



Texas Technology Student Association - Work-Based Learning and Expanded Learning Opportunities

Program of Study: Manufacturing Technology

Career Cluster: Manufacturing

Classification of Competitive Event	Name of Event	Classification #	Link
National Qualifying Events			
	Board Game Design		https://tsaweb.org/competitions-programs/tsa/high-school-competitions
	Computer-Aided Design (CAD) Engineering		https://tsaweb.org/competitions-programs/tsa/high-school-competitions
	Dragster Design		https://tsaweb.org/competitions-programs/tsa/high-school-competitions
	Drone Challenge (UAV)		https://tsaweb.org/competitions-programs/tsa/high-school-competitions
	Engineering Design		https://tsaweb.org/competitions-programs/tsa/high-school-competitions
	Manufacturing Prototype		https://tsaweb.org/competitions-programs/tsa/high-school-competitions/2
	Senior Solar Sprint		https://tsaweb.org/competitions-programs/tsa/high-school-competitions/2
	Transportation Modeling		https://tsaweb.org/competitions-programs/tsa/high-school-competitions/2
Unique to Texas On-Site Events			
	Hot Rod CO2 (Wood & ABS Plastic)	HU100 & HU101	https://texastsarulebook.org/category/unique-to-texas-events
	CO2 Research Racer (Wood & ABS Pastic)	HU102 & HU103	https://texastsarulebook.org/category/unique-to-texas-events
	RC Vehicle - Electric	HU104	https://texastsarulebook.org/category/unique-to-texas-events
	Drone Competition	HU108	https://texastsarulebook.org/category/unique-to-texas-events
	Catapult	HU109	https://texastsarulebook.org/category/unique-to-texas-events
	Engineering & Design Graphic Solution	HU312	https://texastsarulebook.org/category/unique-to-texas-events
	Manufacturing Design Graphic Solution	HU314	https://texastsarulebook.org/category/unique-to-texas-events
Unique to Texas Projects			
	CNC/CAM [WOOD] Mill / Router - single piece less than 5" x 5"	HP5300	https://texastsarulebook.org/high-school-category-projects/cnccam-and-programming

CNC Mill/Router

	CNC/CAM [WOOD] Mill / Router - single piece less than 10" x 10"	HP5301	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Mill / Router - single piece not exceeding 20" x 20"	HP5302	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Mill / Router - single piece large than 20"	HP5303	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Mill / Router - 2 to 5 parts	HP5304	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Mill / Router - 6 to 10 parts	HP5305	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Mill / Router - 11 or more parts	HP5306	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
CNC Lathe			
	CNC/CAM [WOOD] Lathe - 2 to 5 parts	HP5313	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Lathe - 6 to 10 parts	HP5314	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Lathe - 11 or more parts	HP5315	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Lathe - Pen/Pencil	HP5307	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Lathe - Pen/Pencil Set	HP5308	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Lathe - single piece exceeding 2" diameter	HP5312	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Lathe - single piece less than 1" diameter x 18" length	HP5310	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Lathe - single piece less than 1/2" diameter x 12" length	HP5309	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Lathe - single piece less than 2" diameter x 24" length	HP5311	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
CNC Laser Engraver			
	CNC/CAM [WOOD] Laser Engraver - single piece less than 8" x 10"	HP5316	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Laser Engraver - single piece not exceeding 16" x 20"	HP5317	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Laser Engraver - single piece larger than 24"	HP5318	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming

	CNC/CAM [WOOD] Laser Engraver - single piece rotary	HP5319	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Laser Engraver - 2 to 5 parts	HP5320	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Laser Engraver - 6 to 10 parts	HP5321	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [WOOD] Laser Engraver - 11 or more parts	HP5322	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
<i>CNC Mill/Router</i>			
	CNC/CAM [OTHER] Mill / Router - single piece less than 5" x 5"	HP5323	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Mill / Router - single piece less than 10" x 10"	HP5324	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Mill / Router - single piece not exceeding 20" x 20"	HP5325	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Mill / Router - single piece large than 20"	HP5326	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Mill / Router - 2-5 parts	HP5327	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Mill / Router - 6-10 parts	HP5328	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Mill / Router - 11 or more parts	HP5329	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
<i>CNC Lathe</i>			
	CNC/CAM [OTHER] Lathe - Pen/Pencil	HP5330	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Lathe - Pen/Pencil Set	HP5331	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Lathe - single piece less than 1/2 diameter x 12" length	HP5332	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Lathe - single piece less than 1" diameter x 18" length	HP5333	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Lathe - single piece less than 2" diameter x 24" length	HP5334	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Lathe - single piece exceeding 2" diameter	HP5335	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Lathe - 2-5 parts	HP5336	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Lathe - 6-10 parts	HP5337	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming

	CNC/CAM [OTHER] Lathe - 11 or more parts	HP5338	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
<i>CNC Laser Engraver</i>			
	CNC/CAM [OTHER] Laser Engraver - single piece less than 8" x 10"	HP5339	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Laser Engraver - single piece not exceeding 16" x 20"	HP5340	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Laser Engraver - single piece larger than 24"	HP5341	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Laser Engraver - single piece rotary	HP5342	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Laser Engraver - 2-5 parts	HP5343	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Laser Engraver - 6-10 parts	HP5344	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Laser Engraver - 11 or more parts	HP5345	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
<i>CNC Plasma Cutter</i>			
	CNC/CAM [OTHER] Plasma Cutter - single piece less than 12" x 12"	HP5346	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Plasma Cutter - single piece not exceeding 24" x 24"	HP5347	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Plasma Cutter - single piece not exceeding 36" x 36"	HP5348	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Plasma Cutter - single piece larger than 36" x 36"	HP5349	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Plasma Cutter - single piece rotary	HP5350	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Plasma Cutter - 2-5 parts	HP5351	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [OTHER] Plasma Cutter - 6-10 parts	HP5352	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
		CNC/CAM [OTHER] Plasma Cutter - 11 or more parts	HP5353
<i>CNC Other</i>			
	Robotic Welding	HP5354	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM Embroidery Single Design	HP5355	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming

CNC/CAM Embroider Multiple Design	HP5356	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
CNC/CAM Vinyl Cutter - Single Color - less than 3.5 x 18"	HP5357	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
CNC/CAM Vinyl Cutter - Multi Color - less than 3.5 x 18"	HP5358	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
CNC/CAM Vinyl Cutter - Single Color - 8 x 10"	HP5359	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
CNC/CAM Vinyl Cutter - Multi Color - 8 x 10"	HP5360	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
CNC/CAM Vinyl Cutter - Single Color - Large Format	HP5361	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
CNC/CAM Vinyl Cutter - Multi Color - Large Format	HP5362	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
Flexible Manufacturing Systems - multiple machine - multi tasks - single part, hard copy of the programs must accompany entry on USB drive	HP5363	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
Flexible Manufacturing Systems - multiple machine - multi tasks - multiple parts, hard copy of the programs must accompany entry on USB drive	HP5364	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
Flexible Manufacturing Systems - multiple machine - multi-task-video demo - 5 minute maximum	HP5365	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
CNC/CAM 3D Printing		
CNC/CAM [ENGINEERING] 3D Printer/Rapid Prototype - single part	HP5367	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
CNC/CAM [ENGINEERING] 3D Printer/Rapid Prototype - 2-5 parts	HP5368	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
CNC/CAM [ENGINEERING] 3D Printer/Rapid Prototype - 6-10 parts	HP5369	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
CNC/CAM [ENGINEERING] 3D Printer/Rapid Prototype - 11 or more parts	HP5370	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming
CNC/CAM [ARCHITECTURE] 3D Printer/Rapid Prototype - single part	HP5371	https://texastсарulebook.org/high-school-category-projects/cnccam-and-programming

	CNC/CAM [ARCHITECTURE] 3D Printer/Rapid Prototype - 2-5 parts	HP5372	https://texastsarulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [ARCHITECTURE] 3D Printer/Rapid Prototype - 6-10 parts	HP5373	https://texastsarulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [ARCHITECTURE] 3D Printer/Rapid Prototype - 11 or more parts	HP5374	https://texastsarulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [BIOMED] 3D Printer/Rapid Prototype - single part	HP5375	https://texastsarulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [BIOMED] 3D Printer/Rapid Prototype - 2-5 parts	HP5376	https://texastsarulebook.org/high-school-category-projects/cnccam-and-programming
	CNC/CAM [BIOMED] 3D Printer/Rapid Prototype - 6-10 parts	HP5377	https://texastsarulebook.org/high-school-category-projects/cnccam-and-programming
Wood - Manual Turning			
	PEN OR PENCIL INDIVIDUALLY	HP5500	https://texastsarulebook.org/high-school-category-projects/wood
	PEN AND PENCIL SET	HP5501	https://texastsarulebook.org/high-school-category-projects/wood
	LENGTH NOT TO EXCEED 12"	HP5502	https://texastsarulebook.org/high-school-category-projects/wood
	LENGTH NOT TO EXCEED 24"	HP5503	https://texastsarulebook.org/high-school-category-projects/wood
	LENGTH NOT TO EXCEED 36"	HP5504	https://texastsarulebook.org/high-school-category-projects/wood
	LENGTH OVER 36"	HP5505	https://texastsarulebook.org/high-school-category-projects/wood
Wood - Indoor			
	Various Sizes	HP5510-HP5522	https://texastsarulebook.org/high-school-category-projects/wood
Wood - Outdoor			
	Various Sizes	HP5525-HP5537	https://texastsarulebook.org/high-school-category-projects/wood
Metal - Decorative			
	Various Sizes	HP5550-HP5573	https://texastsarulebook.org/high-school-category-projects/metal
Metal - Functional			
	Various Sizes	HP5580-HP5603	https://texastsarulebook.org/high-school-category-projects/metal
Trailers			
	Trailers - Single Axle	HP5610	https://texastsarulebook.org/high-school-category-projects/metal
	Trailers - Double Axle	HP5611	https://texastsarulebook.org/high-school-category-projects/metal
Foundry			
	FINISHED CASTING SINGLE PART	HP5620	https://texastsarulebook.org/high-school-category-projects/metal
	FINISHED CASTING MULTIPLE PARTS	HP5621	https://texastsarulebook.org/high-school-category-projects/metal
	FINISHED FOUNDRY PRODUCT (4 CAST PARTS OR LESS)	HP5622	https://texastsarulebook.org/high-school-category-projects/metal
	FINISHED FOUNDRY PRODUCT (5 CAST PARTS OR MORE)	HP5623	https://texastsarulebook.org/high-school-category-projects/metal
	ROUGH CASTING SINGLE PART	HP5624	https://texastsarulebook.org/high-school-category-projects/metal

	ROUGH CASTING MULTIPLE PARTS	HP5625	https://texastsarulebook.org/high-school-category-projects/metal
<i>All Other Materials</i>			
	PVC - Various Sizes	HP5650-HP5654	https://texastsarulebook.org/high-school-category-projects/materials
	MANUAL TURNED PEN OR PENCIL INDIVIDUALLY	HP5655	https://texastsarulebook.org/high-school-category-projects/materials
	MANUAL TURNED PEN AND PENCIL SET	HP5656	https://texastsarulebook.org/high-school-category-projects/materials
	MANUAL TURNING LENGTH NOT TO EXCEED 12"	HP5657	https://texastsarulebook.org/high-school-category-projects/materials
	MANUAL TURNING LENGTH NOT TO EXCEED 24"	HP5658	https://texastsarulebook.org/high-school-category-projects/materials
	MANUAL TURNING LENGTH NOT TO EXCEED 36"	HP5659	https://texastsarulebook.org/high-school-category-projects/materials
	MANUAL TURNING LENGTH OVER 36"	HP5660	https://texastsarulebook.org/high-school-category-projects/materials
	INJECTION MOLDING	HP5661	https://texastsarulebook.org/high-school-category-projects/materials
	VACUUM FORMING	HP5662	https://texastsarulebook.org/high-school-category-projects/materials
	CASTING	HP5663	https://texastsarulebook.org/high-school-category-projects/materials
	REINFORCED RESINS	HP5664	https://texastsarulebook.org/high-school-category-projects/materials
	NON-ACRYLIC	HP5665	https://texastsarulebook.org/high-school-category-projects/materials
	COMPOSITE	HP5666	https://texastsarulebook.org/high-school-category-projects/materials
	ACRYLICS	HP5667	https://texastsarulebook.org/high-school-category-projects/materials
	COMBINATION OF ANY MATERIAL	HP5668	https://texastsarulebook.org/high-school-category-projects/materials
	FABRIC	HP5669	https://texastsarulebook.org/high-school-category-projects/materials
	GLASS-FLAT	HP5670	https://texastsarulebook.org/high-school-category-projects/materials
	GLASS-GLASSWARE	HP5671	https://texastsarulebook.org/high-school-category-projects/materials
	LEATHER	HP5672	https://texastsarulebook.org/high-school-category-projects/materials
	PAPER	HP5673	https://texastsarulebook.org/high-school-category-projects/materials
<i>Combination of Any 2 Materials</i>			

	Various Sizes	HP5700-HP5712	https://texastsarulebook.org/high-school-category-projects/materials
<i>Restoration</i>			
	FURNITURE	HP5800	https://texastsarulebook.org/high-school-category-projects/materials
	MECHANICAL/MACHINE DEVICES	HP5801	https://texastsarulebook.org/high-school-category-projects/materials
	ELECTRICAL/APPLIANCES	HP5802	https://texastsarulebook.org/high-school-category-projects/materials
	TOYS	HP5803	https://texastsarulebook.org/high-school-category-projects/materials
<i>Recycled Materials</i>			
	WOOD	HP5900	https://texastsarulebook.org/high-school-category-projects/materials
	METAL	HP5901	https://texastsarulebook.org/high-school-category-projects/materials
	ELECTRICAL/ELECTRONICS	HP5902	https://texastsarulebook.org/high-school-category-projects/materials
	PLASTIC	HP5903	https://texastsarulebook.org/high-school-category-projects/materials
	COMBINATION OF 2+ RECYCLED MATERIALS	HP5904	https://texastsarulebook.org/high-school-category-projects/materials
<i>Applied Technical Science - Manufacturing</i>			
	A comprehensive display of students assembly and/or maintenance of production machines or equipment.	HP8081	https://texastsarulebook.org/high-school-category-projects/applied-technical-science
	A display of an organization chart for a manufacturing company including job descriptions	HP8082	https://texastsarulebook.org/high-school-category-projects/applied-technical-science
	A display of a study of the types, grades & strength of selected materials used in manufacturing (Metal, wood, polymers, others)	HP8083	https://texastsarulebook.org/high-school-category-projects/applied-technical-science
	A display of several production career opportunities including (a) employment opportunities, (b) education or training needed, (c) job descriptions, (d) effective methods of securing jobs, and (e) future long term employment outlook	HP8084	https://texastsarulebook.org/high-school-category-projects/applied-technical-science

	A display of an entrepreneur production venture which must include: (a) minimum, (b) organizational chart, (c) sales forecast, (d) market survey, (e) two product samples	HP8085	https://texastsarulebook.org/high-school-category-projects/applied-technical-science
	A display to demonstrate computer applications in production systems	HP8086	https://texastsarulebook.org/high-school-category-projects/applied-technical-science
<i>Applied Technical Science - Materials</i>			
	A display of materials testing	HP8087	https://texastsarulebook.org/high-school-category-projects/applied-technical-science