Courses overview

These two courses provide a pathway within a nested suite of Deakin’s courses focused on Sustainable Regional Development, from graduate certificate to graduate diploma to Master of Science (Research). Graduates of the Master of Science (Research) will be well prepared to continue doctoral studies at Deakin or elsewhere. In particular, the graduate certificate and graduate diploma offer:

a) a non-research path for acquiring important knowledge and skills in sustainable regional development and associated subjects, and

b) appropriate exit points from the Master of Science (Research) in the form of two qualifications’ steps that formally recognise the studies undertaken by the enrolled students (should they not proceed to completing the Master of Science (Research)).

The courses will suit students who are analytical, inquisitive, solution- or policy-oriented and interested in enhancing their standing for employment in multiple disciplines associated with sustainable regional and rural development, strategic urban and regional planning, natural resources management and climate change adaptation planning.

Course structures

The Graduate Certificate of Sustainable Regional Development and Graduate Diploma of Sustainable Regional Development include four core units, which are also offered in the Master of Science (Research). The graduate diploma also includes elective units that can be undertaken in a complementary area.

Graduate Certificate of Sustainable Regional Development – S504

<table>
<thead>
<tr>
<th>Duration: One year (part time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available for intakes in Trimesters 1 and 2 and as exit option from S820 Master of Science (Research)</td>
</tr>
<tr>
<td>Trimester 1 (March)</td>
</tr>
<tr>
<td>SLE740 – Climate Change Adaptation and Mitigation (B, X)</td>
</tr>
<tr>
<td>SLE742 – Systems and Strategic Thinking (B, X)</td>
</tr>
</tbody>
</table>

Graduate Diploma of Sustainable Regional Development – S604

<table>
<thead>
<tr>
<th>Duration: One year (full time or part time equivalent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available for intakes in Trimesters 1 and 2 and as exit option from S820 Master of Science (Research)</td>
</tr>
<tr>
<td>Trimester 1 (March)</td>
</tr>
<tr>
<td>SLE740 – Climate Change Adaptation and Mitigation (B, X)</td>
</tr>
<tr>
<td>SLE742 – Systems and Strategic Thinking (B, X)</td>
</tr>
<tr>
<td>SSC803 – Research Planning and Management (B,G,X)</td>
</tr>
<tr>
<td>Elective</td>
</tr>
</tbody>
</table>

Key:

| B | Melbourne Burwood Campus | G | Geelong Waurn Ponds Campus | S | Geelong Waterfront Campus | X | Cloud (online) |
## URBAN PLANNING – ELECTIVE OPTIONS

### SRP782 – Urban Dynamics and Change
This unit provides a comprehensive overview of the economic, social, political and environmental influences upon the evolution, form and dynamics of settlement and cities, which combine to make each urban place distinctive. It provides a foundation in theories that explain the form and distribution of settlement and uses, with particular attention to the forces that can influence urban change or may be harnessed toward pursuing preferred future forms. Particular attention is given to understanding the economics of land development, the relationship between transport (public and private) and land use, investment by public and private sectors, and the influence of creativity, wealth distribution and civic identity upon the form, character, prosperity and equity of cities. It considers the capacity for and limitations upon planning and influencing change outcomes, and the issues surrounding governance and decision-making processes that can guide or modify the processes of urban change, including emerging techniques and innovative mechanisms for more effectively and proactively influencing urban transformation outcomes.

### SRA760 – Urban Ecologies
This unit challenges students to rehearse and then apply their understanding of urban ecologies to specific urban conditions and sites. It provides a critical analysis of the contemporary social, economic and environmental challenges that shape the built environment and considers various strategies for forming new or regenerating existing urban territories. This unit immerses students in analysis of a complex urban project addressing the multiple scales, ecologies, infrastructure conditions, building types and material expressions. This project-based format is supplemented with classes that introduce each exercise and additional presentations that address the theoretical bases of urban ecologies. Students are presented with urban conditions that have been selected to introduce an increasing array of physical, social and environmental complexities as the trimester proceeds. They are asked to engender a critical consideration of contemporary urban environments and its relation to differing ecologies.

### SRA744 – Urban Patterns and Precedents
This unit enhances the students’ understanding of the planning discipline, and examines the main context of planning and urban design - the city. The unit therefore takes a built-form, city-focused approach to the study of urban patterns (i.e. it analyses the built environment of the city and its meanings. However, the built urban form is never devoid of social and cultural content; the city is both a representation of social interaction and the setting for it. Consequently, the unit explores the various historical, social and cultural conditions from which cities originate and which, in turn, influence the varied developments of cities. This is done through a historical survey as well as a contemporary examination of the city in different contexts, both in Australia and overseas. The unit also outlines and examines some of the different conceptualisations of urban patterns and the interplay of society, culture and the city.
ENVIRONMENT – ELECTIVE OPTIONS

SLE720 – Risk Assessment and Control
This unit is delivered in a modular approach. Students will complete a common core that provides students with an understanding of risk assessment and management principles. Following this common core, students will (based on their enrolment) select either the environment or occupational hygiene module. The environment module provides a combination of theory and practical case studies designed to provide students with the understanding and hands-on experience necessary to identify and address risks to healthy environments. It includes case studies of urban, industrial, agricultural and/or natural environments at risk; the role of techniques such as indices of environmental health, epidemiology, toxicology and statistics in evaluating environmental and health concerns - data analysis and interpretation - the limitations associated with the various risk assessment techniques; approaches to risk management through policy, legislation, planning and management; risk management principles and planning; appropriate risk avoidance and minimisation for the case studies utilised; integration of risk management with environmental management principles.

SLE721 – Policy and Planning for Sustainable Development
This unit focuses on the synthesis, interpretation and analysis of information in regards to environmental policy at all levels of government and other public or private organisations. The need for global co-operation and action in responding to environmental issues is becoming more important. Air quality, land management, resource use and water quality are some of the myriad of issues that can only be resolved with greater understanding of local issues to enable targeted responses at the global level. Due to lack of agreement in policy aims and specific objectives, it has been argued that the current approaches to environmental management have not been as effective in achieving desired environmental outcomes. Practitioners need to understand the process of policy development in order to fully realise the potential outcomes as well as to be able to input into the process to achieve sustainable outcomes. Policy objectives need to be fully cognisant of the environmental, political, economic and social influences that must be addressed if change is to occur.

SLE725 – Catchment and Coastal Management
Global concepts and the theoretical basis of integrated land and sea management, e.g. Integrated Catchment Management and Integrated Coastal Zone Management are introduced. A case study of a global leader in integrated natural resources management (The State of Victoria, Australia) is used to illustrate the implementation of the concepts. Approaches taken to the integrated management of catchments and coasts and the roles of government, semi-government and local government authorities, and non-government organisation and the community in management are described and discussed. Overlaps of responsibility, possible conflicts of interest, and unclear boundaries of responsibility are identified. The State of Victoria is used as a case study of an attempt to integrate catchment and coastal management. The logic of the catchment as an area for both management and planning purposes is discussed. Methods used to evaluate the social, biophysical and land-use characteristics and to develop community awareness and involvement in problems with catchment associated with catchments and coasts are described.
WATER ENGINEERING – ELECTIVE OPTIONS

SEN725 – Urban Stormwater Management
This unit provides students with an overview of urban storm water management; both quantity and quality aspects are covered. In particular, the unit comprises theoretical coverage of the rainfall-runoff and water quality transformation concepts in the context of an urban environment and modelling applications. Students will be taught the mathematical formulations for overland and channel flow, hydrological concepts to derive runoff and the application of these concepts in a numerical modelling application. Empirical formulations for modelling the water quality transformation process will be introduced and adopted for the modelling of water quality in urban runoff with emphasis on conservative transport. Students will be required to demonstrate their understanding through tests and the development of a numerical model using commercial software.

SEN726 – Design of Water and Wastewater Systems
This unit covers advanced design techniques of water systems encountered in civil engineering such as water treatment plants, water distribution systems, wastewater collection systems, wastewater treatment plants and groundwater. This unit will provide the student fundamental concepts and knowledge required for the development of design skills and the application of modelling tools to manage water and wastewater system operations.

RESEARCH – ELECTIVE OPTIONS

SSC803 – Research Planning and Management
In this unit students learn about a range of topics including scientific research policies and procedures, research ethics, planning and managing a research project and research integrity. Students will also have the opportunity to study intellectual property and commercialising research. This is a foundational unit in the Master of Science (Research) program, which will provide students access to library resources and occupational health and safety training. Students will be required to attend and contribute to a range of research seminars and classes to reinforce their learnings.

SSC804 – Research Communication
The aim of this unit is to introduce students to the principles of academic writing and broad presentation skills in science communication. Students develop academic research communication skills in the context of their scientific discipline. The emphasis of learning in this unit is drafting a research proposal, and preparing for confirmation of their research candidature. In this process, students are required to outline the nature of their research through appropriate presentation methods, justifying the research inquiry that they intend to undertake. Students will be required to attend and contribute to a range of research seminars and classes to reinforce their learnings.

ADMISSION AND SELECTION REQUIREMENTS

- Bachelors degree in the same, or similar, discipline including sciences; engineering; urban, land-use and environmental planning; conservation; economics; sociology; and organisational development with a minimum WAM or GPA of 65% in the final year units/subjects; or
- 5 years of relevant work experience in the same, or similar, discipline deemed to be equivalent to a bachelors degree.