WAGE DATA

Rate Type / Statistical Type	Entry level	Mean	Experienced
Annual wage or salary	$62, 128	$87,347	$99,957
Hourly wage	$29.87	$41.99	$48.06

JOB DESCRIPTION

Design, develop, test, and evaluate integrated systems for managing industrial production processes including human work factors, quality control, inventory control, logistics and material flow, cost analysis, and production coordination.

DUTIES

- Plan and establish sequence of operations to fabricate and assemble parts or products and to promote efficient utilization.
- Review production schedules, engineering specifications, orders, and related information to obtain knowledge of manufacturing methods, procedures, and activities.
- Estimate production costs, cost saving methods, and the effects of product design changes on expenditures for management review, action, and control.
- Draft and design layout of equipment, materials, and workspace to illustrate maximum efficiency using drafting tools and computer.
- Coordinate and implement quality control objectives, activities, or procedures to resolve production problems, maximize product reliability, or minimize costs.
- Communicate with management and user personnel to develop production and design standards.
- Recommend methods for improving utilization of personnel, material.
- Develop manufacturing methods, labor utilization standards, and cost analysis systems to promote efficient staff and facility utilization.
- Apply statistical methods and perform mathematical calculations to determine manufacturing processes, staff requirements, and production standards.

TOOLS and TECHNOLOGY

Tools used in this occupation:

Audiometers or accessories — Audiometers
Laboratory benches — Optical benches
Laboratory mechanical convection ovens — Environmental ovens
Sound measuring apparatus or decibel meter — Noise dosimeters, Octave band analyzers, Sound level calibrators, Sound level meters

Technology used in this occupation:

Analytical or scientific software — Dataxiom StatMost, ETA Dynaform, Windward Technologies GRG2, Workcell simulation software
Computer aided design CAD software — Autodesk AutoCAD software, International TechneGroup IGESworks, Main Injector Neutrino Oscillation Search MINOS software, SolidWorks CAD software
Development environment software — Microsoft Visual Basic, Microsoft Visual Basic Scripting Edition VBScript, Microsoft Visual Studio, National Instruments LabVIEW
Industrial control software — Allen Bradley PanelView, Computer numerical control CNC software, Human machine interface HMI software, Nupro CastView
Program testing software — Logic programming software, Rockwell RSLogix, User interface design software.

KNOWLEDGE

Engineering and Technology — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.
Production and Processing — Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.
Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
Mechanical — Knowledge of machines and tools including their designs, uses, repair, and maintenance.
Design — Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.
Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software including applications and programming.
Administration and Management — Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods, and coordination.

Customer and Personal Service — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.

SKILLS

Reading Comprehension — Understanding written sentences and paragraphs in work related documents.
Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
**Critical Thinking** — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
Writing — Communicating effectively in writing as appropriate for the needs of the audience.
Speaking — Talking to others to convey information effectively.
Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
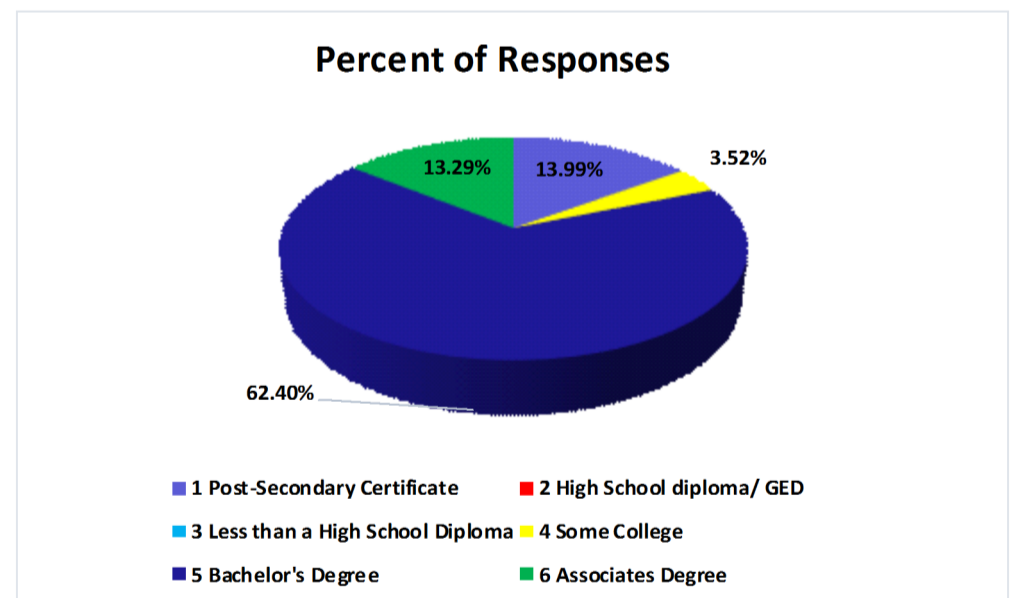
EMPLOYMENT PROJECTION
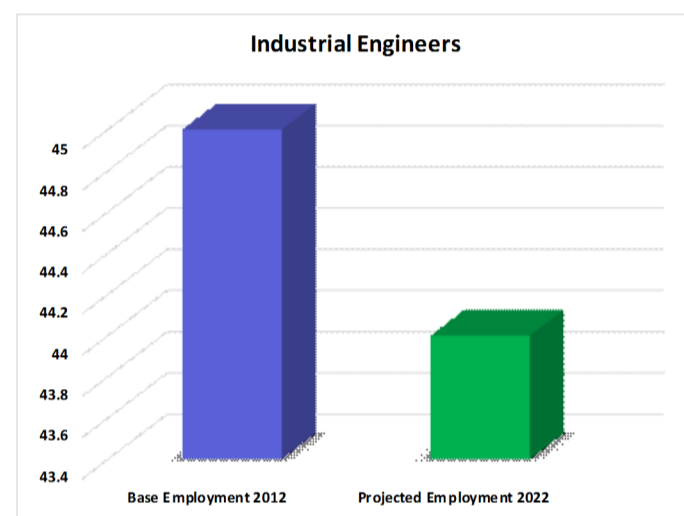
This information is based on LMI Gateway Data

EDUCATION

The graph below shows the results of a national survey listing the most common required level of education for Manufacturing Engineering.

EDUCATION FOR THIS JOB

- 2014 Catalogue of Colorado Advanced Manufacturing Program and Skill Resources
  http://www.coloradomanufacturingcareers.com/

- Approved Colorado Community College Manufacturing Cluster education programs
  http://www.coloradocommunitycolleges.com/go/programs/skilled-trades-technical-sciences/
  http://www.coloradocommunitycolleges.com/go/

- Colorado Four Year Colleges and Universities
  http://highered.colorado.gov/academics/colleges/public4year.asp

- Locations to Get Manufacturing Certificates
  http://www.coloradomanufacturingcareers.com/