Automation Technician Training Program

HUNTER INDUSTRIES
Built on Innovation

PRESENTED BY: Randy Phillips
A Global Leader in the Irrigation and Landscape Lighting Industries

Headquartered in San Marcos, CA since 1981, Hunter is a market leader in producing and marketing a full range of water-efficient, easy-to-use irrigation solutions for residential, commercial, and golf course applications.

- Hunter has ~1500 employees with 2 plants
  - San Marcos, CA: 1,100
  - Tijuana, Mexico: 400
- Training Project
  - Pilot Program - Automation Maintenance Group
    - 40 Technicians
Why train? Why not hire people already trained?

San Diego Manufacturing Report June 2012

A total of 283 businesses were contacted and interviews were conducted between October 2011 and June 2012. Employers were asked a variety of questions about conducting business in the San Diego region. Manufacturers expressed difficulty in finding qualified employees noting many of the training programs have been downsized or no longer exist due to budget cuts. There is a need to retrain current employees and offer additional training classes related to computerized manufacturing equipment.
San Diego County Manufacturing Industry Decline

San Diego County Total Employment Mfg Industry

<table>
<thead>
<tr>
<th>Year</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>128,738</td>
</tr>
<tr>
<td>2007</td>
<td>105,558</td>
</tr>
<tr>
<td>2010</td>
<td>95,205</td>
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</tbody>
</table>
Technical Training Objectives

- Develop comprehensive apprenticeship program for Automation Technicians
- Objectively measure knowledge of existing and incoming technicians
- Customize assignment of coursework based on employee need and job requirement
- Track progression of development and provide access to these records for the organization
- Develop individual training goals tied to annual performance evaluations
- Improve troubleshooting skills leading to more efficient diagnostics and improved machine efficiencies
What is Training?

• There is a difference between instruction and training?
  
  o Instruction – The process or act of providing information/knowledge on something from one individual to another
  
  o Training – The practical application of knowledge by enhancing the necessary skills through repeated practice of organized activity for skill development

Tell me and I forget. Teach me and I remember. Involve me and I learn.
~ Benjamin Franklin
Technical Training Program Elements

- On the job training & experience
- Outside seminars
- Local college technical certificate programs
- ToolingU technical training program
- Internal technology specific formalized training program
Advanced Automation & Data Acquisition Systems
Automation Equipment
Servo Controls

Vision Inspection Systems
Injection Molding Machines
Outside Seminars

- Allen Bradley PLC
- Branson Ultrasonic
- Cognex Vision
- Denso Robot
- Domino Laser
- IAI Motor
- Koyo PLC
- SmartMotor Servo
- Milacron Calibration
- Arburg
- Nissei
Mira Costa College

Distance Education
Technical Training

TECHNICAL TRAINING
- Electronics Technician Certificate
- Electromechanical Technician Certificate
- Programmable Logic Controllers Technician Certificate
- Robotics Technician Certificate

The Electronics Technician, Electromechanical Technician and PLC Technician distance programs provide an excellent, flexible way for our employees to upgrade their skills.

Ron Storvick
Training Coordinator
Boeing Aerospace
What is the problem?

The Switch is not on or bad.

All Off

What voltage are we looking for?

110VAC- L3 to Neutral

Voltmeters are hooked in parallel to the LOAD(s) being measured.
Internal Technology Specific Formalized Training
PLC Controls

Safety & Control Relays
Electro/Mechanical or PLC

PLC (Expansion)

PLC (CPU)

E-Stop Contactor
Laptop Outlet

VFD (Motor Control)

Solid State Relays
(Feeder System)

Pushbutton Distribution
Series & Parallel

Internal Technology Specific Formalized Training
PLC Controls
ToolingU Online Training Program

• Originally, we utilized a DVD training system
  o Purchased DVD’s from Coastal Skills & Training
    ➢ The administration software was problematic
    ➢ Several tests were found to have errors
    ➢ Only usable on-site

• We received a recommendation to review the ToolingU program
  o ToolingU appeared to have a far superior format with many additional features
ToolingU Online Training Program - Features

• Flexible Delivery and Access
  o On-line access from work or home
  o Bi-lingual (Spanish)

• Learning Management System
  o Assignment of coursework and skill competencies
  o Tracking of progress
  o Reporting of results of Employee progress

• Testing Center
  o On-line knowledge tests
  o Direct Link from questions to coursework
  o Automated generation of suggested courses based on results of exam
101 courses in the areas of:

- Electrical Systems
- Hydraulics
- Pneumatics
- PLC’s
- Motor Controls
- Robotics
- Mechanical Systems
ToolingU Assessment Test Results Sample

<table>
<thead>
<tr>
<th>Section</th>
<th>Test Specialist</th>
<th>Tech B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Systems</td>
<td>18/20</td>
<td>10/20</td>
</tr>
<tr>
<td>Hydraulics &amp; Pneumatics</td>
<td>20/32</td>
<td>10/32</td>
</tr>
<tr>
<td>Mechanical Systems</td>
<td>4/6</td>
<td>5/6</td>
</tr>
</tbody>
</table>

| Test #1 Score’s          | 42/58          | 25/58  |
| Test #1 %’s              | 72.41%         | 43.10% |

| Motor Controls           | 15/21          | 10/21  |
| PLCs                     | 16/20          | 10/20  |
| Robotics                 | 10/11          | 8/11   |

| Test #2 Score’s          | 41/52          | 28/52  |
| Test #2 %’s              | 78.85%         | 53.85% |

Average Score 83/110     53/110
Average % 75.45%         48.18%
ToolingU Average Assessment Test Scores by Technician Levels

Average Test Scores

Tech Spec
Tech A
Tech B
Tech C
# ToolingU Training Program - First Year Details

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students:</td>
<td>40</td>
</tr>
<tr>
<td>Total Time:</td>
<td>984 hour(s) 24 minute(s)</td>
</tr>
<tr>
<td>Total Logins:</td>
<td>2892</td>
</tr>
<tr>
<td>Total Classes Completed:</td>
<td>732</td>
</tr>
<tr>
<td>Number of Registered Classes:</td>
<td>1396</td>
</tr>
<tr>
<td>Percent Completed:</td>
<td>52.44%</td>
</tr>
<tr>
<td>Pretest Avg. Score:</td>
<td>65.90%</td>
</tr>
<tr>
<td>Final Exam Avg. Score:</td>
<td>87.93%</td>
</tr>
</tbody>
</table>
# ToolingU Technician Training Program Survey

<table>
<thead>
<tr>
<th>Training Survey</th>
<th>ToolingU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Format and Ease of Use</td>
<td>4.1</td>
</tr>
<tr>
<td>Training Matches Work Place Needs</td>
<td>3.6</td>
</tr>
<tr>
<td>Degree of Difficulty</td>
<td>3.7</td>
</tr>
<tr>
<td>Quality of Content</td>
<td>3.7</td>
</tr>
<tr>
<td>Scope of Content</td>
<td>3.7</td>
</tr>
<tr>
<td>Overall Rating</td>
<td>3.7</td>
</tr>
</tbody>
</table>

1 = Poor     2 = Below Average     3 = Average     4 = Above Average     5 = Excellent
Training Program Opportunities and Threats

Opportunities

• Exposure to extensive and diverse manufacturing technologies to gain hands-on experience
• Seminars
• Local college providing technical certification programs
• ToolingU training program
• Internal technology/equipment specific formalized training program
• Highly skilled senior technicians to help develop junior technicians
• Corporate & financial support

Threats

• Greatest threat to provide technical training to technicians is time
• Insufficient staffing to allow adequate time to train
• Core duties and responsibilities taking priority over training requirements
• Lack of participation
Training Program Expansion 2013

• Additional departments for ToolingU
  o Tooling
    ➢ Machinists
  o Quality Control
    ➢ Inspectors
  o Production
    ➢ Automation Operators

• Incorporate custom classes from internal program to ToolingU
  o PLC’s

• Internal technology specific formalized training program expansion
  o New Classes
    ➢ Vision Systems
    ➢ Servo Systems
Thank You.