13 CLIMATE ACTION

Take urgent action to combat climate change and its impacts

TEACHING AND STUDENTS

Sustainable Automotive Engineering MSc

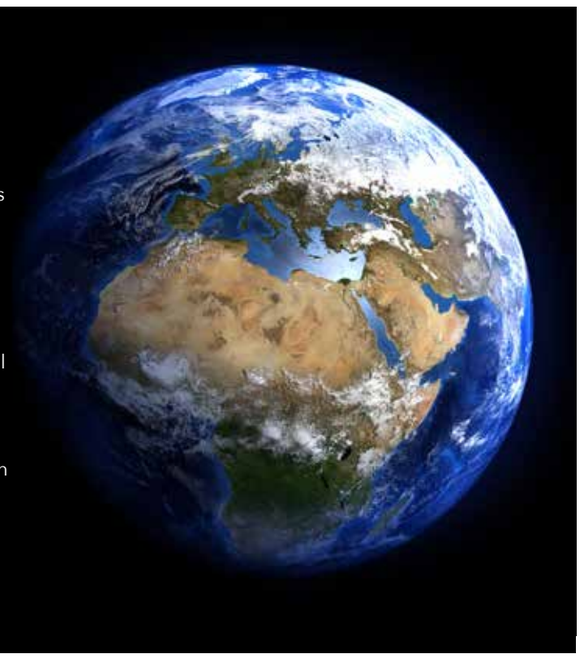
The Sustainable Automotive Engineering MSc, taught within Warwick Manufacturing Group, provides students with a holistic understanding of the different technology options and methods relating to new energy vehicles. It covers aspects from motivations for electrification, to design of cells, electric machines and control systems.

A new course "Sustainable Automotive Electrification" is in development for the 2020 academic year which builds on those elements. The course will cover the strategies employed to deal with the challenges the Climate Emergency brings to the sector, both organisationally and technically.

Climate Change modules

The University of Warwick has many modules across multiple departments that tackle the issues of climate change including:

- Climate Change (Life Sciences) – provides a broad introduction to the science of climate change, its origins and consequences.
- Challenges of Climate Change (GSD) – focuses on the challenges that climate change raises across science, economics, politics and engineering.
- The Politics of Climate Change (PAIS) – provides an overview of the key debates, arguments and conceptual approaches within global politics.
- Climate Change and Development (Law) – addresses the science and economics of climate change as the basis for analyses of the limits and potential of the law in addressing the problem.
- Climate Change and Law (Law) – based on the climate science of the Intergovernmental Panel on Climate Change and examines law, ethics, politics and economics of the climate crisis and the possibilities of climate justice in the Anthropocene.



PUBLIC ENGAGEMENT

Green Week

Established in 2017, the Coventry and Leamington Spa Green Week was set up by University of Warwick, Coventry University, Coventry City Council, Warwick District Council and Action 21. The aim of the week is to engage everyone across the region in education and action towards tackling the Climate Emergency and the UN Sustainable Development Goals.

RESEARCH

Impact of marine carbon on climate change

Winter warm spells see a two- to three- fold increase in duration and frequency in UK temperature records. Climate variability is expected to increase as the global climate warms, and the increase of extended warm spells during winter can have an important impact on agriculture and the sustainability of ecosystems.

Analysis of historical daily temperature data by the Department of Physics, the British Antarctic Survey, and the London School of Economics and Political Science found that warm winter spells have increased in frequency and duration two- to three times over since 1878. Data was used from the Central England Temperature record, the longest available instrumental record of temperature in the world. Researchers used observations of daily temperatures to show how the likelihood of different temperatures changed. By applying a method called crossing theory to these probabilities, the scientists demonstrated a valuable new approach for studying the less obvious consequences of climate change.

Elusive compounds of greenhouse gas

Nitrous oxide (N_2O) is a powerful greenhouse gas, with a half life of 114 years in the atmosphere and global warming potential 300 times greater than carbon dioxide. Although naturally occurring, anthropogenic N_2O emissions from intensive agricultural fertilisation, industrial processes, and combustion of fossil fuels and biomass are a major cause for concern. It is also the dominant ozone depleting substance emitted in the 21st century.

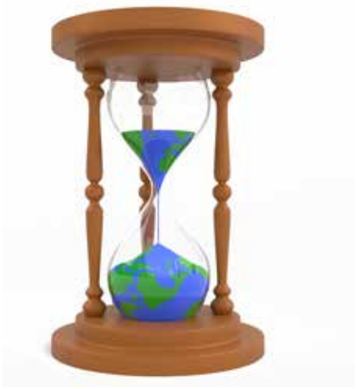
Researchers at the University have isolated compounds of N^2O that provide clues into how it could be used in sustainable chemical technologies. The use of N^2O as an oxidant in organic chemistry is an attractive prospect, as it could be used to liberate environmentally benign dinitrogen (N^2) and reduce the amount of nitrous oxide emitted into the atmosphere.

OPERATIONS

Climate Emergency

The University recognises that the next ten years will be crucial to limit global temperature rise and as such declared a Climate Emergency in September 2019 with associated carbon reduction targets of:

- Net Zero carbon emissions from scopes 1 and 2 by 2030; and
- Net Zero carbon emissions from scope 3 by 2030.



Campus & Commercial Services Group

The Intergovernmental Panel on Climate Change reccomends to lower personal carbon footprints, people should consider cutting down on carbon intensive foods, such as red meat. Warwick promotes chicken as the least impactful meat protein, and plans to reduce red meat dishes from 17% to 10% of main meals sold by the end of 2020. This would equate to around 22,000 fewer red meat dishes sold per year.

COP26 Universities Network

The University of Warwick is a member of the COP26 Universities Network, a growing group of more than 30 UK-based universities working together to improve access to evidence and academic expertise for COP26 for the UK government, NGOs and the international community. It demonstrates and activates the role of UK universities and world-leading science and research in contributing to a net-zero emissions and resilient future.

ECOBULK Thinking

The university is a member of the Ecobulk European circular economy project.

The current linear economy model is inefficient and unfair. Wasting our planet limited resources is not sustainable. Making the model more circular is not easy, but not impossible.

ECOBULK is a large-scale European initiative which will demonstrate that re-using, upgrading, refurbishing, and recycling composite products is possible, profitable, sustainable and appealing.

The project selected composite products in the furniture, automotive and building sectors as demonstrators to prove our new circular model. Outdoor shelter material will be tested at Warwick campus for evaluation and public feedback.

www.ecobulk.eu/

ECOBULK