

GANPAT UNIVERSITY									
FACULTY OF ENGINEERING & TECHNOLOGY									
Programme		Bachelor of Technology			Branch/Spec.		Petrochemical Engineering		
Semester		IV			Version		1.0.0.0		
Effective from Academic Year			2020-21		Effective for the batch Admitted in			July 2019	
Subject code		2PCE4102		Subject Name		Inorganic Process Technology			
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	4	0	1	0	4	Theory	40	60	100
Hours	4	0	2	0	6	Practical	30	20	50
Pre-requisites:									
1. Knowledge of basic chemistry									
Course Objective									
<ul style="list-style-type: none"> To know about industrial gases and their applications. To know about manufacturing of industrial acids To understand manufacturing processes of carbon black, activated carbon. Know about Marine chemicals & Nuclear industries To understand manufacturing processes of fertilizers like urea and super phosphate. 									
Theory syllabus									
Unit	Content								Hrs
1	Industrial gases: Manufacture of CO, CO ₂ , H ₂ , N ₂ & O ₂ , rare gases C ₂ H ₂ , and their industrial applications								6
2	Industrial acids: Manufacture of nitric acid, sulphuric acid, Phosphoric acid and their industrial applications								5
3	Industrial Carbon & Inorganic pigments: Manufacture & applications of, Lamp black, Carbon black, Activated carbon, Graphite, Industrial diamond. Manufacture, properties & uses of white pigments- white lead, zinc oxide, titanium dioxide and Lithopone.								8
4	Marine chemicals & Nuclear industries: Manufacture of common salt from Sea water, by product from bitterns, Bromine. Nuclear fission reactions, Feed materials, extraction of Uranium, uranium enrichment, nuclear reactor, reprocessing of nuclear materials, protection from radioactivity.								10
5	Chloro-Alkali & Electrolytic and Electrochemical industries: Manufacture of Soda ash, caustic soda & chlorine - Diaphragm cells, Mercury cathode & Mercury cells & Membrane cell. Manufacture of potassium chlorate & per-chlorate. Artificial abrasives: Calcium carbide, Silicon carbide.								9
6	Fertilizers: Classification of fertilizers, manufacture & applications of ammonia, urea, ammonium nitrate, ammonium sulphate, Super phosphates & triple super phosphates, mono ammonium and Diammonium phosphate, Potassic, compound & complex fertilizers.								7
Practical content									
The Practical/term work shall be based on the topics mentioned above and will be defended by the candidates.									

Text Books	
1	Industrial Chemistry by B.K.Sharma, Goel Pub. House, Meerut.
2	Dryden, C. E. "Outlines of Chemical Technology" (Edited and Revised by M.Gopal Rao and Sittig .M) East West Press. Pvt. Ltd, New Delhi, 3rd Edition (1997)
Reference Books	
1	Austin G. T,"Shreve's Chemical Process Industries", 5th ed., McGraw Hill.(1984).
2	G.N.Pandey, "Text book of Chemical Technology", Vol. I, 2nd revised edition, (1994).
3	A Text Book of Engineering Chemistry, by S.S.Dara, S.Chand & Co., New Delhi
ICT/MOOCs references	
1	https://nptel.ac.in/courses/103106108/
2	https://www.youtube.com/watch?v=ZoUifoGr-UM
Course Outcomes	
	<p>To know about industrial gases and their applications.</p> <p>To know about manufacturing of industrial acids</p> <p>Student will understand manufacturing processes of carbon black, activated carbon.</p> <p>Know about Marine chemicals & Nuclear industries</p> <p>Student will understand manufacturing processes of fertilizers like urea and superphosphate</p>