

Engineering Module Brief Outlines

Each module goes for a half-day. Participants will work with specialist, experienced engineers in each module.

Every module will require you to:

- Learn new skills (academic and practical)
- Work in a group to solve a problem
- Plan and present a solution
- Construct a solution to the problem

Please note: not all modules are offered at every Project.

Modules are listed in alphabetical order:

Aeronautical Engineering:

Participants will be introduced to methods, processes and principles of aerospace engineering design and analysis to design a parachute for an ejection seat to ensure pilots land safely.

Chemical Process Engineering:

Participants will design and plan a pipeline capable of transporting gas from the well to the compressor plant. Safety and operational plans are essential and the ability to bring the project in under budget.

Civil Engineering:

- Design and build a model crane that will support a large mass in two positions, but must stand on a VERY unstable base **or**
- Participants will design and build a temporary bridge to ensure the safe passage of personnel across a short ravine **or**
- Design and build a model retaining wall designed to hold a large amount of soil

Mechanical Engineering:

Participants will design and construct a model all-terrain vehicle. You will apply the concept of gearing to ensure that you meet the strict criteria.

Mechatronics/Electrical Engineering:

Put together an electronic circuit, then learn to program an Arduino module and use your knowledge to control a circuit to do complex tasks.

Environmental Engineering:

Participants will test, design, and plan a water recycling plant, using a variety of filtration systems. The clearest water will win (will you be prepared to drink it?)