



Syllabus

ADM 205 Foundations in Advanced Manufacturing - Production

General Information

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Author Sam Samanta

Department Science and Technology

Course Prefix ADM

Course Number 205

Course Title Foundations in Advanced Manufacturing - Production

Course Information

Catalog Description This course is designed to serve those interested in entering the workforce for advanced manufacturing, incumbent workers of local companies, secondary HS seniors for technical skills development and apprentices in the local area that are required to gain related instruction for their DOL Occupation. The content of this course prepares students to safely step into a production based workplace and enter into additional coursework for advanced manufacturing. The content for manufacturing processes and production includes: identifying customer needs, determining resources available for the production process, setting up equipment for the production processes, setting up team production goals, make job assignments, coordinate work flow with team members and other work groups, communication production and material requirements and product specifications, document product and process compliance with customer requirements and prepare final product for shipping and distribution.

Credit Hours 3

Lecture Contact Hours 3

Lab Contact Hours 2

Other Contact Hours 0

Grading Scheme Letter

Prerequisites

None

Co-requisites

ADM 100

First Year Experience/Capstone Designation

This course DOES NOT satisfy the outcomes applicable for status as a FYE or Capstone.

SUNY General Education

This course is designated as satisfying a requirement in the following SUNY Gen Ed categories

None

FLCC Values

Institutional Learning Outcomes Addressed by the Course

Vitality, Inquiry, Perseverance, and Interconnectedness

Course Learning Outcomes

Course Learning Outcomes

1. Execute the use of hand tools, machine operation, machine tooling, mechanical linkages of machine operation and procedures for each piece of equipment.
2. Demonstrate standard operating procedures based on industry standards, technical manuals, and maintenance manuals.
3. Identify ways to increase production efficiencies by applying the following manufacturing concepts: bottlenecks, balance of workflow, Lean Manufacturing, cost estimating, production data and metrics.
4. Apply mechanical principles to different manufacturing materials and machines, as well as the concepts in production control including the operation of push pull production systems, just-in-time production and methods of feedback to control quality.

Outline of Topics Covered

- **Mechanical Principles: Six (6) types of simple machines, operation and application of levers and concepts of force and weight**
- **Mechanical Linkages: Effect of friction on machine operation; operation of machine linkages, cams, and turnbuckles**
- **Material Quality Control: Types, properties, and applications of materials and chemicals used to manufacture products**
- **Manufacturing Materials and Processes: Types of manufacturing materials**

- **Machining Processes:** Interpret stock material sizes and types from specifications; use a band saw to cut stock materials to size; types of machine tools
- **Machine Tooling:** use basic layout techniques to prepare a part for machining, size a drill bit, identify drill bit by size, select and install drill press tooling, operate a drill press
- **Machine Operations:** Use a drill press to perform basic drilling operations; reaming, counter boring, countersinking, and tapping
- **Hand Tools:** Types, applications and use of hand tools, portable power tools
- **Equipment Procedures:** Interpret standard operation procedures; read technical manuals to obtain information; Total Productive Maintenance; machine operation procedures
- **Production Planning and Workflow:** Basic concepts of production planning, work flow, and facilities layout; identify bottlenecks and ways to balance workflow, Lean Manufacturing concepts, product cost estimating
- **Manufacturing Metrics:** How manufacturing uses data to increase production efficiency
- **Production Control:** Operation of push and pull production systems, just-in-time production, methods of feedback to control quality

Program Affiliation

This course is not required as a core course in any programs.