

TCET/FRM/IP-02/10

Semester Plan

Revision: A

Semester: I

Course:

Subject: Applied Chemistry I

Class:

S. No.	Prerequisite/ Bridge course:	Duration (Week /Hrs)	Modes of Learning	Recommended Sources
1	Basic knowledge of Mole concepts, Stoichiometry	3 hours	Self Learning/ Revision	Engineering Chemistry By Jain & Jain, Engineering Chemistry By S.S. Dara,

Class Room Teaching

Sr.]	Mod ule No.	Less on No.	Topics Planned	Teaching Aids Required	Planned Date	Completion date	Recourse Book Reference
1	-	-	Orientation of Subject AC I	PPT			
2	-	-	Orientation of Subject AC I	PPT			
3	-	-	Orientation of Subject AC I	PPT			
4	M ₁	1	Water Types of water, Impurities in water, Hardness of water and numericals, Potable water standard as per BIS.	Chalk Board, PPT			
5	M ₁	2	Determination of hardness of water by EDTA method (Principle and Theory)	Chalk Board, PPT			

6	M ₁	3	Numericals on EDTA method	Chalk Board, PPT			
7	M ₁	4	Zeolite process and problems.	Chalk Board, PPT			
8	M ₁	5	Softening of water by hot, cold lime soda method	Chalk Board, PPT			
9	M ₁	6	Numerical based on lime soda process	Chalk Board, PPT			
10	M ₁	7	Ion exchange process and problems.	Chalk Board, PPT			
11	M ₂	8	Water + Polymer Water Treatment, removal of microorganisms, by adding Bleaching powder, Chlorination, by O ₃ ,	Chalk Board, PPT			
12	M ₂	9	Electrodialysis and reverse osmosis, ultra filtration.	Chalk Board, PPT			
13	M ₂	10	BOD, COD (def, significance), BOD, COD numericals.	Chalk Board, PPT			
14	M ₂	11	Sewage treatments, Activated sludge process.	Chalk Board, PPT			
15	M ₂	12	Part B: Polymer Introduction to polymers, Classification, Types of Polymerisation	Chalk Board, PPT			
16	M ₂	13	Thermoplastic and Thermosetting plastic,	Chalk Board, PPT			
17	M ₂	14	Compounding of plastic Fabrication of plastic by Compression, Transfer, moulding.	Chalk Board, PPT			
18	M ₂	15	Injection and Extrusion Moulding	Chalk Board, PPT			

19	M3	16	Polymer: Preparation, properties and uses of Phenol formaldehyde, PMMA, Kelvar	Chalk Board, PPT			
20	M3	17	Effect of heat on the polymers (Glass transition temperatures) Polymers in medicine and surgery.	Chalk Board, PPT			
21	M3	18	Conducting polymers, Engineering Plastics.	Chalk Board, PPT			
22	M3	19	Natural & synthetic rubber, Drawbacks of natural rubber, Vulcanization	Chalk Board, PPT			
23	M3	20	Preparation, properties and uses of Buna-S, Silicone and Polyurethane rubber.	Chalk Board, PPT			
24	M4	21	Lubricants Introduction, Definition, function and Classification of Lubricants	Chalk Board, PPT			
25	M4	22	Solid Lubricants, Graphite and Molybdenum Disulphide	Chalk Board, PPT			
26	M4	23	Semisolid lubricants (greases Na base, Li base, Ca base, Axle greases.), Liquid lubricants (blended oils).	Chalk Board, PPT			
27	M4	24	Mechanism of Lubrication	Chalk Board, PPT			
28	M4	25	Definition and significance Viscosity, viscosity index, flash and fire points, cloud and pour points, oiliness, Emulsification,	Chalk Board, PPT			
29	M4	26	Acid value and problems, Saponification value and problems	Chalk Board, PPT			
30	M5	27	Phase Rule Gibb's Phase Rule, Explanation of terms	Chalk Board, PPT			
31	M5	28	One Component System (Water)	Chalk Board, PPT			
31	M5	29	Reduced Phase Rule, Two Component System (Pb-Ag)	Chalk Board, PPT			

33	M5	30	Applications and Limitations of Phase Rule.	Chalk Board, PPT			
34	M6	31	Important Engineering Materials Cement- Manufacture of Portland Cement	Chalk Board, PPT			
35	M6	32	Steps involved in manufacturing of cement	Chalk Board, PPT			
36	M6	33	Composition and Constitution of Portland Cement	Chalk Board, PPT			
37	M6	34	Setting and hardening of Portland cement, Decay of concrete, RCC	Chalk Board, PPT			
38	M6	35	Nanomaterials preparation (Laser and CVD method), properties and uses of CNTS	Chalk Board, PPT			
39	M6	36	Fullerene, properties and uses.	Chalk Board, PPT			

Remark:	Syllabus Coverage:	Content Beyond Syllabus: various types of waste water treatment, Advanced technology of waste water treatment
Course:		

No. of (lectures planned)/(lecture taken): 39

Advanced course: 1. Advanced Engineering Chemistry	20 Hours	Online NPTEL videos /courses	Web sources: NPTEL- https://onlinecourses.nptel.ac.in Textbook reference: Advanced Engineering Chemistry
--	----------	------------------------------	--

Text Books:

1. Applied Chemistry II Tech-Max Publications
2. Applied Chemistry II Technical Publications
3. Applied Chemistry II P. Jamnadas LLP Publications

Reference Books:

1. Engineering Chemistry by Jain and Jain
2. Engineering Chemistry by S. S. Dara
3. Engineering Chemistry by Sunita Rattan

Digital Reference:

3.1 *www.nptel.ac.in*

Name & Signature of Faculty

Signature of HOD

Signature of Principal /Dean (Academics)

Date:

Date:

Date:

Note:

1. Plan date and completion date should be in compliance
2. Courses are required to be taught with emphasis on resource book, course file, text books, reference books, digital references etc.
3. Planning is to be done for 15 weeks where 1st week will be AOP, 2nd -13th for effective teaching and 14th -15th week for effective university examination oriented teaching, mock practice session and semester consolidation.
4. According to university syllabus where lecture of 4 hrs/per week is mentioned minimum 52 hrs and in case of 3 lectures per week minimum 45 lectures are to be engaged are required to be engaged during the semester and therefore accordingly semester planning for delivery of theory lectures shall be planned.
5. In order to improve score in NBA, faculty members are also required to focus course teaching beyond university prescribed syllabus and measuring the outcomes w.r.t learning course and programme objectives.
6. Text books and reference books are available in syllabus. Here only additional references w.r.t. non –digital/ digital sources can be written (if applicable)
7. Technology to be used in class room during lecture shall be written below the topic planned within the bracket.