

CHEN90033 Carbon Capture and Storage Fundamentals

Credit Points:	12.5						
Level:	9 (Graduate/Postgraduate)						
Dates & Locations:	This subject is not offered in 2016.						
Time Commitment:	Contact Hours: 3 hours of lectures per week, 1 x one hour tutorial per week Total Time Commitment: Estimated 200 hours						
Prerequisites:	None						
Corequisites:	None						
Recommended Background Knowledge:	First year chemistry						
Non Allowed Subjects:	<table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CHEN90027 Carbon Capture and Storage</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	CHEN90027 Carbon Capture and Storage	Semester 1	12.50
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CHEN90027 Carbon Capture and Storage	Semester 1	12.50					
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/						
Contact:	Dr Kathryn Mumford Email: mumfordk@unimelb.edu.au (https://mce_host/faces/htdocs/%20mumfordk@unimelb.edu.au)						
Subject Overview:	<p>AIMS</p> <p>This subject aims to provide an overview of the drivers for carbon capture and storage, the technology and the economics.</p> <p>INDICATIVE CONTENT</p> <p>This subject will include the following topics:</p> <ul style="list-style-type: none"> # Fuel types (coal, oil, gas). # Other emission sources (natural gas sweetening, cement, iron and steel production) # Carbon capture using solvent absorption. Other technologies including membranes, adsorbents, chemical looping, cryogenics and gas hydrate technology. # Carbon dioxide compression and pipeline transport. # Geological storage – site selection (containment, capacity, injectivity). Reservoir modelling (static and dynamic), storage in coal seams, enhanced coal bed methane recovery, storage in depleted gas reservoirs and saline formations, enhanced oil recovery. # Long term closure and remediation # Economics – the economics of carbon capture and storage # Health and safety, risk assessment and management, legal issues. 						
Learning Outcomes:	<p>INTENDED LEARNING OUTCOMES (ILO)</p> <p>On completion of this subject the student is expected to:</p> <ol style="list-style-type: none"> 1 Understand the operation of coal and gas fired power stations and the integration of carbon capture and storage into this operation. 						

	<p>2 Understand the behaviour of carbon dioxide in a geological reservoir and the potential issues with carbon dioxide storage.</p> <p>3 Generate estimates for the cost of carbon capture and storage and its impact on the levelised cost of electricity.</p>
Assessment:	Assignments, not exceeding a total of 3000 words plus accompanying tables and calculations, due throughout the semester (40% of the total mark). A two hour end of semester examination (60%). Intended Learning Outcomes (ILOs) 1 to 3 will be assessed in the assignments and the examination.
Prescribed Texts:	To be advised
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	<ul style="list-style-type: none"> # Strong communication skills, both verbal and written forms # Skills to work as an efficient and effective team member
Notes:	<p>LEARNING AND TEACHING METHODS</p> <p>The subject will be delivered through a combination of lectures and tutorials.</p> <p>INDICATIVE KEY LEARNING RESOURCES</p> <p>Students will have access to lecture notes and lecture slides.</p> <p>CAREERS / INDUSTRY LINKS</p> <p>Speakers from industry are regular contributors to this subject.</p>