

**1. Module details****Module name****Greenhouse Reduction Strategies****Module duration**

It is expected that students with the appropriate entry knowledge and skills will successfully complete this module in 36-40 hours.

**Module code**

NUER21

**Discipline code**

1105

**2. Module purpose**

This module address the salient points of the Australian National Greenhouse Strategy and seeks to alert the student to the variety of factors that contribute to the greenhouse problem and the diverse strategies by which the problem can be mitigated

**3. Prerequisites**

Nil

**4. Relationship to competency standards**

This module provides part of the underpinning knowledge and skills identified in the 'Evidence Guide' of specific units in the National Electrotechnology Competency Standards.

**5. Content****1. General issues, goals and principles**

- national agreements
- the Australian position
- greenhouse inventories
- access to inventory information
- projecting future emissions

**2. Understanding and communicating climate change and its impacts**

- improving our understanding of climate change
- identifying climate change impacts
- climate change communication and education

**3. Partnerships for greenhouse action**

- governments, industry and community
- government policy
- working with the private sector
- fostering community engagement
- promoting international partnerships
- emissions trading

**4. Efficient and sustainable energy use and supply**

- reducing the greenhouse intensity of energy supply
- harnessing renewable energy
- improving end-use energy efficiency

- 5. Efficient transport and sustainable urban planning**
  - integrating land use and transport planning
  - travel demand and traffic management
  - encouraging greater use of public transport, walking and cycling
  - improving vehicle fuel efficiency and fuel technologies
  - freight and logistics systems
- 6. Greenhouse sinks and sustainable land management**
  - enhancing greenhouse sinks
  - encouraging sustainable forestry and vegetation management
  - reducing greenhouse gas emissions from agricultural production
- 7. Greenhouse best practice in industrial processes and waste management**
  - reducing greenhouse gas emissions from industry
  - reducing methane emissions from waste treatment and disposal
- 8. Adaptation to climate change**
  - a national framework for adaptation to climate change
  - adaptation strategies for key sectors

## 6. Assessment strategy

### Assessment methods

Assessment should be progressive reflecting an holistic approach to ensure the module purpose is met. To assist in ensuring validity, reliability and fairness assessment instruments should include practical exercises, assignments and written tests consisting of a number of item types, such as multiple choice, short answer and problem solving.

### Conditions of assessment

Normally learning and assessment will take place in a classroom/ laboratory environment

## 7. Learning outcome details

### Learning outcome 1

#### Assessment criteria

#### Explain the greenhouse gas emissions profile

- 1.1 Describe the *goals* and *principles* of the National Greenhouse Strategy
- 1.2 Explain what a greenhouse gas inventory is, why it is required, and the sectors to which it applies
- 1.3 Describe uses to which the National Greenhouse Gas Inventory can be applied

### Learning outcome 2

#### Assessment criteria

#### Describe the reasons for understanding and communicating climate change and its impacts

- 2.1 Describe the possible impact of climate change in Australia
- 2.2 State techniques for improving the understanding of climate change
- 2.3 Outline techniques for communicating to and educating the general public on greenhouse gas induced climate change

### Learning outcome 3

#### Assessment Criteria

#### Explain how partnerships can be achieved to achieve the goals of the National Greenhouse Strategy (NGS)

- 3.1 Describe actions achievable by each level of government to implement the NGS
- 3.3 Give methods by which the community activity can be engaged in the reduction of greenhouse gas emissions
- 3.4 Describe initiatives that can be undertaken by the private sector to reduce greenhouse gas emissions
- 3.5 Illustrate the advantages of international partnerships
- 3.6 Explain the *emissions trading* system

### Learning outcome 4

#### Assessment Criteria

#### Explain the general principles to achieve an efficient and sustainable energy use and supply

- 4.1 Describe techniques for reducing the greenhouse intensity of energy supply
- 4.2 Explain the types of renewable energy sources suitable for use in Australia

	4.3 Describe methods and technique for improving end-use efficiency
<b>Learning outcome 5</b>	<b>Outline the actions available to provide an efficient transport system and sustainable urban planning</b>
<b>Assessment criteria</b>	<p>5.1 Explain how integrating land use and transport planning can assist the greenhouse problem</p> <p>5.2 Explain how each of the following can be used to mitigate greenhouse gas</p> <ul style="list-style-type: none"> <li>• travel demand and traffic management strategies</li> <li>• encouraging greater use of public transport, walking and cycling</li> <li>• freight and logistics systems</li> <li>• improving vehicle fuel efficiency and fuel technologies</li> </ul>
<b>Learning outcome 6</b>	<b>Describe how greenhouse sinks and sustainable land management can assist the greenhouse strategy</b>
<b>Assessment criteria</b>	<p>6.1 Explain how and enhancing greenhouse sinks and encouraging sustainable forestry and vegetation management can complement the AGS</p> <p>6.2 Show how greenhouse gas emissions are obtained from agricultural production and describe techniques to mitigate the emissions</p>
<b>Learning outcome 7</b>	<b>Describe the models of greenhouse best practice in industrial processes and waste management</b>
<b>Assessment criteria</b>	<p>7.1 Describe the types and methods of reducing greenhouse gas emissions from industry</p> <p>7.2 Describe methods of reducing methane emissions from waste treatment and disposal</p>
<b>Learning outcome 8</b>	<b>Identify the need for and techniques applicable to the adaptation to climate change</b>
<b>Assessment criteria</b>	8.1 Describe the salient points in each of the key sectors that require analysis and the strategies required in the need for adaptation to climate change

**8. Delivery of the module****Delivery strategy**

Delivery strategies must be suitable for learning both theoretical and practical aspects described in the module purpose. It is considered that the most effective way to achieve this is by the integration of theory and practice where students learn by experimentation and through research and laboratory reports. It is recommended that learning and assessment be facilitated in a holistic manner which may require learning outcome sequence other than that indicated in the module.

**Resource requirements**

The module is based on the document “The National Greenhouse Strategy” of the Australian Greenhouse Office, Canberra. Each student should have access to this document and the short form “fact sheets” available from the AGO.

Additional information is on the AGO website

**Occupational health and safety requirements**

A safe and healthy environment will be provided for students and teachers as well as safety procedure with regard to learning / teaching activity.