

Sustainability



Sustainability or sustainable development is 'development which meets the needs of the present without compromising the ability of future generations to meet their own needs'¹. It addresses the environmental, technological and social needs and responsibilities of both the present and future way of life.

Sustainability can be thought of as living within the constraints of environmental, technological and social needs, while sustainable development is the process of moving to the point where all human activity is sustainable.

Materials Scientists and Engineers must be key players in sustainable development. In their working lives, it will be Engineers and Materials Scientists who make decisions about the development and use of materials, the design of new products and their ultimate waste disposal. Achieving sustainability through sustainable development will require some significant shifts in behaviour and consumption patterns and Materials Scientists and Engineers must recognise and exercise their responsibility to society as a whole. There must therefore be implications for the content and approach of Materials programmes in Universities.

Resources

There is a good report from the Royal Academy of Engineering entitled '*Engineering for Sustainable Development : Guiding Principles*'² which gathers together a set of case studies in sustainable development and is based on the practical experience of the academy's visiting professors. The report is aimed at academic staff in University Engineering Schools and Departments, who are considering how to embed the essence of engineering for sustainable development into their courses and teaching.

The Department for Environment, Food and Rural Affairs (Defra) has set up a Sustainable Products and Materials Division. The division 'co-ordinates and drives forward work to reduce the environmental impacts generated throughout the life cycle of priority products and materials'. Further details are available at <http://www.defra.gov.uk/environment/consumerprod/index.htm#1>

Other useful resources include the website of 'Forum for the Future', who provide expert guidance and support as well as practical training for sustainability, available at <http://www.forumforthefuture.org.uk/> The 'Rematerialise' website, developed by staff at Kingston University, provides a database of *eco-materials*, 'a range of environmentally responsible alternatives to resource-hungry materials'. The website can be accessed via www.rematerialise.org

¹ Our Common Future (1987), Oxford: Oxford University Press. ISBN 0-19-282080-X

² Engineering for Sustainable Development : Guiding Principles, The Royal Academy of Engineering, ISBN: 1-903496-21-7 September 2005

How can we help?

UKCME can help by:

- Putting you in contact with one or more staff at UK universities who currently deliver modules in sustainability;
- Offering guidance and/or teaching development grants to develop a module in sustainability and sustainable development;
- Running an awareness-raising workshop in your Department, Faculty, School or College.

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Higher Education Academy Resources

- The Higher Education Academy (HEA) is currently engaged in an *Education for Sustainable Development (ESD) Project*, the purpose of which is to help institutions and subject communities develop curricula and pedagogy that will give students the skills and knowledge to live and work sustainably. Further details are available at <http://www.heacademy.ac.uk/ourwork/learning/sustainability>



- The HEA's Engineering Subject Centre, based at Loughborough University, has developed a *Toolbox for sustainable design education*. This has been created for lecturers in Engineering and Design who recognise the importance of including Sustainable Design in undergraduate and postgraduate Engineering and Design courses, and are looking for guidance and material to support the development of a module of this nature. Further information can be found at <http://www.lboro.ac.uk/research/susdesign/LTSN/index.htm>