

Professional Technical Studies: Manufacturing Cluster
Manufacturing Production Process Development Pathway

Strand:

PT-MPD1

Customer Needs

Students analyze customer needs and requirements.

Standard:

PT-MPD1a: The student will produce a product to satisfy customer desires so as to:

Components:

PT-MPD1a.1: conduct in-depth investigation to identify customer needs;

PT-MPD1a.2: verify that needed resources are available for the production process;

PT-MPD1a.3: relate workers' skills to equipment management to set up equipment for the production process;

PT-MPD1a.4: use process-control data to monitor fabrication of the product;

PT-MPD1a.5: inspect the product to verify that it meets specifications;

PT-MPD1a.6: document product and process to ensure formal compliance with customer requirements; and

PT-MPD1a.7: check for specified quantities and proper documentation to prepare a final product for shipping or distribution.

Strand:

PT-MPD2

New Manufacturing Process

Students implement a manufacturing process based on need.

Standard:

PT-MPD2a: The student will implement new manufacturing process so as to:

Components:

PT-MPD2a.1: research the new manufacturing process;

PT-MPD2a.2: create standard operating procedures (SOPs) for new process;

PT-MPD2a.3: develop new tooling and fixtures;

PT-MPD2a.4: set up and program equipment for new processes;

PT-MPD2a.5: schedule and test new processes;

PT-MPD2a.6: monitor production-performance data for new processes;

PT-MPD2a.7: train employees on new processes; and

PT-MPD2a.8: prepare documentation on new processes.

Strand:

PT-MPD3

Safety

Students understand the importance of safety and regulatory compliance in the workplace.

Standard:

PT-MPD3a: The student will maintain a safe and productive workplace so as to:

Components:

PT-MPD3a.1: follow local, federal, and company regulations to perform environmental and safety inspections

PT-MPD3a.2: participate in emergency response teams to perform emergency drills;

PT-MPD3a.3: identify unsafe conditions and take corrective action; and

PT-MPD3a.4: provide safety orientation to train other employees in safe practices and emergency procedures.

Strand:

PT-MPD4

Quality Assurance Processes

Students use a systematic approach to provide evidence that products satisfy requirements,

Standard:

PT-MPD4a: The student will maintain quality and implement continuous improvement processes so as to:

Components:

PT-MPD4a.1: perform periodic internal quality audit activities;

PT-MPD4a.2: check calibration of gauges and other data collection equipment;

PT-MPD4a.3: suggest continuous improvements;

PT-MPD4a.4: inspect materials at all stages of process to determine quality or condition;

PT-MPD4a.5: document the results of quality tests; and

PT-MPD4a.6: make adjustments to restore or maintain quality.

Strand:

PT-MPD5

Communication Skills

Students use information technology to express and interpret information.

Standard:

PT-MPD5a: The student will communicate with coworkers and/or customers to ensure production meets business requirements so as to:

Components:

PT-MPD5a.1: use speaking and presentation skills to effectively communicate safety, training, and job-specific;

PT-MPD5a.2: be timely and accurate in communicating material specifications and delivery schedules; and

PT-MPD5a.3: communicate production requirements and product specifications.

Strand:

PT-MPD6

Facilitating Change

Students identify and implement improvement opportunities.

Standard:

PT-MPD6a: The student will suggest and/or implement continuous improvement so as to:

Components:

PT-MPD6a.1: analyze data to identify potential problem;

PT-MPD6a.2: monitor process capability;

PT-MPD6a.3: monitor customer satisfaction;

PT-MPD6a.4: measure and record product and process outcomes;

PT-MPD6a.5: participate in making new work procedures;

PT-MPD6a.6: implement approved recommendations; and

PT-MPD6a.7: check that final product meets customer and business needs.

Strand:

PT-MPD7

New Product Development

Students develop new products based on need and customer requirements.

Standard:

PT-MPD7a: The student will produce new product to meet customer needs so as to:

Components:

PT-MPD7a.1: conduct research for new products;

PT-MPD7a.2: obtain required supplies;

PT-MPD7a.3: execute process to produce new product;

- PT-MPD7a.4:** inspect product for deviations from specifications;
- PT-MPD7a.5:** evaluate prototypes for manufacturability;
- PT-MPD7a.6:** solve production process problems; and
- PT-MPD7a.7:** deliver finished product to next stage in production process.

Strand:

PT-MPD8

Production Process

Students manage project tasks, timelines, and goals.

Standard:

PT-MPD8a: The student will improve production process so as to:

Components:

- PT-MPD8a.1:** conduct research for new products;
- PT-MPD8a.2:** propose changes to improve products and processes;
- PT-MPD8a.3:** develop production improvement goals;
- PT-MPD8a.4:** inspect product for deviations from customer and product standard(s); and
- PT-MPD8a.5:** correct product or process problems.