

### PROFORMA FOR MODIFIED COURSE

1.	Title of the course	Material and Energy Balances
2.	Course number	CH2101
3.	Status of the course	Core
4.	Structure of credits	2-1-0-3
5.	Offered to	UG
6.	New course/modification to	Modification to CH2101
7.	To be offered by	Department of Chemical Engineering
8.	To take effect from	July 2020
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	<b>Course Objective(s):</b> To introduce process calculations and principles of conservation of mass and energy.	
12.	<b>Course Content:</b> Units and dimensions; Material balances for processes with and without chemical reactions; Degree of freedom analysis; Recycle, bypass and purge calculations; Ideal gas behaviour, vapour pressure, Cox chart, Duhring plot; Humidity and saturation; Energy balances for processes with and without chemical reactions; Combustion; Heats of solution and mixing; Use of spreadsheet software.	
13.	<b>Textbook(s):</b> 1. Felder R M and Rousseau R W, <i>Elementary Principles of Chemical Processes</i> , 3rd Edition, Wiley India (2008). 2. Himmelblau D M, <i>Basic Principles and Calculations in Chemical Engineering</i> , 8th Edition, Prentice Hall India (2014).	
14.	<b>Reference(s):</b> 1. Bhatt B I and Thakore S B, <i>Stoichiometry</i> , 5th Edition, Tata McGraw Hill (2010). 2. Reklaitis G V, <i>Introduction to Material and Energy Balances</i> , John Wiley (1984).	