

## Department of Chemical Engineering

### Course Syllabus

<b>Course Code &amp; Number</b>	CHE 473																										
<b>Course Title</b>	Desalination																										
<b>Credit &amp; Contact Hours</b>	3 Credits; 3 Lectures, 0 Laboratories (3-0-3)																										
<b>Instructor</b>	Dr. Mohammad Anwar Parvez																										
<b>Office Location</b>	Room# 2303																										
<b>Instructor's Office Phone</b>	00966 13 720 5175																										
<b>Instructor's Email</b>	maparvez@uhb.edu.sa	<b>Homepage link</b>	<a href="https://www.uhb.edu.sa/Pages/MemberDetails.aspx?Param=college&amp;Ref=29&amp;Member=440">https://www.uhb.edu.sa/Pages/MemberDetails.aspx?Param=college&amp;Ref=29&amp;Member=440</a>																								
<b>Prerequisites</b>	CHE 304, CHE 303																										
<b>Course Description</b>	Description of methods of water analysis and treatment. Study of properties of water and aqueous solutions. Detailed discussion and analysis of design, maintenance, energy requirements and economics of the major processes of desalination such as distillation, reverse osmosis, and electrodialysis.																										
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>i. Provide a comprehensive study on the fundamentals of water desalination.</li> <li>ii. Equip students with analytical tools to understand and apply theoretical principles related to the process, mass and energy balance of desalination systems.</li> <li>iii. Enable students to understand design, operation, and maintenance and to evaluate the performance and economics of the desalination process.</li> </ul>																										
<b>Required Textbook</b>	<p>Hisham T. El-Dessouky, Hisham M. Ettouney, Fundamentals of Salt Water Desalination, 2002 Elsevier Science B.V.</p> <p>Jane Kucera, Desalination Water from Water, 2014 by Scrivener Publishing LLC.</p>																										
<b>Grading Scheme</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Assessments</th> <th style="width: 35%;">Assessments Task</th> <th style="width: 20%;">Week due</th> <th style="width: 30%;">Proportion of Final Mark (%)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Quizzes</td> <td>fortnightly</td> <td>10</td> </tr> <tr> <td>2</td> <td>Home-works</td> <td>fortnightly</td> <td>10</td> </tr> <tr> <td>3</td> <td>Midterm exam</td> <td>5</td> <td>30</td> </tr> <tr> <td>4</td> <td>Term Project</td> <td>12</td> <td>10</td> </tr> <tr> <td>5</td> <td>Final exam</td> <td>16</td> <td>40</td> </tr> </tbody> </table>			Assessments	Assessments Task	Week due	Proportion of Final Mark (%)	1	Quizzes	fortnightly	10	2	Home-works	fortnightly	10	3	Midterm exam	5	30	4	Term Project	12	10	5	Final exam	16	40
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<p><b>Course Learning Outcomes &amp; Mapped So's</b></p>	<ul style="list-style-type: none"> <li>➤ Identify the world and regional areas of water shortage and be able to select the proper desalination method to solve a water shortage problem. (SO 1)</li> <li>➤ Carry out the basic process calculations of the main desalination processes (SO 2)</li> <li>➤ Define the performance of different desalination processes and the factors affecting them (SO 4)</li> <li>➤ Apply new knowledge to be life-long-learners (SO 7)</li> </ul>																			
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