

Mechanical Engineering

How will it look and feel? How does it move? How do we assemble it? How heavy is it? Will it survive if impacted? These are just some of the questions which our mechanical engineers have to answer on a daily basis here at Rochester.

The role of a mechanical engineer at Rochester is to provide an optimal physical solution to meet the requirements of a specification. This maybe as simple as designing packaging for a Mission Computer, to something more complex like the design of a helmet that can survive a windblast at 600knots!

In the early stages of a programme a mechanical engineer will begin by drafting up a range of concept ideas to meet the fundamental needs of the product. They will use a mixture of scientific principals, technical information and imagination to generate these ideas.

As the programme matures the mechanical engineer would select the most suitable concept design and begin by turning it into a viable solution. This normally involves a complete 3D computer model of the product and would involve looking at things such as different materials, methods of manufacture, cost and performance, just to name a few.

Once this initial design has been completed a range of prototypes are produced. Having these prototypes can help the Mechanical Engineer gain a better understanding of the design and can be used to identify things like potential space constraints etc.

After the mechanical engineer has identified and solved any issues highlighted by the prototype they would then work towards the final solution, here the design would be optimised normally on a performance, cost and weight basis. Mechanical analysis is undertaken in conjugation with this activity to ensure that the product was also fit for purpose ensuring that all the mechanical requirements are met.

Finally the Mechanical Engineer would help support the transition from prototype to full scale production.

Some of the types of programmes Mechanical Engineering Graduates can expect to work here at Rochester are:

- Helmet Mounted Displays (HMD) for fast jet and helicopter platforms. Many of our HMD programmes at Rochester have required Mechanical Engineers to come up with unique design solutions to existing problems to help incorporate new technologies whilst still consistently meeting the strict impact and weight regulations of a standard helmet.
- Diesel-Electric Hybrid Propulsion Systems designed and produced by BAE Systems are currently undergoing trials with Transport for London in readiness for the London 2012 Olympics. Mechanical Engineers are working closely with the bus manufacturer, to ensure that we supply a product that is reliable, cost effective and efficient.
- Active Inceptor Systems (AIS). Rochester designs and builds AIS' for all aircraft platforms from military fast jets and helicopters to commercial airliners. Our military programmes require us to push our capabilities and technologies to the limit of what is achievable today. This raises many challenges for the system as it must ultimately meet both our customer's stringent safety requirements and bring leading edge performance as a platform solution.