

**ChE 201****Chemical Engineering Principles – I**

<b>Catalog #:</b>	(3 credit hours, 3 contact hours) Familiarize the students with basic concepts and procedures to perform material balances on single, multiple units for both nonreactive and reactive processes.
<b>Prerequisite:</b>	CHEM 101
<b>Text:</b>	Felder R. M. and Rousseau, R. W. “Elementary Principles of Chemical Processes” John Wiley & Sons, 3 <sup>rd</sup> edition (2000).
<b>Reference:</b>	Reklaitis, G. V. “Introduction to Material and Energy Balances” John Wiley & Sons, (1983). Himmelblau, D. M. “Basic Principles and Calculations in Chemical Engineering”, Prentice Hall, Englewood Cliffs, USA.
<b>Goal:</b>	Teach the students the basic skills in performing material balances.
<b>Topics covered:</b>	(1) Origin of Chemical Engineering and role of Chemical Engineer (3 classes). (2) Introduction to Engineering Calculations (8 classes) (Units, dimensions and basic definitions. Conversion of units. Dimensional homogeneity and dimensionless quantities. Mathematical tools and problem solving techniques). (3) Processes and process variables (8 classes) (Mass, volume, temperature, pressure, flow rate, chemical composition) (4) Material balances (26 classes) (Application of principles of mathematics, physics and chemistry in material balances in single unit, multiple inputs/outputs, multiple units, recycle, bypass, purging in nonreactive and reactive processes, combustion reactions).
<b>Class requirements:</b>	Tests, Quizzes, assignments and homeworks.
<b>Computer usage:</b>	None.
<b>Laboratory Projects:</b>	None

**Assesment:**                    1 final Exam = 50%  
   2 Tests        = 40% (20% each)  
   Homeworks = 10%

**Contribution to Professional component:**

**Engineering Science:**        3 credits

**Engineering Design:**        ---

**Math & Basic Sciences:**    ---

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