Department of Chemical Engineering

Course Syllabus

Course Code & Number	CHE 201		
Course Title	Principles of Chemical Engineering		
Credit & Contact Hours	3 Credits; 3 Lectures, 0 Laboratories (3-0-3)		
Instructor	Dr. Mohammad Anwar Parvez		
Office Location	Room# 2303		
Instructor's Office Phone	00966 13 720 5175		
Instructor's Email	maparvez@uhb.edu.sa	**Homepage link**	https://www.uhb.edu.sa/Pages/MemberDetails.aspx?Param=college&Ref=29&Member=440
Prerequisites	CHEM 102		
Course Description	The basic principles and techniques used for calculations of material balances in chemical engineering processes are introduced. Material balance for reactive and nonreactive processes is discussed. Simple chemical engineering processes and complex systems including recycle are covered. Study the behavior of ideal and real gases.		
Course Objectives	i. To introduce the students about concepts of Units and dimensions, Ideal and non-ideal behavior of gases ii. To familiarize them with Fundamental concepts in Chemical Engineering iii. To develop expertise to analyze and solve material balance problems in processing units for various systems iv. To develop expertise in analysis of ideal and real gas behavior		
Required Textbook	Textbook: Felder Richard M., Rousseau Ronald W. and Bullard Lisa G. "Elementary Principles of Chemical Processes" 3rd Edn. John Willey & Sons. Reference Book: David M. Himmelblau, James B. Riggs, Basic Principles and Calculations in Chemical Engineering, 8th Edition, Prentice Hall, 2012 (ISBN-13: 978-0132346603)		
Grading Scheme			

Assessments	Assessments Task	Week due	Proportion of Final Mark (%)
1	Quizzes	fortnightly	15
2	Home-works	fortnightly	15
3	Midterm exam	6	30
4	Final exam	13	40

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<tr><td>Course Learning Outcomes & Mapped So’s</td><td>

Able to apply unit conversions for primary and secondary dimensions (SO 1)
Able to perform material balance and energy balance calculations(SO 1)
Able to apply component balance to non-reactive and reactive processes with or without recycle, purge and by-pass streams(SO 1)
Able to analyze behavior of ideal and real gases for pure and mixed gases(SO 1)

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<tr><td>Attendance</td><td>
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<tr><td rowspan="2"></td><td colspan="3">Number of unexcused absences</td><td>Tot Absences (excused* + unexcused)</td></tr>
<tr><td>Warning I</td><td>Warning II</td><td>DN</td><td>DN</td></tr>
<tr><td>5 Hours / Week (45 Hours Total)</td><td>4 Hours (8%)</td><td>8 Hours (17%)</td><td>11 Hours (25%)</td><td>15 Hours (33%)</td></tr>
<tr><td>Laboratory session</td><td>NA</td><td>NA</td><td>NA</td><td>NA</td></tr>
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<tr><td>Topics</td><td>
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<tr><th>Weeks</th><th>List of Topics</th></tr>
<tr><td rowspan="3">1-4</td><td>Units, dimensions and conversions</td></tr>
<tr><td>Temperature and Pressure scales</td></tr>
<tr><td>Composition of mixtures,</td></tr>
<tr><td rowspan="2">5-8</td><td>Principles of stoichiometric calculations, Concept of a mass and energy balance</td></tr>
<tr><td>Input-output relationships, Steady-state considerations, Mass balance diagrams and tables</td></tr>
<tr><td rowspan="3">9-11</td><td>Choice of basis/datum for balances, Overall and component balances, Limiting and excess reactants</td></tr>
<tr><td>Balances for systems with recycle, purge and by-pass streams, single phase and multiphase systems</td></tr>
<tr><td>Mass balances for reactive processes.</td></tr>
<tr><td>12</td><td>Single and multiphase system</td></tr>
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