



UNSW
AUSTRALIA

UNSW June-July Summer School 2013

Energy Tomorrow:

An Engineering and Management Perspective

21 June - 26 July 2013

Global Education

Global Networks

Global Opportunities

Introduction

The program commences in Darwin, in Australia's 'Top End'. There is a three day camping expedition into Kakadu National Park. Crocodiles, Aboriginal art sites and spectacular scenery are some of the highlights of this field trip. On the way to Sydney from Darwin the course makes a brief stop in Melbourne, Australia's second largest city.

The group will then transfer to Sydney and be based at the main campus of UNSW, 20 minutes from downtown Sydney and within walking distance from the beachside suburb of Coogee. Week five is in Cairns where students will have a few days at the end of the course to relax and participate in the wide range of activities available.

Course Syllabus

This five-week course for engineering students explores energy and sustainability, with a focus on new developments in energy efficiency and renewable energy technologies. The course is based on 75-hours of lectures, tutorials, laboratory work, demonstrations, site visits, computer simulations, assignments and discussion periods.

Course Outline

As a member of the GE3, The University of New South Wales is recognised as a world leader in Engineering and as the top university for energy R&D in Australia with many of the research groups among the world leaders in their field. Various UNSW lecturers cover the following topics:

World Energy

This topic examines the international outlook for both traditional and renewable energy sources; energy, economic growth and the environment, including implications of the Kyoto Protocol; and structural change in the electricity supply industry. A primary focus of the unit is the comparative economics of sustainable energy systems.

Energy and Sustainable Development

Our society's energy systems have a critical role to play in driving sustainable development. Key sustainability drivers are energy poverty in the developing world and the environmental harms of present energy systems.

Energy Storage

Energy storage systems include electrochemical, chemical and thermal. The principles of electrochemical energy systems and fundamentals of electrochemistry, secondary batteries and fuel cells are considered.

Energy and the Process Industries

Process industries form the basis of modern society and will continue to play a major role. Research initiatives worldwide have paved the way for advancing the development of sustainable processes.

Energy efficiency and waste utilisation are some of the key features of many of the sustainable processes that are discussed.

Emerging Energy Technologies

There is a number of highly promising, but as yet, commercially unproven energy technologies. We focus on emerging Carbon Capture and Storage (CCS), geothermal, solar, Generation III and proposed Generation IV nuclear power plants and hydrogen technologies.

Renewable Energy

Some of the examples that are explored include Biomass, Photovoltaic Devices and Systems and Wind Energy.

