

Warren County School District

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Manufacturing Technology

Course Number: 00750

Course Description and Prerequisites:

This course provides a broad overview of manufacturing as it relates to technology education and industry. Students will study this system of technology in a broad spectrum of industries/agencies. Students will participate in various laboratory activities as they identify and analyze products, services and processes. They will work individually and in groups to design, test, analyze and evaluate manufacturing processes and products. They will explore marketing and graphic design as it relates to product packaging. Some projects may require a fee.

Final Required

Prerequisite: Technological Design and Systems

Suggested Grade Level: 9th (2nd Semester) 10th – 12th (any time)

Length of Course: X One Semester Two Semesters Other

Units of Credit: 1/2

PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certification(s) Technology Education CSPG#65

Certification verified by WCSD Human Resources Department:

X Yes No

Board Approved Textbooks, Software, Materials:

Title: High-Performance Manufacturing

Publisher: Glencoe/McGraw Hill

ISBN #: 0078614872 (student edition)
0078611830 (manufacturing applications)
0078611857 (instructor resource CD-ROM)

Copyright Date: 2006

Date of WCSD Board Approval:

BOARD APPROVAL:

Date Written: 11/13/06

Date Approved: _____

Implementation Year: 2007-2008

Suggested Supplemental Materials: None

Course Standards

PA Academic Standards:

3.1.10. (A,B,C,D,E) Unifying Themes	3.1.12. (A,B,C,D,E) Unifying Themes
3.2.10. (A,B,D) Inquiry and Design	3.2.12. (A,B,D) Inquiry and Design
3.3.10 (A,B) Biological Sciences	3.3.12 (A,B) Biological Sciences
3.5.10 (B) Earth Sciences	3.5.12 (B) Earth Sciences
3.6.10. (A,B,C) Technology Education	3.6.12. (A,B,C) Technology Education
3.7.10. (A,B) Technological Devices	3.7.12. (A,B) Technological Devices
3.8.10. (A,B,C) Science, Technology and Human Endeavors	
3.8.12. (A,B,C) Science, Technology and Human Endeavors	

WCSD Academic Standards: None

Industry or Other Standards: None

WCSD EXPECTATIONS

WCSD K-12 Expectations for instruction in writing, reading, mathematics and, technology have been developed and revised annually. The teacher will integrate all WCSD Expectations into this planned instruction

SPECIAL EDUCATION AND GIFTED REQUIREMENTS

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (I.E.P.) or Gifted Individual Education Plan (G.I.E.P.).

**SPECIFIC EDUCATIONAL OBJECTIVES/CORRESPONDING STANDARDS
AND ELIGIBLE CONTENT WHERE APPLICABLE**

3.1.10 (A,B,C,D,E) Unifying Themes

x – performance assessed during that semester

	Performance Indicator	1	2	Assessment
A.	Discriminate among the concepts of systems, subsystems, feedback and control in solving technological problems.			Formative Assessments: <ul style="list-style-type: none"> • Peer Assessment • Quizzes • Teacher Observation Summative Assessment: <ul style="list-style-type: none"> • Documentation / Portfolio • Project
B.	Describe concepts of models as a way to predict and understand science and technology.			
C.	Apply patterns as repeated processes or recurring elements in science and technology.			
D.	Apply scale as a way of relating concepts and ideas to one another by some measure.			
E.	Describe patterns of change in nature, physical and man made systems.			

3.1.12 (A,B,C,D,E) Unifying Themes

	Performance Indicator	1	2	Assessment
A.	Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.			Formative Assessments: <ul style="list-style-type: none"> • Peer Assessment • Quizzes • Teacher Observation Summative Assessment: <ul style="list-style-type: none"> • Documentation / Portfolio • Project
B.	Apply concepts of models as a method to predict and understand science and technology.			
C.	Assess and apply patterns in science and technology.			
D.	Analyze scale as a way of relating concepts and ideas to one another by some measure.			
E.	Evaluate change in nature, physical systems and man made systems.			

3.2.10 (A,B,D) Inquiry and Design

	Performance Indicator	1	2	Assessment
A.	Apply knowledge and understanding about the nature of scientific and technological knowledge.			Formative Assessments: <ul style="list-style-type: none"> • Peer Assessment • Quizzes • Teacher Observation
B.	Apply process knowledge and organize scientific and technological phenomena in varied ways.			

D.	Identify and apply the technological Design process to solve problems			Summative Assessment: <ul style="list-style-type: none"> • Documentation / Portfolio • Project
----	---	--	--	--

3.2.12 (A,B,D) Inquiry and Design

	Performance Indicator	1	2	Assessment
A.	Evaluate the nature of scientific and technological knowledge.			Formative Assessments: <ul style="list-style-type: none"> • Peer Assessment • Quizzes • Teacher Observation
B.	Evaluate experimental information for appropriateness and adherence to relevant science processes.			
D.	Analyze and use the technological design process to solve problems.			Summative Assessment: <ul style="list-style-type: none"> • Documentation / Portfolio • Project

3.3.10 (A,B) Biological Sciences

	Performance Indicator	1	2	Assessment
A.	Explain the structural and functional similarities and differences found among living things.			Formative Assessments: <ul style="list-style-type: none"> • Peer Assessment • Quizzes • Teacher Observation Summative Assessment: <ul style="list-style-type: none"> • Documentation / Portfolio • Project
B.	Describe and explain the chemical and structural basis of living organisms.			

3.3.12 (A,B) Biological Sciences

	Performance Indicator	1	2	Assessment
A.	Explain the structural and Functional similarities and differences found among living things.			Formative Assessments: <ul style="list-style-type: none"> • Peer Assessment • Quizzes • Teacher Observation Summative Assessment: <ul style="list-style-type: none"> • Documentation / Portfolio • Project
B.	Analyze the chemical and structural basis of living organisms.			

3.5.10 (B) Earth Sciences

	Performance Indicator	1	2	Assessment
B.	Explain sources and uses of earth Resources.			Formative Assessments: <ul style="list-style-type: none"> • Peer Assessment • Quizzes • Teacher Observation Summative Assessment: <ul style="list-style-type: none"> • Documentation / Portfolio • Project

3.5.12 (B) Earth Sciences

	Performance Indicator	1	2	Assessment
B.	Analyze the availability, location and extraction of earth resources.			Formative Assessments: <ul style="list-style-type: none"> • Peer Assessment • Quizzes • Teacher Observation Summative Assessment: <ul style="list-style-type: none"> • Documentation / Portfolio • Project

3.6.10 (A,B,C) Technology Education

	Performance Indicator	1	2	Assessment
A.	Apply biotechnologies that relate to related technologies of propagating, growing, maintaining, adapting, treating, and converting.			Formative Assessments: <ul style="list-style-type: none"> • Peer Assessment • Quizzes • Teacher Observation Summative Assessment: <ul style="list-style-type: none"> • Documentation / Portfolio • Project
B.	Apply knowledge of information technologies of encoding, transmitting, receiving, storing, retrieving and decoding.			
C.	Apply physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems.			

3.6.12 (A,B,C) Technology Education

	Performance Indicator	1	2	Assessment
A.	Analyze biotechnologies that relate to propagating, growing, maintaining, adapting, treating and converting.			Formative Assessments: <ul style="list-style-type: none">• Peer Assessment• Quizzes• Teacher Observation Summative Assessment: <ul style="list-style-type: none">• Documentation / Portfolio• Project
B.	Analyze knowledge of information technologies of processes encoding, transmitting, receiving, storing, retrieving and decoding.			
C.	Analyze physical technologies of structural design, analysis and engineering, personnel relations, financial affairs, structural production, marketing, research and design to real world problems.			

3.7.10 (A,B) Technological Devices

	Performance Indicator	1	2	Assessment
A.	Identify and safely use a variety of tools, basic machines, materials and techniques to solve problems and answer questions.			Formative Assessments: <ul style="list-style-type: none">• Peer Assessment• Quizzes• Teacher Observation Summative Assessment: <ul style="list-style-type: none">• Documentation / Portfolio• Project
B.	Apply appropriate instruments and apparatus to accurately measure materials and processes.			

3.7.12 (A,B,C,D,E) Technological Devices

	Performance Indicator	1	2	Assessment
A.	Apply advanced tools, materials and techniques to answer complex questions.			Formative Assessments: <ul style="list-style-type: none">• Peer Assessment• Quizzes• Teacher Observation Summative Assessment: <ul style="list-style-type: none">• Documentation / Portfolio• Project
B.	Evaluate appropriate instruments and apparatus to accurately measure materials and processes			

3.8.10 (A,B,C) Science, Technology and Human Endeavors

	Performance Indicator	1	2	Assessment
A.	Analyze the relationship between societal demands and scientific and technological enterprises.			Formative Assessments: <ul style="list-style-type: none"> • Peer Assessment • Quizzes • Teacher Observation Summative Assessment: <ul style="list-style-type: none"> • Documentation / Portfolio • Project
B.	Analyze how human ingenuity and technological resources satisfy specific human needs and improve the quality of life.			
C.	Evaluate possibilities consequences and impacts of scientific and technological solutions.			

3.8.12 (A,B,C) Science, Technology and Human Endeavors

	Performance Indicator	1	2	Assessment
A.	Synthesize and evaluate the interactions and constraints of science and technology on society.			Formative Assessments: <ul style="list-style-type: none"> • Peer Assessment • Quizzes • Teacher Observation Summative Assessment: <ul style="list-style-type: none"> • Documentation / Portfolio • Project
B.	Apply the use of ingenuity and technological resources to solve specific societal needs and improve the quality of life.			
C.	Evaluate the consequences and impacts of scientific and technological solutions.			

ASSESSMENTS

PSSA Assessment Anchors Addressed: The teacher must be knowledgeable of the PDE Assessment Anchors and/or Eligible Content and incorporate them into this planned instruction. Current assessment anchors can be found at pde@state.pa.us.

Formative Assessments: The teacher will develop and use standards-based assessments throughout the course.

Portfolio Assessment: ___ Yes X No

District-wide Final Examination Required: X Yes ___ No

Course Challenge Assessment:

Written Test(s)

Performance Assessment(s)

REQUIRED COURSE SEQUENCE AND TIMELINE

<u>Content</u>	<u>Time</u>
The World of Manufacturing	1 week
A Safe and Productive Workplace	2 weeks
Producing Products	3 weeks
Quality Management	2 weeks
Machine Safety	1 week
Custom Manufacturing Project	3 weeks
Mass Production Project	6 weeks

WRITING TEAM: Arthur Anderson, Elizabeth Anderson, Patrick Cronmiller,
David Krack, Andrew Perlstein, John Victor

WCSD STUDENT DATA SYSTEM INFORMATION

1. Is there a required final examination? ☒ Yes ☐ No
2. Does this course issue a mark/grade for the report card?
☒ Yes ☐ No
3. Does this course issue a Pass/Fail mark? ☐ Yes ☒ No
4. Is the course mark/grade part of the GPA calculation?
☒ Yes ☐ No
5. Is the course eligible for Honor Roll calculation? ☒ Yes ☐ No
6. What is the academic weight of the course?
☐ No weight/Non credit ☒ Standard weight
☐ Enhanced weight (Describe)_____