

Design of Industrial Plants

Year 2015-2016

Teacher M.Campolo

Topics		36	22	8	
Day	Topic	Lesson	Exe	Laboratory	
Lu	28/09/15	Motivation and objectives: processes, P&I and unit operations. Tanks design: storage, containment, equalization. Tanks dynamics (filling, emptying).	2		
Ma	29/09/15	Transport of incompressible fluids: continuity and Bernoulli equations, Sizing of Hydraulic lines		2	
Lu	05/10/15	Optimal diameter of pipings. Characteristic curves of pumps and piping systems.	2		
Ma	06/10/15	Sizing of Hydraulic lines (exe)		2	
Gio	08/10/13	Laboratory experience: devices for measurements of pressure drop and flow rate; measurements of pressure drop on hydraulic line			2
Lu	12/10/15	Trasport of compressible fluids: differential form of bernoulli equation, conservation of mass; adiabatic efflux from reservoir	2		
Ma	13/10/15	Isothermal/adiabatic flow along pipelines	2		
Gio	15/10/13	Measurements of pump characteristic curve			2
Lu	19/10/15	Transport of compressible fluid (exe)		2	
Ma	20/10/15	Transport of compressible fluid (exe)			
Gio	22/10/13	III laboratory experience: filling/emptying of gas reservoir, pressure drop in compressible flow			2
Lu	26/10/15	Particle dynamics: forces acting on particles, stopping distance, terminal velocity	2		
Ma	27/10/15	Particulate matters: size distribution and other relevant properties	2		
Lu	02/11/15	Particulate dynamics (exe)		2	
Ma	03/11/15	Fluidization and systems for pneumatic transport	2		
Lu	09/11/15	Multiphase flows: flow regimes and pressure drops	2		
Ma	10/11/15	Flow through porous media; packing characteristics, Ergun equation for pressure drop	2		
Gio	12/11/15	V laboratory experience: pressure drop in multiphase flow			2
Lu	16/11/15	Mechanical separation of solids: collection mechanisms, collection efficiency, pressure drop, design criteria		2	
Ma	17/11/15	Mechanical separation systems: settling chambers, Electrostatic precipitators; sizing and costs	2		
Lu	23/11/15	Sizing of settling chambers, ESP, cyclonic devices (exe)		2	
Ma	24/11/15	Cloth Filters: filtration velocity, pressure drop, costs	2		
Lu	30/11/15	Heat transfer: conduction, convection, radiation. Overall heat transfer coefficient. Tubular heat exchanger (co/counter flow)	2		
Ma	01/12/15	Heat exchanger: dT-lm, sizing of devices	2		
Lu	07/12/15	Heat exchanger (exe)		2	
Ma	08/12/15	Mass transfer: Fick law, diffusion to/from droplet/film	2		
Lu	14/12/15	Mass transfer coefficient, mass transfer across interfaces (two-film theory)	2		
Ma	15/12/15	Gas cleaning: absorption/desorption		2	
Lu	21/12/15	Absorption columns: plate/packing columns	2		
Ma	22/12/15	Fluidodynamic sizing of packing columns (flooding, loading, ...), calculation of column height		2	
Lu	11/01/16	Sizing of packing columns (exe)		2	
Ma	12/01/16	Equilibrium stage operations: leaching	2		
Lu	18/01/16	Plate columns design	2		
Me	19/01/16	exercises		2	