



Program	Bachelor of Pharmacy (BPharm)	Semester - 1
Type of Course	-	
Prerequisite		
Course Objective	-	
Effective From A.Y.	2023-24	

Teaching Scheme (Contact Hours)				Examination Scheme				
Lecture	Tutorial	Lab	Credit	Theory Marks		Practical Marks		Total Marks
				External Marks (T)	Internal Marks (T)	External Marks (P)	Internal Marks (P)	
3	1	4	6	75	25	35	15	150

SEE - Semester End Examination, CIA - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)

Course Content		T - Teaching Hours W - Weightage	
Sr.	Topics	T	W
1	UNIT 1 1. Impurities in pharmaceutical substances: History of Pharmacopoeia, Sources and types of impurities, principle involved in the limit test for Chloride, Sulphate, Iron, Arsenic, Lead and Heavy metals, modified limit test for Chloride and Sulphate 2. General methods of preparation, assay for the compounds superscripted with asterisk (*), properties and medicinal uses of inorganic compounds belonging to the following classes	10	22
2	UNIT II 3. Acids, Bases and Buffers: Buffer equations and buffer capacity in general, buffers in pharmaceutical systems, preparation, stability, buffered isotonic solutions, measurements of tonicity, calculations and methods of adjusting isotonicity. 4. Major extra and intracellular electrolytes: Functions of major physiological ions, Electrolytes used in the replacement therapy: Sodium chloride*, Potassium chloride, Calcium gluconate* and Oral Rehydration Salt (ORS), Physiological acid base balance. 5. Dental products: Dentifrices, role of fluoride in the treatment of dental caries, Desensitizing agents, Calcium carbonate, Sodium fluoride, and Zinc eugenol cement.	10	22
3	UNIT III 6. Gastrointestinal agents Acidifiers: Ammonium chloride* and Dil. HCl Antacid: Ideal properties of antacids, combinations of antacids, Sodium Bicarbonate*, Aluminum hydroxide gel, Magnesium hydroxide mixture. Cathartics: Magnesium sulphate, Sodium orthophosphate, Kaolin and Bentonite Antimicrobials: Mechanism, classification, Potassium permanganate, Boric acid, Hydrogen peroxide*, Chlorinated lime*, Iodine and its preparation	10	22
4	UNIT IV 7. Miscellaneous compounds Expectorants: Potassium iodide, Ammonium chloride*. Emetics: Copper sulphate*, Sodium potassium tartarate Haematinics: Ferrous sulphate*, Ferrous gluconate Poison and Antidote: Sodium thiosulphate*, Activated charcoal, Sodium nitrite Astringents: Zinc Sulphate, Potash Alum	8	18
5	UNIT V	7	16



Course Content		T - Teaching Hours W - Weightage	
Sr.	Topics	T	W
	8. Radiopharmaceuticals: Radio activity, Measurement of radioactivity, Properties of α , β , γ radiations, Half-life, radio isotopes and study of radio isotopes - Sodium iodide I131, Storage conditions, precautions & pharmaceutical application of radioactive substances.		
Total		45	100

Suggested Distribution Of Theory Marks Using Bloom's Taxonomy						
Level	Remembrance	Understanding	Application	Analyze	Evaluate	Create
Weightage	30	30	20	10	5	5

NOTE : This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes	
At the end of this course, students will be able to:	
C01	Knowledge of various pharmacopoeias, its history and monographs
C02	Knowledge of various impurities in pharmaceutical substance and their limit tests.
C03	Knowledge of general methods of preparation and assay of various selected inorganic compounds.
C04	Knowledge of properties and medicinal uses of selected inorganic compounds
C05	Ability to perform limit test of impurities, test of purity and identification of inorganic substances

Reference Books	
1.	Pharmaceutical Chemistry - Inorganic By G R Chatwal Himalaya Publishing House Fifth Revised Edition, Pub. Year 1995
2.	Pharmaceutical Inorganic Chemistry (TextBook) By Dr. Uttam Singh Baghel, Ruchika Kabra, Atul Kabra S. Vikas & Company (Medical Publishers) first Edition 2017, Pub. Year 2017
3.	Pharmaceutical Inorganic Chemistry (TextBook) By Dr. Shivakumar Swamy, Bidya Bhushan, Dr. Sanjay G. Walode Nirali Prakashan Seventh Edition 2022, Pub. Year 2022
4.	Practical Pharmaceutical Chemistry By A.H. Beckett & J.B. Stenlake's Stahlone Press of University of London 4th
5.	Text Book of Quantitative Inorganic analysis (TextBook) By A.I. Vogel
6.	Inorganic Pharmaceutical Chemistry (TextBook) By P. Gundu Rao 3rd Edition



List of Practical

1.	To perform the limit test for Chloride in dextrose sample (acc. to IP 2007)
2.	To perform the limit test for sulphate in dextrose sample. (acc. to IP 2007)
3.	To perform limit test for iron in sodium chloride sample.
4.	To perform limit test for heavy metals (lead) in sodium chloride sample.
5.	To perform limit test for Arsenic in dextrose sample
6.	To synthesize Boric acid from borax
7.	To synthesize Potash Alum from Aluminium scrap
8.	To synthesize Ferrous Sulphate from Iron
9.	To perform inorganic qualitative analysis of given sample and find out cation and anion (CuSO_4)
10.	To perform inorganic qualitative analysis of given sample and find out cation and anion (BaCl_2)
11.	To perform inorganic qualitative analysis of given sample and find out cation and anion (FeSO_4)
12.	To perform inorganic qualitative analysis of given sample and find out cation and anion (PbSO_4)
13.	To perform inorganic qualitative analysis of given sample and find out cation and anion (NaCl)
14.	To perform inorganic qualitative analysis of given sample and find out cation and anion (ZnSO_4)
15.	To Study swelling power of Bentonite

List of Tutorial

1.	Revision 1 - Monograph
2.	Revision 2 - Pharmacopeia & Limit Test of Chloride
3.	Revision 3 - Limit test of Sulphate, Iron
4.	Revision 4 - Limit Test of Arsenic
5.	Revision 5 - Limit test of iron, heavy metals & lead
6.	Revision 6 - Buffer equation & definition
7.	Revision 7 - Measurement of tonicity & Methods of adjusting tonicity
8.	Revision 8 - NaCl , KCl , Calcium Gluconate & ORS
9.	Revision 9 - CaCO_3 , NaF , ZOE
10.	Revision 10 - Acidifiers, Antacids
11.	Revision 11 - Cathartics
12.	Revision 12 - Antimicrobials
13.	Revision 13 - Expectorants & Emetics
14.	Revision 14 - Haematinics, Poison & Antidotes, Astringents
15.	Revision