

課程名稱 (英)			
授課教師資訊	姓名: 陳賢燁 所屬單位: 工 學院 化工 系所 E-mail: hsychen@ntu.edu.tw 電話: 3366-9476		
開課時間	109學年 <input type="checkbox"/> 一學年 <input checked="" type="checkbox"/> 第二學期	必/選修	<input checked="" type="checkbox"/> 必修 <input type="checkbox"/> 選修
課程識別碼	524 M1210	班次	01
預計修課人數	30	學分數	3
課程屬性	<input type="checkbox"/> 新開課程 (未曾開授之英語授課課程) <input checked="" type="checkbox"/> 續開課程		
檢附資料	<input checked="" type="checkbox"/> 續開課程請檢附上次開課期末教學意見調查結果		
<b>Course Syllabus in English</b>			
Course Description	<p>TEXTBOOK: TRANSPORT PHENOMENA BY BIRD, STEWART, AND LIGHTFOOT; 2ND REVISED EDITION, 2007</p> <p>OBJECTIVE: THE OBJECTIVE OF THIS COURSE IS TO PROVIDE AN OVERVIEW OF HEAT AND MASS TRANSFER THEORY AND APPLICATION. THIS COURSE ALSO INTENDS TO PROVIDE THE BACKGROUND FOR ADVANCED RESEARCH RELATED TO HEAT AND MASS TRANSFER OR TRANSPORT PHENOMENA IN CHEMICAL ENGINEERING. HOMEWORK: NORMALLY HOMEWORK WILL BE ASSIGNED BIWEEKLY ON WEDNESDAYS.</p> <p><b>COURSE OUTLINES:</b></p> <ol style="list-style-type: none"> <li>1. Fundamentals of Heat Transfer</li> <li>2. Heat Conduction</li> <li>3. Steady-State Heat Conduction</li> <li>4. Steady-State Heat Conduction (Two-Dimensional)</li> <li>5. Time-Dependent Heat Conduction</li> <li>6. Convective Heat Transfer, Convective Mass Transfer (Boundary Layers)</li> <li>7. Convective Heat Transfer (Dimensional Analysis and Analogies)</li> <li>8. External Forced Convection, and Internal Forced Convection</li> <li>9. Internal Forced Convection, and Natural/Free Convection</li> <li>10. Boiling and Condensation Heat Transfer</li> <li>11. Evaporation and Drying</li> <li>12. Heat Exchange Devices</li> <li>13. Radiant Heat Transfer</li> <li>14. Radiant Heat Transfer</li> <li>15. Diffusive Mass Transfer</li> </ol>		
Course Requirements	Finish reading assignments Pass exams		
Course Objectives	Build strong foundation of knowledge in transport phenomena, especially in heat and mass transfer. Fundamental knowledge will be taught in the class. Students		

	need to take exams and pass certain standard in order to ensure the quality of knowledge transfer.
Learning Outcomes	
Required Readings	<ol style="list-style-type: none"> <li>1. Transport Phenomena 2<sup>nd</sup> Edition - Bird-Stewart-Lightfoot</li> <li>2. Principles of Heat and Mass Transfer 7<sup>th</sup> Ed., Frank P. Incropera, David P. DeWitt, Theodore L. Bergman, Adrienne S. Lavine, John Wiley &amp; Sons, Inc. (2013)</li> </ol>
Grading	Midterm Exam (1) – <b>25%</b> Midterm Exam (2) – <b>25%</b> Final Exam – <b>30%</b> Homework – <b>20%</b>

### Course Schedule in English

Week	Date	Topic	Lecturer
Week 1	2/22, 2/24	Fundamentals of Heat Transfer	
Week 2	3/1(放假), 3/3	Heat Conduction	
Week 3	3/8, 3/10	Steady-State Heat Conduction	
Week 4	3/15, 3/17	Steady-State Heat Conduction (Two-Dimensional)	
Week 5	3/22, 3/24	Time-Dependent Heat Conduction	
Week 6	3/29, 3/31	<b>3/31 Midterm Exam-1</b>	
Week 7	4/5(放假), 4/7	Convective Heat Transfer Convective Mass Transfer (Boundary Layers)	
Week 8	4/12, 4/14	Convective Heat Transfer (Dimensional Analysis and Analogies)	
Week 9	4/19, 4/21	External Forced Convection, and Internal Forced Convection	
Week 10	4/26, 4/28	Internal Forced Convection, and Natural/Free Convection	
Week 11	5/3, 5/5	<b>5/5 Midterm Exam-2</b>	
Week 12	5/10, 5/12	Boiling and Condensation Heat Transfer	
Week 13	5/17, 5/19	Evaporation and Drying	
Week 14	5/24, 5/26	Heat Exchange Devices	
Week 15	5/31, 6/2	Radiant Heat Transfer	
Week 16	6/7, 6/9	Radiant Heat Transfer	
Week 17	6/14(放假), 6/16	Diffusive Mass Transfer	
Week 18	6/23	<b>6/23 Final Exam</b>	