

# ADVANCED MANUFACTURING AND LOGISTICS PATHWAY

## What are Career Pathways?

Career Pathways are a sequence of training and education programs designed to develop a person’s academic and technical skills. By obtaining stackable credentials and developing new skills a worker can advance over time to successively higher levels of education and employment in a given industry or occupational sector.

## Understanding the Basics

Soft skills, such as interpersonal skills, professionalism, and dependability, are important in all industries and occupations. These jobs can revolve around shifts or critical driving times so dependability, along with being flexible when the situation demands, is a valued characteristic. Manufacturing and logistics careers often involve interactions with customers so being able to talk about benefits of a product or service, or accept criticism as a professional company representative is important. Safety issues are also a critical part of these industries so attention to details and continuous learning are necessary.

In addition, Advanced Manufacturing, Transportation and Logistics have a set of industry-wide technical competencies that represent the knowledge and skills needed to be successful in these industries. Manufacturing Process Design and Development, Supply Chain Logistics, Maintenance and Repair, Knowledge and Compliance of Government Regulations, and the ability to adapt and consider new ways of doing things are some of the skills needed for success.

## STEM Career Pathways

**Science, Technology, Engineering and Mathematics (STEM)** pathways are usually technical in nature, and play a key role in developing new products and technological breakthroughs. STEM occupations are some of the most in-demand and highest paying jobs in Missouri.

**Science:** Diverse occupations in Physical, Life and Natural Sciences. Science workers can be involved in research, development, and design; as well as outdoor field work.

**Technology:** Jobs connect people and businesses on a global scale, and an unprecedented number of firms need information technology employees.

**Engineering:** Occupations, including drafters, technicians, and engineers, develop and test new products we use every day.

**Mathematics:** Is a part of many occupations and can be used to analyze data and help solve real-world problems in engineering, sciences, or other fields.

## WHO'S HIRING?

### ADVANCED MANUFACTURING

Prof., Scientific, & Technical Services  
 Transportation Equipment Mfg.  
 Chemical Manufacturing

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Honeywell  
 PepsiCo Inc.  
 Burns & McDonnell

### TRANSPORTATION & LOGISTICS

Truck Transportation  
 Building Material/Garden Equipment &  
 Supplies Dealers  
 Couriers and Messengers

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Hogan Transportation  
 United Parcel Service Inc.  
 Lowe's Companies, Inc.

# ADVANCED MANUFACTURING PATHWAYS

## NOW OCCUPATIONS

*One-Twelve months of On-The-Job training*

Production Operators  
CNC Operator  
General Maint. and Repair Workers

## NEXT OCCUPATIONS

*Long-term OJT, Certificate, Assoc. Degree*

First-Line Product. Supervisors  
Electrical Engineering Technician  
Mech. Engineering Technician  
Indust. Engineering Technician  
CNC Programmer  
Indust. Machinery Mechanic  
Welders  
Manufacturing Production Tech.  
Mechanical Drafters

## LATER OCCUPATIONS

*Bachelor's degree or Adv. Degree*

Indust. Production Managers  
Electrical Engineers  
Mechanical Engineers  
Industrial Engineers

## Specialized Skills

Entry-level specialized skills include the general operation of production equipment, inspection of parts, basic repairs, understanding manufacturing processes such as lean manufacturing and continuous improvement, and forklift operation. More advanced skills such as welding, CNC programming, and technical work to include testing, calibration, quality control, scheduling, and documentation require specialized training or on-the-job experience. Later occupations generally require a bachelor degree for engineering but production management can be obtained through extensive experience.

## Certifications and Software

American Board For Engineering And Technology (ABET) Accredited

Six Sigma Certification

Professional Engineer Certification

AutoCAD or CAM Software

# TRANSPORTATION AND LOGISTICS PATHWAYS

## NOW OCCUPATIONS

*One-Twelve months of On-The-Job training*

Laborers and Material Movers  
Industrial Truck and Tractor Operators  
Shipping and Receiving Clerks  
Cargo and Freight Agents  
Planning and Expediting Clerks  
Bus Drivers

## NEXT OCCUPATIONS

*Long-term OJT, Certificate, Assoc. Degree*

First-Line Transp. Supervisors  
First-Line Supervisors of Office and Admin. Support Workers  
Heavy and Tractor-Trailer Truck Drivers

## LATER OCCUPATIONS

*Bachelor's degree or Adv. Degree*

Transportation, Storage, and Distribution Managers  
Logisticians  
Airline Pilots

## Specialized Skills

Entry-level specialized skills include the general operation of material moving equipment, such as forklifts, dollies, and hand trucks, as well as knowledge of basic repairs, inspection, and packaging. More advanced skills such as office management, scheduling, and planning require specialized training or on-the-job experience. Later occupations generally require a bachelor degree for Logisticians and Airline Pilots but Transportation Management can often be obtained through extensive on-the-job experience.

## Certifications and Software

Commercial Driver's License

Forklift Operator Certification

Enterprise Resource Planning (ERP) Software

APICS (American Production and Inventory Control)

# MANUFACTURING OCCUPATION PROFILE

## Mechanical Drafters

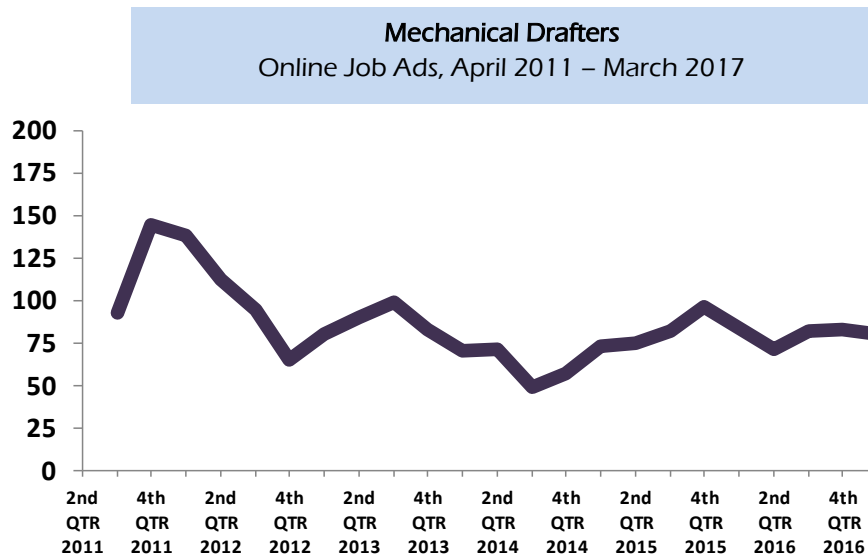
Mechanical Drafters prepare detailed working diagrams of machinery and mechanical devices. They develop detailed design drawings and specifications for mechanical equipment, check dimensions of materials to be used, and review and analyze specifications, sketches, drawings, ideas, and related data to assess procedures and instructions affecting component designs.

Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM) software is frequently used by employees in this occupation. Mechanical Drafters must have a good understanding of design techniques, mathematics, and a practical application of engineering science and technology. Problem solving and critical thinking skills are important to identify problems and evaluate strengths and weaknesses of alternative solutions,

The Computer Aided Drafting (CAD) certificate program enables students to secure work-ready skills that allow them to move into industry prepared to meet basic through advanced challenges; including knowledge of Additive Manufacturing and Parametric CAD.

*Fran Bartholet, Instructor, Crowder College*

**Entry Wage: \$33,290 | Average Wage: \$49,090 | Experienced Wage: \$56,990**



## Who's Hiring?

**Mechanical Drafter** job ads peaked in the 4<sup>th</sup> quarter of 2011. Over the last year they have been averaging 80 job ads per quarter. Some of the top job posting companies include:

**Johnson Controls Inc.**  
*Statewide*

**Parsons Brinckerhoff**  
*St. Louis*

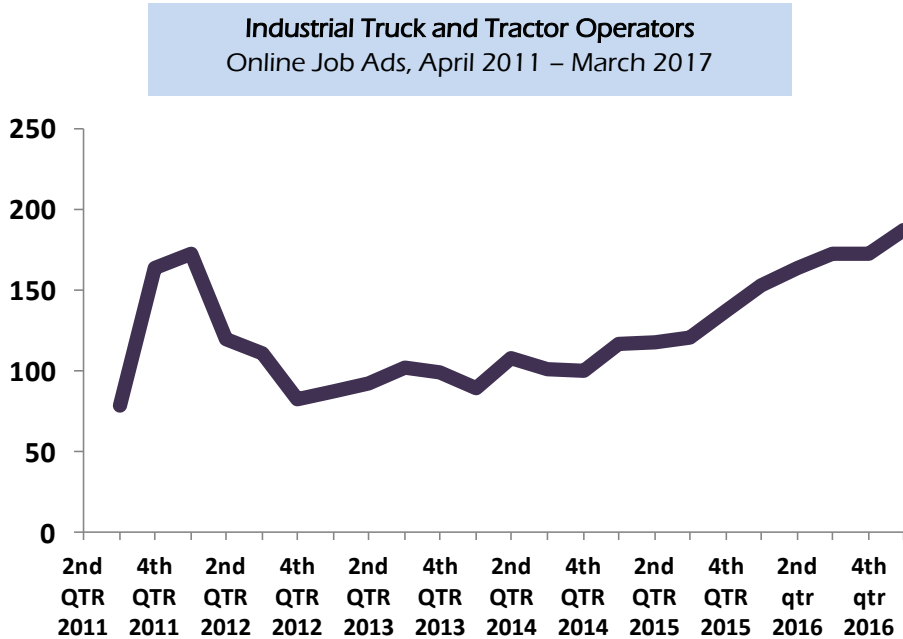
**Power Engineers Inc.**  
*St. Louis*

# TRANSPORTATION AND LOGISTICS OCCUPATION PROFILE

## Industrial Truck and Tractor Operators

Industrial Truck and Tractor Operators operate industrial trucks or tractors equipped to move materials around a warehouse, storage yard, factory, construction site, or similar location. They manually or mechanically load or unload materials and may inspect product load for accuracy or weigh materials or products. Industrial Truck and Tractor Operators must have good operation, control, and monitoring skills to safely and accurately move products. Good time management skills are also important in this occupation. Industrial Truck and Tractor Operators may sometimes use logistics software such as Enterprise Resource Planning (ERP) or inventory management software.

**Entry Wage: \$22,510 | Average Wage: \$33,580 | Experienced Wage: \$39,110**



### Who's Hiring?

Jobs ads for **Industrial Truck and Tractor Operators** have been increasing over the past year. Some of the top job posting companies include:

**XPO Logistics**  
*Kansas City*

**Nestle USA Inc.**  
*St. Louis*

**Blount International**  
*Kansas City*

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#### Sources:

Data for this analysis has been extracted using Burning Glass Technologies Labor/Insight™ tool which collects information from over 35,000 web sources, including job boards, newspapers, and employer websites. While this analysis presents a broad picture of hiring activity and serves as a measure of labor demand, it does not capture openings that are filled through other networks. Other sources include the Employment and Training Administration, Competency Model Clearinghouse for information available on selected industries in this report. Wage data is 2015 Occupational Employment Survey, Bureau of Labor Statistics.

