



### Comprehensive online

learning solutions that integrates:

Training

- Assessment
- Certification

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# **Strategic Partners**

Support Haas Factory Outlet online training and website portals.



Haas Technical Education Center website and Partner Portal built on Immerse2learn.com software technology. Immerse2learn.com is a Haas Technical Education Partner.





MastercamU built on Immerse2learn.com Learning Content Management System (LCMS). Immerse2learn.com sells and supports MastercamU online learning and certification.

North American Train the Trainer Center using Haas Machine Tools. Contact: Doug Bowman

First Mill Level 1 training program delivered in 3/11 5 of 6 Students earned NIMS Level 1 Mill CNC setup and Operation.



### Over 200 Schools in 2010

- Hawkeye Community College
- Henry Ford Community College
- Southwestern Illinois College
- Kirkwood Community College
- Plymouth High School
- Calhoun Community College
- Oakland High Schools
- Indian Hills Community College
- Ottawa Intermediate Schools
- Orchard View Technical School
- Saint Clair RESA
- Lenoir Community College
- Randolph Community College
- Guilford Technical College
- BJ Skelton Career Center

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- Gateway Community College KY
- Western Iowa Technical Community College
- Michigan Department of Education
- Central Community College
- Pennsylvania College of Technology
- Tennessee Technology Centers
- Lone Star Colleges
- Hennepin Community College
- Dunwoody College
- Saint Paul Community
- Rowan Cabbarus Community College
- Focus Hope
- Vincennes University
- OC Technical College
- Purdue University



### **Primary Solution Components:**

- Virtual Training Environment (VTE)
- Skills Learning Modules
- Learning Content Management System (LCMS)



# Reality at Your PC- Anywhere!

"It is like being at the actual machine and control." -Instructor, Easely, SC

Real-world characteristics accurately mimic actual manufacturing systems:

- Geometric Models
- Motion
- Program Languages
- Control Logics
- Process Times
- Control Alarms
- Control Types: CNC, Robotic, etc.
- Material Removal





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# Virtual Training Environment (VTE)

True 3D simulation and emulated controls provide a real-world learning experience.



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immerse2leam.com	PROBE MATERIAL MATERIAL	SL20_STOCK1
	OPERATION . MEM	
ACTIVE PROGRAM L004000 N030 G54 G50 S3000; N040 G97 S950 M03; N050 G00 X2.1 Z.1; N060 G96 S750;	ACTIVE CODES GD RAPD NOTON GS FEED FER RENOLUTION GD CUTTER COMP CANCEL GG CVCLECANCEL GS4 WORKOFFSET #64	COOLANT NORMAL 1/1 0/1
N070 G01 20.0000 F.0035 ; <u>N080 G01 X.03 ;</u> N090 G00 Z.1 ( Rapid away from the part) ; N095 G00 X2.1 (Rapid in the "X" axis to the top of the work piece.) ;	G CODE         ACTIVE WORI           G54         0.0000           G55         0.0000           G56         0.0000           G57         0.0000           G58         0.0000           G116         0.0000	COFFSETS Z AXIS 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000
SPEED(RPM) SPINDLE SPLD: 00 KW STOP 750.0 PGM SPD: 00 SPM CMD SPD: 700 RPM FEED RATE: 00 SPINDLE STOX FEED ACT FEED: 0.	POSITION: (IN) MACHINE X -12.0482 Z -23.0010	LOAD TMERS & COUNTERS THE CYCLE 0100:00 LAST CYCLE 0100:00 REMAINING 0100:00 Mag COUNTER #1 0 Mag COUNTER #2 0 MAG CLABEL 2 000000
(NIDUT		
	/	
Model: HL 3.5.1.4823 POWER ON POWER OFF	DISPLAY EDIT	INSERT ALTER DELETE UNDO
F1 F2 F3 F4	ALARM PARAM SETNG HELP	BLOCK RUN STOP DELETE
EMERGENCY STOP DIA TOOL X / Z FACE		COOLNT JOG TURRET TURRET SPINDLE FWD REV
		.0001 .001 .01 .1 .1 1. 10. 100.
		AUTO ALL ORIGIN SINGL G28
		SELECT SEND RECV ERASE PROG RS232 RS232 PROG
	ABCD	E 57 8 9
OVERRIDES		
FEEDRATE FEEDRATE FEEDRATE	FGHIJ	K 4 5 6
-10 100% 410 SPINDLE SPINDLE SPINDLE SPINDLE	LMNOP	Q 1 2 73
CYCLE START FEED HOLD FWD STOP REV SPINDLE	R S T U V	W - 0 .
5% 25% 50% 100% RAPID RAPID RAPID RAPID	X Y Z 608 (	CANCEL SPACE WRITE

### **3D Plotter Included**

#### **Quickly View Tool Center Line**

#### **G150 General Purpose Pocket Milling**







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### Skills Learning Modules Aligned to NIMS Certification Level(s) I and II

- Step-by-step instruction
- Lessons aligned to skills assessment
- "Building-block" exercises prepare student for actual machine time
- Sample Skills Modules:
  - Mill Control Interface
  - Mill Setup
  - Mill Programming
  - Lathe Control Interface
  - Lathe Setup
  - Lathe Programming
  - Blueprint Reading
  - Basic Shop Math
  - Measurement
  - Mastercam Mill
  - Mastercam Lathe

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### **Interactive Exercises**

#### Dynamic Visuals help to accelerate the learning process

- Track learner progress
- Step by step feedbac
- Variable time, attemption and minimum scores

	1	51
	Math Order of Operations	
ogress	Status:         New game started.         Attempt recorded successfully. TIMEOUT!         You have 2 more attempt(s) left.	Beat the Clock hours : mins : secs 00:00:11 OF 3 Strikes - You're Out! Beat the Clock hours : mins : secs 00:02:00 2 of 3 Games Remaining
edback	Math Order of Operation (Advanced)	
ttempts.	Find the solution to the problem by selecting the p Press the Enter button to check your selections. If your selection is correct, the next step is display	proper operation for each step. yed until the solution is revealed.
cores	$= (4 + 12 \div 3) + 4 \times 2$	Parentheses
	= (4 + 12 ÷ 3) + 4 × 2	Divide
	= (4 + 4) + 4 × 2	
Analog Dial Caliper Status: New game started.	Analog Dial Caliper, Measure Beat the Clock hours : mins : secs 00:00:05 OF 00:0 3 Strikes - You're Out!	Cylinders PRESS TO START I of 1 Games Remaining
P1234567891223	90 10 80 + + + 001 in 20 70 30 GRAB HERE	8 9 5 inch



### **Interactive Exercises**

#### •State-of-the-Art Exercise and Testing Environment



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### Return on Investment

Unlimited access to train and rehearse in a virtual environment enables students to develop greater confidence and proficiency prior to performing actual procedures and operating actual equipment.







- Overcome barriers: student equipment ratio, location, etc.
- Increase Training Contact time with equipment



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Minimize risk of damaging equipment or incurring injuries

### Skills Report for Certificate

#### •Track Progress

	□ my profil	e	🗆 help		🗆 logout				
User Progress Report If you aren't Immersive Engineering <u>click here</u> .									
My Immersive 🔳 Class Manager 🛢 Haas Class Edit	or 🔳 Haas	Class Enro	llment (lhcno	cD1)					
LearnCNC for Haas Basic Operation and Programming					Up				
LearnCNC for Haas Basic Operation and Programming Courses	Modules	Lessons	Pages Con	npleted	Up 😽 Assess Com	pleted	Assess	s Score	Cert
LearnCNC for Haas Basic Operation and Programming Courses Course Introduction	Modules 2	Lessons 6	Pages Con 23 / 23	npleted 100 %	Up 😽 Assess Com 0 / 0	opleted	Assess 0 / 0	s Score	Cert
LearnCNC for Haas Basic Operation and Programming Courses Course Introduction Basic Haas VF-Series Milling Machine Setup (v2)	Modules 2 8	Lessons 6 16	Pages Con 23 / 23 72 / 72	npleted 100 % 100 %	Up Assess Com 0 / 0 8 / 9	opleted 0 % 89 %	Assess 0 / 0 60 / 70	5 Score 0 % 86 %	Cert
LearnCNC for Haas Basic Operation and Programming Courses Course Introduction Basic Haas VF-Series Milling Machine Setup (v2) Basic Haas VF-Series Milling Machine Programming	Modules 2 8 7	Lessons 6 16 15	Pages Con 23 / 23 72 / 72 116 / 116	npleted 100 % 100 % 100 %	Up 🏹 Assess Com 0 / 0 8 / 9 6 / 7	opleted 0 % 89 % 86 %	Assess 0 / 0 60 / 70 47 / 50	5 Score 0 % 86 % 94 %	Cert
LearnCNC for Haas Basic Operation and Programming Courses Course Introduction Basic Haas VF-Series Milling Machine Setup (v2) Basic Haas VF-Series Milling Machine Programming Basic Haas CNC Lathe Setup (v2)	Modules 2 8 7 6	Lessons 6 16 15 13	Pages Con 23 / 23 72 / 72 116 / 116 0 / 55	npleted 100 % 100 % 100 % 0 %	Up 🙀 Assess Com 0 / 0 8 / 9 6 / 7 0 / 7	<b>pleted</b> 0 % 89 % 86 % 0 %	Assess 0 / 0 60 / 70 47 / 50 0 / 55	<b>5 Score</b> 0 % 86 % 94 % 0 %	Cert



# •Branded to School: Time, date and serial identification



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### **Teaching Concept to Creation**



Mastercam Training and Certification













## LearnCNC

Virtual CNC, Interactive Learning and Assessment







#### Advanced Manufacturing









# Mastercam Certification Curriculum



- X4 and X5 Support (X6 Coming Soon!)
- Mill Design and Toolpaths
- Advanced Mill Design and Toolpaths
- Lathe
- FREE New Home Learning Edition included with curriculum



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## **Mastercam Certification Curriculum**

#### Mastercam Certification provides: learning pages, video, prints and helpful tips



#### Learning pages with embedded video

Recommended Mastercam Help Topics
Sketcher AutoCursor Overview General Selection Ribbon Bar General Selection Button Definitions

Helpful tips

Recommended Mastercam Help Topics

Prints Large Drawing

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# **Advanced CNC, Mold and Die**

Advanced CNC 200: Milling and Drilling

- Modern CNC machines
- Multi-axis machining
- State of the art cutting tools and holders
- Advanced Milling Formulas
- High-speed and high-efficiency machining







# **Advanced CNC, Mold and Die**

Dies 100: Introduction to Stamping Dies

- Stamping dies and part functions
- Stamping die types and building processes
- Sheet metal cutting and forming







# **Advanced CNC, Mold and Die**

Molds 100: Introduction to Plastic Injection Molds

- Plastic injection molds parts and functions
- Mold building, spotting and machining
- Molding plastics flow concepts







# **Total Training Solution**

**Customer Branded Training System** 



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# True Virtual Machining Advantage

#### **Streamline Process**

**Reduce Bottlenecks** 

#### **Reduce uncertainty**

Learn and Verify M&G Code Program on PC.



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## **Continuous Improvement in the Classroom**

### Jason Hill, Instructor Rowan Cabbarus Community College Computer Integrated Machining Technology



# 2008 Introduced online hybrid to existing program.



LearnCNC

#### Program Format:

- •Monday Friday Open Entry / Open Exit (OE/OE).
- •All assignments must be completed by Friday midnight.
- •If not completed by Friday at midnight = 0 points for week. Two 0's = failure.

Revamped Program to Keep Student Interested and Attract New Students:More integration of Design to manufacturing.

•Shifted emphasis from manual to CNC machining.

#### Online Approach Allowed Homework to be Mandatory:

- •Mastercam certification curriculum= 30% of grade
- •LearnCNC from Immerse2learn = 20% of grade



### Keep Learning Relevant and Exciting! Introduce new design – manufacture challenge every year



2010 Student Design and Manufacturing Challenge



# Realistic Expectation for Students to Successfully Complete Mastercam Certification

Paul Hill, Program Chair Computer Integrated Machining Department HTEC President 2010 HTEC Advisory Council 2011



### 2011 New Certification Program with Immerse2learn.com



Hybrid Approach: in classroom and online
 Expand contact time and geography
 online learning + home learning addition

Expand Class time from 13 to 21 weeks: More flexibility for working students.



Promote to high school students to introduce machine practices at a younger age: -Huskins Program

-Mobile Lab



## Mobile Machine Lab 2008 NCCCAEA Innovation Award Increased awareness thru a multifunctional training facility.



- -12 Lab Tops
- -1 Office Lathe
- -1 Office Mill
- 48" Instructor display





# Go Beyond the Classroom



Mark Bosworth Industrial Technology Coordinator Southwestern Illinois College

- •January 2009 Implemented Virtual Training System
- Program grew from3 to over 35 students per year.
- •Used in Partnership with 5 high schools and instructors in college's district.
- •Serves over 100 high school students per year.
- •Enables high school students to earn 4 SWIC credit hours, free of charge!
- •Building deep bench of CNC machining talent to compete in Skills USA competitions.

2010 National Skills USA Winners:

- 3<sup>rd</sup> place Precision Machining Technology
- 5th place CNC Machining