

CURRICULUM MAP
Cluster: Manufacturing
CTE Program of Study:MA1630 Robotics

STANDARD	%	SKILL SET/COMPETENCY Workplace Readiness Test Code: 3033	REQUIRED CORE COURSES FOR COMPLETION			
			1 st Course 1866 Robotics REC 1	2 nd Course 1867 Robotics REC 2	Specializations: 1868 Robotics REC 3 1869 Robotics REC 4	Specializations: 1887 FAA 107 Ground Operations 1888 FAA 107 Flight Operations
Communication:	24%	Apply strategies to enhance effectiveness of all types of communications in the workplace	X	X	X	X
Communicate in multiple modes to address needs within the career technical field		Apply reading strategies as needed for a variety of purposes	X	X	X	X
		Evaluate information contained in documents	X	X	X	X
		Apply basic communication skills when writing	X	X	X	X
		Write technical materials	X	X	X	X
		Develop presentations using appropriate technologies (e.g., tables, charts, and visual graphics)	X	X	X	X
		Apply oral communication skills	X	X	X	X
		Deliver presentations	X	X	X	X
		Apply active listening skills	X	X	X	X
		Apply nonverbal communication skills	X	X	X	X
		Communicate with others in a workforce of diversity (e.g., age, ethnicity, religion, gender)	X	X	X	X
		Share information using a range of appropriate communications technologies	X	X	X	X
Problem Solving and Critical Thinking:	19%	Define the problem	X	X	X	X
Solve problems using critical thinking		Analyze the problem	X	X	X	X

STANDARD	%	SKILL SET/COMPETENCY Workplace Readiness Test Code: 3033	REQUIRED CORE COURSES FOR COMPLETION			
			1 st Course 1866 Robotics REC 1	2 nd Course 1867 Robotics REC 2	Specializations: 1868 Robotics REC 3 1869 Robotics REC 4	Specializations: 1887 FAA 107 Ground Operations 1888 FAA 107 Flight Operations
		Research reliable information relevant to the problem	X	X	X	X
		Investigate alternatives based on reasoned criteria	X	X	X	X
		Identify appropriate solutions	X	X	X	X
		Make recommendations	X	X	X	X
		Implement solutions	X	X	X	X
		Evaluate solutions	X	X	X	X
Information Technology Applications:	8%	Identify efficient, effective, and ethical uses of technology in the workplace	X	X	X	X
Apply information technology resources in the workplace		Use information technology tools to access, manage, integrate, and create new information	X	X	X	X
		Use writing/publishing/presentation applications	X	X	X	X
Systems:	9%	Demonstrate an understanding of how business and industry systems function within the economy			X	X
Work within organizational culture and technological systems		Demonstrate an understanding of the functions of systems in an organization (e.g., management, human resources, production and services)			X	X
		Demonstrate principles of internal/external customer service			X	X
		Apply industry quality standards and practices			X	X
Safety, Health, and Environment:	9%	Ensure safe working conditions			X	X

STANDARD	%	SKILL SET/COMPETENCY Workplace Readiness Test Code: 3033	REQUIRED CORE COURSES FOR COMPLETION			
			1 st Course 1866 Robotics REC 1	2 nd Course 1867 Robotics REC 2	Specializations: 1868 Robotics REC 3 1869 Robotics REC 4	Specializations: 1887 FAA 107 Ground Operations 1888 FAA 107 Flight Operations
Ensure safe and healthful working conditions		Demonstrate safe use of tools and equipment			X	X
		Ensure healthful working conditions			X	X
		Practice environmental conservation and safety	X	X	X	X
Leadership and Teamwork:	11%	Demonstrate leadership skills	X	X	X	X
Enhance work outcomes through leadership, management, and teamwork		Organize work	X	X	X	X
		Apply management techniques	X	X	X	X
		Demonstrate group process techniques	X	X	X	X
		Perform work tasks in a team	X	X	X	X
Ethics and/or Legal Responsibilities:	6%	Apply professional and ethical standards to workplace conduct	X	X	X	X
Practice professional, ethical, and legal behavior consistent with workplace standards		Adhere to established laws, policies, and procedures	X	X	X	X
Employability and/or Career Development:	14%	Develop a career plan	X	X	X	X
Progress on a purposeful career path through application of employability skills		Seek employment	X	X	X	X
Robotics REC		Extend the properties of exponents to rational exponents.	x			
		Use properties of rational and irrational numbers.	X			

STANDARD	%	SKILL SET/COMPETENCY Workplace Readiness Test Code: 3033	REQUIRED CORE COURSES FOR COMPLETION			
			1 st Course 1866 Robotics REC 1	2 nd Course 1867 Robotics REC 2	Specializations: 1868 Robotics REC 3 1869 Robotics REC 4	Specializations: 1887 FAA 107 Ground Operations 1888 FAA 107 Flight Operations
		Reason quantitatively and use units to solve problems.	X			
		Perform arithmetic operations with complex numbers.	X			
		Create equations that describe numbers or relationships	X			
		Understand solving equations as a process of reasoning and explain the reasoning	X			
		Experiment with transformations in the plane	X			
		Understand congruence in terms of rigid motions	X			
		Prove geometric theorems	X			
		Make geometric constructions	X			
		Understand similarity in terms of similarity transformations	X			
		Prove theorems involving similarity		X		
		Define trigonometric ratios and solve problems involving right triangles		X		
		Apply trigonometry to general triangles		X		
		Understand and apply theorems about circles		X		
		Explain volume formulas and use them to solve problems		X		
		Visualize relationships between two-dimensional and three-dimensional objects		X		
		Apply geometric concepts in modeling situations		X		
		Summarize, represent, and interpret data on a single count or measurement variable		X		

STANDARD	%	SKILL SET/COMPETENCY Workplace Readiness Test Code: 3033	REQUIRED CORE COURSES FOR COMPLETION			
			1 st Course 1866 Robotics REC 1	2 nd Course 1867 Robotics REC 2	Specializations: 1868 Robotics REC 3 1869 Robotics REC 4	Specializations: 1887 FAA 107 Ground Operations 1888 FAA 107 Flight Operations
		Summarize, represent, and interpret data on two categorical and quantitative variables		X		
		Interpret linear models		X		
		Understand and evaluate random processes underlying statistical experiments		X		
		Make inferences and justify conclusions from sample surveys, experiments, and observational studies	X			
		Understand independence and conditional probability and use them to interpret data	X			
		Use the rules of probability to compute probabilities of compound events in a uniform probability model	X			
		Calculate expected values and use them to solve problems	X			
		Use probability to evaluate outcomes of decisions	X			
1868 Robotics REC 3 1869 Robotics REC 4		Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.			X	
		Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.			X	

STANDARD	%	SKILL SET/COMPETENCY Workplace Readiness Test Code: 3033	REQUIRED CORE COURSES FOR COMPLETION			
			1 st Course 1866 Robotics REC 1	2 nd Course 1867 Robotics REC 2	Specializations: 1868 Robotics REC 3 1869 Robotics REC 4	Specializations: 1887 FAA 107 Ground Operations 1888 FAA 107 Flight Operations
		Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.			X	
		Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.			X	
		Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.			X	
		Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy			X	
		Communicate technical information about how some technological devices use the principles of wave behavior and wave interactions with matter to transmit and capture information and energy.			X	
		Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.			X	
		Design a solution to a complex real-world problem by breaking it down into smaller,			X	

STANDARD	%	SKILL SET/COMPETENCY Workplace Readiness Test Code: 3033	REQUIRED CORE COURSES FOR COMPLETION			
			1 st Course 1866 Robotics REC 1	2 nd Course 1867 Robotics REC 2	Specializations: 1868 Robotics REC 3 1869 Robotics REC 4	Specializations: 1887 FAA 107 Ground Operations 1888 FAA 107 Flight Operations
		more manageable problems that can be solved through engineering.				
		Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.			X	
1877 FAA Ground Operations		Define what a public safety entity is.				X
1888 FAA Flight Operations		List all critical components for a UAS aviation unit.				X
		List all possible incidents that UAS can be utilized for any public entity				X
		Discuss all benefits utilizing UAS will provide as opposed to manned aircraft.				X
		Identify the cost benefit analysis of utilizing UAS for certain incidents.				X
		Identify different sources of funding for creating a new UAS aviation unit.				X
		Identify and discuss all federal laws pertaining to UAS and identify current UAS state laws.				X
		Review and discuss FAR Part 107.				X
		Review the Federal Aviation Administration Certificate of Authorization (COA) and its purpose and define the COA application process.				X

STANDARD	%	SKILL SET/COMPETENCY Workplace Readiness Test Code: 3033	REQUIRED CORE COURSES FOR COMPLETION			
			1 st Course 1866 Robotics REC 1	2 nd Course 1867 Robotics REC 2	Specializations: 1868 Robotics REC 3 1869 Robotics REC 4	Specializations: 1887 FAA 107 Ground Operations 1888 FAA 107 Flight Operations
		Identify characteristics that will make a good UAS aviation unit team member.				X
		Identify the major components of a standard operating procedure (SOP).				X
		Discuss the importance and implementation of a SOP, and review ad revision process of a SOP.				X
		Fundamentals of Flight				X
		Navigation and Airspace				X
		Weather Theory and Reporting				X
		Introduction to Simulation				X
		Introduction to Flight Skills				X
		Human Factors				X
		Flight Safety				X

These courses align with Intelitek Robotics Engineering curriculum:

- 1866 [Robotics REC 1](#)
- 1867 [Robotics REC 2](#)
- 1868 [Robotics REC 3](#)
- 1869 [Robotics REC 4](#)