

Appendix C

MANUFACTURING YOUTH APPRENTICESHIP

Recommendations for Related Technical Classroom Instruction

RECOMMENDATIONS FOR RELATED TECHNICAL CLASSROOM INSTRUCTION FOR MANUFACTURING YA

These recommendations are intended to be used by the Local YA Consortium when determining appropriate related instruction for Manufacturing YA. It is not all inclusive but should be used to assist the partnership with identification and/or development of course work that supports the work-based competencies as identified in the Skill Standards Checklist. As with all YA programs the consortium must ensure that the related instruction meets with the approval of their administration and school board.

OPERATIONAL NOTES

- Related Technical Classroom Instruction maybe offered by the employer, within the school district, at another school district, at a Wisconsin Technical College, and/or at a Community College or University by instructors qualified according to the Youth Apprenticeship Program Operations Manual.
- Learning Objectives are the foundation of related technical classroom instruction. Consortiums may teach using locally developed coursework using the learning objectives contained in the curriculum guide, however, statewide advanced standing and/or transcribed agreements may not apply. It is recommended then that local agreements with technical colleges be pursued.
- Courses chosen should coincide as much as possible to occupational program requirements if the student intends to continue in the Wisconsin Technical College System.
- There a variety of courses available commercially that can also serve as related technical instruction. Coursework such as MSSC Certification, WoodLinks, and MERC (Manufacturing Education Resources Center) all may provide instruction that meets the needs of the YA student and the school.
- A minimum of 180 hours (2 semesters) of related technical instruction is required for each Specialty Area.
- Recommendations for this Appendix were obtained from Employer and YA Consortium/School District Coordinator input during YA Regional Meetings, Fall 2007, and through the States' Career Clusters recommendations at <http://www.careerclusters.org/pos-ks/pos.cfm>- Funded in part by the US Dept of Education.



Manufacturing Youth Apprenticeship (YA) Plan of Study

NAME: _____ **DATE:** _____

The Related Technical Instruction course selection and delivery are entirely within local consortium control. The recommendations listed below are only a suggested path of YA career planning and should be individualized to meet each learner's educational and career goals. All plans should meet high school graduation requirements, as well as, college entrance requirements as applicable.

HIGHLY Recommended for ALL Manufacturing YA students

Educational Level	Grade	English/ Language Arts	Social Studies Social Sciences	Math	Science	Career Pathway Courses (Electives)	Recommended Enhancement Electives or Activities
		4 required	3 Required	2 Required	2 Required		
Secondary	9	Oral Communication s (Speech)		Algebra	Physical Science	Manufacturing/Industrial Arts Metals	Skills USA
	10				Chemistry	Manufacturing/Industrial Arts Metals Electricity/Electronics Computer Applications	Skills USA
	11				Physics (For Engineers)	Manufacturing Youth Apprenticeship - Level One – <ul style="list-style-type: none"> • Computer Aided Drafting (CAD)/Technical Drawings • Industrial Arts/Equipment Operation • Welding • Safety in the Workplace • Employability Skills • MSSC certification classes 	
	12			Calculus (For Engineers)		Manufacturing Youth Apprenticeship - Level One or Two – <ul style="list-style-type: none"> • Advanced Manufacturing • Welding • MSSC certification classes 	

Post-Secondary Occupational Opportunities

The chart below shows examples of career ladders organized by manufacturing career pathway.

For additional career cluster information, visit www.careerclusters.org

For additional career information on a specific occupation, visit <http://wiscareers.wisc.edu/> or <http://worknet.wisconsin.gov/worknet/default.aspx>

APP = Apprenticeships available

		High School Diploma, On-the-Job Training, Apprenticeships	Certificate / License (1 year or less college)	Associate's Degree (2 year college)	Bachelor's/Master's Degree (4 year college)
Manufacturing Pathways	Production Process & Development		<ul style="list-style-type: none"> • Power Plant Operators • (APP) Inspectors, Testers, Sorters, Samplers, and Weighers: Precision Inspectors, Testers, and Graders • (APP) Industrial Engineering Technicians: Lab Technicians / Process Control Technicians / Process Improvement Technicians / Quality Control Technicians • First-Line Supervisors/Managers of Production and Operating Workers 	<ul style="list-style-type: none"> • (APP) Industrial Engineering Technicians: Manufacturing Technicians • (APP) Electro-Mechanical Technicians • Engineering Technicians, Except Drafters • (APP) Mechanical Engineering Technicians • Civil Engineering Technicians • Electrical and Electronic Engineering Technicians • (APP) Industrial Engineering Technicians: Lab Technicians / Process Control Technicians / Process Improvement Technicians / Quality Control Technicians 	<ul style="list-style-type: none"> • Industrial Engineers: Manufacturing Engineers • Civil Engineers: Design Engineers • Mechanical Engineers: Design Engineers • Electronics Engineers, Except Computer • Electrical Engineers • Human Resources, Training, and Labor Relations Specialists, All Other: Labor Relations Managers • Industrial Production Managers • Purchasing Agents
	Quality	<ul style="list-style-type: none"> • QC Lab Tech • Instrumentation Technician 	<ul style="list-style-type: none"> • Calibration and Instrumentation Technicians • (APP) Inspectors, Testers, Sorters, Samplers, Weighers • (APP) Industrial Engineering Technicians: Lab Technicians / Process Control Technicians / Quality Control Technicians 	<ul style="list-style-type: none"> • (APP) Industrial Engineering Technicians: Lab Technicians / Process Control Technicians / Quality Control Technicians 	<ul style="list-style-type: none"> • Industrial Engineers: Quality Engineers • Logisticians: Statistical Process Control (SPC) Coordinators

		High School Diploma, On-the-Job Training, Apprenticeships	Certificate / License (1 year or less college)	Associate's Degree (2 year college)	Bachelor's/Master's Degree (4 year college)
		Manufacturing Pathways	Health, Safety, & Environmental Awareness		<ul style="list-style-type: none"> • Compliance Officers Except Agriculture, Construction, Health and Safety, Transportation: Environmental Compliance Inspectors
Logistics & Inventory	<ul style="list-style-type: none"> • Order Filler • Shipping & Receiving Clerk 		<ul style="list-style-type: none"> • First-Line Supervisors/Managers of Helpers, Laborers, and Material Movers, Hand • Shipping, Receiving, and Traffic Clerks • Transportation, Storage, and Distribution Managers • First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators : Traffic Managers / Communications, Transportation and Utilities Managers • Laborers and Freight, Stock, and Material Movers, Hand: Material Associates / Material Handlers / Material Movers • (APP) Dispatchers Except Police, Fire, and Ambulance • (APP) Industrial Engineering Technicians: Lab Technicians / Process Control Technicians / Process Improvement Technicians / Quality Control Technicians • Production, Planning, and Expediting Clerks • Industrial Truck and Tractor Operators 	<ul style="list-style-type: none"> • (APP) Industrial Engineering Technicians: Lab Technicians / Process Control Technicians / Process Improvement Technicians / Quality Control Technicians 	<ul style="list-style-type: none"> • Industrial Engineers: Quality Engineers • Logisticians

		High School Diploma, On-the-Job Training Apprenticeships	Certificate / License (1 year or less college)	Associate's Degree (2 year college)	Bachelor's/Master's Degree (4 year college)
Manufacturing Pathways	Production	<ul style="list-style-type: none"> Apparel & Home Furnishings Dyer Painter (APP) Carpenters (APP) Engraver Hand Worker Equipment Operator Production and Planning Clerk Production Assembler Metalworkers (APP) Foundry Mold/Core makers (APP) Tool & Die Makers Grinders (APP) Welders, Cutters, Solders, Brazers (APP) Pattern Maker 	<ul style="list-style-type: none"> (APP) Assemblers and Fabricators Computer-Controlled Machine Tool Operators: Automated Manufacturing Technician (APP) Electrical and Electronics Repairers, Commercial and Industrial Equipment (APP) Electromechanical Equipment Assemblers Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders (APP) Foundry Mold and Coremakers Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic Hoist and Winch Operators (APP) Machinists: Instrument Makers / Machine Operators Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic (APP) Millwrights Ophthalmic Laboratory Technicians: Precision Optical Goods Workers Painters, Construction and Maintenance Coating, Painting, and Spraying Machine Setters, Operators, and Tenders (APP) Molders, Shapers, and Casters, Except Metal and Plastic: Precision Layout Workers Sheet Metal Workers (APP) Tool and Die Makers (APP) Welders, Cutters, Solderers, and Brazers 	<ul style="list-style-type: none"> (APP) Industrial Engineering Technicians 	<ul style="list-style-type: none"> Industrial Production Managers Technical Education Teacher

		High School Diploma, On-the-Job Training, Apprenticeships	Certificate / License (1 year or less college)	Associate's Degree (2 year college)	Bachelor's/Master's Degree (4 year college)
Manufacturing Pathways	Maintenance	<ul style="list-style-type: none"> • Aircraft Service Technician • (APP) Control/Valve Repair • Electric Tool Repair • (APP) Electrician • (APP) Machinery Mechanics 	<ul style="list-style-type: none"> • Medical Equipment Repairers: Biomedical Equipment Repairers • Boilermakers • Communications/Telecommunications Equipment Installers and Repairers Except Line Installers • (APP) Computer, Automated Teller, and Office Machine Repairers: Computer Installers/Repairers / Computer Maintenance Technicians • (APP) Electrical and Electronics Repairers, Commercial and Industrial Equipment: Electrical Equipment Installers/Repairers • First-Line Supervisors/Managers of Mechanics, Installers, and Repairers : Industrial Facilities Managers • (APP) Industrial Machinery Mechanics: Maintenance Repairers • Maintenance and Repair Workers, General • (APP) Electricians: Job/Fixture Designers / Facility Electricians • Precision Instrument and Equipment Repairers, All Other: Instrument Calibration and Repairers / Instrument Control Technicians • (APP) Control and Valve Installers and Repairers, Except Mechanical Door: Meter Installers/Repairers • (APP) Millwrights • Plumbers, Pipefitters, and Steamfitters • (APP) Electric Motor, Power Tool, and Related Repairers: Major Appliance Repairer 	<ul style="list-style-type: none"> • (APP) Computer, Automated Teller, and Office Machine Repairers: Computer Installers/Repairers / Computer Maintenance Technicians • (APP) Electrical and Electronics Repairers, Commercial and Industrial Equipment • (APP) Industrial Engineering Technicians • Engineering Technicians, Except Drafters 	

SOURCES: The States' Career Clusters Initiative, 2007, www.careerclusters.org; The Oklahoma Department of Career & Technology Education, 2007; Waukesha County Technical College (WCTC), Susan Maresh, Waukesha County School-to-Work, 2007; Wisconsin's Worknet 2007, <http://worknet.wisconsin.gov>.