



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

Program of Study: Advanced Manufacturing & Machinery Mechanics

Career Cluster: Manufacturing

Classification of Competitive Event	Name of Event	Classification #	Link
National Qualifying Events	Animatronics		https://tsaweb.org/competitions-programs/tsa/high-school-competitions
	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
	System Control Technology		https://tsaweb.org/competitions-programs/tsa/high-school-competitions/2
	Transportation Modeling		https://tsaweb.org/competitions-programs/tsa/high-school-competitions/2
	VEX Robotics Competiton		https://tsaweb.org/competitions-programs/tsa/high-school-competitions/2
	Unique to Texas On-Site Events	Hot Rod CO2 Car Competition - Wood & ABS	HU100 & HU101
CO2 Research Racer - Wood & ABS		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://texastсарulebook.org/category/unique-to-texas-events
Unique to Texas Projects			
<i>Robotics & Programming</i>	Robotic Programming (must have printout of program with entry) teach pendant method	HP8094	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
	Robotic Programming (must have printout of program with entry) any computer based program (C++, Java, etc.)	HP8095	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
	Robot using two sensors & only 1 controlling unit	HP8096	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
	Robot using 3-4 sensors & only 1 controlling unit	HP8097	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
	Robot using 3-4 sensors & 2 or more controlling units	HP8098	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
	Robot using 5 or more sensors & only 1 controlling unit	HP8099	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
	Robot using 5 or more sensors & 2 or more controlling	HP8100	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
	Static display of a robotic application that moves materials/parts for delivery to an assembly line or inventory area	HP8101	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
	Static display of a robotic application that welds materials or assembles parts for a product	HP8102	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
	Static display of a robotic application that involves working with a hazardous material or safety application	HP8103	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
	Static display of a robotic application not mentioned above	HP8104	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
	B.E.S.T. Robot Display	HP8105	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
	F.I.R.S.T. Robot Display	HP8106	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
	F.T.C. Robot Display	HP8107	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
	VEX Robot Display (not the TSA NQE VEX event)	HP8108	https://texastсарulebook.org/high-school-category-projects/applied-technical-science

Other robot system application not listed above. The display must include photos and/or DVD of the robot in action at actual event.	HP8109	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
Remote Operated Vehicle Display (Underwater Robotic R.O.V.)	HP8110	https://texastсарulebook.org/high-school-category-projects/applied-technical-science
*In addition to all Manufacturing and STEM Engineering Project Classifications.		

	CNC/CAM [BIOMED] 3D Printer/Rapid Prototype - 2-5 parts	HP5376	https://www.texastsa.org/rulebook/category-projects/high-school/
	CNC/CAM [BIOMED] 3D Printer/Rapid Prototype - 6-10 parts	HP5377	https://www.texastsa.org/rulebook/category-projects/high-school/
Wood - Manual Turning	PEN OR PENCIL INDIVIDUALLY	HP5500	https://www.texastsa.org/rulebook/category-projects/high-school/
	PEN AND PENCIL SET	HP5501	https://www.texastsa.org/rulebook/category-projects/high-school/
	LENGTH NOT TO EXCEED 12"	HP5502	https://www.texastsa.org/rulebook/category-projects/high-school/
	LENGTH NOT TO EXCEED 24"	HP5503	https://www.texastsa.org/rulebook/category-projects/high-school/
	LENGTH NOT TO EXCEED 36"	HP5504	https://www.texastsa.org/rulebook/category-projects/high-school/
	LENGTH OVER 36"	HP5505	https://www.texastsa.org/rulebook/category-projects/high-school/
Wood - Indoor	Various Sizes	HP5510-HP5522	https://www.texastsa.org/rulebook/category-projects/high-school/
Wood - Outdoor	Various Sizes	HP5525-HP5537	https://www.texastsa.org/rulebook/category-projects/high-school/
Metal - Decorative	Various Sizes	HP5550-HP5573	https://www.texastsa.org/rulebook/category-projects/high-school/
Metal - Functional	Various Sizes	HP5580-HP5603	https://www.texastsa.org/rulebook/category-projects/high-school/
Trailers	Trailers - Single Axle	HP5610	https://www.texastsa.org/rulebook/category-projects/high-school/
	Trailers - Double Axle	HP5611	https://www.texastsa.org/rulebook/category-projects/high-school/
Foundry	FINISHED CASTING SINGLE PART	HP5620	https://www.texastsa.org/rulebook/category-projects/high-school/
	FINISHED CASTING MULTIPLE PARTS	HP5621	https://www.texastsa.org/rulebook/category-projects/high-school/
	FINISHED FOUNDRY PRODUCT (4 CAST PARTS OR LESS)	HP5622	https://www.texastsa.org/rulebook/category-projects/high-school/
	FINISHED FOUNDRY PRODUCT (5 CAST PARTS OR MORE)	HP5623	https://www.texastsa.org/rulebook/category-projects/high-school/
	ROUGH CASTING SINGLE PART	HP5624	https://www.texastsa.org/rulebook/category-projects/high-school/
	ROUGH CASTING MULTIPLE PARTS	HP5625	https://www.texastsa.org/rulebook/category-projects/high-school/
All Other Materials	PVC - Various Sizes	HP5650-HP5654	https://www.texastsa.org/rulebook/category-projects/high-school/
	MANUAL TURNED PEN OR PENCIL INDIVIDUALLY	HP5655	https://www.texastsa.org/rulebook/category-projects/high-school/
	MANUAL TURNED PEN AND PENCIL SET	HP5656	https://www.texastsa.org/rulebook/category-projects/high-school/
	MANUAL TURNING LENGTH NOT TO EXCEED 12"	HP5657	https://www.texastsa.org/rulebook/category-projects/high-school/
	MANUAL TURNING LENGTH NOT TO EXCEED 24"	HP5658	https://www.texastsa.org/rulebook/category-projects/high-school/

	MANUAL TURNING LENGTH NOT TO EXCEED 36"	HP5659	https://www.texastsa.org/rulebook/category-projects/high-school/
	MANUAL TURNING LENGTH OVER 36"	HP5660	https://www.texastsa.org/rulebook/category-projects/high-school/
	INJECTION MOLDING	HP5661	https://www.texastsa.org/rulebook/category-projects/high-school/
	VACUUM FORMING	HP5662	https://www.texastsa.org/rulebook/category-projects/high-school/
	CASTING	HP5663	https://www.texastsa.org/rulebook/category-projects/high-school/
	REINFORCED RESINS	HP5664	https://www.texastsa.org/rulebook/category-projects/high-school/
	NON-ACRYLIC	HP5665	https://www.texastsa.org/rulebook/category-projects/high-school/
	COMPOSITE	HP5666	https://www.texastsa.org/rulebook/category-projects/high-school/
	ACRYLICS	HP5667	https://www.texastsa.org/rulebook/category-projects/high-school/
	COMBINATION OF ANY MATERIAL	HP5668	https://www.texastsa.org/rulebook/category-projects/high-school/
	FABRIC	HP5669	https://www.texastsa.org/rulebook/category-projects/high-school/
	GLASS-FLAT	HP5670	https://www.texastsa.org/rulebook/category-projects/high-school/
	GLASS-GLASSWARE	HP5671	https://www.texastsa.org/rulebook/category-projects/high-school/
	LEATHER	HP5672	https://www.texastsa.org/rulebook/category-projects/high-school/
	PAPER	HP5673	https://www.texastsa.org/rulebook/category-projects/high-school/
	Combination of Any 2 Materials Various Sizes	HP5700-HP5712	https://www.texastsa.org/rulebook/category-projects/high-school/
	Restoration FURNITURE	HP5800	https://www.texastsa.org/rulebook/category-projects/high-school/
	MECHANICAL/MACHINE DEVICES	HP5801	https://www.texastsa.org/rulebook/category-projects/high-school/
	ELECTRICAL/APPLIANCES	HP5802	https://www.texastsa.org/rulebook/category-projects/high-school/
	TOYS	HP5803	https://www.texastsa.org/rulebook/category-projects/high-school/
	Recycled Materials WOOD	HP5900	https://www.texastsa.org/rulebook/category-projects/high-school/
	METAL	HP5901	https://www.texastsa.org/rulebook/category-projects/high-school/
	ELECTRICAL/ELECTRONICS	HP5902	https://www.texastsa.org/rulebook/category-projects/high-school/
	PLASTIC	HP5903	https://www.texastsa.org/rulebook/category-projects/high-school/
	COMBINATION OF 2+ RECYCLED MATERIALS	HP5904	https://www.texastsa.org/rulebook/category-projects/high-school/
	Applied Technical Science - Manufacturing A comprehensive display of students assembly and/or maintenance of production machines or equipment.	HP8081	https://www.texastsa.org/rulebook/category-projects/high-school/
	A display of an organization chart for a manufacturing company including job descriptions	HP8082	https://www.texastsa.org/rulebook/category-projects/high-school/
	A display of a study of the types, grades & strength of selected materials used in manufacturing (Metal, wood, polymers, others)	HP8083	https://www.texastsa.org/rulebook/category-projects/high-school/

	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://www.texastsa.org/rulebook/category-projects/high-school/
	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://www.texastsa.org/rulebook/category-projects/high-school/
	A display to demonstrate computer applications in production systems	HP8086	https://www.texastsa.org/rulebook/category-projects/high-school/
Applied Technical Science - Materials	A display of materials testing	HP8087	https://www.texastsa.org/rulebook/category-projects/high-school/