



International Centre of Excellence in  
Water Resources Management



## Graduate Diploma in Water Resources Management

The International Centre of Excellence in  
Water Resources Management

WaterEd Australia Pty Ltd

[www.icewarm.com.au](http://www.icewarm.com.au)



An Australian Government Initiative

# Tomorrow's Water Industry

ICE WaRM has forged a national network of educational institutions and water industry bodies to deliver a diverse range of multiple award-winning education programmes.

This includes Australia's first Master of Water Resources Management, incorporating Graduate Diploma and Certificate options designed for industry professionals wanting

to upgrade their knowledge and skills, and recent graduates planning a career in the water resources sector.

Multiple institutions ensure a greater range of choices in stream specialisation. Also, many courses are offered flexibly, making the ICE WaRM programme ideal for the working professional.

## Postgraduate Programmes

ICE WaRM offers postgraduate programmes on three levels of study - Master, Graduate Diploma, and Graduate Certificate. These programmes offer a unique blend of cross-institutional and cross-faculty study providing students with access to a wide range of expertise, resources and state of the art research facilities in the broad field of water resources management.

This collaborative programme offers a wide selection of specialised coursework electives and study options enabling students to create a programme of study that meets their individual needs

### Aims

The Graduate Diploma in Water Resources Management is designed to provide students with an opportunity to increase their breadth and depth of knowledge and application of skills in water resources management and to provide the underpinning knowledge for students planning to undertake a research or industry project as part of their Masters studies. Upon successful completion of the Graduate Diploma students may articulate to the Master of Water Resources Management.

### Content/Structure

The Graduate Diploma in Water Resources Management requires

the completion of four core courses and four coursework electives (equivalent to two semesters of full-time study). Domestic students also have the option of studying part-time.

Students need to select a 'home institution' that specialises in their particular area of water interest. The 'home institution' is where the student will complete their core courses and coursework electives. Many coursework electives offered by ICE WaRM partner institutions are also available through flexible delivery.

### Entry Requirements

Applicants must fulfil the following requirements for entry into the Graduate Diploma in Water Resources Management:

Completion of:

■ 3 year undergraduate degree plus honours in a recommended field\* (Australian or equivalent);

OR

■ 4 year undergraduate degree in a recommended field (Australian or equivalent) with relevant experience\*\*;

OR

■ 4 year undergraduate degree including honours in a recommended field\* (Australian or equivalent)

\*Engineering and Science are considered recommended fields.

\*\* Relevant experience will need to be demonstrated to an appropriate level and will be assessed at the discretion of the Programme Director.

Professionals with extensive experience working in the water industry who do not meet the academic entry requirements may be considered for the Graduate Certificate programme. For more information see the Graduate Certificate brochure available at [www.icewarm.com.au](http://www.icewarm.com.au)

## English Language Requirements

International students who speak English as a foreign language must have obtained one of the following standards within the last two years prior to admission:

■ International English Language Testing System (IELTS): test - band 6.5 with a score no less than six for sub-tests;

OR

■ Previous successful secondary or tertiary study where English was the language of instruction.

It is assumed that all applicants will have a demonstrated background in mathematics (at least equivalent to year 12 mathematics e.g. Mathematical Studies in South Australia). Course prerequisites indicate where a higher mathematical ability is required.

## Partner Universities



## CORE COURSES DELIVERY

<b>Semester (Internal)</b>	Access Grid is a high-tech interactive internet conferencing teaching medium for participants at partner universities to join a virtual classroom, face to face in real time. Course materials and lecturer and student interaction are supported via a secure student portal.
<b>Intensive (Internal &amp; External)</b>	Intensive delivery comprises 3-5 days of teaching plus assessment, to meet the needs of working professionals.
<b>Distance/Online (External)</b>	Delivery allows full flexibility for the student to study anytime, anywhere. Course materials and lecturer and student interaction are supported via a secure student portal.

For more information, visit [www.icewarm.com.au](http://www.icewarm.com.au) > Programmes > Education > Graduate Diploma in WRM

# Programme Content & Structure

## CORE COURSES (Complete the following four courses)

Global Water Systems I (Natural Water Cycle)	Global Water Systems II (Engineered Water Cycle)
Water Resources and Society	Water Resources Planning and Management

## GRADUATE CERTIFICATE EXIT ►

Stream 1 – Ecosystem & Catchment Management	UNI	Environmental Systems Design	D	Community Engagement & Conflict Resolution	CQU
Ecosystems Modelling for Environmental Management	A	Wastewater Treatment Processes	D	Social and Economic Impact Assessment	CQU
Freshwater Ecology	A	Water Reclamation and Reuse	D	Water Systems Modelling for Water Planners	TBA
GIS for Environmental Management	A	Water Treatment Processes	D	Planning Theory and Practice	TBA
Integrated Catchment Management	A	Advanced Water Quality and Wastewater Management	S	Water Quality Management	S
Environmental Risk Management	CQU	Design of Flood and Drainage Systems	S	<b>Unstreamed Electives</b>	<b>UNI</b>
Water Management I	CQU	Water Quality Fundamentals & Processes	S	Biostatistics	A
Water Quality Management	S	Water Quality Management	S	Environmental Economics E III	A
Risk and Environmental Sustainability	D	Water Quality Modelling	S	Epidemiology of Infectious Diseases	A
Stream 2 - Management of Water Infrastructure	UNI	Stream 4 - Groundwater Hydrology / Hydrogeology	UNI	Epidemiological Research Methods	A
Analysis of Rivers and Sediment Transport	A	Advanced Groundwater Hydrology A WE	F	Industrial Toxicology	A
Coastal Engineering and Design	A	Advanced Groundwater Hydrology B WE	F	Specialised Studies I	A
Environmental Modelling, Management & Design	A	Advanced Groundwater Hydrology C WE	F	Applied Project Management 1	A
GIS for Environmental Management	A	CGS National Groundwater School WE	F	Holistic Infrastructure Management	CQU
Water Distribution Systems and Design	A	Earth Fluid Dynamics and Modelling WE	F	Innovative Thinking and Strategies	CQU
Water Resources Optimisation and Modelling <sup>2</sup>	A	Earth Sciences Field Camp 1 or WE	F	Environmental Planning & Economics	CQU
Auditing Maintenance Systems	CQU	Earth Sciences Field Camp 2 WE <sup>2</sup>	F	Social and Economic Impact Assessment	CQU
Establishing the Maintenance Strategy	CQU	Geological Processes WE <sup>2</sup>	F	Waste Minimisation and Cleaner Production	CQU
Introduction to Maintenance Engineering	CQU	Global Climate Change & Natural Hazards WE	F	Seminar in Sustainability	S
Maintenance Organisation	CQU	Groundwater and Soil Hydrology WE	F	Principles of Project Management A	S
Maintenance Systems and Documentation	CQU	Hydrochemistry WE	F	Environmental Impact Assessment	S
Environmental Systems	D	Introduction to Earth Sciences WE	F	Hydrology and Water Resources Advanced Topics 1	S
Risk and Environmental Sustainability	D	Research and Professional Practice in Groundwater Hydrology WE	F	Hydrology and Water Resources Advanced Topics 2	S
Hydrology and Water Resources Advanced Topics 2	S	Sedimentary Processes WE	F	Special Topic in Groundwater Hydrology WE	F
Asset Management Service Delivery	S	Surface Water Hydrology WE	F	Public Health Related Aspects of Drinking Water Quality WE	F
Engineering Infrastructure Management	S	Stream 5 - Irrigation	UNI	Other - Research Methods	UNI
Facilities and Asset Performance	S	Fundamentals of Irrigation	CSU	Research Methods	CQU
Facilities Program Management	S	Management of Irrigation Systems	CSU	Research Practice	CQU
Facilities Design Management	S	Critical Factors in Irrigation	CSU	Environmental Research Methods WE	F
Introduction to Geographic Information Systems	S	Irrigation Practice	CSU	Engineering Research Methods	S
Strategic Asset Management	S	Hydrology and Water Resources Advanced Topics 1	S	Engineering Research Practice	S
Sustainability in Assets and Facilities	S	Stream 6 - Water Planning	UNI	Research Methodology	A
Stream 3 - Water Quality & Treatment	UNI	Freshwater Ecology	A		
Wastewater Engineering and Design	A	CGS National Groundwater School WE	F		
Environmental Modelling, Management and Design	A	Groundwater and Soil Hydrology WE	F		
Water Distribution Systems and Design	A	Water Management 1	CQU		

<sup>1</sup> Please note: Not all electives will be available in each semester and some courses are incompatible

## GRADUATE DIPLOMA EXIT ►

### UNIVERSITY CODES

<b>A</b>	The University of Adelaide	<b>F</b>	Flinders University	<b>D</b>	Deakin University
<b>S</b>	University of South Australia	<b>CQU</b>	CQUUniversity	<b>CSU</b>	Charles Sturt University <sup>2</sup>

<sup>2</sup> Charles Sturt University is a teaching institution, but does not currently confer awards under the ICE WaRM programme.



# International Centre of Excellence in Water Resources Management

## Who We Are

ICE WaRM is an Australian Government initiative being implemented by a national consortium of shareholders, supporters and associates. Partnership is a key feature of the Centre, which recognises that the pursuit of excellence in the increasingly important water resources management sector must be a collaborative task.

ICE WaRM shareholders, supporters and associates include Australia's leading education, training and research centres.

### Founding Shareholders

- Deakin University
- Flinders University
- The University of Adelaide
- Central Queensland University
- University of South Australia
- National Centre for Groundwater Research and Training
- AITEC Corporate Education and Consulting

### South Australian Government Supporters

- Department of Further Education, Employment, Science and Technology (DFEEST)
- TAFE South Australia
- Department of Water, Land and Biodiversity Conservation (DWLBC)
- SA Research and Development Institute (SARDI)
- SA Water Corporation, including the Australian Water Quality Centre

### Other Supporters and Associates including

- Water-related research organisations, CSIRO and Cooperative Research Centres (CRCs)
- Charles Sturt University
- Water Industry Alliance
- United Water & international parent Veolia

ICE WaRM is continually growing its list of partners, supporters and associates, both in Australia and internationally. To be involved, contact us.

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### FURTHER INFORMATION

#### The International Centre of Excellence in Water Resources Management (ICE WaRM)

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CRICOS Provider Numbers for principal ICE WaRM partners:

The University of Adelaide - 00123M; University of South Australia - 00121B; Flinders University- 00114A; Deakin University - 00113B; Central Queensland University QLD - 00219C.

Information current as at January 2010.