

GRADE LEVEL: 10

SUBJECT: INTRODUCTION TO ADVANCED MANUFACTURING & LOGISTICS

DATE: 2019-2020

GRADING PERIOD: QUARTER 1

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CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
MANUFACTURING					
<ul style="list-style-type: none"> Product Design 	AML – 1.1: Identify the basics of product design.	<ul style="list-style-type: none"> Identify product design. 	<ul style="list-style-type: none"> Formative assessment Project formation 	<ul style="list-style-type: none"> Brainstorming Research Decision Matrix Criteria Design Consumer Customer Feasibility Profit 	Critical
<ul style="list-style-type: none"> Engineering 	AML – 1.2: Explain the concepts of engineering and its importance within manufacturing.	<ul style="list-style-type: none"> Explain engineering within the career of manufacturing. 	<ul style="list-style-type: none"> Formative assessment Research paper 	<ul style="list-style-type: none"> Engineering Technology Manufacturing Education Skill development 	Critical
<ul style="list-style-type: none"> Material Type 	AML – 1.3: Differentiate between the various types of materials and their applications.	<ul style="list-style-type: none"> Identify materials. Use materials appropriately. 	<ul style="list-style-type: none"> Demonstration Quiz 	<ul style="list-style-type: none"> Various Materials (metal, plastic, composite, wood) Properties Physical property Chemical Property Mechanical property Strength Hardness Ductility 	Critical

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
MANUFACTURING					
<ul style="list-style-type: none"> Processing Equipment 	AML – 1.4: Develop an understanding of product processing and the equipment associated with it.	<ul style="list-style-type: none"> Develop an understanding of product processing and the equipment associated with it. 	<ul style="list-style-type: none"> Demonstration Observation of student use 	<ul style="list-style-type: none"> Separating Joining Equipment 	Critical
<ul style="list-style-type: none"> Quality Control 	AML – 1.5: Explain the significance of quality control within product manufacturing.	<ul style="list-style-type: none"> Explain the significance of quality control within product manufacturing. 	<ul style="list-style-type: none"> Observation of student use during activities and projects 	<ul style="list-style-type: none"> Standards Compliance Consistency Improvement Risk reduction Resource conservation 	Critical
<ul style="list-style-type: none"> Product Assembly 	AML – 1.6: Examine the steps and process of product assembly.	<ul style="list-style-type: none"> Understand the process of product assembly. 	<ul style="list-style-type: none"> Observation 	<ul style="list-style-type: none"> Vocabulary list of tools is too significant to list here 	Critical
<ul style="list-style-type: none"> Manufacturing Technology 	AML – 1.7: Explore the range of technologies available within manufacturing as a whole.	<ul style="list-style-type: none"> Explore the range of technologies available within manufacturing as a whole. 	<ul style="list-style-type: none"> Formal assessment 	<ul style="list-style-type: none"> Agencies 	Important
<ul style="list-style-type: none"> Tools and Machinery 	AML – 1.8: Summarize how materials can be processed using tools and machines.	<ul style="list-style-type: none"> Summarize how materials can be processed using tools and machines. 	<ul style="list-style-type: none"> Formal assessment 		Important
ADVANCED MANUFACTURING					
<ul style="list-style-type: none"> Process Flow 	AML – 5.1: Develop an awareness of process flow principles.	<ul style="list-style-type: none"> Develop an awareness of process flow principles. 	<ul style="list-style-type: none"> Formal assessment 	<ul style="list-style-type: none"> Receiving Shipping Storage Warehousing Raw material Transportation 	Critical

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
ADVANCED MANUFACTURING					
• Manufacturing Systems	AML – 5.2: Acquire an understanding of systems.	• Acquire an understanding of systems.	• Informal assessment through topic discussion	<ul style="list-style-type: none"> • Manufacturing systems • Systems thinking • Patterns • Trends • Consequences 	Critical
• Machine Skills	AML – 5.3: Compile basic machine operations skills.	• Compile basic machine operations skills.	<ul style="list-style-type: none"> • Formal assessment • Skills sheet 	<ul style="list-style-type: none"> • Blueprint reading • Analytical skills • CNC • Heavy machine • Hand tools 	Critical
• Mechanical Skills	AML – 5.4: Practice essential mechanical skills.	• Practice essential mechanical skills.	<ul style="list-style-type: none"> • Formal assessment • Skills sheet 	<ul style="list-style-type: none"> • Problem solving • Analytical thinking • Communication • Teamwork • Computer skills • CADD • Drawings 	Critical
• Tooling	AML – 5.5: Build an understanding of tooling.	• Build an understanding of tooling.	• Informal assessment through topic discussion	<ul style="list-style-type: none"> • Cutting • Boring • Grinding • Shearing • Toolpath • Interchangeable parts • Workpiece 	Critical

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
ADVANCED MANUFACTURING					
• Machining	AML – 5.6: Explore machining within manufacturing industry.	• Explore machining within manufacturing industry.	• Observation of student use during activities and projects	<ul style="list-style-type: none"> • Machine loading • Stock • Continuous processing line • Computer integrated manufacturing 	Critical
• Assembly Processes	AML – 5.7: Develop a strong understanding of different assembly processes.	• Develop a strong understanding of different assembly processes.	• Observation of student use during activities and projects	<ul style="list-style-type: none"> • Assemble • Automation • Cell manufacturing • Modular • Backlog • Off-the-shelf 	Critical
• Materials	AML – 5.8: Differentiate between materials.	• Differentiate between materials.	• Formal assessment	<ul style="list-style-type: none"> • Steel • Aluminum • Plastics • Wood 	Critical
• Electricity	AML – 5.9: Acquire basic electrical knowledge and skills.	• Acquire basic electrical knowledge and skills.	<ul style="list-style-type: none"> • Informal assessment through topic discussion • Hands on Project 	<ul style="list-style-type: none"> • Ohm’s Law • Load • Volts • Amps • Ohms • Voltage • Current • Resistance • Resistor • Capacitor • Terminal • Power 	Important

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
ADVANCED MANUFACTURING					
<ul style="list-style-type: none"> • Pneumatic Skills 	AML – 5.10: Establish fundamental pneumatic skills.	<ul style="list-style-type: none"> • Establish fundamental pneumatic skills. 	<ul style="list-style-type: none"> • Informal assessment through topic discussion 	<ul style="list-style-type: none"> • Accumulator • Cylinder • Piston • Transmission line • Pressure • Temperature • Volume 	Important
<ul style="list-style-type: none"> • Hydraulic Skills 	AML – 5.11: Exercise basic skills within hydraulics.	<ul style="list-style-type: none"> • Exercise basic skills within hydraulics. 	<ul style="list-style-type: none"> • Informal assessment through topic discussion 	<ul style="list-style-type: none"> • Viscosity 	Important
<ul style="list-style-type: none"> • Industrial Maintenance Skills 	AML – 5.12: Demonstrate industrial maintenance skills for use in manufacturing.	<ul style="list-style-type: none"> • Demonstrate industrial maintenance skills for use in manufacturing. 	<ul style="list-style-type: none"> • Observation of student use during machine operation 	<ul style="list-style-type: none"> • Work order • Lockout • Bill of materials • Downtime • Six Sigma • Maintenance log • Optimization • Preventative 	Critical
SAFETY					
<ul style="list-style-type: none"> • Safety Hazard Identification 	AML – 7.1: Identify hazards and apply safety methods for working in manufacturing jobs.	<ul style="list-style-type: none"> • Identify hazards and apply safety methods for working in manufacturing jobs. 	<ul style="list-style-type: none"> • Formal assessment • Demonstrate proper use of safety equipment • Demonstrate proper use of machinery and other equipment • OSHA training 	<ul style="list-style-type: none"> • OSHA • Safety glasses • Hazards • Accidents • Injuries • Prevention • Carelessness • Tools • Equipment 	Important

CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
SAFETY					
<ul style="list-style-type: none"> • Safety Rules and Laws 	AML – 7.2: Identify rules and laws designed to promote safety and health in the transportation, distribution, and logistics environments.	<ul style="list-style-type: none"> • Identify rules and laws designed to promote safety and health in the transportation, distribution, and logistics environments. 	<ul style="list-style-type: none"> • OSHA training 	<ul style="list-style-type: none"> • OSHA • MSDS • Personal protective equipment (PPE) 	Important
<ul style="list-style-type: none"> • Safety Equipment 	AML – 7.3: Demonstrate proper use of safety equipment.	<ul style="list-style-type: none"> • Demonstrate proper use of safety equipment. 	<ul style="list-style-type: none"> • Observation of student use during machine operation 		Important

GRADE LEVEL: 10

SUBJECT: INTRODUCTION TO ADVANCED MANUFACTURING & LOGISTICS

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GRADING PERIOD: QUARTER 2

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CONTENT	STANDARD INDICATORS	SKILLS	ASSESSMENT	VOCABULARY	PRIORITY
MATERIALS HANDLING					
• Material	AML – 2.1: Discuss material handling, storage, and shipping methods.	• Be able to discuss material handling, storage, and shipping methods.	• Informal assessment through topic discussion • Formal assessment		Critical
• Appearance	AML – 2.2: Analyze visual design and appearance requirements for packages.	• Analyze visual design and appearance requirements for packages.	• Informal assessment through topic discussion		Important
• Packaging Requirements	AML – 2.3: Explain size, weight, and shape requirements for packaging.	• Explain size, weight, and shape requirements for packaging.	• Informal assessment through topic discussion		Critical
• Equipment	AML – 2.4: Identify material handling and storage equipment.	• Identify material handling and storage equipment.	• Informal assessment through topic discussion		Important
• Layout	AML – 2.5: Discuss layout plans for processing packages.	• Discuss layout plans for processing packages.	• Informal assessment through topic discussion		Important
• Storage Facilities	AML – 2.6: Identify types of warehouses and distribution centers.	• Identify types of warehouses and distribution centers.	• Formal assessment • Informal assessment through topic discussion		Important
CAREER OPPORTUNITIES					
• AML Occupations	AML – 8.5: Examine advanced manufacturing and logistics occupations and the roles and responsibilities of each.	• Examine advanced manufacturing and logistics occupations and the roles and responsibilities of each.	• Plant visit		Critical

• Certification and Licensure	AML – 8.6: Examine licensing, certification, and credentialing requirements at the national, state, and local levels for careers in advanced manufacturing and logistics.	• Examine licensing, certification, and credentialing requirements at the national, state, and local levels for careers in advanced manufacturing and logistics.	• Informal assessment through topic discussion		Critical
• Labor Market	AML – 8.7: Research local and regional labor market and job growth information.	• Research local and regional labor market and job growth information.	• Visit Mayor’s office		Important
• Ethics	AML – 8.8: Identify employers’ expectations, appropriate work habits, ethical conduct, legal responsibilities, and good citizenship skills.	• Identify employers’ expectations, appropriate work habits, ethical conduct, legal responsibilities, and good citizenship skills.	• Informal assessment through topic discussion		Important
• Professional Standards	AML – 8.9: Demonstrate professional standards as required by business and industry.	• Demonstrate professional standards as required by business and industry.	• Observation of students during class		Important