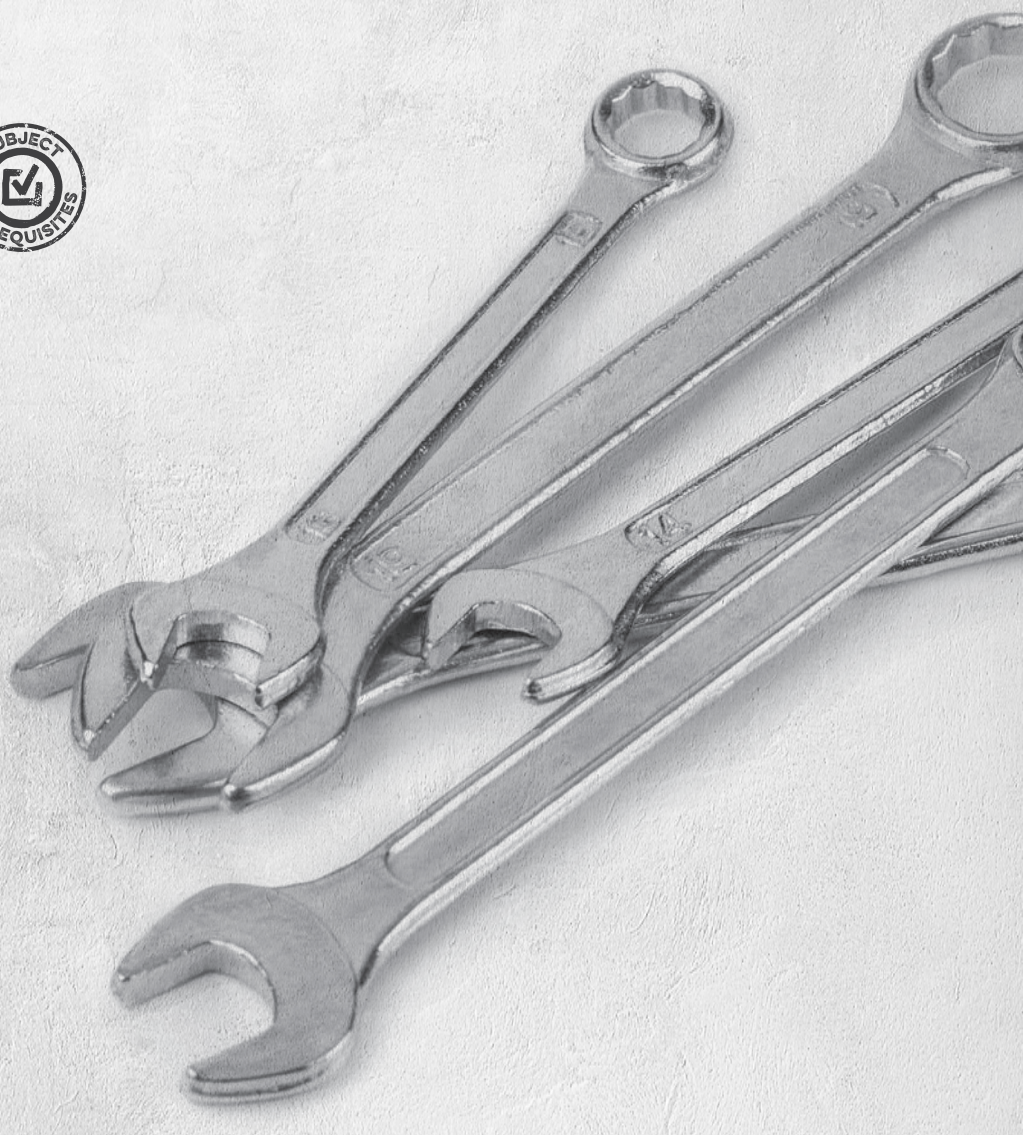
JOB DESCRIPTION:

MECHANICAL ENGINEER

PREREQUISITES

APPROX INCOME

$100,000 + per year



KICKASS WOMEN

MECHANICAL ENGINEER

Mechanical engineers plan, design and oversee the development, installation, operation and maintenance of machinery.

They are involved in this process from the initial design right through to the manufacture and installation of the final product. Mechanical engineers can work on a variety of projects, from designing mechanical hearts used in the medical industry, to car engines, through to designing and improving the production processes at mine sites. When designing machines they must take into account the cost to build and run a finished design, availability of materials and strength and maintenance requirements. To ensure the necessary standards are met they must regularly test designs, which can involve building a working prototype, and making necessary adjustments based on its performance.

They conduct research to solve practical engineering problems and improve efficiency.
Mechanical engineers often work closely with other professionals (such as with architects in designing air conditioning plants), at times pooling expertise on particular projects.
Mechanical engineers may work in production plants, in offices and outdoors when involved in construction projects.

PERSONAL REQUIREMENTS

- Enjoy technical and engineering activities
- Willing to adhere to safety requirements
- Able to identify, analyse and solve problems
- Good oral and written communication skills
- Enjoy computing and technical design
- Practical and creative
- Able to work independently or as part of a team

WHAT THEY DO

Mechanical engineers may perform the following tasks:

- Design new machines, equipment or systems, taking into account cost, availability of materials, and strength and maintenance requirements
- Consider the appearance of the designs as well as the impact on users and on the environment
- Carry out research on the use of different types of fuel and energy, materials handling, heating and cooling processes, the storage and pumping of liquids and gases, and environmental controls
- Use computer-aided design (CAD) to assist with design and drawing
- Design and construct resource development projects such as offshore platforms, onshore gas plants and iron ore mining facilities
- Supervise the operation of manufacturing process plants such as vehicle and electrical appliance production plants, coal handling installations, power stations, and sewerage and water supply pumping stations
- Specify, select and install factory machinery and production systems and manage machinery maintenance
- Set up work control systems (such as the testing of equipment) to ensure that performance, quality, cost and safety requirements are met
- Act as consultants, researching possible changes or improvements and estimating costs of products for clients

SPECIALISATIONS
- TOOLS & TECHNOLOGIES

Mechanical engineers use computers, including Computer-Aided Design (CAD) and Computer-Aided Manufacturing (CAM) technologies, to assist in the designing, testing and building of machines. They may also use a range of hand and power tools and equipment to test aspects such as energy consumption and strength. Depending on their work environment, mechanical engineers may be required to wear safety equipment, including hard hats, overalls, safety glasses and hearing protection.

EDUCATION & TRAINING

To become a mechanical engineer you usually have to complete a degree in engineering at university with a major in mechanical engineering. To get into these courses you usually need to gain your HSC Year 12. Prerequisite subjects, or assumed knowledge, in one or more of English, mathematics, chemistry and physics are normally required. Most universities in Australia offer degrees in engineering with a major in mechanical engineering.

Universities have different prerequisites and some have flexible entry requirements or offer external study. Contact the universities you are interested in for more information as requirements may change.

PREREQUISITES

ADDITIONAL INFORMATION

Mechanical engineers may work in an office, workshop, factory or on a building site. They generally work regular business hours and often work in a team environment, with professionals from a wide variety of backgrounds, depending on the specific project. For example, a mechanical engineer designing the valves used in a mechanical heart might consult closely with biomedical engineers, doctors and surgeons, while one designing a gold processing plant, would work with mining engineers and metallurgists. Travel to meet with clients and/or view work sites may also be required.

Mechanical engineers are involved in a wide range of industries, including aviation, power generation, manufacturing, refrigeration and air conditioning, transportation and mechanical handling. They may specialise in areas such as research and development, engineering design, production, plant and maintenance.

Mechanical engineers work in private engineering firms and in the building, mining, construction, power, manufacturing and processing industries. Universities and federal, state, territory and local government agencies also offer opportunities for employment. In addition, some mechanical engineers find employment with consultancy firms, while others are self-employed as consultants or contractors.

Job opportunities depend on activity in the minerals, manufacturing and construction industries.

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