

## Earth & Environmental Science T

Earth and Environmental Science is a multifaceted field of inquiry that focuses on interactions between the solid Earth, its water, its air and its living organisms, and on dynamic, interdependent relationships that have developed between these four components. Earth and environmental scientists consider how these interrelationships produce environmental change over time.

The course provides students with a suite of skills and understandings that are valuable to a wide range of further study pathways and careers. Both at CIT/TAFE or University.

### Course Patterns

This course is non-sequential and units are 1.0 units. Students will be encouraged to participate in a broad range of units over the two years of study.

### Note

No units from other courses can be included in this course.

### Units

In Earth and Environmental Science, students develop their understanding of the ways in which interactions between Earth systems influence Earth processes, environments and resources.

#### Unit 1: Introduction to Earth Systems

The Earth system involves four interacting systems: the geosphere, atmosphere, hydrosphere and biosphere. Students study the processes that formed the oceans and atmosphere. Students will examine the formation of soils at Earth's surface as a process that involves the interaction of all Earth systems.

Students critically examine the scientific evidence for the origin of life,



linking this with their understanding of the evolution of Earth's hydrosphere and atmosphere.

#### Unit 2: Earth Processes

Earth system processes require energy. In this unit, students explore how the transfer and transformation of energy from the sun and Earth's interior enable and control processes within and between the geosphere, atmosphere, hydrosphere and biosphere.

Students examine how the transfer and transformation of heat and gravitational energy in Earth's interior drive movements of Earth's tectonic plates. They analyse how the transfer of solar energy to Earth is influenced by the structure of the atmosphere; how air masses and ocean water move as a result of solar energy transfer and transformation to cause global weather patterns; and how changes in these atmospheric and oceanic processes can result in anomalous weather patterns.

#### Unit 3: Living on Earth

Earth resources are required to sustain life and provide infrastructure for living (for example, food, shelter, medicines, transport, and communication), driving ongoing demand for biotic, mineral and energy resources.

In this unit, students explore renewa-

ble and non-renewable resources and analyse the effects that resource extraction, use and consumption and associated waste removal have on Earth systems and human communities.

#### Unit 4: The Changing Earth

Earth hazards occur over a range of time scales and have significant impacts on Earth systems across a wide range of spatial scales. Investigation of naturally occurring and human-influenced Earth hazards enables prediction of their impacts, and the development of management and mitigation strategies.

In this unit, students examine the cause and effects of naturally occurring Earth hazards including volcanic eruptions, earthquakes and tsunami. They examine ways in which human activities can contribute to the frequency, magnitude and intensity of Earth hazards such as fire and drought.

This unit focuses on the timescales at which the effects of natural and human-induced change are apparent and the ways in which scientific data are used to provide strategic direction for the mitigation of Earth hazards and environmental management decisions.

