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# Effective Precision Maintenance Training Course Content

Successful precision maintenance practices deliver machinery with world-class reliability and performance.

As one site found out: “By using this technique recently ... equipment availability increased from a low 80% to a high 98% in two weeks. It takes someone to show the way; but when people master the technique, a sense of pride and ownership pervades. This shows in an improvement in equipment reliability and a reduction in overall operational costs. The savings that can be achieved can adequately fund future training needs for a progressive company.” *John C. Robertson, Maintenance Reliability Specialist, Copyright 2000 TWI Press, Inc.*

When Precision Maintenance is done well, applying best practice precision skills and component health knowledge, you get machines capable of delivering maximum production, with maximum uptime time, and for least cost.

<b>What’s Covered in the Precision Maintenance Training Distance Education Course</b>	
<b>Introduction to Precision Maintenance</b>	<b>Applying Precision Maintenance for Rotating Machinery and Equipment</b>
Evolution of Maintenance and Reliability	Accurate Fits-Tolerance at Operating Temperature
Strategies to Reduce Maintenance Cost	<ul style="list-style-type: none"> <li>• International Tolerance Grade</li> </ul>
History of Precision Maintenance	<ul style="list-style-type: none"> <li>• Shafts and Housings Fits and Form</li> </ul>
The Key Players: Craftsmen and Supervisors	
Asset Management Vision and the Precision Domain	Impeccably Clean, Contaminant-Free Lubricant
	<ul style="list-style-type: none"> <li>• Oil Chemistry</li> <li>• Solids Contamination Prevention</li> </ul>
<b>Equipment Reliability</b>	
Reliability Basics	
System Reliability	Distortion-Free Equipment for its Entire Lifetime
Reliability of Parts	<ul style="list-style-type: none"> <li>• Foundations and Base Plates</li> </ul>
Reliability of Machinery	<ul style="list-style-type: none"> <li>• Flatness</li> </ul>
Improving Machinery Reliability	
	Rolling and Journal Bearing Health
<b>Precision in the Equipment Life Cycle</b>	<ul style="list-style-type: none"> <li>• Journal Design and Operation Requirements</li> </ul>
Engineering, Procurement, Construction Standards	<ul style="list-style-type: none"> <li>• Roller Bearing Design and Operation</li> </ul>
Precision during Assembly and Installation	<ul style="list-style-type: none"> <li>• Roller Bearing Installation Best Practices</li> </ul>
Defect Detection and Failure Analysis and Removal	
	Shafts, Couplings, Bearings Running True to Centre
<b>Vehicle for Precision: Accuracy Controlled Work</b>	<ul style="list-style-type: none"> <li>• Installation and Rebuild Errors</li> </ul>
The Link to Asset Management	
Achieving Outstanding Equipment Reliability	Forces and Loads into Rigid Mounts and Supports
Contents of a Precision Maintenance Program	
<ul style="list-style-type: none"> <li>• Defining Precision</li> </ul>	Laser Accurate Alignment of Shafts in Operation
<ul style="list-style-type: none"> <li>• Setting Precision Standards</li> </ul>	<ul style="list-style-type: none"> <li>• Co-linearity of Shafts</li> </ul>
<ul style="list-style-type: none"> <li>• Tolerance - Distortion - Looseness</li> </ul>	<ul style="list-style-type: none"> <li>• Positioning and Aligning Equipment</li> </ul>
<ul style="list-style-type: none"> <li>• Lubrication</li> </ul>	
<ul style="list-style-type: none"> <li>• Shaft Alignment - Balancing - Vibration</li> </ul>	High Quality Balancing of Rotating Parts
<ul style="list-style-type: none"> <li>• Installation Quality - Accuracy in Assembly</li> </ul>	<ul style="list-style-type: none"> <li>• Balancing for High Speed Equipment</li> </ul>
<ul style="list-style-type: none"> <li>• Identify Root Causes - Root Cause Elimination</li> </ul>	
<ul style="list-style-type: none"> <li>• Condition Monitoring to Confirm Standards</li> </ul>	Low Total Machine Vibration
<ul style="list-style-type: none"> <li>• Precision Hand Tools and Measuring Equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Solving Common Machine Vibration Problems</li> </ul>
<ul style="list-style-type: none"> <li>• Records of Accuracy</li> </ul>	
	Correct Torques and Tensions in all Components
<b>Defect Elimination and Failure Prevention</b>	
Defect Creation	Correct Tools in the Condition to do a Task Precisely
Human Error Human Factors	
Accuracy Control 3Ts in SOPs – Target, Tolerance, Test	Only In-specification Parts
	Failure Cause Removal during Maintenance
	Proof Test for Precision Work and Equipment
	<ul style="list-style-type: none"> <li>• Error Proofing Work</li> <li>• Quality Assurance in Maintenance Work</li> </ul>