South Adams • Huntington North • Southern Wells
Adams Central • Norwell • Bluffton • Bellmont • Jay County • Blackford

Machine Technology

MANUFACTURING: Precision Machining

Southern Wells

South Adams

Area 18 Precision Machine students gathered last spring to test their leadership, blueprint reading, lathe, micrometer and math skills to complete a project under a deadline before industry professionals. Students are needed for jobs with these skills upon graduation, employers

POSSIBLE CAREERS:

- Tool & Die Maker
- Industrial Engineer
- Welder, Cutter,
- Solderer and Brazer
- Millwright
- Electrical Engineer, Tech
- Electronic Engineer, Tech
- Machinest
- Structural Metal Fabricator

Huntington North

COURSES:

INTRO TO MANUFACTURING
COMPUTERS IN DESIGN & PRODUCTION
PRECISION MACHINES I
PRECISION MACHINES II

CTSO: SKILLS USA
State and National competitions with scholarship opportunities

DUAL COLLEGE CREDITS
with Vincennes University

ADVISORY BOARDS
with Area Manufacturers and Businesses

TECHNICAL HONORS DIPLOMA

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JOB OUTLOOK

Employment of **Machinists** and **Tool and Die Makers** is expected to grow 7 percent from 2010 to 2020. Workers with a range of skills who can perform multiple tasks in a machine shop will have the best job opportunities.

Source: Bureau of Labor Statistics

CTE Cooperative Serving Adams • Blackford • Huntington • Jay • Wells Counties

For more information:
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See your school guidance counselor for assistance if your school currently does not offer the classes in which you are interested. There are shared programs among the nine high schools in Area 18's Career and Technical Education.

Indiana College and Career Pathway Plan – State Model

Cluster: Manufacturing | **Pathway: Precision Machine Technology**

Core 40 with Honors High School Graduation Plan*

*This is a SAMPLE plan for schools to use in planning. Course sequences and grade level in which courses are offered may vary according to local policies, practices and resources.

Students should enroll in Indiana Career Explorer, complete interest inventories, and investigate careers in clusters & pathways prior to or during the time they create their individual Pathway Plans.

	Grade	English/ Language Arts	Math	Science	Health/PE Social Studies	CTE/Career Preparation Courses for this Pathway		Other Elective Courses for this Pathway	
SECONDARY	9	English 9	Algebra I	Biology	Health & Wellness/ Physical Ed	Preparing for College & Careers;	Available at ALL Area 18 CTE schools	Digital Citizenship, Personal Financial Responsibility	World Language
	10	English 10	Geometry	Chemistry	Geography/History of the World or World History/Civilization	Introduction to Advanced Manufacturing & Logistics	Computers in Design & Production or Computer Integrated Manufacturing	Southern Wells	World Language
	11	English 11	Algebra II	3rd Core 40 Science	US History	** Precision Machining I		South Adams Huntington N.	World Language
	12	English 12	Math or Quantitative Reasoning		Government Economics	** Precision Machining II		South Adams Huntington N.	Fine Arts

State specified Pathway Assessment: Dual Credit Assessment from Postsecondary Institution

Industry Recognized Certification: National Institute for Metal Working Skills (NIMS)

Postsecondary Courses Aligned for Potential Dual Credit**

**See individual Course Frameworks for alignment of high school course standards and postsecondary course objectives

Ivy Tech Community College	Vincennes University
• MTTC 101 Intro to Machining	• PMTD 110/110L Manufacturing Processes and Lab
• MTTC 105 Abrasive Processes I	• PMTD 117 Basic Machining I
• MTTC 110 Turning and Milling	• PMTD 118 Basic Machining II

Introduction to Manufacturing
Manufacturing is a course that specializes in how people use modern manufacturing systems with an introduction to manufacturing technology and its relationship to society, individuals, and the environment. An understanding of manufacturing is developed through the study of material processing and management technology. Students will apply the skills and knowledge of using modern manufacturing processes to obtain resources and change them into industrial materials, industrial products and consumer products. Students will investigate the properties of engineered materials such as: metallics; polymers; ceramics; and composites. Students will also study six major types of material processes: casting and molding; forming; separating; conditioning; finishing; and assembling.

Computers in Design and Production
This is a course that specializes in using modern technological processes, computers, design, and production systems in the production of products and structures through the use of automated production systems. Emphasis is placed on using modern technologies and on developing career-related skills for electronics, manufacturing, precision machining, welding, and architecture career pathways. Students apply ingenuity using tools, materials, processes, and resources to create solutions as it applies in the electronics, manufacturing, precision machining, welding, and architecture. Course content includes Architectural drawing and print design, design documentation using CAD systems; CNC, CAM, and CIM technologies; computer simulation of products and systems; and 3-D modeling.

Precision Machining I
Precision Machining I is designed to provide students with a basic understanding of the precision machining processes used in industry, manufacturing, maintenance and repair. The course instructs the student in industrial safety, terminology, tools and machine tools, measurement and layout. Students will become familiar with power saws, drill press, lathe, milling machine, grinders and CNC machines.

Precision Machining II is a more in-depth study of skills with a stronger focus in CNC setup,operation and programming. Activities will concentrate on precision setup and inspection work, as well as machine shop calculations. Students will develop skills in advanced machining and measuring parts involving tighter tolerances and more complex geometry, conditioning, finishing, and assembling.

MICK JARRETT
Huntington North

Precision Machining I
Precision Machining II

Belief in his students is a key reason why CTE instructor Mick Jarrett has been teaching technology classes for 31 years.
"I try to be an advocate for all students. I'm here to teach a student a marketable skill so they can become productive and responsible citizens."
One of Jarrett's students placed first in Precision Machining at the National Skills USA for 2012. Students raise money for competitions through the sale of merchandise they design and build in class.

DOUG HUNT
Southern Wells

Introduction to Manufacturing

CTE instructor Doug Hunt uses the lesson of building a guitar as a way of teaching a variety of lifelong skills for students in his Manufacturing classes. The students design and build fret boards as part of a National Science Technology grant where they can earn money to put toward the purchase of their own guitar kit. Hunt has been honored with the "Teacher Excellence Award," one of the highest honors given to Technology and Engineering teachers by the ITEEA.

JEROD DAILEY
South Adams

Taking lesson plans a step further is CTE Precision Machining teacher Jerod Dailey, who sponsors the "Machinery Challenge" where students from Northeast Indiana gather to test their leadership, blueprint,lathe, micrometer and math skills in competition under a deadline. Professionals from Ft. Wayne to Muncie are invited to come see the skills these students have, view their resumes', and interview them for job readiness. Nearly 20 industry professionals attended the event and interviewed the students in its first year, 2012. The program will be offering students dual credit with Vincennes University, at no cost to the students or their families. Dailey feels that "My students are successful because of themselves, their parents, their work ethic."

Precision Machining I
Precision Machining II