Manufacturing Career Cluster
Production Enterprises
Course Number: 21.44400

COURSE DESCRIPTION:
The purpose of this course is to give students an understanding of how to design and implement a production system. Students learn how businesses engage in the production of products beginning with pre-production activities and continuing through post-production activities. Additionally, students will learn about the historical and societal impact of production. Students will also develop an understanding of careers available in manufacturing and the skills and education required for those careers.

Course Standard 1

MAN-PE-1
The following standard is included in all CTAE courses adopted for the Career Cluster/Pathways. Teachers should incorporate the elements of this standard into lesson plans during the course. The topics listed for each element of the standard may be addressed in differentiated instruction matching the content of each course. These elements may also be addressed with specific lessons from a variety of resources. This content is not to be treated as a unit or separate body of knowledge but rather integrated into class activities as applications of the concept.

Standard: Demonstrate employability skills required by business and industry.
The following elements should be integrated throughout the content of this course.
1.1   Communicate effectively through writing, speaking, listening, reading, and interpersonal abilities.

Person-to-Person Etiquette	Telephone and Email Etiquette	Cell Phone and Internet Etiquette	Communicating At Work	Listening
Interacting with Your Boss	Telephone Conversations	Using Blogs	Improving Communication Skills	Reasons, Benefits, and Barriers
Interacting with Subordinates	Barriers to Phone conversations	Using Social Media	Effective Oral Communication	Listening Strategies
Interacting with Co-workers	Making and Returning Calls		Effective Written Communication	Ways We Filter What We Hear
Interacting with Suppliers	Making Cold Calls		Effective Nonverbal Skills	Developing a Listening Attitude
	Handling Conference Calls		Effective Word Use	Show You Are Listening
	Handling Unsolicited Calls		Giving and Receiving Feedback	Asking Questions
				Obtaining Feedback
				Getting Others to Listen

Nonverbal Communication	Written Communication	Speaking	Applications and Effective Résumés
Communicating Nonverbally	Writing Documents	Using Language Carefully	Completing a Job Application
Reading Body Language and mixed Messages	Constructive Criticism in Writing	One-on-One Conversations	Writing a Cover Letter
Matching Verbal and Nonverbal communication		Small Group Communication	Things to Include in a Résumé
Improving Nonverbal Indicators		Large Group Communication	Selling Yourself in a Résumé

Nonverbal Feedback		Making Speeches	Terms to Use in a Résumé
Showing Confidence Nonverbally		Involving the Audience	Describing Your Job Strengths
Showing Assertiveness		Answering Questions	Organizing Your Résumé
		Visual and Media Aids	Writing an Electronic Résumé
		Errors in Presentation	Dressing Up Your Résumé

1.2 Demonstrate creativity by asking challenging questions and applying innovative procedures and methods.

Teamwork and Problem Solving	Meeting Etiquette
Thinking Creatively	Preparation and Participation in Meetings
Taking Risks	Conducting Two-Person or Large Group Meetings
Building Team Communication	Inviting and Introducing Speakers
	Facilitating Discussions and Closing
	Preparing Visual Aids
	Virtual Meetings

1.3 Exhibit critical thinking and problem solving skills to locate, analyze and apply information in career planning and employment situations.

Problem Solving	Customer Service	The Application Process	Interviewing Skills	Finding the Right Job
Transferable Job Skills	Gaining Trust and Interacting with Customers	Providing Information, Accuracy and Double Checking	Preparing for an Interview	Locating Jobs and Networking
Becoming a Problem Solver	Learning and Giving Customers What They Want	Online Application Process	Questions to Ask in an Interview	Job Shopping Online
Identifying a Problem	Keeping Customers Coming Back	Following Up After Submitting an Application	Things to Include in a Career Portfolio	Job Search Websites
Becoming a Critical Thinker	Seeing the Customer's Point	Effective Résumés:	Traits Employers are Seeking	Participation in Job Fairs
Managing	Selling Yourself and the Company	Matching Your Talents to a Job	Considerations Before Taking a Job	Searching the Classified Ads
	Handling Customer Complaints	When a Résumé Should be Used		Using Employment Agencies
	Strategies for Customer Service			Landing an Internship
				Staying Motivated to Search

1.4 Model work readiness traits required for success in the workplace including integrity, honesty, accountability, punctuality, time management, and respect for diversity.

Workplace Ethics	Personal Characteristics	Employer Expectations	Business Etiquette	Communicating at Work
Demonstrating Good Work Ethic	Demonstrating a Good Attitude	Behaviors Employers Expect	Language and Behavior	Handling Anger
Behaving Appropriately	Gaining and Showing Respect	Objectionable Behaviors	Keeping Information Confidential	Dealing with Difficult Coworkers
Maintaining Honesty	Demonstrating Responsibility	Establishing Credibility	Avoiding Gossip	Dealing with a Difficult Boss
Playing Fair	Showing Dependability	Demonstrating Your Skills	Appropriate Work Email	Dealing with Difficult Customers
Using Ethical Language	Being Courteous	Building Work Relationships	Cell Phone Etiquette	Dealing with Conflict

Showing Responsibility	Gaining Coworkers' Trust		Appropriate Work Texting	
Reducing Harassment	Persevering		Understanding Copyright	
Respecting Diversity	Handling Criticism		Social Networking	
Making Truthfulness a Habit	Showing Professionalism			
Leaving a Job Ethically				

1.5   Apply the appropriate skill sets to be productive in a changing, technological, diverse workplace to be able to work independently and apply team work skills.

Expected Work Traits	Teamwork	Time Management
Demonstrating Responsibility	Teamwork Skills	Managing Time
Dealing with Information Overload	Reasons Companies Use Teams	Putting First Things First
Transferable Job Skills	Decisions Teams Make	Juggling Many Priorities
Managing Change	Team Responsibilities	Overcoming Procrastination
Adopting a New Technology	Problems That Affect Teams	Organizing Workspace and Tasks
	Expressing Yourself on a Team	Staying Organized
	Giving and Receiving Constructive Criticism	Finding More Time
		Managing Projects
		Prioritizing Personal and Work Life

1.6   Present a professional image through appearance, behavior and language.

On-the-Job Etiquette	Person-to-Person Etiquette	Communication Etiquette	Presenting Yourself
Using Professional Manners	Meeting Business Acquaintances	Creating a Good Impression	Looking Professional
Introducing People	Meeting People for the First Time	Keeping Phone Calls Professional	Dressing for Success
Appropriate Dress	Showing Politeness	Proper Use of Work Email	Showing a Professional Attitude
Business Meal Functions		Proper Use of Cell Phone	Using Good Posture
Behavior at Work Parties		Proper Use in Texting	Presenting Yourself to Associates
Behavior at Conventions			Accepting Criticism
International Etiquette			Demonstrating Leadership
Cross-Cultural Etiquette			
Working in a Cubicle			

Support of CTAE Foundation Course Standards and Georgia Standards of Excellence L9-10RST 1-10 and L9-10WHST 1-10:

Georgia Standards of Excellence ELA/Literacy standards have been written specifically for technical subjects and have been adopted as part of the official standards for all CTAE courses.

Course Standard 2

MAN-PE-2

Explain the historical and societal impact of production.

2.1   Track the evolution of production and its impact on society.

2.2   Describe the impact of production throughout American history.

2.3   Describe how production has influenced American safety and environmental policy.

Course Standard 3

MAN-PE-3
Research careers in manufacturing.
 3.1 Develop an understanding of career opportunities in manufacturing.
 3.2 Identify the skills and education required for various careers in manufacturing.

Course Standard 4

MAN-PE-4
Explain how and why production enterprises value safe work environments.
 4.1 Identify the historical reasons for workplace safety initiatives.
 4.2 Identify the costs of accidents.
 4.3 Develop a safety engineering process emphasizing hazard recognition and accident prevention.
 4.4 Identify federal environmental regulations that impact production enterprises.

Course Standard 5

MAN-PE-5
Conduct pre-production market research, product design, and product development.
 5.1 Conduct and compile market research.
 5.2 Choose appropriate materials and processes for the specified product.
 5.3 Develop a product prototype.
 5.4 Determine the cost of production, develop a break-even analysis and develop a cost analysis report.
 5.5 Investigate funding opportunities for the production enterprise.
 5.6 Use market research and cost analysis to prepare and execute a persuasive presentation to generate support from a decision-making group.

Course Standard 6

MAN-PE-6
Design a production system.
 6.1 Compare and contrast various production techniques.
 6.2 Decide on an appropriate production technique for the specified product.
 6.3 Evaluate the appropriateness of the chosen technique and make necessary changes to maximize efficiency.
 6.4 Perform a time/motion study.
 6.5 Design, develop, and implement an efficient plant layout.
 6.6 Develop a plan for procurement of material and human resources.
 6.7 Develop a process for in-process and pre-shipping product testing.

Course Standard 7

MAN-PE-7
Implement a production system.
 7.1 Execute production of the chosen manufactured product.
 7.2 Use data analysis techniques to improve product quality.
 7.3 Apply statistical process control to improve product quality.
 7.4 Use data analysis and continuous improvement techniques to enhance the production process.
 7.5 Perform in-process and pre-shipping product testing.

Course Standard 8

MAN-PE-8
Develop a reflective document on the completion of the production activity.

  8.1 Critique the effectiveness of the chosen production process used to manufacture the chosen product.
  8.2 Evaluate personnel performance of self and workforce.
  8.3 Suggest improvements to the chosen production process.
  8.4 Address impacts of production of this product.

Course Standard 9

MAN-PE-9
Explore how related career and technology student organizations are integral parts of career and technology education courses. Students will develop leadership, interpersonal, and problem-solving skills through participation in co-curricular activities associated with the Technology Student Association.

  9.1 Explain the goals, mission and objectives of CTSO organizations.
  9.2 Explore the impact and opportunities a student organization (TSA) can develop to bring business and education together in a positive working relationship through innovative leadership and career development programs.
  9.3 Explore the local, state, and national opportunities available to students through participation in related student organization (TSA) including but not limited to conferences, competitions, community service, philanthropy, and other (TSA) activities.
  9.4 Explain how participation in career and technology education student organizations can promote lifelong responsibility for community service and professional development.
  9.5 Demonstrate teamwork, leadership, interpersonal relations, and project management.
  9.6 Through teamwork, apply the skills and abilities in requirements analysis and configuration control while working with plans, processes, and projects as assigned.
  9.7 Through teamwork, use the skills required in project management to track and assess the progress of a plan, process, or project as assigned.
  9.8 Through teamwork, apply the skills in quality assurance as well as those in process management and development for appropriate applications of systems integration techniques to an assigned project
  9.9 Effectively use project management techniques (e.g., teamwork, appropriate time management practices, effective organizational skills, conduct analysis of cost, resources, and production capacity, and quality practices with continuous improvement).
  9.10 Understand and demonstrate proper work ethics when working with plans, processes, and projects as assigned.