

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	University of Technology
2. University Department/Centre	Chemical Engineering Department
3. Course title/code	Chemical Process Industries
4. Programme(s) to which it contributes	
5. Modes of Attendance offered	Fall time
6. Semester/Year	2 semester/year
7. Number of hours tuition (total)	2
8. Date of production/revision of this Specification	
9. Aims of the Course	
1. This course dealing with chemical industries.	
2. Topics cover a general introduction to the world of industry and more specifically to those industries involving chemical processes; chemical process definition and its applications on an industrial scale.	
3. Introduction to natural or primary raw materials and their potential use.	
4. Introduction to the use of chemical agents in industry.	

5.

10• Learning Outcomes, Teaching, Learning and Assessment Method

A-Knowledge and Understanding

- A1. To provide an understanding of the synthesis, industrial manufacture, of important chemical industries which includes manufacture of sulfuric acid, nitric acid, ammonia, nitrogenous fertilizers, phosphoric acid, phosphate fertilizers, electrolytic industries, ceramic, oil and fats, soap and detergents, and industrial salts..
- A2. To provide an understanding of the flow diagrams, properties and uses of chemical industries.

B. Subject-specific skills

- B1. Gain and/or improve their ability to synthesize, integrate and utilize process information
- B2. Use laboratory to provide data in support of theoretical understanding
- B3.
- B4.

Teaching and Learning Methods

Lectures, Informal and formal teamwork and weekly homework

Assessment methods

Midterm exams, Final exam, Quizzes, weekly homework.

C. Thinking Skills

- C1. Apply course concepts in solving interdisciplinary problems, solve the problems through logic.
- C2. Work within a team based environment and employ interpersonal skills
- C3. Manage time effectively and prioritise workloads
- C4.

Teaching and Learning Methods

Lectures, informal and formal teamwork, weekly homework, practical Applications

Assessment methods

Midterm exams, Final exam, Quizzes, Weekly homework.

D.General and Transferable personal development).	Skills (other skills relevant to employability and
D1.	
D2.	
D3.	
D4.	

11. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1 st semester					
1	2	General introduction	Chemical processing	Lectures	Open questions
2	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Sulfur	Lectures, Practical Applications	Exams , Weekly homework, Open questions
3	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Sulfuric acid	Lectures, Practical Applications	Exams , Weekly homework, Open questions
4	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Ammonia	Lectures, Practical Applications	Exams , Weekly homework, Open questions
5	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Nitric acid	Lectures, Practical Applications	Exams , Weekly homework, Open questions

6	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Nitrogenous fertilizers (NH ₄) ₂ SO ₄ (NH ₄)NO ₃	Lectures, Practical Applications	Exams , Weekly homework, Open questions
7	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Nitrogenous fertilizers (NH ₄)NO ₃	Lectures, Practical Applications	Exams , Weekly homework, Open questions
8	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Nitrogenous fertilizers Urea, Ammonium phosphate	Lectures, Practical Applications	Exams , Weekly homework, Open questions
9	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Phosphate fertilizers superphosphate	Lectures, Practical Applications	Exams , Weekly homework, Open questions
10	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Phosphate fertilizers Triple superphosphate Phosphorous,	Lectures, Practical Applications	Exams , Weekly homework, Open questions
11	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Phosphate fertilizers phosphoric acid	Lectures, Practical Applications	Exams , Weekly homework, Open questions
12	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Electrolytic industries	Lectures, Practical Applications	Exams , Weekly homework, Open questions
13	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Electrolytic industries - Caustic soda	Lectures, Practical Applications	Exams , Weekly homework, Open questions

14	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Industrial salts NaCl	Lectures, Practical Applications	Exams , Weekly homework, Open questions
15	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Industrial salts Na ₂ CO ₃	Lectures, Practical Applications	Exams , Weekly homework, Open questions
16	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Ceramic industries potteries	Lectures, Practical Applications	Exams , Weekly homework, Open questions
17	2	synthesis, industrial manufacture, flow diagrams, properties and uses	Ceramic industries Porcelain refractories	Lectures, Practical Applications	Exams , Weekly homework, Open questions
18	2	Types, synthesis, industrial manufacture, flow diagrams,	Cement industries	Lectures, Practical Applications	Exams , Weekly homework, Open questions
19	2	properties and uses	Cement industries	Lectures, Practical Applications	Exams , Weekly homework, Open questions
20	2	Types, synthesis, industrial manufacture, flow diagrams,	Glass industries	Lectures, Practical Applications	Exams , Weekly homework, Open questions
21	2	properties and uses	Glass industries	Lectures, Practical Applications	Exams , Weekly homework, Open questions
22	2	Types, synthesis, industrial manufacture, flow diagrams,	Oil and fats	Lectures, Practical Applications	Exams , Weekly homework, Open questions
23	2	properties and uses	Oil and fats	Lectures, Practical Applications	Exams , Weekly homework, Open questions

24	2	Types, synthesis, industrial manufacture, flow diagrams,	Soap and detergents	Lectures, Practical Applications	Exams , Weekly homework, Open questions
25	2	properties and uses	Soap and detergents	Lectures, Practical	Exams , Weekly homework, Open
26	2	Raw materials Types	Sugar industries Cane sugar	Lectures, Practical Applications	Exams , Weekly homework, Open questions
27	2	synthesis, industrial manufacture, flow diagrams and properties	Sugar industries Cane sugar	Lectures, Practical Applications	Exams , Weekly homework, Open questions
28	2	Raw materials Types synthesis, industrial manufacture, flow diagrams	Sugar industries Beet sugar	Lectures, Practical Applications	Exams , Weekly homework, Open questions
29	2	synthesis, industrial manufacture, flow diagrams uses, and properties	Production of liquid biofuels from renewable resources bioethanol	Lectures, Practical Applications	Exams , Weekly homework, Open questions
30	2	synthesis, industrial manufacture, flow diagram uses	Production of liquid biofuels from renewable resources biodiesel	Lectures, Practical Applications	Exams , Weekly homework, Open questions

12.Infrastructure	
Requiredreading: ·CORETEXTS ·COURSEMATERIALS ·OTHER	<ul style="list-style-type: none"> ○ Lecturers ○ Book -References 1) Shreves chemical process industries, Austin , G. T. , 5thed , Mc Graw- Hill ,1984 2)N. Naderpour ,Petrochemical production process,1st reprint, sbpublication,New Delhi,2009 3) Hydrocarbon processing ,Petrochemical processes,2005
Specialrequirements(include for example workshops,periodicals, ITsoftware, websites)	Websites , Laboratory

Community-based facilities (include for example, guest Lectures, internship, field studies)	field trips
--	-------------

13. Admissions	
Pre-requisites	Before undertaking this module the student should have undertaken the following: chemistry, Physical chemistry , Equipment design, material science and Eng.
Minimum number of students	Central Admission
Maximum number of students	Central Admission