

## Enquiry for Course Details

<b>CHEM3142 Chemical process industries and analysis (6 credits)</b>		Academic Year	2022
Offering Department	Chemistry	Quota	60
Course Co-ordinator	Prof G K Y Chan, Chemistry < hrsccky@hku.hk >		
Teachers Involved	(Prof G K Y Chan, Chemistry) (Visiting Professor, Chemistry)		
Course Objectives	To familiarize with typical chemical industries important in local and global economy. To understand the technology of chemicals manufacturing and chemical processes in general industry.		
Course Contents & Topics	Process flow charts, units and conversions, materials and energy balances, unit operations. Selection of chemical processes to include variation in products, scale, and types of operation, e.g. for petrochemical industries, industrial gases, beverage processes, chloroalkaline manufacturing.		
Course Learning Outcomes	On successful completion of this course, students should be able to:		
	CLO 1	solve basic problems of energy and mass balances in chemical and environmental processes	
	CLO 2	be familiarized with a few common chemical industries and chemical processes	
	CLO 3	understand some general principles of industrial practice through plant visits	
Pre-requisites (and Co-requisites and Impermissible combinations)	Pass in CHEM2241 or CHEM2341 or CHEM2441 or CHEM2442 or CHEM2541		
Course Status with Related Major/Minor /Professional Core	2U000C00 Course not offered under any Major/Minor/Professional core 2022 Minor in Chemistry ( Disciplinary Elective ) 2021 Minor in Chemistry ( Disciplinary Elective ) 2020 Minor in Chemistry ( Disciplinary Elective ) 2019 Minor in Chemistry ( Disciplinary Elective ) 2018 Minor in Chemistry ( Disciplinary Elective )		
Course to PLO Mapping			
Offer in 2022 - 2023	Y	1st sem	Examination Dec
Offer in 2023 - 2024	N		
Course Grade	A+ to F		
Grade Descriptors	A	Demonstrate thorough knowledge of industrial chemical processes and mastery of mass and energy balance skills required for attaining all of the course learning outcomes. Show strong analytical and critical abilities and logical thinking, with evidence of original thought, and ability to apply knowledge to solve problems in a wide range of complex, familiar and unfamiliar situations. Critical use of data and sourcing of references. Apply highly effective organizational and presentational skills.	
	B	Demonstrate substantial knowledge of industrial chemical processes and command of mass and energy balance skills required for attaining at least most of the course learning outcomes. Show evidence of analytical and critical abilities and logical thinking, and ability to apply knowledge to solve problems in familiar and some unfamiliar situations. Correct use of data and sourcing of references. Apply effective organizational and presentational skills.	
	C	Demonstrate general but incomplete knowledge of industrial chemical processes and command of mass and energy balance skills required for attaining most of the course learning outcomes. Show evidence of some analytical and critical abilities and logical thinking, and ability to apply knowledge solve problems to most familiar situations. Mostly correct but some erroneous use of data and references. Apply moderately effective organizational and presentational skills.	
	D	Demonstrate partial but limited knowledge of industrial chemical processes and command of mass and energy balance skills required for attaining some of the course learning outcomes. Show evidence of some coherent and logical thinking, but with limited analytical and critical abilities. Show limited ability to apply knowledge to solve problems. Limited ability to use data and source references. Apply limited or barely effective organizational and presentational skills.	
	Fail	Demonstrate little or no evidence of knowledge of industrial chemical processes and command of mass and energy balance skills required for attaining the course learning outcomes. Lack of analytical and critical abilities, logical and coherent thinking. Show very little or no ability to apply knowledge to solve problems. Misuse of data and references. Organization and presentational skills are minimally effective or ineffective.	
Course Type	Lecture with laboratory component course		
Course Teaching & Learning Activities	<b>Activities</b>	<b>Details</b>	<b>No. of Hours</b>
	Field work	1 - 2 plant visits	12
	Laboratory	computational laboratory	12
	Lectures		24
	Reading / Self study		100
Assessment Methods and Weighting	<b>Methods</b>	<b>Details</b>	<b>Weighting in final course grade (%)</b>
	Assignments	(continuous assessment)	20
	Examination		50
	Laboratory reports		5
	Test	(test/quiz)	25
Required/recommended reading and online materials	Felder and Rousseau: Elementary Principles of Chemical Processes		

Course Website	NIL
Additional Course Information	Laboratory courses are mandatory. Students must complete ALL experiments and laboratory reports to pass this course.