

Careers in the Supply Chain

Mechanical Engineer

National Occupational Classification Code – 2132

Alternative Titles:

- design engineer – mechanical
- mechanical maintenance engineer
- tool engineer



Industry Description

Mechanical Engineers research, design and develop machinery and systems for transportation, processing and manufacturing. They also perform duties related to the evaluation, installation, operation and maintenance of mechanical systems.

General Job Description

Mechanical Engineers work on industrial systems and processing (e.g., in warehouses, refineries, petrochemical facilities), manufacturing systems, plants and products, environmental control systems (heating, ventilating and air conditioning), telecommunications, computer components and systems.

Job Functions

Mechanical Engineers use their knowledge of product design, materials and parts, fabrication processes, tooling and production equipment capabilities, assembly methods and quality-control standards to develop, evaluate and improve manufacturing systems and methods. This may involve:

- Working with planning and design staff on product design and tooling to ensure efficient production processes.
- Analyzing space requirements and workflow, and designing the layout of equipment and workstations to ensure maximum efficiency.
- Working with regulatory agencies to ensure safety, environmental and design standards are met.
- Deciding whether to produce parts and subassemblies in-house or buy them from other companies.
- Setting production standards and changing production manufacturing methods and automating processes.
- Working with vendors to determine product specifications and arranging for the purchase of equipment, materials or parts.
- Estimating production times, staffing requirements and related costs.
- Designing, planning and setting up the equipment used to make products.
- Devising racks, bins and other containers to hold and protect parts and subassemblies.
- Anticipating future manufacturing requirements and potential.

Physical Demands Analysis

Mechanical Engineers need the following characteristics:

- the ability to think in mathematical and abstract terms
- the ability to visualize three-dimensional objects from two-dimensional drawings
- a practical, mechanical inclination
- an interest in technical processes
- persistence and determination
- well-developed spoken and written communication skills
- good interpersonal skills and the ability to work as part of a team

They should enjoy being innovative, doing work that requires precision, making decisions and supervising others.

Position Expectations

Essential Skills	
Reading Text	2
Document Use	3
Computation	2
Writing	3
Oral Communication	2
Thinking Skills	2
Working with Others	2
Computers	3
Continuous Learning	3

Scale: 0 = n/a, 1 = minimal, 2 = moderate, 3 = high

Salary Range

Visit Working in Canada, at <http://workingincanada.gc.ca/welcome.do?lang=en>, to get current information about this position, including salary information.

Pre-employment Skills

- The minimum education requirement for mechanical engineers is a bachelor's degree in mechanical engineering.
- Engineering is a quota program so higher marks are usually required to enter these programs.
- Continuing-education programs are often offered on an as-needed basis.
- Experience in warehousing logistics environment, support services, quality assurance or additional post-secondary studies.
- Must be a registered member of a provincial association of professional engineers.

Find information about supply chain-related educational offerings across Canada in the CSCSC's education compendium, at <http://www.supplychaincanada.org/en/education-information>.

Career Levels/Years of Experience

Career Levels	Position	Average Experience	
		From	To
5	Vice President	7 years	10 years+
4	Director	5 years +	6 years
3	Manager	4 years +	5 years+
2	Manager Trainee	3 years	4 years
1	Mechanical Engineer	2 years +	3 years +

References

- NOC (National Occupational Classification Codes), Government of Canada – <http://www5.hrsdc.gc.ca/NOC/English/NOC/2011/Welcome.aspx>
- Essential Skills – <http://www.hrsdc.gc.ca/eng/workplaceskills/LES/index.shtml>