2012 SkillsUSA Championships
CNC & Precision Machining Technology
Kansas City, Missouri       June 24—27

National Institute for Metalworking Skills®
CNC4you has the machine tool industry’s most telling library of videos, interactive tools, documentation, tips-and-tricks and SINUMERIK CNC training — and you have it right at your fingertips.

Don’t let complex G-code slow down your ability to meet the demands of the market. Machine shop owners and operators know that shopfloor productivity, and the performance of their machining centers, depend on the CNC that drives them. From milling and turning, to waterjet cutting and more, Siemens offers the precise range of CNCs, motors and drives, coupled with the nationwide support, parts and repair your business needs to succeed.

But don’t just take our word for it. Watch some of our customer testimonial videos and see for yourself.

answers for industry
Sandvik Coromant is a world leader in providing productive manufacturing solutions, including high performance metal cutting tools, engineering and business services, technical training, application centers and Productivity Improvement Programs. We are committed to investing in the success of our future employees and customers by supporting technical education programs such as the Precision Machining Technology and CNC Championships at SkillsUSA, coordinated by NIMS.

**Congratulations to all the participants and educators!**
SME congratulates all the student competitors and their advisors at SkillsUSA 2012. Your future success will rely on your hard work, tenacity and technical expertise, which you all have demonstrated during these competitions. SME recognizes how critically important you are to building a strong manufacturing economy, and we look forward to working with you in our industry for years to come.

800.733.4763 | sme.org
Chairman’s Message

Welcome to the 2012 SkillsUSA Machining & CNC Championships.

Congratulations to all of our contestants. Each of you is a champion and has earned the right to be here in Kansas City by being the best in your home state. All of your hard work and determination has paid off. We are proud and honored to have you with us.

Congratulations to the instructors, parents, and advisors of our contestants. We thank you for giving your time, talent, dedication, and leadership in developing these state gold medalists.

We thank our sponsors, donors, judges, and volunteers. This is one of the finest examples of volunteerism in the nation. Without your efforts, hosting a competition of this scale and magnitude would not be possible.

We are extremely grateful for the officials of SkillsUSA, whose untiring efforts allow us to be part of a national endeavor to promote technical careers for America’s youth. Their vision and dedication is one reason why this country has a bright future ahead.

Our nation is facing a skills shortage that is unprecedented in modern times. The quantity of skilled workers is decreasing due to many factors, including retirement. However, these are exciting times for talented young men and women entering the global marketplace in which the only constant is change itself. Our 2012 national contestants will find no lack of opportunities or challenges as they bring their skills to America’s workforce.

We salute you for being part of the answer to this dilemma. As champions, you are becoming accustomed to facing challenges and overcoming them. As champions, you are also becoming accustomed to the rewards and privileges that accompany hard work. We are committed to building and maintaining a competitive American workforce. We look forward to you joining us in that effort.

Good luck to each of you. Be proud of what you have accomplished to reach this point in the competition. We sure are.

Best regards,

Gregory Chambers
Chairman
Board of Directors
National Institute for Metalworking Skills, Inc.
Precision Machining Technology

Competition Itinerary 2012

Sunday, June 24, 2012
11:15 a.m. to 1:00 p.m.
Contestant & Instructor Tutorials
Metropolitan Community College:
Business & Technology Campus
1775 Universal Ave.,
Kansas City, MO 64120

1:00 p.m. to 2:00 p.m.
Contestant & Advisor Luncheon
Metropolitan Community College:
Business & Technology Campus
1775 Universal Ave.,
Kansas City, MO 64120

2:00 p.m. to 3:30 p.m.
Equipment Familiarization
Metropolitan Community College:
Business & Technology Campus
1775 Universal Ave.,
Kansas City, MO 64120

Monday, June 25, 2012
7:45 a.m. to 5:00 p.m.
Manual Machining Events Competition
Metropolitan Community College:
Business & Technology Campus
1775 Universal Ave.,
Kansas City, MO 64120

Tuesday, June 26, 2012
7:30 a.m. to 6:00 p.m.
PMT Contest Events
Bartle Hall Convention Center

6:00 p.m. to 8:00 p.m.
Help with Contest Teardown
Bartle Hall Convention Center

Wednesday, June 27, 2012
6:00 p.m. to 10:00 p.m.
SkillsUSA 2012 Awards Ceremony
Kemper Arena—Kansas City, MO

Contest Scoring Criteria

Precision Machining Technology Contest
Chair James A. Wall

Skill Description | Maximum Points
--- | ---
1. Manual Engine Lathe | 150
3. Process Control | 150
4. CNC Programming—Turning | 150
5. CNC Programming—Milling | 150
6. GD&T and Metalworking Theory Exam | 150
7. Oral Professional Development Assessment | 100

5% Penalty if resume is not submitted

Tie Breakers
1. SkillsUSA Professional Development Program Test
2. CNC Programming—Turning
3. CNC Programming—Milling

James A. Wall
Executive Director

Catherine Ross
Director of Accreditation

Kristie Doyle
Credentialing Specialist

Lee Rodrigues
Administrative Assistant
CNC Milling & CNC Turning
Competition Itinerary 2012

Sunday, June 24, 2012
11:00 a.m. to 1:00 p.m.
Contestant & Instructor Tutorials
CNC Turning Group
Bartle Hall Convention Center
11:15 a.m. to 1:00 p.m.
Contestant & Instructor Tutorials
CNC Milling Group
Metropolitan Community College: Business & Technology Campus
1775 Universal Ave.,
Kansas City, MO 64120
1:00 p.m. to 2:00 p.m.
Lunch—CNC Turning Group
Bartle Hall Convention Center
1:00 p.m. to 2:00 p.m.
Lunch—CNC Milling Group
Metropolitan Community College: Business & Technology Campus
1775 Universal Ave.,
Kansas City, MO 64120
2:00 p.m. to 5:00 p.m.
CNC Turning Programming Contest Events
Bartle Hall Convention Center
2:00 p.m. to 3:30 p.m.
CNC Milling Equipment Familiarization
Metropolitan Community College: Business & Technology Campus
1775 Universal Ave.,
Kansas City, MO 64120

Monday, June 25, 2012
8:00 a.m. to 5:00 p.m.
CNC Milling Competition
Bartle Hall Convention Center
8:00 a.m. to 5:00 p.m.
CNC Turning Competition
Bartle Hall Convention Center

Wednesday, June 27, 2012
6:00 p.m. to 10:00 p.m.
SkillsUSA 2012 Awards Ceremony
Kemper Arena—Kansas City, MO

Contest Scoring Criteria

CNC Milling and CNC Turning Contests
Chair James A. Wall

<table>
<thead>
<tr>
<th>Skill Description</th>
<th>Maximum Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CNC Programming Skills</td>
<td>400</td>
</tr>
<tr>
<td>2. Process Control</td>
<td>200</td>
</tr>
<tr>
<td>3. CNC Theory Exam</td>
<td>200</td>
</tr>
<tr>
<td>4. GD&amp;T Exam</td>
<td>100</td>
</tr>
<tr>
<td>5. Oral Professional Development Assessment</td>
<td>100</td>
</tr>
</tbody>
</table>

5% Penalty if resume is not submitted

Tie Breakers
1. SkillsUSA Professional Development Program Test
2. CNC Programming Skills
3. CNC Theory Exam
National Technical Committee

Julie Aitkens
Technical Manager
Honeywell, FM&T

Darrell Bryant
Operations Program Manager
Honeywell Aerospace

Gregory Chambers
Director of Corporate Compliance and Safety
Oberg Industries

George Crossland
President
Crossland Machinery Company

Edward Dobkins
President
Dobkins Drill Systems, Inc.

Doug Nelson
R&D Specialist
IRWIN Industrial Tool Company

Robert Page
Training and Productivity Center Manager
Sandvik Coromant Company

Scott Robinson
Leader Managers, Tech Services
The L.S. Starrett Company

Jerry Sage
International Trade Show Coordinator
Haas Automation, Inc.

Bob Skodzinsky
HTEC Program Director
Haas Automation HTEC Network

Chuck Tate
Training Specialist
Sandvik Coromant Company

James A. Wall
Executive Director
National Institute for Metalworking Skills, Inc. (NIMS)

Kenneth Wright
President
Keller North America

Congratulations & Good Luck to All CNC and PMT Contestants!

Boston Tooling & Machining Association, Inc.
The NTMA Boston Chapter
Phone/Fax: 978-373-8073
Email: info@bostontooling.org
http://www.bostontooling.org

"We are proud to support SkillsUSA"
BEGINNING AUTOCADE 2013 EXERCISE WORKBOOK  
Totally updated for the PC version of AutoCAD 2013 and 2013 LT including Autodesk Cloud, Online Collaboration, Command Line Options, Polyline Reverse Direction, and Layout Tab and Panels.

CNC PROGRAMMING HANDBOOK, THIRD EDITION  
Used in hundreds of educational institutions around the world as the primary text for CNC courses, and used daily by many in-field CNC programmers and machine operators, this book literally defines CNC programming.

LEARNING MASTERCAM X5 MILL 2D STEP BY STEP  
Two enclosed CDs contain Mastercam X5 Demo and also include examples and exercises from the text for student practice.

SOLIDWORKS FOR TECHNOLOGY AND ENGINEERING, SECOND EDITION  
This unique text presents a thorough introduction to SolidWorks for students with little or no prior experience and includes two new chapters on Sheet Metal Parts and Using Links and Equations.
Proudly sponsors the 2012 National Precision Machining Technology Competition.

Best of luck to all contestants!

YOU ARE THE FUTURE
Gene Haas Foundation Incentivizes Future Machinists
with SkillsUSA Machining Championship Awards

Gene Haas Foundation, the philanthropic arm of Haas Automation, Inc., has invested in the development of a new SkillsUSA Machining Championship Award Program.

Shortage of skilled workers? The Gene Haas Foundation, Oxnard, Calif. is taking a long-term view, investing in the future, and supporting students with a $27,000 grant to the SME Education Foundation for the development of a new SkillsUSA Machining Championship Award Program.

Peter Zierhut, representative, Gene Haas Foundation says, “Our industry is looking for employees with specific skill sets, and very often a rare combination of skill sets. Students competing at the SkillsUSA Championship this summer will be using our advanced manufacturing equipment, be monitored and judged by engineers, learn from their peers, and meet future employers. The industry needs to spend more time directing young people while they’re still in school where we can make a difference.”

Gold Medal winners from SkillsUSA state competitions – high school and post-secondary, will compete against each other and the clock in creating manufacturing parts using these skills: manual turning, manual lathe, CNC programming – turning, and CNC Programming – milling.

Haas Automation and Sandvik Coromant, both technical and hardware sponsors and the National Institute for Metalworking Skills (NIMS) are sponsoring the Precision Machining Technology, CNC Milling and CNC Turning Contests. Thirty-six Haas CNC Simulators will be used for the three CNC contests, along with a Haas Mini Mill and Haas ST 10 Lathe.

The Gene Haas SkillsUSA Machining Championship Award certificates will be presented to 18 national medal winners at the Awards Ceremony on June 27 in these amounts:

Gold: $2,000    Silver: $1,500    Bronze: $1,000

The 2012 SkillsUSA Machining Championship Award program will be administered by the SME Education Foundation. Winning medalists will receive a designated amount each year to support continued learning by submitting their application and award certificate to the SME Education Foundation. The Foundation will then send designated award funding directly to the medalists’ respective schools.
### Monday, June 25 — Metropolitan Community College Business & Technology Campus

<table>
<thead>
<tr>
<th>Time</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
<th>Group D</th>
<th>Group E</th>
<th>Group F</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 - 9:10 a.m.</td>
<td>Lathe</td>
<td>Mill</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:15 - 10:25 a.m.</td>
<td>Mill</td>
<td>Lathe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30 - 11:40 a.m.</td>
<td></td>
<td></td>
<td>Lathe</td>
<td>Mill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:40 - 12:10 p.m.</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
</tr>
<tr>
<td>12:10 - 1:20 p.m.</td>
<td></td>
<td>Mill</td>
<td></td>
<td>Lathe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1:25 - 2:35 p.m.</td>
<td></td>
<td>Mill</td>
<td></td>
<td>Lathe</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:40 - 3:50 p.m.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mill</td>
<td></td>
</tr>
<tr>
<td>3:55 - 5:05 p.m.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lathe</td>
</tr>
</tbody>
</table>

Notes: No more than 14 contestants are assigned to each group (A through F). All competition sections will be seventy minutes and a thirty minute lunch break will occur at 11:40 a.m.

Monday’s contest will begin at 8:00 a.m. sharp and finish by 5:05 p.m. Buses will be available at Bartle Hall throughout the day to transport contestants and advisors to the Metropolitan Community College Business & Technology Campus. Those in Group A and Group B should plan to board the early bus to arrive at the community college in plenty of time for the 8:00 a.m. start.

### Tuesday, June 26 — Bartle Hall

<table>
<thead>
<tr>
<th>Time</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
<th>Group D</th>
<th>Group E</th>
<th>Group F</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00 - 9:20 a.m.</td>
<td>CNC Turning</td>
<td>Process Control</td>
<td>Related Theory Exam</td>
<td>CNC Milling</td>
<td>Focus Group</td>
<td>GD&amp;T Exam</td>
</tr>
<tr>
<td>9:20 - 10:40 a.m.</td>
<td>Process Control</td>
<td>Related Theory Exam</td>
<td>CNC Milling</td>
<td>Focus Group</td>
<td>GD&amp;T Exam</td>
<td>CNC Turning</td>
</tr>
<tr>
<td>10:40 - 10:50 a.m.</td>
<td>Break</td>
<td>Break</td>
<td>Break</td>
<td>Break</td>
<td>Break</td>
<td>Break</td>
</tr>
<tr>
<td>10:50 - 12:10 p.m.</td>
<td>Related Theory Exam</td>
<td>CNC Milling</td>
<td>Focus Group</td>
<td>GD&amp;T Exam</td>
<td>CNC Turning</td>
<td>Process Control</td>
</tr>
<tr>
<td>12:10 - 12:40 p.m.</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
</tr>
<tr>
<td>12:40 - 2:00 p.m.</td>
<td>CNC Milling</td>
<td>Focus Group</td>
<td>GD&amp;T Exam</td>
<td>CNC Turning</td>
<td>Process Control</td>
<td>Related Theory Exam</td>
</tr>
<tr>
<td>2:00 - 2:10 p.m.</td>
<td>Break</td>
<td>Break</td>
<td>Break</td>
<td>Break</td>
<td>Break</td>
<td>Break</td>
</tr>
<tr>
<td>2:10 - 3:30 p.m.</td>
<td>Focus Group</td>
<td>GD&amp;T Exam</td>
<td>CNC Turning</td>
<td>Process Control</td>
<td>Related Theory Exam</td>
<td>CNC Milling</td>
</tr>
<tr>
<td>3:30 - 4:50 p.m.</td>
<td>GD&amp;T Exam</td>
<td>CNC Turning</td>
<td>Process Control</td>
<td>Related Theory Exam</td>
<td>CNC Milling</td>
<td>Focus Group</td>
</tr>
</tbody>
</table>

Notes: No more than 14 contestants are assigned to each group (A through F). Tuesday’s contest will begin at 8:00 a.m. sharp and finish by 4:50 p.m. All competition sections will be one hour and twenty minutes. Two 10-minute rest periods will occur, as well as a lunch break from 12:10 — 12:40p.m.
## CNC Milling & CNC Turning

### Technical Contest Schedule

#### Sunday, June 24—Bartle Hall

<table>
<thead>
<tr>
<th>Time</th>
<th>CNC Turning Group A</th>
<th>CNC Turning Group B</th>
<th>CNC Turning Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00 - 5:00 p.m.</td>
<td>Programming</td>
<td>Programming</td>
<td>Programming</td>
</tr>
</tbody>
</table>

Notes: No more than 14 contestants are assigned to each CNC Turning Group (A through C). All groups will be given three hours to complete the programming event at Bartle Hall.

Sunday’s contest will begin at 2:00 p.m. sharp and finish by 5:00 p.m.

#### Monday, June 25—Bartle Hall

<table>
<thead>
<tr>
<th>Time</th>
<th>CNC Milling Group A</th>
<th>CNC Milling Group B</th>
<th>CNC Milling Group C</th>
<th>CNC Turning Group A</th>
<th>CNC Turning Group B</th>
<th>CNC Turning Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:10 - 9:30 a.m.</td>
<td>Programming</td>
<td>Programming</td>
<td>GD&amp;T Exam</td>
<td>Process Control</td>
<td>Related Theory Exam</td>
<td>GD&amp;T Exam</td>
</tr>
<tr>
<td>9:35 - 10:55 a.m.</td>
<td>Programming</td>
<td>Programming</td>
<td>Process Control</td>
<td>Related Theory Exam</td>
<td>GD&amp;T Exam</td>
<td></td>
</tr>
<tr>
<td>11:00 - 12:20 p.m.</td>
<td>Programming</td>
<td>Programming</td>
<td>Related Theory Exam</td>
<td>GD&amp;T Exam</td>
<td>Process Control</td>
<td></td>
</tr>
<tr>
<td>12:20 - 12:50 p.m.</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
<td>Lunch</td>
</tr>
<tr>
<td>12:50 - 2:10 p.m.</td>
<td>Process Control</td>
<td>GD&amp;T Exam</td>
<td>Programming</td>
<td></td>
<td>Related Theory Exam</td>
<td></td>
</tr>
<tr>
<td>2:15 - 3:35 p.m.</td>
<td>Related Theory Exam</td>
<td>Process Control</td>
<td>Programming</td>
<td></td>
<td>GD&amp;T Exam</td>
<td></td>
</tr>
<tr>
<td>3:40 - 5:00 p.m.</td>
<td>GD&amp;T Exam</td>
<td>Related Theory Exam</td>
<td>Programming</td>
<td></td>
<td>Process Control</td>
<td></td>
</tr>
</tbody>
</table>

Notes: No more than 14 contestants are assigned to each CNC Milling Group (A through C). No more than 14 contestants are assigned to each CNC Turning Group (A through C). Monday’s contest will begin at 8:10 a.m. sharp and finish by 5:00 p.m. All competition sections will be one hour and twenty minutes. A lunch break will occur from 12:20—12:50 p.m.
**CNC Programming—Milling**

Chris Bien  
*President*  
Immersive Engineering

Sal Martinez  
*Service Engineer*  
Haas Automation, Inc.

Jerry Sage  
*International Trade Show Coordinator*  
Haas Automation, Inc.

Ernie Simmons  
*Applications Engineer*  
Haas Automation, Inc.

**CNC Programming—Turning**

Patrick Sayn  
*Applications Engineer*  
Immersive Engineering

Daniel Scott (Team Leader)  
*Applications Engineer*  
Haas Automation, Inc.

Matt Silva  
*Master Apprentice/Machinist*  
Haas Automation, Inc.

Bob Skodzinsky  
*HTEC Program Director*  
Haas Automation, Inc.

**Manual Milling Machine Operation**

Edward Dobkins (Team Leader)  
*Owner*  
Dobkins Drill System, Inc.

Brian Lasker  
*Design Checker*  
R&D Leverage

**CNC Programming—Turning**

Patrick Sayn  
*Applications Engineer*  
Immersive Engineering

Daniel Scott (Team Leader)  
*Applications Engineer*  
Haas Automation, Inc.

Matt Silva  
*Master Apprentice/Machinist*  
Haas Automation, Inc.

Bob Skodzinsky  
*HTEC Program Director*  
Haas Automation, Inc.

**Manual Milling Machine Operation**

Edward Dobkins (Team Leader)  
*Owner*  
Dobkins Drill System, Inc.

Brian Lasker  
*Design Checker*  
R&D Leverage

**Manual Engine Lathe Operation**

Travis Crossland (Team Leader)  
*Vice President*  
Crossland Machinery

Kenneth Dwyer  
*President*  
Neosho Industrial Supply, Inc.

Jason Falkner  
*Apprentice Supervisor*  
Oberg Industries, Inc.

David Howard  
*Vice President*  
Howard Machine

Jim Martin  
*Value Stream Manager*  
R&D Leverage

Anne Piccinini  
*Toolmaker*  
R&D Leverage

**Process Control & Precision Measurement**

David Brumfield  
*Territorial Sales*  
The L.S. Starrett Company

Travis Crossland  
*President*  
Crossland Machinery

**Manual Engine Lathe Operation**

Travis Crossland (Team Leader)  
*Vice President*  
Crossland Machinery

Kenneth Dwyer  
*President*  
Neosho Industrial Supply, Inc.

Jason Falkner  
*Apprentice Supervisor*  
Oberg Industries, Inc.

David Howard  
*Vice President*  
Howard Machine

Jim Martin  
*Value Stream Manager*  
R&D Leverage

Anne Piccinini  
*Toolmaker*  
R&D Leverage

**Process Control & Precision Measurement**

David Brumfield  
*Territorial Sales*  
The L.S. Starrett Company

Travis Crossland  
*President*  
Crossland Machinery

**Professional Development**

Julie Aitkens (Team Leader)  
*Technical Manager*  
Honeywell FM&T

Catherine Boltz  
*Senior Materials Manager*  
Honeywell FM&T

Chris Boucher  
*Engineer II*  
Honeywell FM&T

Elizabeth Fossey  
*Technical Manager*  
Honeywell FM&T

Jack McGrath  
*Engineer Principal Mechanical*  
Honeywell FM&T

Tony Nguyen  
*Engineer*  
Honeywell FM&T
## Overall Team Leaders

- **Gregory Chambers**  
  *Chairman*  
  NIMS Board of Directors

- **James A. Wall**  
  *Executive Director*  
  NIMS

## Cutting Tool Coordinators

- **David Brendel**  
  *Productivity Engineer*  
  Sandvik Coromant Company

- **Chuck Tate**  
  *Productivity Engineer*  
  Sandvik Coromant Company

## Machine Setup & Technical Support

- **George Crossland**  
  *President*  
  Crossland Machinery Company

- **Travis Crossland**  
  *Vice President*  
  Crossland Machinery Company

- **Jerry Sage**  
  *International Trade Show Coordinator*  
  Haas Automation, Inc.

## Score Keeper / Time Keeper

- **Gregory Chambers**  
  *Chairman*  
  NIMS Board of Directors

## National Education Team

- **Robert Swordy**  
  *Precision Machine Tech Teacher*  
  Hillyard Technical Center

## NIMS Staff

- **James A. Wall**  
  *Executive Director*  
  NIMS

- **Catherine Ross**  
  *Director of Accreditation*  
  NIMS

- **Kristie Doyle**  
  *Credentialing Specialist*  
  NIMS

- **Lee Rodrigues**  
  *Administrative Assistant*  
  NIMS

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## Southern Manufacturing Technologies

29 Years of Custom Precision Machining for the Aerospace, Aircraft, and Defense Industries

Congratulations to all participants in the 2012 Skills USA national precision machining technology competition!

[www.smt-tampa.com](http://www.smt-tampa.com)

5910 Johns Road  
Tampa, FL 33634

Phone: (813) 888-8151  
Fax: (813) 882-9961

Florida West Coast Chapter

[AS9100](#)  
[NTMA](#)
Providers of Funds for Contest Operation, Donated Materials, Machines & Equipment

Association for Manufacturing Technology (AMT)
Donations to Contest Operations

Boston Centerless
Raw Materials

Boston Tooling & Machining Association, Inc.
Donation to Contest Operations

Crossland Machinery Company, Inc.
Coordinator of Manpower, Equipment, Tooling, & Raw Materials

Delmar Cengage Learning
Medalist Prizes

Haas Automation, Inc.
CNC Turning Center, CNC Milling Center, CNC Simulators (44)

Honeywell FM&T
Donations to Contest Operations

Industrial Press
Books for Contestants & Advisors, Medalist Prizes

Metropolitan Community College
Competition Site & Use of Equipment

Precision Metalforming Association Education Foundation (PMA EF)
Donation to Contest Operations

Sandvik Coromant Company
Cutting Tools for Contestants

Siemens Industry, Inc.
Prizes for Contestants

Society of Manufacturing Engineers (SME)
Donation to Contest Operations

Southern Manufacturing Technologies
Donation to Contest Operations

The L.S. Starrett Company
Measuring Tools for Contestants

TCI Precision Metals
Raw Materials

Participating Companies & Organizations—Contact Information

Association for Manufacturing Technology (AMT)
McLean, VA
www.amtonline.org

Boston Centerless
Woburn, MA
www.bostoncenterless.com

Boston Tooling & Machining Association, Inc.
Haverhill, MA
www.bostontoooling.org

Crossland Machinery Company, Inc.
Kansas City, MO
www.crossland.com

Delmar Cengage Learning
Independence, KY
www.delmar.cengage.com

Dobkins Drill System, Inc.
Hutchison, KS
(620) 663-7989

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<td>Metalforming I</td>
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Precision Machining Technology

ISBN: 978-1-4354-4767-7
608 Pages, Hardcover, ©2012

Precision Machining Technology has been carefully written to align with the National Institute of Metalworking Skills (NIMS) Machining Level I Standard and to support achievement of NIMS credentials.

This new text carries NIMS’ exclusive endorsement and recommendation for use in NIMS-accredited Machining Level I Programs. It’s the ideal way to introduce students to the excitement of today’s machine tool industry and provide a solid understanding of fundamental and intermediate machining skills needed for successful 21st Century careers. With an emphasis on safety throughout and a fresh view of the role of modern machining in today’s economic environment, this book covers such topics as the basics of hand tools, job planning, benchwork, layout operations, drill press, milling and grinding processes, and CNC. The companion Workbook/Shop Manual contains helpful review material to ensure that readers have mastered key concepts and provides guided practice operations and projects on a wide range of machine tools that will enhance their NIMS credentialing success.

Features of this book

• Written in an easy to read and understand manner that meets the needs and capabilities of students with little or no technical background.

• Contains detailed four-color photographs and illustrations that show many step-by-step procedures, making the material easier for students to understand.

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