



**Community College Helps Drive  
Economic Engine  
CNC Bootcamp, A Case Study**



# CNC Boot Camp

Presented at

## 2007 ACCT Conference

September 26-29, 2007 • San Diego, CA



# CNC Boot Camp

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## **Ram Bhatia**

Board of Trustees  
Gateway Technical College  
Kenosha, WI

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Gateway Technical College  
Kenosha, WI

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Vice President, Workforce & Economic Development Division  
Gateway Technical College  
Kenosha, WI

# Case Study

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- **Gateway Technical College**
- **Local Demographics & Employer Needs**
- **Board Leadership**
- **Process & Curriculum**
- **Impact & Results**
- **Timeline & Lessons Learned**



# Kenosha County

## Kenosha Campus



## Center for Bioscience and Information Technology



## LakeView Advanced Technology Center



## Horizon Center For Transportation Technology





# Racine & Walworth Counties

## Burlington Campus Center



## Racine Campus



## Center For Advanced Technology and Innovation (CATI)



## Elkhorn Campus



# Local Demographics

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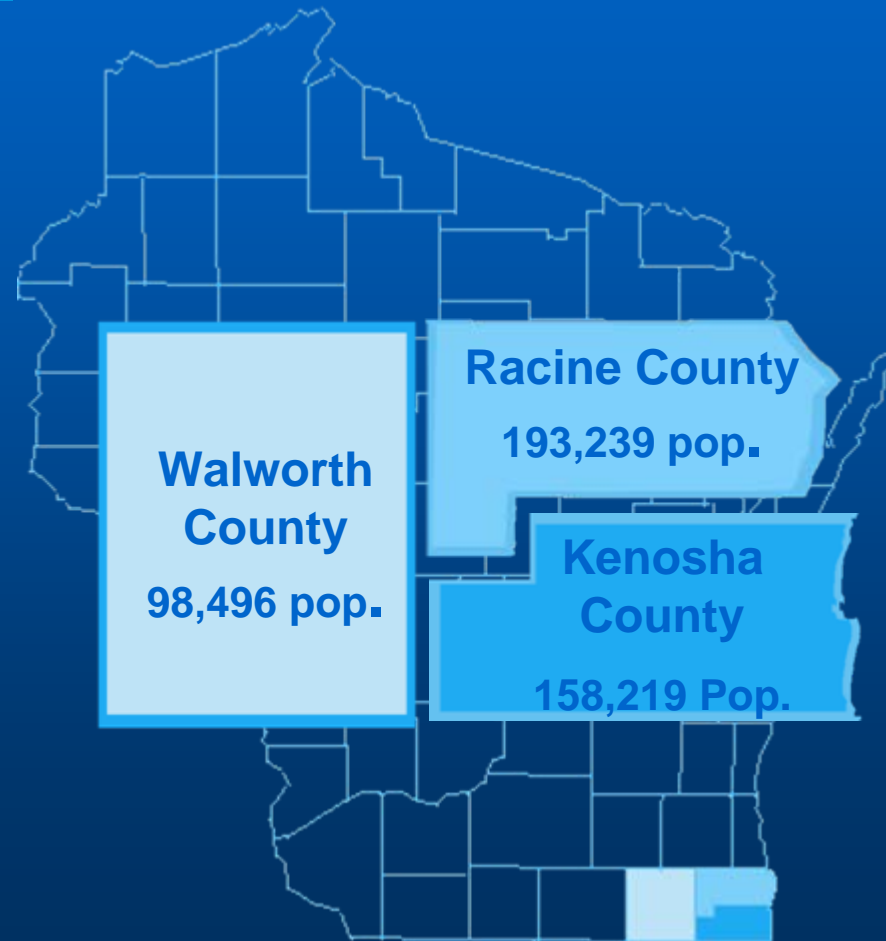


# Workforce Development Area



## Tri-County employer base

- Number of businesses: 9,899
- Number of employees: 226,392





# Employment in Manufacturing

For Workforce Development Area:

# Manufacturing employers: 758

# Employed in manufacturing: 38,346

A close-up photograph of a CNC machine's cutting tool, a metal drill bit, positioned above a metal workpiece. The tool is actively cutting, with a fine mist of coolant or chips visible at the point of contact. The background is a blurred industrial setting.

# CNC Employment

For Workforce Development Area:

**Number of CNC jobs: 630**

**Number of CNC jobs in  
surrounding counties: 2,480**

**Projected annual increase: 3%**



# Unemployment By County

For Workforce Development Area:

	Kenosha County	Racine County	Walworth County
2006	4,472	5,709	2,307
2005	4,672	5,885	2,318
2004	4,618	6,548	2,188
2003	5,089	7,629	2,464
2002	5,867	8,278	2,596

All figures are average monthly. Wisconsin DWD.

# Employer Needs

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Employers

*Skilled  
worker  
shortage*

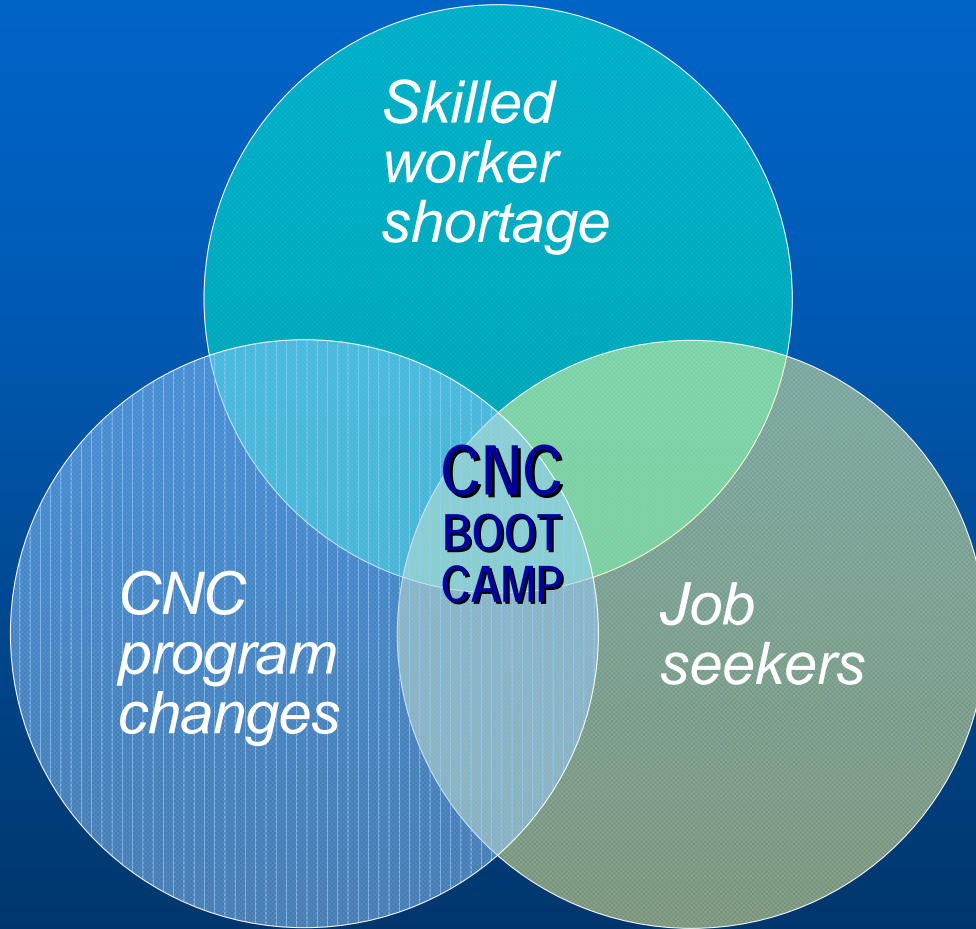
**CNC  
BOOT  
CAMP**

*CNC  
program  
changes*

*Job  
seekers*

Gateway

Workforce  
Development  
Centers



# Building a Strong Employee Base

Bill McReynolds

Racine County Executive

Racine, WI



# Promoting Economic Growth



# Needs Analysis

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- **Employer survey of current and future needs**
- **Evaluating Gateway's response to the needs**
- **Area demand for CNC operators**
- **Focus Group**
- **Demand-driven training**
- **Identifying skill set requirements**
- **Establishing competencies**

# Board Leadership

Pamela Zenner-Richards

Gateway Board of Trustees and Racine County

Workforce Development Services

Racine, WI



# Board Leadership

- In line with Gateway's mission of "going beyond the traditional" in class curriculum, the Board fully supported this administrative initiative to launch the proposed Bootcamp concept.
- The Board reviewed and approved this unconventional (teaching) methodology proposed by the administration.

# Boot Camp Synergy

Employer outreach

Recruitment

Pre-assessments

Case management

Job placement

Job retention



Curriculum development

Instruction

Skills standards testing

Focus group

Completion ceremony

# The Boot Camp Process

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# Workforce Development Center

## Promotion

Notification to caseworkers and staff

Postings at job centers

Gateway website

Press releases and articles

## Recruitment

Orientation

Personal Interviews

Self-screening

Adult skills tutoring

## Assessment

Basic skills

TABE

Math

Reading

NOCTI

Precision

Machining

## Funding

Veterans Benefits

Retraining dollars

Workforce Investment Act

Vocational

Rehabilitation

Community

Development

Block Grants

Federal Financial Aid

Employer-funded

Self-pay

# Workforce Development Center

## Promotion

Notification to  
Caseworkers  
and staff

Postings at  
job centers

Gateway  
website

Press releases  
and articles

## Recruitment

Orientation

Personal  
Interviews

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Adult skills  
tutoring

## Assessment

Basic skills  
TABE  
Math  
Reading

NOCTI  
Precision  
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## Funding

Veterans Benefits  
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Investment Act

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Community  
Development  
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Federal Financial Aid  
Employer-funded  
Self-pay

# Program Design

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# Employer-Driven Boot Camp Curriculum

CNC Intro/Support Equipment Basics

CNC Machine Tool Operation

CNC Offsets and Operations

Gauging/Inspection

Introduction to Manufacturing Excellence

Manufacturing Shop Safety

Blueprint Reading

Applied Mathematics



# Boot Camp Program Structure

- **14 weeks/5 days a week**
- **8 hours per day**
- **495 hour program**
- **Simulate work environment**
- **Student support – tutoring, coaching**
- **Job search, interview skills workshop**
- **One-on-one resume assistance**
- **Mock interviews**

# On the Job

Craig Maeschen

Instructor

Gateway Technical College



# Contingency Planning

Melissa Hennessy

Employment Consultant

Racine County Workforce Development Center

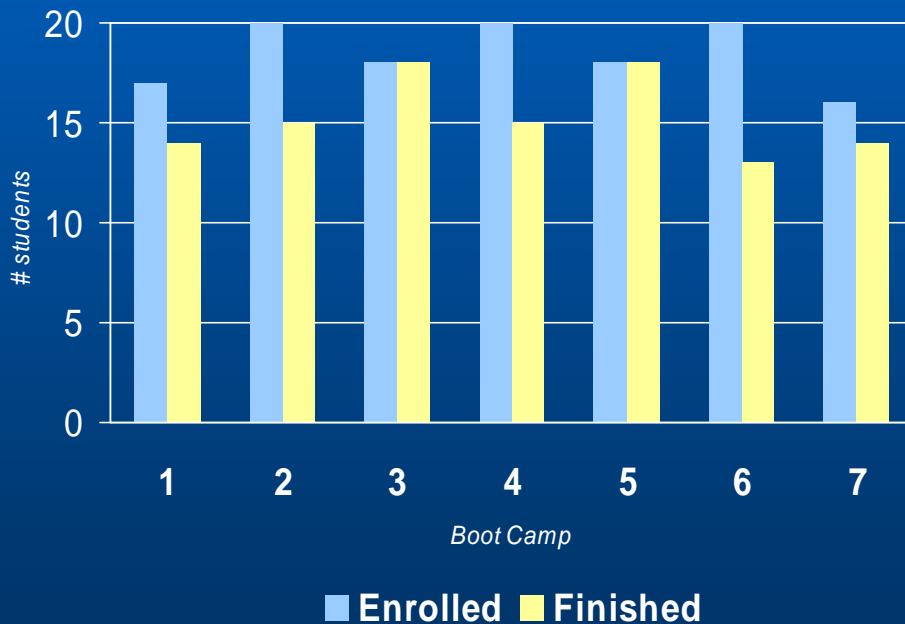


# Impact and Results

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# Boot Camp Enrollments

Students enrolled compared to students finishing Boot Camp:



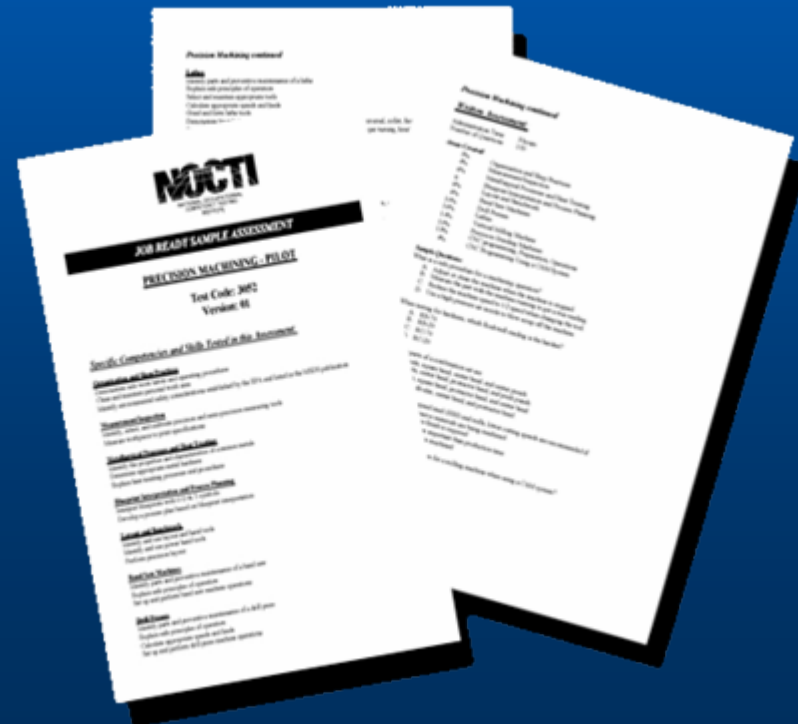
## Boot Camps 1 - 7

Total enrollments: 120

Total finishing program: 106

# Skills Validation

- National Occupational Competency Testing Institute (NOCTI) Precision Machining assessment
- NOCTI score on student's certificate



# Precision Machining Assessment

## *Competency categories assessed:*

Organization and  
Shop Practices

Measurement/Inspection

Metallurgical Processes  
and Heat Treating

Blueprint Interpretation  
and Process Planning

Layout and Bench work

Band Saw Machines

Drill Presses

Lathes

Vertical Milling  
Machines

Precision Grinding  
Machines

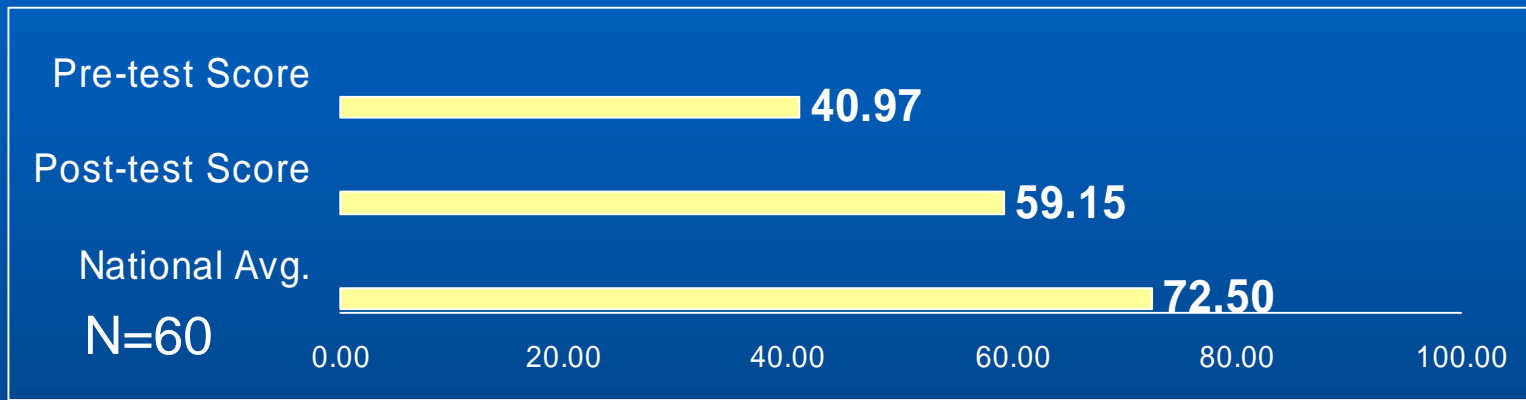
CNC Programming,  
Preparation, Operations

CNC Programming  
Using a CAM System

The NOCTI score report includes both a composite score and category scores for the assessment. Baseline skills and growth are measured in each of the categories listed above.

# Average NOCTI Scores

## Boot Camps 4-6



- Pre-test scores were 31.53 points below the national average
- Post-test scores were 13.35 points below the national average
- Participants increased their scores by 18.18 points or 50% after 14 weeks of CNC Boot Camp

# Surviving Boot Camp

John Gomez

Student



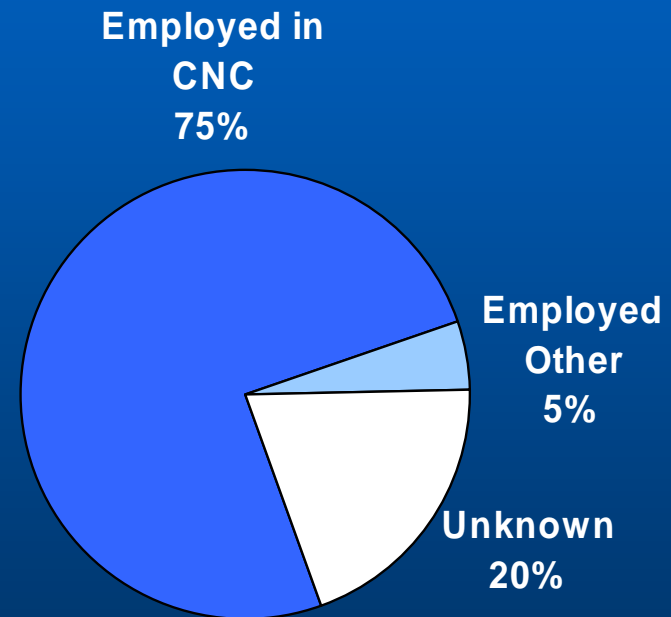
# Program Value to Employers

## Skills assessments:

- **Value of NOCTI as a standard for skills assessment**
- **Value of Manufacturing Skills Standards Council (MSSC) credentialing**
- **Value of Critical Core Manufacturing Skills (CCMS) skills certificate**

# Post-Boot Camp Employment

- Employment figures reflect those participants that respond to post-Boot Camp tracking
- Reasons for non-employment in CNC... layoffs, job change, etc.



For Boot camps 1-5

# Lessons Learned

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- **Responsiveness through accelerated timelines**
- **Need for status meetings**
- **Value of the Employment Consultant**
- **Necessity of student tutoring**
- **Equipment availability**
- **Need to work outside the existing program development structure**

# To be successful....

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- **Continue to explore new ways to partner with local business and stakeholders to help drive the economic engine.**
- **The trustees should challenge and support the administration to foster entrepreneurialism.**

# CNC Boot Camp Program Timeline



Program receives Sustainable Racine Award

Program receives state recognition at 2006 GWDC, Appleton, WI



## Boot Camp 2

May 2 - August 5, 2005  
15 students

## Boot Camp 4

March 6 - June 9, 2006  
15 students

## Boot Camp 6

Nov. 7 - Feb. 16, 2007  
13 students

Machine Tool Program Closed

2005

2006

2007

## Boot Camp 1

Jan. 3 - April 15, 2005  
14 students

## Boot Camp 3

Sept. 12 - Dec. 16, 2005  
18 students



## Boot Camp 5

Sept. 13 - Dec. 15, 2006  
18 students

## Boot Camp 7

May 7 - Aug. 10, 2007  
14 students

Program receives national recognition at NAWB Forum 2005 Conference Washington, DC



Boot Camp Program resumes in response to area employer demand

# Credentialing

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**Manufacturing Skills  
Standards Council  
(MSSC)  
Safety Assessment**

[www.msscusa.org](http://www.msscusa.org)

**Critical Core Manufacturing Skills (CCMS)**

[http://www.wtcsystem.edu/initiatives/advmfg/mfg\\_skills.htm](http://www.wtcsystem.edu/initiatives/advmfg/mfg_skills.htm)



# CNC Boot Camp

[www.gtc.edu/cncbootcamp](http://www.gtc.edu/cncbootcamp)

