Northern York County School District

8330 Metal/Power Technology 3

August, 2005

Course of Study

- A. Course Title: Metal/Power Technology 3
- B. Grade Level: 12th Grade

C. Length of Course

- 1. Frequency six days per six day cycle
- 2. Duration 44 minutes per period
- 3. Length entire school year
- 4. Hours 132 hours
- D. Academic Level: 12th grade
- E. Credits: 1
- F. Prerequisites: A minimum of 85% in course #8320, or department approval.

G. Course Description:

This senior year course is designed for students to study current technology, reinforce those inductive experiences from previous courses and begin setting goals for their work career and continued education. Mastery of all technology in place is expected and lab work should include a capstone project that incorporates a study of an interest area with a presentation to underclassmen. Should a student find work study that is related to the content covered, they would be encouraged to participate upon department approval.

Philosophy

Those students that have progressed to a fourth year in the materials area should feel comfortable with the basic and advanced processes and applications presented to date. It is our expectation that any student at this level could read drawings, produce work, know equipment maintenance, act independently for set periods of time and access various resources for problem solving. Enrollment in this course could involve a capstone unit of study or a related work experience.

Expected Levels of Achievement

A. Have an understanding of employment and post secondary opportunities.

- B. Be able to assist with entry level students.
- C. Know various methods for eye, ear, nose, and skin protection.
- D. Ability to work cooperatively with peers and staff.
- E. Write a procedural sequence for the manufacture of an item.

Grading Policy

50%	Projects
25%	Tests
25%	Class Participation and Daily Grades

Procedures for Evaluation

A. Tests

B. Projects

C. Daily grades

D. Assignments/Notebook

E. Lab and Equipment Safety

Northern York County School District

Technology Education

Content M/P 3

Core Concept: Understand and implement a safety program

		STUDENT PERFORMANCE/	PROCEDURES FOR	
<u>NUMBER</u>	STANDARD/BENCHMARK	LEARNING EXPERIENCES	ASSESSMENT	<u>RESOURCES</u>
3.2.10	Examine the problem and rank all the information Propose a solution Implement a solution	Students will select and use appropriate devices and attitudes to create a safe working environment at each of the lab stations. Students will view and share examples of safety issues and equipment used at work home and	Tests Quality Checks Final Product Evaluation Daily Grade	Facilitator Texts "Modern Metal Working" John Walker Internet
3.8.10	Describe and evaluate social change as a result of technological developments.	during extracurricular activities. Students will discuss safety programs past and present to gain an understanding of the improvement of work conditions.		

Content M/P 3

Core Concept: Product Planning

		<u>STUDENT PERFORMANCE/</u>	<u>PROCEDURES FOR</u>	
<u>NUMBER</u>	STANDARD/BENCHMARK	LEARNING EXPERIENCES	<u>ASSESSMENT</u>	RESOURCES
3.6.12	Assess the importance of capital on specific construction applications. Analyze the positive and negative qualities of several different types of materials as they would relate to specific construction applications.	Students will complete lab experiments involving cost calculation and comparison with industry.	Tests Quality Checks Final Product Evaluation	Facilitator Texts " Modern Metal Working" John Walker
3.8.12	Apply appropriate tools, materials and processes to solve complex problems.	Students will utilize computers, calculators and rough measuring tools to solve problems	Daily Grade	Internet Lab

Content M/P 3

Core Concept: Pattern Development

NUMBER	STANDARD/BENCHMARK	<u>STUDENT PERFORMANCE/</u> LEARNING EXPERIENCES	<u>PROCEDURES FOR</u> ASSESSMENT	RESOURCES
3.1.12	Evaluate change in nature,	Students will hypothesize how a	Tests	Facilitator
	systems.	and investigate how the product was produced 100 years ago.	Quality Checks	"Modern Metal Working" John
3.6.12	Apply knowledge of construction	In any of the core areas students	Final Product Evaluation	Walker
	and applying all the necessary resources to successfully solve a construction problem.	methods of fabrication will be incorporated for individual part	Daily Grade	Lab
		and final fabrication.		

Content: M/P 3

Core Concept: Adhesive Bonding

<u>NUMBER</u>	STANDARD/BENCHMARK	<u>STUDENT PERFORMANCE/</u> LEARNING EXPERIENCES	PROCEDURES FOR ASSESSMENT	<u>RESOURCES</u>
3.1.12	Evaluate change in man made	Students will discuss the evolution	Tests	Facilitator
	systems.	components thereof.	Quality Checks	"Modern Metalworking"
3.6.12	Analyze the positive and negative qualities of several different types of materials as they would relate to	Students will discuss and demonstrate those factors which	Final Product Evaluation	John Walker
	specific construction applications.	could influence the abilities of some bonding agents,	Daily Grade	Internet
				Lab

Content M/P 3

Core Concept: Heat Treatment of Metals

		<u>STUDENT PERFORMANCE/</u>	PROCEDURES FOR	
<u>NUMBER</u>	STANDARD/BENCHMARK	LEARNING EXPERIENCES	ASSESSMENT	<u>RESOURCES</u>
3.1.12	Analyze and describe the function, interaction and relationship among subsystems and the system itself. Evaluate the pattern of change within a technology.	Students will observe lab demonstrations showing the ability of steel treated differently to perform with various characteristics. Students will discuss the use of cryogenics.	Tests Daily Grade	Facilitator " Modern Metalworking" John Walker Internet
3.6.12	Analyze transportation technologies of suspending.	Students will discuss desired properties for leaf springs and other spring components.		Lab

Content: M/P 3

Core Concept: Marking Systems

		<u>STUDENT PERFORMANCE/</u>	PROCEDURES FOR	
<u>NUMBER</u>	STANDARD/BENCHMARK	LEARNING EXPERIENCES	ASSESSMENT	<u>RESOURCES</u>
3.1.12	Evaluate the causes of a system's	Students will hand stamp school	Tests	Facilitator
	inefficiency	district and personal property		
		ansuret and personal property	Quality Checks	" Modern Metal
	Analyze how systems have	Students will discuss new methods	Quality checks	Working" John
	changed over time	for ID of material and parts	Final Product Evaluation	Walker
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Content: M/P 3

Core Concept: Machine speed selection

<u>NUMBER</u>	STANDARD/BENCHMARK	<u>STUDENT PERFORMANCE/</u> LEARNING EXPERIENCES	<u>PROCEDURES FOR</u> <u>ASSESSMENT</u>	<u>RESOURCES</u>
3.8.12	Apply appropriate tools, materials and processes to solve complex problems.	Students will calibrate equipment to ensure prolonged tool life.	Tests Quality Checks	Facilitator " Modern Metalworking"
3.7.12	Select and safely apply appropriate tools, materials and processes necessary to solve complex problems.	Students will replace and sharpen cutters as the need becomes evident.	Final Product Evaluation Daily Grade	John Walker Internet Lab

Content; M/P 3 Core Concept: Inspection and Testing

		STUDENT PERFORMANCE/	PROCEDURES FOR	
<u>NUMBER</u>	STANDARD/BENCHMARK	LEARNING EXPERIENCES	ASSESSMENT	<u>RESOURCES</u>
3.1.12	Appraise the importance of computer models in interpreting technological systems. Evaluate the patterns of change within a technology.	Students will discuss current 3d model testing of product.	Tests Quality Checks Final Product Evaluation Daily Grade	Facilitator "Modern Metalworking" John Walker Internet
3.6.12	Compare resource options in solving a specific manufacturing problem,	Students will discuss auto industry crash dummies, X-ray and ultrasound technologies.		Lab