Sustainability Action

What does Education for Sustainability have to do with Aero, Astro and Computational Engineering?

"We provide industry with innovative solutions to their problems, train the engineers, audiologists and environmental scientists of the future, and impact on society through our world-leading research." (http://www.southampton.ac.uk/engineering/about/index.page?)

Innovative design can change people's lives and the environment for the better. Topic areas of relevance to sustainability already in the Aero, Astro and Computational Engineering curriculum include:

- **Resources management:** use of sustainable energy, materials and sources, from production, construction, development, design through to trade; increasing efficiencies e.g. of fuel consumption.
- **Renewable energies:** development of fuel cell and photovoltaic systems; exploiting wind (off and on shore), ocean wave and marine currents for energy generation; understanding the risks and opportunities for nuclear energy; the principle barriers to hydrogen economy.
- **Environmental impact:** mitigating space debris; reducing noise pollution; what are the implications of underwater vibrations? How does the marine environment cope with the acoustics which sound through? Environmental pollution dispersal.
- **Management and law:** ensuring compliance with the ethical and environmental concerns embedded in business management and law; coroporate social responsibility.
- **Human impacts:** optimising the design of things to account for the characteristics and capabilities of the people using them; improving human health and wellbeing e.g. use of music in therapy; human joy through engagement with space and the planet.
- **Future thinking:** developing technologies and their future potential.
- **Ethics:** consideration of ethics in research and in healthcare; safety and regulatory factors in design.

Key skills for aero, astro and computational engineers which sustainability teaching cultivates:
interdisciplinarity; informed decision-making; synthesis of different opinions, theory and data; debate and reasoning; teamwork; leadership; problem-solving; oral and written communication; self-management; time-management; critical thinking; future thinking; project management; risk management; entrepreneurship.

Find out more: Contact Julia Kendal (j.kendal@soton.ac.uk) for more information including case studies on teaching sustainability in this area.