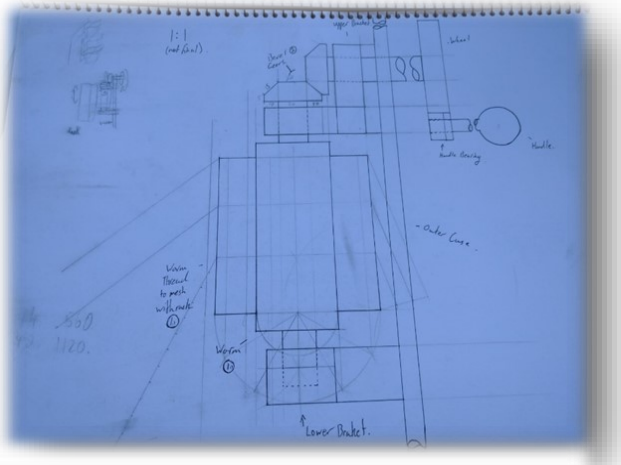
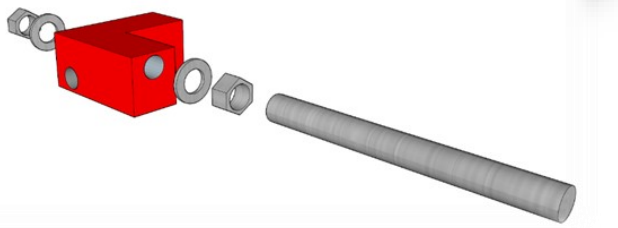
WORK REQUIREMENTS

This course will be delivered on a project basis. The format will be one teacher directed project, one learner selected project and one learner initiated project. The projects that learners select will be from a list of teacher approved briefs. The learner initiated projects will be from a teacher approved area of inquiry. Learners will be required to produce a folio of work for each project.





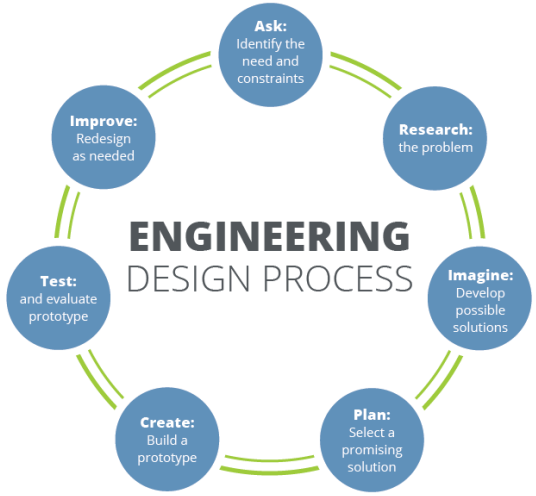
PATHWAYS

This course is designed for learners who are interested in studying the design life cycle as it relates to the engineering process.

Engineering Design, may be studied as a standalone course.

It may provide background and support for vocational programs within training packages, where some engineering knowledge and experience is useful. It may also provide links with VET programs, traineeships and apprenticeships.

This foundation course may also provide pathways to a number of Level 3 courses including: *Agricultural Systems; Computer Science; Electronics; Housing and Design; Information Systems and Design Technologies*; and *Physical Sciences*.



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ENGINEERING DESIGN 2

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THIS SUBJECT

Engineering Design will impart a specific skill set upon learners that will enable them to confidently identify a problem and develop a well structured and well thought-out solution in an engineering context. This will be achieved through a rigorous design process. This means that learners will not only gain valuable experience in the niche skills of designing engineered components but also gain experience in project management.

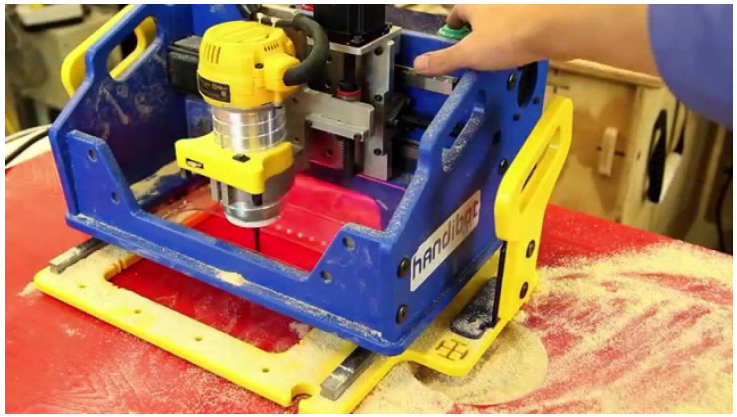
YOU WILL LEARN ABOUT

Design Foundation

In this Unit learners develop an understanding of design thinking and how this is applied to develop design solutions. The importance of working to a design brief within this process is pivotal. Learners will develop visual communication skills to communicate their ideas and understandings through the process of design development and the presentation of a final product.

Engineering Fundamentals

The second unit focuses on their skills around applying science, technology and mathematics to explain, test and refine an engineering solution. Learners will be allowed to choose from a variety of solutions (including their solution from Unit 1). They must provide detailed summary of: the application of the key science, technology and mathematics principles associated with the engineering solution, the data and information gathered and investigate its use and impact on society.



Engineering Solutions

the third unit focuses on their skills around engineering an appropriate solution to a set problem. Learners will be allowed to choose from a variety of design challenges and will be required to design and produce an appropriate solution. They must then conduct a full review and appraisal of their final solution.

Learner Project

Having completed the previous three units learners will now be responsible for proposing a third and final design engineering project. As with the previous two units they will have to conduct their own research, design and construct a prototype and then perform an evaluation of their final product.

Possible problems and solutions for engineering projects might include.

Practical Example of Problem to solve	Possible Engineering Solution
If I showed a toaster my perfect piece of toast could I have consistently perfect toast forever?	A toaster that can see and interpret colour
Get me to class on time - it knows my timetable, it knows where I am - how long can I hang before hot-footing it?	A app that connects the calendar and GPS features of a mobile device
My model boat is not fast enough to break the world speed record	Redesign the model boat to improve speed through considering the impact of shape, materials and balance
How do I capture and reuse or recycle plastic microbeads	Reusable egg cartons made from captured plastic microbeads
How do I feed my pets while I'm away from home?	A way of determining which pet is feeding when and what it needs to eat
How do I produce clean drinking water at low cost?	An easy to clean, gravity fed filter