



REGIONAL EMPLOYMENT BOARD
OF HAMPDEN COUNTY, INC.

Precision Manufacturing Training Project (PMTP)

Business Impacts

Interim Report

Introduction

The **Precision Manufacturing Training Project (PMTP)** is a strategic venture of the Regional Employment Board of Hampden County, Inc. (REB), in collaboration with the following partners, to respond to the skills shortage issue in the precision manufacturing industry in the Pioneer Valley Region:

| Vocational Technical High School | Community College | Training Provider/Sector Partner |
|---|---------------------------------------|---|
| Westfield Vocational Technical | Springfield Technical Community Coll. | MA Career Development Institute |
| Putnam Vocational Technical | Asnuntuck Community College | Smith and Wesson |
| Pathfinder Regional Vocational | Greenfield Community College | |
| Smith Vocational & Agricultural | | |
| Chicopee Comprehensive | | |

The Precision Manufacturing Training Project has two goals:

Goal 1- Training in Machine Tool Technology for 40 Unemployed/Underemployed Individuals.

Goal 2- Skills Enhancement Training in 40 Training Slots for 60 Incumbent Employees.

This **Interim Report** focuses on Business Impacts for **Goal- 2**, and presents findings from a survey of precision manufacturing companies whose employees voluntarily participated in a series of skills enhancement courses that were offered at the educational institutions and private sector company identified above, during the time period of September 2007-March 2008. The analysis of the findings is intended to provide initial baseline data and information on the impact of the workforce development intervention on the incumbent employees and the companies.

The REB is hopeful that the on-going findings from the Goal No. 2 Business Impact Survey will provide critical business intelligence that will allow for creative and sustainable workforce development programming and interventions that will benefit the incumbent employees, and create cluster-wide innovation and expansion resulting in increased market share on the regional, national and international levels for the precision manufacturing companies.

An additional survey will be conducted in April 2009, and will cover the time period of September 2008- March 2009. Findings from that survey will be combined with the information contained in the Interim Report and will be detailed in a comprehensive Final Report that will be presented to Commonwealth Corporation on or before June 30, 2009.

OVERVIEW

The **Interim Report on Business Impacts** for Goal No. 2 of the Precision Manufacturing Training Project (PMTTP) presents findings from a workforce development intervention that involved incumbent employees from precision manufacturing companies who **voluntarily** attended industry aligned skills enhancement courses that were conducted after or before their normal work hours in two, eight week, 20 hour cycles from September 2007-March 2008.

The decision to conduct the specific courses (Attachment A) that prepared the incumbent employees to acquire skills competencies for their present employment position as well as future employment opportunities was intentional.

Thirteen (13) companies (Attachment B), representing twenty-four (24) unduplicated incumbent employees, responded to the Survey (Attachment C) which was conducted in late spring 2008. The company participation rate was 52%.

The Report can also be viewed on the web site of the Regional Employment Board of Hampden County Inc. at www.rebhc.org, and on the web site of the Western Massachusetts Chapter of the National Tooling and Machining Association at <http://www.wmntma.org/members-resources/industry-reports/>.

The Precision Manufacturing Training Project is funded by the Workforce Competitiveness Trust Fund managed by Commonwealth Corporation. Matching in-kind funds are provided by the lead agency, the Regional Employment Board of Hampden County, Inc., and other project partners.

CONTACT INFORMATION

For additional information on the **Interim Report** or on the Precision Manufacturing Training Project (PMTTP), please contact David M. Cruise at 413-755-1362 or dcruise@rebhc.org.

For information on Commonwealth Corporation, please visit their web site at www.commcorp.org.

Precision Manufacturing Training Project (PMTTP)

Business Impacts

Interim Report

I. Description of the Precision Manufacturing Cluster

High technology precision manufacturing is one of the most important industry clusters in the Pioneer Valley Region. The high technology precision machining companies in the Region, led by the Western Massachusetts Chapter of the National Tooling and Machining Association (WMNTMA), are contract manufacturers that are primarily engaged in supplying precision mechanical components and sub-assemblies to major commercial manufacturers, aircraft engine builders, and military equipment contractors in the United States and internationally. The companies perform value-added precision manufacturing processes and operations utilizing high technology equipment and world class technology development.

The companies in the cluster have invested extensive resources on building manufacturing capacity by improving operating processes and due to high demands in the aerospace and defense markets are currently experiencing high business volumes. Since these markets are cyclical, the long term prosperity and growth of the precision machining firms as part of various supply-chains might be jeopardized by global changes. The sector faces a shrinking workforce, increased competitive strains from off-shore suppliers, and market pressures that might jeopardize business and employment growth in the Region.

The precision manufacturing cluster in the Region is led by the regular member companies of the Western Massachusetts Chapter of the National Tooling and Machining Association. In calendar year 2007, the regular members of the WMNTMA experienced the following growth in employment levels and estimated gross sales:

Estimated Gross Sales of Regular Member Companies: Adjusted for Changes in Company Membership in WMNTMA

| Year | No. of Companies | No. of Employees | Estimated Gross Sales |
|-----------------------|-------------------------|-------------------------|----------------------------------|
| 2005 | 24 | 899 | \$108 Million |
| 2006 | 29 | 993 | \$155 Million |
| Change '05-'06 | (+) 5 | (+) 94(10.4%) | (+) \$ 47 Million (43.5%) |
| 2007 | 33 | 1281 | \$229 Million |
| Change '06-'07 | (+) 4 | (+) 288 (29%) | (+) \$ 74 Million (47%) |
| Change '05-'07 | (+) 9 | (+) 382 (42%) | (+) \$ 121 Million (112%) |

The dollar added value per employee was \$179,848, which is 15% higher than the reported state-wide average of \$156,065. In addition, the sectors multiplier effect (4.0) generates comparable growth within their supplier and support network. This level of productivity was achieved with less than a 1% increase in the number of employees, and affirms the sectors commitment to investment in new equipment, and implementation of lean manufacturing processes.

II. Goals of the Precision Manufacturing Cluster

The cluster has established the following goals that define and validate its commitment to develop true cluster identity and collaborative actions that will result in job retention, wealth creation, job growth, and continued economic development in the Region and the State:

Goal 1. Transform Industry Capability to Improve Manufacturing Processes and Operations

Goal 2. Strengthen Cluster Development and Increase Business Competitiveness

Goal 3. Build a Well-Educated, Technologically Skilled and Highly Adaptable STEM Workforce.

Goal 4. Develop a Marketing Plan to Promote the Economic Viability of the Precision Manufacturing/Machining Industry.

III. The Workforce Development Intervention

The workforce development intervention that is described in this Interim Report involved incumbent employees from precision manufacturing companies **voluntarily** attending industry aligned skills enhancement courses that were conducted after or before their normal work hours. The courses were conducted in two cycles-September- November 2007, and January-March, 2008. Each course, with the exception of college credit courses which were conducted on a standard semester schedule, was conducted for eight weeks for a total of 20 hours. The 24 employees referenced in this report represent an unduplicated count. The courses that were conducted fall into the following two categories:

- ✚ Courses that presented information that would increase the employee's skills competencies in their current employment position.
- ✚ Courses that presented information that would position the employee's to move into more advanced machining positions at higher wages, at some time in the future.

The decision to conduct courses that prepared employees to acquire skills competencies for their present employment position as well as future employment opportunities was intentional. The precision machining sector in the Region, with its focus on aerospace and defense work, is very agile and is positioned to respond quickly to surges in demand. In order to respond to these surges, they need to maintain a flexible workforce that has the skills sets to move seamlessly to more advanced machining work. In analyzing the impact of this workforce intervention, it is important to look at the findings with the understanding that the Supervisor's Comments that resulted

in the Business Impact Ratings reflect their evaluation of current skills competencies acquired by the employees as well as future competencies, which are more difficult to assess and measure.

IV. Business Impact Levels

This Interim Report is using the business impact levels derived from the work of Donald Kirkpatrick¹ to provide some basic understanding relative to the impact of a workforce development intervention on worker effectiveness. This analysis is also grounded in information and guidance provided by Commonwealth Corporation². The following is a basic summary of each level:

| Level of Impact | Description |
|------------------------|--|
| I | Employers and participants satisfaction with workforce development intervention. |
| II | Attainment, in concrete terms, of specific skills or knowledge of participants, or changes in participants' attitudes. |
| III | Changes in employees behaviors as a result of the programmatic interventions. |
| IV | Change in business practices and outcomes. |

V. Business Impact Findings

KEY:

Business Impact Rating: (1= Significant Impact to 4 = Minimum Impact)

Sources: (DP) = Daily Production Sheet, (WP) = Weekly Production Report, (SR) = Supervisors Report, (SC) = Supervisors Comments

Degree of Impact: % Increase/Reduction

No. of Companies: 13 **No. of Incumbent Employees:** 24

| Business Impact Objective | Business Impact Rating 1 Sig. ←————→ 4 Min. | Sources | | | | Degree of Impact | | | |
|---|---|----------------|----|----|----|-------------------------|-----------------------------------|---|-----|
| | | DP | WP | SR | SC | 1-5 | <u>% Increase</u> 6-10 11-19 | | 20+ |
| 1. Increase Overall Employee Safety Awareness | 2.69 | | | 1 | 12 | 1 | 1 | | 4 |
| 2. Increase Overall Employee Productivity and Efficiency | 2.53 | 1 | 2 | | 10 | 1 | 2 | | 4 |
| 3. Increase Employee Stability (Retention, Turnover) | 2.69 | | | | 13 | | 1 | | 4 |
| 4. Improve Employee Attitude, Motivation and Work Habits | 2.30 | | | | 13 | | | | 5 |
| 5. Increase Communication between Co-Workers | 2.76 | | | 1 | 12 | | 1 | | 5 |
| 6. Increase Communication with Front Line Supervisors | 2.38 | | | | 13 | | | 1 | 5 |
| 7. Improve Equipment and Controls Set-Up and Operating Time | 2.38 | 1 | 2 | | 10 | 2 | 1 | | 5 |
| 8. Increase Employee Ability to Complete More Complex Machining Tasks | 2.23 | | 2 | | 11 | 1 | 1 | | 6 |
| 9. Reduce Over-the-Shoulder Training Time | 2.38 | | | | 13 | | <u>% Reduction</u> | | |
| | | | | | | 2 | 1 | | 5 |
| 10. Increase Managements Ability to Quote on New Work | 3.63 | Comment | | | | Comment | | | |
| 11. Increase Managements Ability to Perform New Value-Added Work | 3.18 | Comment | | | | Comment | | | |
| 12. Help to Improve the Company's Profit Margins | 2.80 | Comment | | | | Comment | | | |

VI.

¹Evaluating Training Programs, Kirkpatrick, D., American Society for Training and Development, 1975.

² Business Impact Primer: Speaking the Language of Employers, Commonwealth Corporation, 2007

VI. Analysis of Business Impact Findings

In analyzing the findings from the initial study of the impact of this workforce development intervention, we have categorized the Business Impact Objectives by their Level of Impact. This allows us to more clearly understand and measure the impact of the intervention on worker effectiveness, as well as its immediate and future impact on the company.

| Business Impact Objective | Business Impact Rating 1 Sig. ←————→ 4 Min. | Sources | | | | Degree of Impact | | | |
|---|--|---------|----|----|----|-------------------|--------------------|-------|-----|
| | | DP | WP | SR | SC | <u>% Increase</u> | | | |
| | | | | | | 1-5 | 6-10 | 11-19 | 20+ |
| Level I | | | | | | | | | |
| 1. Increase Employee Stability (Retention, Turnover) | 2.69 | | | | 13 | | | 1 | 4 |
| Level II | | | | | | | | | |
| 2. Increase Overall Employee Safety Awareness | 2.69 | | | 1 | 12 | 1 | 1 | | 4 |
| 3. Increase Overall Employee Productivity and Efficiency | 2.53 | 1 | 2 | | 10 | 1 | 2 | | 4 |
| 4. Improve Employee Attitude, Motivation and Work Habits | 2.30 | | | | 13 | | | | 5 |
| 5. Improve Equipment and Controls Set-Up and Operating Time | 2.38 | 1 | 2 | | 10 | 2 | 1 | | 5 |
| 6. Increase Employee Ability to Complete More Complex Machining Tasks | 2.23 | | 2 | | 11 | 1 | 1 | | 6 |
| Level III | | | | | | | | | |
| 7. Increase Communication between Co-Workers | 2.76 | | | 1 | 12 | | 1 | | 5 |
| 8. Increase Communication with Front Line Supervisors | 2.38 | | | | 13 | | | 1 | 5 |
| Level IV | | | | | | | | | |
| 9. Reduce Over-the-Shoulder Training Time | 2.38 | | | | 13 | 2 | <u>% Reduction</u> | | |
| 10. Increase Managements Ability to Quote on New Work | 3.63 | | | | | | 1 | | 5 |
| 11. Increase Managements Ability to Perform New Value-Added Work | 3.18 | | | | | | | | |
| 12. Help to Improve the Company's Profit Margins | 2.80 | | | | | | | | |

- ✚ The Rating for Objective # 1 in **Level I** is significant at this point in the project. The supervisor's comments appear to suggest that employee stability, although not a persistent issue in the responding companies is being positively impacted by the intervention. The initial degree of impact is favorable, and it will be important to monitor this objective in future evaluations.
- ✚ The primary evaluation Source is Supervisors Comments. Weekly and Daily Production Reports provide supportive data exclusively for Objectives # 3,5,6, in **Level II**, that relate to the actual hands-on machining competencies and changes in employees attitudes that have accrued from the workforce development intervention. Data from these two evaluation sources is consistent with the evaluation of these specific business impact objectives.

- ✚ The Ratings for Objectives # 4, 5, 6 in **Level II**, ranging from 2.23-2.38, are the most significant ratings, and are clearly aligned with the intended outcomes of the workforce development intervention which was to provide the incumbent employees with real time and future skills competencies that would increase productivity and efficiency.
- ✚ The Degree of Impact for Objectives # 4, 5, 6 in Level II is significant. The majority of the responding companies saw an increase of 20% or more in those objectives. This increase, based on the 20 hour program design, indicates that the workforce development intervention is providing targeted and relevant content, and is having an immediate impact on the factory floor.
- ✚ Improvement in Objective # 4 in Level II is significant, and provides an initial indication that the intervention is having the desired impact on employees' attitude and work habits. This change has been validated by the number of companies that indicated an increase of 20% or more in this objective. We believe this result is significant for employees and employers going forward, and is an essential component of increasing the business impact rating in Level IV.
- ✚ The Ratings for Objectives # 7, 8 in **Level III**, ranging from 2.38-2.76, is significant, particularly in Objective # 8. The increase of more than 20% in communication on the floor between the employee and front line supervision provides an initial indication that the intentional intervention is contributing to an improvement in communication which has a direct correlation to the increases indicated in Objectives #4, 5, 6, in Level II.
- ✚ The Ratings and Degree of Impact for Objective # 9 in **Level IV** are significant at this point in the project cycle, and appears to have a direct, positive correlation with the impact ratings in Objectives # 4, 5, 6 in **Level II**, and Objective # 8 in **Level III**. We believe that this cross-level correlation is an early indication that the intentional design of the workforce development intervention is creating a synergy that is beginning to positively impact business operations, and perhaps business outcomes.
- ✚ The Ratings for Objectives # 10, 11 in Level IV are the least significant at this point in the life of the project. Sectoral change is incremental, and the significance and impact of the programmatic intervention at Level IV will take time to mature. We are satisfied with this impact at this point, and will be interested in its development as the evaluative process continues.
- ✚ The Rating for Objective # 12 in Level IV (2.80), although not yet significant, does indicate that the intervention is beginning to impact a critical factor in measuring true sectoral change. We will be monitoring this objective carefully in subsequent reports.

VII. Observations and Challenge Going Forward

1. The REB believes that the Business Impact measurement instrument used to evaluate this workforce development intervention is appropriate and will continue to use the instrument in future data collection and reporting.
2. The workforce development intervention is clearly aligned within industry's needs, and the initial data indicates that the intentional intervention is establishing a positive platform from which to strengthen and expand the intervention.
3. The REB will be carefully monitoring the anticipated change in impact at Level IV to determine the depth and breadth of change that the intervention will create going forward.
4. The REB will be modifying its data collection strategy to increase the number of companies who respond to the data collection process.

VIII. Conclusion

The Interim Report of the Precision Manufacturing Training Project (PMTP) has provided some important and significant baseline data on the impact of this intentional workforce development intervention. The analysis of the findings is intended to provide data and information that will inform our collaborative decision making, allow for mid-course corrections, if required, and insure that the project attains its goals.

We will continue to use the project as a unique opportunity to develop strategies, interventions and programs that will position the precision manufacturing industry in the Pioneer Valley Region to strengthen their present business, expand into new and emerging markets, retain the existing workforce, generate job growth, and be a significant contributor to the economic development of the Region and the Commonwealth. We look forward to presenting additional data to Commonwealth Corporation.

November 2008

FREE PRECISION MACHINING COURSES

The Regional Employment Board of Hampden County Inc. (REB) is sponsoring industry specific skills enhancement courses for incumbent precision machining employees in the Pioneer Valley region. These courses are being offered at **no cost to you**, and are customized to enhance your work skills and assist you in your responsibilities at your company. A **Technical Certificate of Completion** will be awarded to each employee who successfully completes the courses. The Western Massachusetts Chapter of the National Tooling and Machining Association (WMNTMA), and your employer support these course offerings, and encourage your participation.

*******Please note special course offering for Second Shift employees, and three (3) credit course at Springfield Technical Community College.*******

| .No. | Course Title | Location | Description of Course | Schedule |
|------|---|---------------------|--|--|
| 1 | Interpreting Engineering Drawings I | Westfield Voc.Tech | Basic principles of interpreting engineering drawings and blueprints including symbols and standards, terminology, process notes, and other related technical information. | <u>WEDNESDAY</u> Sept. 26-Nov.14 |
| 2 | Precision Machining Mathematics I | Westfield Voc.Tech | Fundamentals and application of algebra, geometry and trigonometry related to manufacturing technologies. Calculations are performed using a scientific calculator. | <u>WEDNESDAY</u> Sept. 26-Nov.14 |
| 3 | Geometric Dimensioning & Tolerancing I | Westfield Voc.Tech | Basic principles of interpreting and inspection setups of Geometric Dimensioning and Tolerancing symbols and their purpose on engineering drawings and blueprints. Pre-Requisite: Ability to Interpret Engineering Drawings | <u>TUESDAY</u> Sept. 25- Nov.13 |
| 4 | Computer Numerical Control Programming I | Westfield Voc.Tech | Basic and intermediate applications in manually creating various CNC programs utilizing a Fanuc-based program model. | <u>TUESDAY</u> Sept. 25- Nov.13 |
| 5 | Geometric Dimensioning & Tolerancing I | Pathfinder Regional | Basic principles of interpreting and inspection setups of Geometric Dimensioning and Tolerancing symbols and their purpose on engineering drawings and blueprints. Pre-Requisite: Ability to Interpret Engineering Drawings | <u>THURSDAY</u> Sept. 27- Nov.15 |
| 6 | Computer Numerical Control Programming I | Pathfinder Regional | Basic and intermediate applications in manually creating various CNC programs utilizing a Fanuc-based program model for a CNC vertical machining center. | <u>MONDAY</u> Sept. 24- Nov.26 |
| 7 | Computer Numerical Control Programming II | Pathfinder Regional | Use programming skills from CNC Programming I to create Intermediate to Advanced CNC programs as they relate to a CNC Turning Center. Introduction to CAM (Computer Aided Manufacturing) will be presented. Pre-Requisite: Computer Numerical Control Programming I | <u>TUESDAY</u> Sept. 25- Nov.13 |
| 8 | Interpreting Engineering Drawings I | Chicopee Comp. | Basic principles of interpreting engineering drawings and blueprints including symbols and standards, terminology, process notes, and other related technical information. | <u>TUESDAY</u> Sept. 25- Nov.13 |
| 9 | Interpreting Engineering Drawings II | Chicopee Comp. | Interpretation of advanced mechanical engineering drawings with a concentration in specialized parts and prints. Students will sketch and draw mechanical components using two-dimensional and three dimensional CAD software. | <u>WEDNESDAY</u> Sept. 26-Nov.14 |
| 10 | Computer Numerical Control Programming I | Chicopee Comp. | Basic and intermediate applications in manually creating various CNC programs utilizing a Fanuc-based program model. | <u>WEDNESDAY</u> Sept. 26-Nov.14 |
| 11 | Geometric Dimensioning & Tolerancing I | Dean Technical | Basic principles of interpreting and inspection setups of Geometric Dimensioning and Tolerancing symbols and their purpose on engineering drawings and blueprints. Pre-Requisite: Ability to Interpret Engineering Drawings | <u>WEDNESDAY</u> Sept. 26-Nov.14 |
| 12 | Master CAM Programming | Dean Technical | Basic application and use of Master CAM to create drawings and blueprints. | <u>TUESDAY</u> Sept. 25- Nov.13 |
| 13 | Solid Works | Smith Vocational | Creation of part models, blueprints and assemblies using Solidworks Software. | <u>MONDAY</u> Sept. 24-Nov. 26 |
| 14 | Geometric Dimensioning & Tolerancing I | Smith & Wesson | Basic principles of interpreting and inspection setups of Geometric Dimensioning and Tolerancing symbols and their purpose on engineering drawings and blueprints. Pre-Requisite: Ability to Interpret Engineering Drawings | <u>THURSDAY</u> Sept. 27- Nov.15 |
| 15 | CNC Machine Set-Up & Operation | Smith & Wesson | Learn basic hands-on set-up and operation, along with simple G and M codes, for a variety of Computerized Numerical Control (CNC) machines/controls | <u>WEDNESDAY</u> Sept. 26-Nov.14 4:00PM-6:30PM |

| .No. | Course Title | Location | Description of Course | Schedule |
|--|---|-----------------------------------|---|---|
| <u>SPECIAL COURSE OFFERINGS</u> | | | | |
| 16 | CNC Machine Set-Up & Operation | Smith & Wesson | ***** Second Shift Employees ***** Learn basic hands-on set-up and operation, along with simple G and M codes, for a variety of Computerized Numerical Control (CNC) machines/controls. | <u>TUESDAY</u> Sept. 25- Nov.13 11:30 AM-2:00 PM |
| 17 | Metrology and Geometric Dimensioning & Tolerancing (MECH 226) | Springfield Technical Comm. Coll. | <u>3 Credit College Course- 14 Weeks</u> Introduction to the principles and applications involved in the proper use of Geometric Dimensioning and Tolerancing as outlined in ASME Y14.5 (1994). The second part of the course will be the principles and practices of Metrology, and an understanding of the importance of proper measurement as it applies to today's world of precision manufacturing. | <u>MONDAY</u> Sept. 10-Dec.10 |

Schedule Information

All courses, with the exception of the course at STCC, are conducted for 8 weeks. Classes are held from 5:30 PM-8:00PM., with the exception of the CNC Machine Set-Up & Operation courses being conducted at Smith & Wesson for First and Second Shift employees. Please make note of the day and time that these two courses are being conducted.

You will be notified via regular mail of the status of your Registration for these courses by April 30, 2007. Please retain the top section of this flyer for future use.

Registration Form

----- Cut Here and Return -----

You may register for more than one course. Please look closely at the course schedule before selecting the course(s).

Please circle the course number(s) that you are interested in attending: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

Please complete the information below and return this Registration Form by April 17, 2007 to David M. Cruise, REB, 1441 Main Street, Springfield, MA 01103.

PLEASE PRINT

Name: _____ Company: _____

Home Address: _____

Home Telephone: _____ E-Mail: _____

REB USE ONLY

Course: _____ Course No. _____ Accepted: _____ Wait List: _____

FREE PRECISION MACHINING COURSES

The Regional Employment Board of Hampden County Inc. (REB) is sponsoring industry specific skills enhancement courses for incumbent precision machining employees in the Pioneer Valley Region. These courses are being offered at **no cost to you**, and are customized to enhance your work skills and assist you in your responsibilities at your company. A **Technical Certificate of Completion** will be awarded to each employee who successfully completes the courses. The Western Massachusetts Chapter of the National Tooling and Machining Association (WMNTMA), and your employer support these course offerings, and encourage your participation.

*******Please note special course offering for Second Shift employees, and three (3) credit course at Springfield Technical Community College.*******

| .No. | Course Title | Location | Description of Course | Schedule |
|------|--|---|---|-------------------------------------|
| 1 | Interpreting Engineering Drawings I | Westfield Voc.Tech | Basic principles of interpreting engineering drawings and blueprints including symbols and standards, terminology, process notes, and other related technical information. | <u>WEDNESDAY</u> Jan.16-Mar. 12 |
| 2 | Proto TRAK Machining Concepts | Westfield Voc.Tech | Fundamentals of a 2 axis Proto TRAK control (EMX 2 axis control). The navigation of the control screens, using mathematics help options, programming part contour and Proto TRAK machining concepts will be presented. | <u>WEDNESDAY</u> Jan.16-Mar. 12 |
| 3 | Geometric Dimensioning & Tolerancing I | Westfield Voc.Tech | Basic principles of interpreting and inspection setups of Geometric Dimensioning and Tolerancing symbols and their purpose on engineering drawings and blueprints. Pre-Requisite: Ability to Interpret Engineering Drawings | <u>TUESDAY</u> Jan.15-Mar. 11 |
| 4 | Computer Numerical Control Programming I | Westfield Voc.Tech | Basic and intermediate applications in manually creating various CNC programs utilizing a Fanuc-based program model. | <u>TUESDAY</u> Jan.15-Mar. 11 |
| 5 | CNC Machine Set-Up & Operation | Pathfinder Regional | Learn basic hands-on set-up and operation, along with simple G and M codes, for a variety of Computerized Numerical Control (CNC) machines/controls. | <u>WEDNESDAY</u> Jan.16-Mar. 12 |
| 6 | Computer Numerical Control Programming I | Pathfinder Regional | Basic and intermediate applications in manually creating various CNC programs utilizing a Fanuc-based program model for a CNC vertical machining center. | <u>MONDAY</u> Jan. 14-Mar. 17 |
| 7 | Interpreting Engineering Drawings I | Chicopee Comp. | Basic principles of interpreting engineering drawings and blueprints including symbols and standards, terminology, process notes, and other related technical information. | <u>TUESDAY</u> |
| 8 | Interpreting Engineering Drawings II | Chicopee Comp. | Interpretation of advanced mechanical engineering drawings with a concentration in specialized parts and prints. Students will sketch and draw mechanical components using two-dimensional and three dimensional CAD software. | |
| 9 | Computer Numerical Control Programming I | Chicopee Comp. | Programming conversational work on Proto TRAK milling machine and the Initiative programming for the HASS TL-1 lathe. Time permitting, G-Code programming for the HASS SL-20 lathe and VF-1 Machining Center will be presented. | <u>WEDNESDAY</u> Jan.16-Mar. 12 |
| 10 | CNC Machine Set-Up & Operation | Chicopee Comp. | Learn basic hands-on set-up and operation on Computerized Numerical Control (CNC) machines/controls focusing on the Proto TRAK milling machine and HASS TL-1 lathe. | <u>THURSDAY</u> Jan. 17-Mar. 13 |
| 11 | Master CAM Programming | Dean Technical | Basic application and use of Master CAM to create drawings and blueprints. | <u>TUESDAY</u> Jan.15-Mar. 11 |
| 12 | Solid Works | Smith Vocational | Creation of part models, blueprints and assemblies using Solidworks Software. | <u>MONDAY</u> Jan. 14-Mar. 17 |
| 13 | Interpreting Engineering Drawings I | Franklin County Technical School | Basic principles of interpreting engineering drawings and blueprints including symbols and standards, terminology, process notes, and other related technical information. | <u>MONDAY</u> Jan. 14-Mar. 17 |
| 14 | Interpreting Engineering Drawings I | Mass Career Dev't. Institute. (MCIDI) - Springfield | Basic principles of interpreting engineering drawings and blueprints including symbols and standards, terminology, process notes, and other related technical information. | <u>TUESDAY</u> Jan.15-Mar. 11 |
| 15 | CNC Machine Set-Up & Operation | Smith & Wesson | Learn basic hands-on set-up and operation, along with simple G and M codes, for a variety of Computerized Numerical Control (CNC) machines/controls | <u>THURS/WED</u> Jan. 17-Mar. 12 |

| .No. | Course Title | Location | Description of Course | Schedule |
|--|--|--------------------------------------|--|---|
| <u>SPECIAL COURSE OFFERINGS</u> | | | | |
| 16 | CNC Machine Set-Up & Operation | Smith & Wesson | <p style="text-align: center;">***** Second Shift Employees *****</p> <p>Learn basic hands-on set-up and operation, along with simple G and M codes, for a variety of Computerized Numerical Control (CNC) machines/controls.</p> | <p style="text-align: center;"><u>TUESDAY</u> Jan.15-Mar. 11 <u>11:30AM-2:00 PM</u></p> |
| 17 | Fundamentals of Computerized Numerical Control (CNC) (MECH 150) | Springfield Technical Comm. College. | <p style="text-align: center;"><u>3 Credit College Course- 14 Weeks</u></p> <p>Hands-on set-u p and operation of CNC mill and lathe. Writing simple programs to perform contouring and hole operations for milling machine centers, and programs for lathe operations including turning, facing and treading. Understanding of typical G and M Codes will be covered. Pre-Requisite: Completion of High School or College Algebra</p> | <p style="text-align: center;"><u>TUESDAY</u> Jan.22-May 6 <u>5:30 PM-9:15 PM</u></p> |

Schedule Information

All courses, with the exception of the course at STCC, are conducted for 8 weeks. Classes are held from 5:30 PM-8:00PM., with the exception of the CNC Machine Set-Up & Operation course at Smith & Wesson for Second Shift employees which is being held from 11:30AM-2:00PM, and the course at STCC which is being held from 5:30PM-9:15 PM. Also the CNC Machine Set-Up & Operation course at Smith & Wesson for FIRST Shift employees will be held on alternating Thursday and Wednesday nights. Please make note of the day and time that these three courses are being conducted.

Classes will NOT be conducted the week of February 18-22, school vacation week. The course at STCC will not be conducted on March 18, 2008.

You will be notified via regular mail of the status of your Registration for these courses by January 4, 2008. Please retain the top section of this flyer for future use.

Registration Form

----- Cut Here and Return -----

You may register for more than one course. Please look closely at the course schedule before selecting the course(s).

Please circle the course number(s) that you are interested in attending: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

Please complete the information below and return this Registration Form by DECEMBER 17, 2007 to David M. Cruise, REB, 1441 Main Street, Springfield, MA 01103.

PLEASE PRINT

Name: _____ Company: _____

Home Address: _____

Home Telephone: _____ E-Mail: _____

REB USE ONLY

Course: _____ Course No. _____ Accepted: _____ Wait List: _____

Precision Manufacturing Training Project (PMTTP)

Business Impacts

Interim Report

Participating Companies

- ✚ Millitech**
- ✚ Berkshire Industries Inc.**
- ✚ Peerless Precision Inc.**
- ✚ Precision Billet Design**
- ✚ Paragon Manufacturing**
- ✚ Hardigg Industries**
- ✚ Smith and Wesson**
- ✚ Hoppe Tool Inc.**
- ✚ Tell Tool Inc.**
- ✚ WGI Inc.**
- ✚ B&E Tool Group, LLC**
- ✚ Techni-Products**
- ✚ Lenox**

Precision Manufacturing Training Project (PMTTP)

Incumbent Employees Technology Clusters Skills Enhancement Courses

Measuring Business Impact: Developing a Plan

Company: _____ Contact Person: _____ Employees: _____

Using a **Business Impact Rating** from 1-4 (1= Significant Impact to 4 = Minimum Impact), please rate the impact on your employees overall job performance as a result of their voluntary participation in the fall 2007 and/or winter 2008 skills enhancement courses funded by the WCTF, and sponsored by the REB-WMNTMA, and the value-added to your overall manufacturing and business operations of this workforce development initiative.

Please select **one or more** of the following **Sources** that serve as the basis for your rating for **each** Business Impact Objective. **1. = Daily Production Sheet (DP)** **2. =Weekly Production Report (WP)** **3. =Supervisors Report (SR)** **4. =Supervisors Comments (SC)** **5. =% Increase (Please Indicate %)**. Please use separate sheet to **Comment** on **Numbers 10-12**.

| Business Impact Objective | Business Impact Rating | | | | Sources | | | | Degree of Impact |
|---|------------------------|--------|---|------|---------|----|----|----|------------------|
| | Sig. | ←————→ | | Min. | DP | WP | SR | SC | |
| 1. Increase Overall Employee Safety Awareness | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | ___% Increase |
| 2. Increase Overall Employee Productivity and Efficiency | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | ___% Increase |
| 3. Increase Employee Stability (Retention, Turnover) | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | ___% Increase |
| 4. Improve Employee Attitude, Motivation and Work Habits | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | ___% Increase |
| 5. Increase Communication between Co-Workers | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | ___% Increase |
| 6. Increase Communication with Front Line Supervisors | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | ___% Increase |
| 7. Improve Equipment and Controls Set-Up and Operating Time | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | ___% Increase |
| 8. Increase Employee Ability to Complete More Complex Machining Tasks | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | ___% Increase |
| 9. Reduce Over-the-Shoulder Training Time | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | ___% Reduction |
| 10. Increase Managements Ability to Quote on New Work | 1 | 2 | 3 | 4 | Comment | | | | Comment |
| 11. Increase Managements Ability to Perform New Value-Added Work | 1 | 2 | 3 | 4 | Comment | | | | Comment |
| 12. Help to Improve the Company's Profit Margins | 1 | 2 | 3 | 4 | Comment | | | | Comment |
| 13. OTHER | 1 | 2 | 3 | 4 | | | | | |

2. Please describe any changes that have occurred in your manufacturing operations as a result of your employees' participation in this workforce development initiative.

3. Please identify any technical areas that would positively impact your manufacturing operations, that we should consider in developing future skills enhancement courses for your employees.
