

Department of Chemical Engineering
Sant Longowal Institute of Engineering & Technology, Longowal
Exercise in lieu of Industrial Training
B.E. Degree 3rd Year Students (GCT18)

4 Weeks (160 hrs.) – (1st – 28th July, 2021)

Preamble: The present situation has forced most of us to work from home. In such a scenario it will not be possible for students to undergo Summer Training in normal fashion as per past practice. So, in view of giving our student to complete course requirement, it is proposed to give suitable exercise to cover the said aspect of course. In this exercise, each student is expected to write a report in given format for the given exercise. The report should be submitted in PDF format to designated email id in case submission does not fall in the period of institute working, otherwise a bound report is to be submitted to respective Faculty Coordinator (Summer Training) through the Faculty Mentor/Supervisor (Summer Training) assigned to the student.

Duration: 4 Weeks (160 hrs.) – (1st – 28th July, 2021)

Objectives: The student must be able to

1. To observe the general structure and functioning of a chemical industry
2. To understand scope and opportunities in chemical engineering
3. To analyze the NBA attributes for an engineering graduate
4. To understand and evaluate skills required by a chemical engineer – Hard skills and soft skills
5. To select a chemical industry for study and to evaluate its status and scope at world level
6. To understand and visualize a chemical process industry in term of history, manufacturing process, various kinds of flow diagrams, materials handling, functioning of various sections of industry.
7. To visualize the plant utilities and materials handling in chemical industry
8. To describe the safety, environment and energy issues in a chemical industry
9. To appreciate the Innovation and Research & Development in that industry sector
10. To analyze the career opportunities in the selected industry sector
11. To equip yourself with working knowledge of one computer language or a software for chemical engineering
12. To develop an in-depth presentation on any two major unit operations/ processes/ equipments used in selected industry
13. To visualize your role and position in a chemical industry after graduating
14. To understand and analyze the situation of COVID-19 and lifestyles and measures after lockdown period w.r.t. campus living like academics, hostel etc.
15. To illustrate the application of chemical engineering at home/ domestic level

Distribution of activities to be taken up by students:

Objective	Activity	References	Report Submission	No. of Hrs. considered	Marks allocated	Activity Days	Report Submission day	
1	Explore the websites of the reputed chemical industries and for Career, Jobs, Employability assessments for Chemical Engineers (at least 05 nos.)	Internet/ websites of specific chemical industries Websites of TCSION; AICTE; any other	Summarize administrative structure and functions of chemical industries	2 hrs.	4	Day 1	Day 2	
2	#1. Identify the suitable opportunities for Chemical Engineering Graduates i. Employment (Industry/service sector) ii. Self-Employment (Start-up/business opportunity/ setting up of small plant) iii. Higher studies #2. Job advertisements for Freshers Chemical Engineering Graduates posted in the past 5 years (at least 20 nos.)	Google; youtube etc.	04 page summary report for #1 And 20 pages of job advertisements	2 hrs.	10	Day 1-2	Day 3	
3	Study of NBA attributes for Engineers and evaluate yourself on these points	-do-	04 page report	2 hrs.	6	Day 2	Day 3	
4	A	Preparation of powerpoint presentation on hard skills and soft skills required by chemical engineers based on NBA attributes for engineering graduates	-do-	Powerpoint presentation of 10 no. of slides	2 hrs.	6	Day 3-4	Day 5
	B	Online designated Talks by Experts OR Online training program	Will be suggested/ arranged online by department	1-2 pages summary of all talks	6 hrs.	10	-	On the day next to talk
	C	Online course on Soft/Life Skills for engineers	-do-	One page Summary of each day program	20 hrs.	18	Day 1-14	Day 15
5	Select a chemical industry to study and study its status and scope at India and world level.	<ul style="list-style-type: none"> Website of selected industry Website of related ministry Google/ Youtube/ E-Books etc. 	Upto 5 pages report	2 hrs.	4	Day 5-6	Day 7	
6	Study about selected chemical industry (of any lead industrial group): <ul style="list-style-type: none"> History About industry Vision, Mission, philosophy Administration Organization Chart Financial Aspects H.R. contact details Raw materials, Products and Processes Sections/ Departments of Industry Process flow diagram (Detailed) Unit Operations/ Processes details 	-do- Note: Faculty mentors will ensure that student must be able to apply Material and Energy Balance over the process manually as well as by using any software/ MS Excel.	In depth report covering all points studied	28 hrs.	40	Day 5-15	Day 16	

	<ul style="list-style-type: none"> Material and Energy Balance over process using any software/ MS Excel 						
7	Plant utilities and material handling	-d0	Descriptive report	8 hrs.	10	Day 16-17	Day 18
8	<ul style="list-style-type: none"> Safety measures Environmental Issues Energy sources & Energy conservation Health & Hygiene Policy 	-do-	-do-	8 hrs.	10	Day 18-19	Day 20
9	R&D and Innovations	-do-	-do-	6 hrs.	4	Day 20	Day 21
10	Career Opportunities	-do-	-do-	2 hrs.	4	Day 21	Day 22
11	Working knowledge of Any one Programming Language (C ⁺ /MATLAB/Python) Or any software related to chemical engineering (develop Illustrations)	<ul style="list-style-type: none"> Online course by TCSiON (free available) NPTEL/Swayam Any other source (available free courses online) 	Detailed report including some illustrations	32 hrs.	20	Day 1-26	Day 27
12	Develop an in-depth powerpoint presentation on any two major unit operations/ processes/ equipments used in selected industry	Industry manual/ internet sources/ e-books	ppt	14 hrs.	20	Day 22-23	Day 24 (Presentations on Day 27-28)
13	Write the vision about your role and position in a chemical industry after graduating	-	Brief report	2 hrs.	4	Day 24	Day 25
14	Study the guidelines/ protocol issued by WHO/ICMR/ any other agency Your ideas on 'Campus Living after Lockdown Period of COVID-19'	https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/social-distancing.html WHO/ICMR website	Identify touch points in room, corridor, Mess, Common Places Suggest methods to minimize the touch at least at five places	4 hrs.	10	Day 6-9	Day 10
15	Small project on illustrating the application of chemical engineering at domestic level (at home itself) (Working model/ software/ Improvement in any domestic gadget or process/ product development)	Internet sources/ websites related to innovation projects	5-8 pages brief report	20 hrs.	20	Day 8-26	Day 28 (Presentations on Day 27-28)

Other online links and study materials would be shared time to time through Google Classroom. All students would be required to register on the Google Classroom for Summer Training and will submit objective-wise reports into it after getting approved from concerned Faculty mentor/ supervisor (Summer Training) [Communication with concerned Faculty mentor/ supervisor (Summer Training) may be made through phone/whatsapp/e-mail]. Late submission will not be accepted for evaluation and zero marks will be awarded for that. Faculty mentors/ supervisors (Summer Training) will evaluate the work/ reports regularly in google classroom and return the reports after giving marks and

appropriate comments to the students in google classroom, and the Final award sheet in prescribed Performa would be submitted to Faculty Coordinator (Summer Training) at the end of training program. Following will be distribution of the marks to be awarded:

60% of total marks – To be awarded by concerned Faculty mentor/ supervisor (Summer Training) (continuous assessment)

20% of total marks – To be awarded by Faculty Coordinator (Summer Training) (Continuous assessment)

20% of total marks – To be awarded on the basis of final report submission and Viva-voce exam. To be conducted by Convener)

<u>GUIDELINES FOR SECTIONWISE REPORTS (Soft copy only)</u>
Front page : Task Name, Student Name, Course, Registration No, Institute Logo, Department Name, Institute Name and address, Dates etc.
Body of text of report
References used
<u>GUIDELINES FOR FINAL REPORT (Soft/ Hard copy)</u>
Front page : Task Name, Student Name, Course, Registration No, Institute Logo, Department Name, Institute Name and address, Dates etc.
Second Page: Certificate
Third Page onwards:
Dedication/Acknowledgement
Contents
Body of Report (sectionwise), each section to start with New page
References and Appendix (if Required).
(Format : Font-12 Pt. Arial, 1.5 line spacing, Both Sides printing, Main Heading 14 Bold, Sub Heading 12 Bold)

Note: The students should focus mainly on any of the following core chemical Industry. They may choose any other industrial sector not mentioned above and get it approved by the department.

1. Petroleum Industry	8. Agrochemical Industry	15. Chlor Alkali industry
2. Petrochemical Industry	9. Pharmaceutical Industry	16. Textile Mill
3. Paint Industry	10. Polymer Industry	17. Tannery
4. Pulp and paper Industry	11. Aluminium Industry	18. Dairy/ Food Processing
5. Sugar Mill and Distillery	12. Steel Industry	19. Cosmetics
6. Fertilizer industry	13. Nuclear industry and	20. Chemical Engg. Equipment Design
7. Oil and fat industry	14. Speciality Chemicals etc.	21. Waste Management and Treatment
		Or Any other relevant industry

If any student wishes to go for some other equivalent course work/ online internship etc., he/she has to get it approved from the institute through Department Training Coordinator and submit to Faculty Coordinator (Summer Training) in advance. For such cases, Department Training Coordinator will be the Supervisor.

Faculty Coordinator (Summer Training) will circulate necessary formats for report submission by staff/ faculty/ students and for evaluation of students. Any further guidelines will be circulated time to time by the Convener/ coordinator.