performance of the RCA program through appropriate KPI's

### Key learning outcomes

- Understanding the importance of RCA in delivering internal services and its role in relation to other tools, notably vibration diagnostics, bearing failure diagnostics and maintenance strategy
- Becoming confident in building “why?” trees and the 7 steps of root cause study
- Students will be equipped with tools to resolve complex problems and think laterally to explore causes of a problem

### Prerequisite

#### RMI On-line course\*

WI140 Lubrication analysis basics

#### Reading material\*

NC\_0702 Basic elements of a comprehensive root cause analysis program

P1410\_E Bearing failures and their causes

GS02003 Root cause analysis

GS03008 RCFA report template

\* On-line learning material at [aptitudeexchange.com](http://aptitudeexchange.com)

### Integrated courses: LP200 & WE204

Public classes \$1,595

(Includes a 15% discount for attending both classes together)

On-site

per class \$19,995

# people 16

17+ people \$595 per person

### 2009 integrated course schedule

Feb. 23-27	Atlanta, GA
April 20-24	Denver, CO
April 27-May 1	Toronto, ON
May 4-8	Vancouver, BC
June 8-12	Philadelphia, PA
Oct. 19-23	Chicago, IL
Nov. 2-6	Montreal (French), PQ
Nov. 30-Dec. 4	Toronto, ON
Nov. 30-Dec. 4	San Diego, CA

### 5 days

A written examination is included with this course and is conducted on the afternoon of the final day of class.