

# Syllabus

INSTRUCTOR	YEAR	SEMESTER	COURSE NUMBER	COURSE NAME	SECTION																																							
Kyu Hyun	2016	2nd Semester	CG26816	TRANSPORT PHENOMENA (TRANSPORT PHENOMENA)	062																																							
Instructor's Information																																												
Office Hours		mon 3:30 and wed 3:30																																										
<p><b>1. Course Objectives &amp; Description</b></p> <p><b>1) Course Objectives</b></p> <p>Analysis of chemical engineering operations involves fluid flow (momentum transfer), heat transfer and mass transfer. understand how to unify momentum, heat, and mass transfer with mathematical equations. In addition to mathematical subject, it w</p> <p><b>2) Course Description</b></p> <p>Analysis of chemical engineering operations involves fluid flow (momentum transfer), heat transfer and mass transfer. While momentum, heat and mass transfer developed independently as branches of classical physics long ago, their unified study has found its place as one of the fundamental engineering sciences. Therefore, in this course, we study and understand how to unify momentum, heat, and mass transfer with mathematical equations. In addition to mathematical subject, it will be taught about physical significance of transport phenomena.</p> <p><b>2. Required TextBook</b></p> <p>Transport Phenomena, R.B. Bird et al.</p> <p><b>3. Requirements &amp; Grading</b></p> <p>Attendance( 10 %), Mid-Term Exam( 30 %), Final Exam( 30 %), Assignments( 10 %), Quiz( %) Presentation( 20 %), Reports( %), Practical( %), Etc( %)</p> <p><b>4. Schedule</b></p> <table border="1"> <thead> <tr> <th></th> <th>Topics and Activities</th> <th>Assignments &amp; Other Instructions</th> </tr> </thead> <tbody> <tr> <td>WEEK1</td> <td>Introduction of Transport Phenomena (1)</td> <td></td> </tr> <tr> <td>WEEK2</td> <td>Introduction of Transport Phenomena (2) and Vector and Tensor Notation Chapter 0 &amp; Appendix A</td> <td></td> </tr> <tr> <td>WEEK3</td> <td>Transport by molecular motion Chapter 1 &amp; 9 &amp; 17</td> <td></td> </tr> <tr> <td>WEEK4</td> <td>Transport in one dimension (1) (Shell balance methods)</td> <td></td> </tr> <tr> <td>WEEK5</td> <td>Transport in one dimension (2) (Shell balance methods)</td> <td></td> </tr> <tr> <td>WEEK6</td> <td>Transport in arbitrary continua (1) (use of general transport equation)</td> <td></td> </tr> <tr> <td>WEEK7</td> <td>Transport in arbitrary continua (2) (use of general transport equation)</td> <td></td> </tr> <tr> <td>WEEK8</td> <td>Transport with two independent variables (1) (special methods)</td> <td></td> </tr> <tr> <td>WEEK9</td> <td>Transport with two independent variables (2) (special methods)</td> <td>Mid term Exam</td> </tr> <tr> <td>WEEK10</td> <td>Transport in turbulent flow, and eddy transport properties (1)</td> <td></td> </tr> <tr> <td>WEEK11</td> <td>Transport in turbulent flow, and eddy transport properties (2)</td> <td></td> </tr> <tr> <td>WEEK12</td> <td>Transport across phase boundaries (1) Chapter 6 &amp; 14 &amp; 22</td> <td></td> </tr> </tbody> </table>							Topics and Activities	Assignments & Other Instructions	WEEK1	Introduction of Transport Phenomena (1)		WEEK2	Introduction of Transport Phenomena (2) and Vector and Tensor Notation Chapter 0 & Appendix A		WEEK3	Transport by molecular motion Chapter 1 & 9 & 17		WEEK4	Transport in one dimension (1) (Shell balance methods)		WEEK5	Transport in one dimension (2) (Shell balance methods)		WEEK6	Transport in arbitrary continua (1) (use of general transport equation)		WEEK7	Transport in arbitrary continua (2) (use of general transport equation)		WEEK8	Transport with two independent variables (1) (special methods)		WEEK9	Transport with two independent variables (2) (special methods)	Mid term Exam	WEEK10	Transport in turbulent flow, and eddy transport properties (1)		WEEK11	Transport in turbulent flow, and eddy transport properties (2)		WEEK12	Transport across phase boundaries (1) Chapter 6 & 14 & 22	
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WEEK13	Transport across phase boundaries (2) Chapter 6 & 14 & 22	
WEEK14	Transport in large systems, such as pieces of equipment or parts thereof (1) Chapter 7 & 15 & 23	
WEEK15	Transport in large systems, such as pieces of equipment or parts thereof (2) Chapter 7 & 15 & 23	
WEEK16	Polymeric Liquids	Final Exam
<b>5. References</b>		