COMPOSITE ENGINEER

ALSO KNOWN AS: ADVANCED MATERIALS ENGINEER | POLYMER COMPOSITE SPECIALIST | COMPOSITE DESIGN ENGINEER | COMPOSITE MANUFACTURING ENGINEER

CREATE THE FUTURE OF LIGHTWEIGHT, HIGH-STRENGTH MATERIALS.

At the intersection of materials science and engineering, Composite Engineers create the future of lightweight, high-strength materials. They combine fibres and resins to develop substances that defy conventional limits, powering innovations across industries from aerospace to sports equipment.

KEY SKILLS

Skills which may benefit anyone considering a job as a composite engineer include:

- CAD software proficiency
- Failure analysis
- Materials Science
- Process Engineering
- Structural analysis

VALUES & ATTRIBUTES

Values and attributes of anyone considering a job as a composite engineer include:

- Innovative
- Precision
- Solutions-focused
- Collaborative
- Continuous learning
- Realistic – "Do-er"

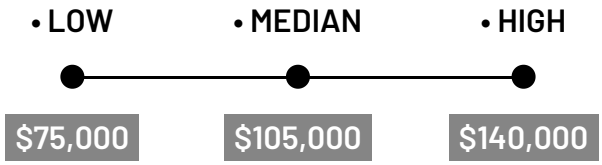
CAREER PROGRESSION

In this role, you may have the opportunity to progress to other positions. Career progression opportunities include:

- Chief Executive Officer
- Supply Chain Manager
- Chief Operating Officer
- Chief Engineering Officer

SALARY EXPECTATION

The expected salary for a Composite Engineer can vary across different areas of manufacturing and may vary as you become more experienced.



RELATED INDUSTRIES

▸ Aerospace and Defence ▸ Chemicals, Hydrocarbons and Refining ▸ Food and Beverage ▸ Furniture and Other Products ▸ General Manufacturing and Engineering ▸ Meat and Seafood Processing ▸ Pharmaceutical and Medical Technology ▸ Polymers, Plastic and Rubber ▸ Printing and Graphic arts ▸ Pulp, Paper and Packaging ▸ Renewables ▸ Textiles, Clothing and Footwear ▸ Timber and Wood ▸ Transport Equipment and Machinery

RECOMMENDED SCHOOL SUBJECTS

- Design
- Engineering Skills
- Mathematical Methods
- Physics
- Specialist Mathematics

CORE SCHOOL SUBJECTS

- General Mathematics
- Essential English
- Biology
- Chemistry
- Engineering

JOB OVERVIEW

Composite Engineers specialise in the design, development, and manufacturing of composite materials – engineered materials made from two or more constituent materials with significantly different physical or chemical properties. These engineers play a crucial role in industries where high-strength, lightweight materials are essential, such as aerospace, automotive, renewable energy, and sporting goods.

In their day-to-day work, Composite Engineers might be found in laboratories testing new material combinations, in design offices using specialised software to model composite structures, or on factory floors overseeing the manufacturing process of composite parts. They work with a wide range of materials, including carbon fibre, glass fibre, aramid fibres, and various polymer resins.

The role of a Composite Engineer requires a unique blend of materials science knowledge, mechanical engineering principles, and manufacturing expertise. They must understand the behaviour of different fibres and resins, how they interact, and how to optimise their properties for specific applications. Additionally, they need to be familiar with various manufacturing processes such as layup, resin transfer moulding, and autoclave curing.

WHAT WILL YOU DO?

Your role may include duties as follows:

1. Design composite structures and components for specific applications
2. Develop and optimise manufacturing processes for composite materials
3. Conduct material testing and analysis to ensure quality and performance
4. Collaborate with other engineers and designers to integrate composite solutions
5. Research new composite materials and manufacturing techniques

HOW TO BECOME A COMPOSITE ENGINEER

Becoming a Composite Engineer typically requires a strong background in engineering or materials science, often with specialised knowledge in composite materials. Here are the steps to become a Composite Engineer:

1. Earn a bachelor's degree in materials science, mechanical engineering, or a related field
2. Gain practical experience through internships or co-op programs during your studies
3. Consider pursuing a master's degree in composite materials or a related specialisation
4. Stay updated with the latest developments in composite materials and manufacturing techniques through continuous learning and professional development

VOCATIONAL EDUCATION & TRAINING

While most Composite Engineer positions require a university degree, there are vocational education and training options that can provide a foundation for entering the field or supporting roles within composite manufacturing:

- Certificate IV in Polymer Technology (Composites) (PMB40121)
- Certificate IV in Engineering (MEM40119)
- Diploma of Engineering – Advanced Trade (MEM50119)
- Diploma of Engineering – Prototyping (MEM50622)
- Diploma of Polymer Technology (PMB50121)
- Advanced Diploma of Engineering (MEM60122)

These courses can provide hands-on experience with composite materials and manufacturing processes, which can be valuable for those entering the field or looking to enhance their skills in composite engineering.

UNIVERSITY & HIGHER EDUCATION

A university degree is typically required to become a Composite Engineer. Most employers prefer candidates with a bachelor's degree in materials science, mechanical engineering, or a related engineering field. These programs provide a strong foundation in mathematics, physics, and chemistry, along with specialised courses in materials properties, manufacturing processes, and structural analysis.

For those seeking to advance their careers or specialise in composite materials, postgraduate degrees such as a Master of Engineering (Materials) or a Ph.D. in Composite Materials can be highly beneficial. These advanced programs often involve in-depth research projects and can lead to leadership roles in industry or academia.

Many universities also offer specialised courses or certifications in composite materials and manufacturing, which can be valuable for professionals looking to gain expertise in this field. These programs often cover topics such as advanced composite design, non-destructive testing techniques, and the latest advancements in composite manufacturing technologies.