INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI
भारतीय प्रौद्योगिकी संस्थान तिरुपति
Yerpedu-Venkatagiri Road, Yerpedu Post, Tirupati District, Andhra Pradesh - 517 619

1.	Title of the course	Chemical Process Calculations
2.	Course number	CH101L
3.	Structure of credits (L-T-P-C)	3-1-0-4
4.	New course/modification to	Modified with CH201L/MATERIAL AND ENERGY BALANCES
5.	To be offered by	Chemical Engineering
6.	Prerequisite	None
7.	**Course Objective(s):** To discuss the principles of conservation of mass and energy and apply them to process calculations.	
8.	**Course Content:** Introduction to Chemical Engineering, Units and dimensions, Material balances for processes without and with chemical reactions, Degree of freedom analysis, Recycle, bypass and purge calculations, Ideal gas behaviour, vapour pressure, Antoine equation, humidity and saturation, psychrometric charts, Heat capacities, Energy balances for processes without and with chemical reactions, Combustion, adiabatic flame temperature, Heats of solution and mixing, Use of spreadsheet software, Examples of flowsheeting.	
9.	**Textbook(s):** 1. Felder R M and Rousseau R W, Elementary Principles of Chemical Processes, 3rd Edition, Wiley India (2008). 2. Himmelblau D M, Basic Principles and Calculations in Chemical Engineering, 8th Edition, Prentice Hall India (2014).	
10.	**Reference(s):** 1. Bhatt B I and Thakore S B, Stoichiometry, 5th Edition, Tata McGraw Hill (2010). 2. Reklaitis G V, Introduction to Material and Energy Balances, John Wiley (1984). 3. Pushpavanam S, Introduction to Chemical Engineering, Prentice Hall India Learning (2012).	