

GAUTAM COLLEGE OF PHARMACY HAMIRPUR

LESSON PLAN

Course: D Pharmacy (1st Year)

Session: 2023-2024

Subject Name: Pharmaceutical chemistry

Subject Code: ER20-12T

Total Teaching Hours Allocated by PCI: 75

Name of Faculty: RAKESH KUMAR / JUNIL

Each Lecture: 1 Hour

Chapter No.	Topic No.	Title of Topic	Learning Outcome	Date	Pedagogy	Assignment Details	Remarks
1	1.	Introduction to pharmaceutical Chemistry/ Scope and objectives	After completion of topic, students will understand introduction to pharmaceutical chemistry, source of errors and impurities in pharmaceutical chemistry.	09/06/23	Hand Written notes/ PPTs		<u>Rksh</u>
	2.	Sources and types of errors: Accuracy		11/06/23		<u>Rksh</u>	
	3.	Precision, Significant figures		16/06/23		<u>Rksh</u>	
	4.	Impurities in Pharmaceuticals: Source and effect of impurities in Pharmacopoeial substances		22/06/23		<u>Rksh</u>	
	5.	Importance of limit test		25/06/23		<u>Rksh</u>	
	6.	Principle and procedures of Limit tests for chlorides		26/06/23		<u>Rksh</u>	
	7.	Principle and procedures of Limit tests for Sulphates, and arsenic.		29/06/23		<u>Rksh</u>	
	8.	Principle and procedures of Limit tests for Iron, and Heavy metals		30/06/23		<u>Rksh</u>	
2	9.	Volumetric analysis: Fundamentals of	After completion of	01/07/23	Hand Written		<u>Rksh</u>

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				notes/ PPTs	
	volumetric analysis	topic, students will understand volumetric analysis, titration methods and gravimetric analysis Principles and methods	04/09/23	Hand Written notes/ PPTs	Pdesh
10.	Acid-base titration		09/09/23		Pdesh
11.	Non-aqueous titration		05/09/23		Pdesh
12.	Precipitation titration		11/09/23		Pdesh
13.	Complexometric titration		13/09/23		Pdesh
14.	Redox titration		15/09/23		Pdesh
15.	Gravimetric analysis: Principle		16/09/23		Pdesh
16.	Gravimetric analysis: method	22/09/23		Pdesh	
17.	Inorganic Pharmaceuticals: Pharmaceutical formulations, market preparations, storage conditions and uses	After completion of topic, students will understand inorganic pharmaceutical formulations, their preparation methods, uses of haematinics, gastro-intestinal agents, topical agents, dental products, and medicinal gases	25/09/23		Pdesh
18.	Haematinics: Ferrous sulphate, Ferrous fumarate, Ferric ammonium citrate, Ferrous ascorbate, Carbonyl iron		26/09/23		Pdesh
19.	Gastro-intestinal Agents: Antacids :Aluminium hydroxide gel, Magnesium hydroxide, Magaldrate, Sodium bicarbonate, Calcium Carbonate,		29/09/23		Pdesh
20.	Acidifying agents, Adsorbents, Protectives, Cathartics		04/10/23		Pdesh
21.	Topical agents: Silver Nitrate, Ionic Silver, Chlorhexidine Gluconate, Hydrogen peroxide, Boric acid, Bleaching powder, Potassium permanganate		09/10/23		Pdesh
22.	Dental products: Calcium carbonate, Sodium fluoride,		11/10/23		Pdesh

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		Denture cleaners, Denture adhesives, Mouth washes		16/10/23			P. Jadhav
	23.	Medicinal gases: Carbon dioxide, nitrous oxide, oxygen		17/10/23			P. Jadhav
4	24.	Introduction to nomenclature of organic chemical systems with particular reference to heterocyclic compounds containing up to Three rings	After completion of topic, students will understand the nomenclatur e of organic compounds	23/10/23	Hand Written notes/ PPTs		P. Jadhav
	25.	Introduction to nomenclature of organic chemical systems with particular reference to heterocyclic compounds containing up to Three rings		24/10/23			P. Jadhav
5	26.	Drugs Acting on Central Nervous System: introduction to CNS	After completion of topic, students will understand the drugs acting on the central nervous system and classification, chemical name, chemical structure uses, stability and storage conditions, different types of formulations and their	21/11/23	Hand Written notes/ PPTs	Hand Written Notes/PPTs	P. Jadhav
	27.	Anaesthetics: Thiopental Sodium*, Ketamine Hydrochloride*, Propofol.		21/11/23	Hand Written notes/ PPTs		P. Jadhav
	28.	Sedatives and Hypnotics: Diazepam*, Alprazolam*, Nitrazepam, Phenobarbital*		24/11/23	Hand Written notes/ PPTs		P. Jadhav
	29.	Antipsychotics: Chlorpromazine Hydrochloride*, Haloperidol*,		25/11/23	Hand Written notes/ PPTs		P. Jadhav
	30.	Risperidone*, Sulpiride*, Olanzapine,		29/11/23	Hand Written notes/ PPTs		P. Jadhav

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		Quetiapine, Lurasidone	popular brand names	09/12/23	Hand Written notes/ PPTs		
	31.	Anticonvulsants: Phenytoin*, Carbamazepine*, Clonazepam,		06/12/23			
	32.	Valproic Acid*, Gabapentin*, Topiramate, Vigabatrin, Lamotrigine		08/12/23			
	33.	Anti-Depressants: Amitriptyline Hydrochloride*, Imipramine Hydrochloride*, Fluoxetine*,		13/12/23			
	34.	Venlafaxine, Duloxetine, Sertraline, Citalopram, Escitalopram, Fluvoxamine, Paroxetine		15/12/23			
6	35.	Drugs Acting on Autonomic Nervous System	After completion of topic, students will understand the drugs acting on the autonomic nervous system and classification, chemical name, chemical structure uses, stability and storage conditions, different types of formulations	16/12/23	Hand Written notes/ PPTs	Hand Written Notes/PPTs	
	36.	Sympathomimetic Agents: Direct Acting: Nor- Epinephrine*, Epinephrine, Phenylephrine, Dopamine*, Terbutaline, Salbutamol (Albuterol), Naphazoline*, Tetrahydrozoline.		19/12/23			Hand Written notes/ PPTs
	37.	Indirect Acting Agents: Hydroxy Amphetamine, Pseudoephedrine. Agents With Mixed Mechanism:		20/12/23			Hand Written notes/ PPTs

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		Ephedrine, Metaraminol	and their popular brand names	22/12/23		
	38.	Adrenergic Antagonists: Alpha Adrenergic Blockers: Tolazoline, Phentolamine, Phenoxybenzamine, Prazosin.		26/12/23	Hand Written notes/ PPTs	
	39.	Beta Adrenergic Blockers: Propranolol*, Atenolol*, Carvedilol		27/12/23	Hand Written notes/ PPTs	
	40.	Cholinergic Drugs and Related Agents: Direct Acting Agents: Acetylcholine*, Carbachol, And Pilocarpine.		29/12/23	Hand Written notes/ PPTs	
	41.	Cholinesterase Inhibitors: Neostigmine*, Edrophonium Chloride, Tacrine Hydrochloride, Pralidoxime Chloride, Echothiopate Iodide		01/01/2024	Hand Written notes/ PPTs	
	42.	Cholinergic Blocking Agents: Atropine Sulphate*, Ipratropium Bromide Synthetic		17/01/24	Hand Written notes/ PPTs	
	43.	Cholinergic Blocking Agents: Tropicamide, Cyclopentolate Hydrochloride, Clidinium Bromide, Dicyclomine Hydrochloride*		23/01/24	Hand Written notes/ PPTs	
6	44.	Drugs Acting on Cardiovascular System	After completion of topic,	30/01/24	Hand Written notes/ PPTs	
	45.	Anti-Arrhythmic Drugs: Quinidine Sulphate,	students will understand the drugs	02/02/24		

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		Procainamide Hydrochloride, Verapamil, Phenytoin Sodium*	acting on the cardiovascular system and classification, chemical name, chemical structure uses, stability and storage conditions, different types of formulations and their popular brand names	05/02/24			
	46.	Lidocaine Hydrochloride, Lorcaïnide Hydrochloride, Amiodarone and Sotalol		07/02/24			
	47.	Anti-Hypertensive Agents: Propranolol*, Captopril*, Ramipril, Methyldopate		09/02/24			
	48.	Hydrochloride, Clonidine Hydrochloride, Hydralazine Hydrochloride, Nifedipine,		12/02/24			
	49.	Antianginal Agents: Isosorbide Dinitrate		14/02/24			
7	50.	Diuretics: Acetazolamide, Frusemide*, Bumetanide,	After completion of topic, students will understand the Diuretics and its classification, chemical name, chemical structure uses, stability and storage conditions, different types of formulations and their popular brand names	16/02/24	Hand Written notes/ PPTs		
	51.	Chlorthalidone, Benzthiazide, Metolazone, Xipamide, Spironolactone		20/02/24			
				21/02/24			
				25/02/24			
8	52.	Hypoglycemic	After	26/02/24	Hand		

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		Agents: Insulin and Its Preparations,	completion of topic, students will understand the hypoglycemic agents and classification, chemical name, chemical structure uses, stability and storage conditions, different types of formulations and their popular brand names	17/03/24	Written notes/ PPTs		
	53.	Metformin*, Glibenclamide*, Glimepiride,		15/03/24			
	54.	Pioglitazone, Repaglinide, Gliflozins, Gliptins		18/03/24			
				19/03/24			
				20/03/24			
9	55.	Analgesic And Anti-Inflammatory Agents: Morphine Analogues, Narcotic Antagonists;	After completion of topic, students will understand the Anti-Inflammatory Agents and Nonsteroidal AntiInflamm atory Agents and their classification s, chemical name, chemical structure uses, stability and storage conditions, different types of formulations	22/03/24	Hand Written notes/ PPTs		
	56.	Nonsteroidal AntiInflammatory Agents (NSAIDs) - Aspirin*, Diclofenac, Ibuprofen*,		26/03/24			
	57.	Piroxicam, Celecoxib, Mefenamic Acid, Paracetamol*, Aceclofenac		27/03/24			
				01/04/24			
				02/04/24			
				05/04/24			

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			and their popular brand names				
10	58.	Anti-Infective Agents	After completion of topic, students will understand the Anti-Infective agents and their classification s, chemical name, chemical structure uses, stability and storage conditions, different types of formulations and their popular brand names		Hand Written notes/ PPTs		
	59.	Antifungal Agents: Amphotericin-B, Griseofulvin, Miconazole, Ketoconazole*, Itraconazole, Fluconazole*, Naftifine Hydrochloride		05/04/24			
	60.	Urinary Tract Anti-Infective Agents: Norfloxacin, Ciprofloxacin, Ofloxacin*, Moxifloxacin,		08/04/24			
	61.	Anti-Tubercular Agents: INH*, Ethambutol, Para Amino Salicylic Acid,		09/04/24			
	62.	Pyrazinamide, Rifampicin, Bedaquiline, Delamanid, Pretomanid*		09/04/24			
	63.	Antiviral Agents: Amantadine Hydrochloride, Idoxuridine, Acyclovir*, Foscarnet, Zidovudine, Ribavirin, Remdesivir, Favipiravir		10/04/24			
	64.	Antimalarials: Quinine Sulphate, Chloroquine Phosphate*, Primaquine Phosphate, Mefloquine*, Cycloguanil, Pyrimethamine,		12/04/24			

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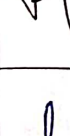
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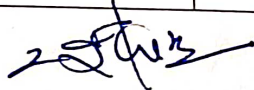
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		Artemisinin					
	65.	Sulfonamides: Sulfanilamide, Sulfadiazine, Sulfamethoxazole, Sulfacetamide*, Mafenide Acetate, Cotrimoxazole, Dapsone*		16/04/24			
12	66.	Antibiotics: Penicillin G,	After completion of topic, students will understand the Antibiotics and their classification, chemical name, chemical structure uses, stability and storage conditions, different types of formulations and their popular brand names	22/04/24	Hand Written notes/ PPTs		
	67.	Amoxicillin*		23/04/24			
	68.	Cloxacillin, Streptomycin		24/04/24			
	69.	Tetracyclines: MOA		26/04/24			
	70.	Doxycycline, Minocycline,		03/05/24			
	71.	Macrolides: Erythromycin, Azithromycin,		03/05/24			
	72.	Miscellaneous: Chloramphenicol* (MOA) Clindamycin (MOA)					
13	73.	Anti-Neoplastic Agents: Cyclophosphamide*,	After completion of topic, students will understand the Anti-neoplastic agents and their classification, chemical name, chemical	06/05/24	Hand Written notes/ PPTs		
	74.	Busulfan, Mercaptopurine, Fluorouracil*, Methotrexate, Dactinomycin,		06/05/24			
	75.	Doxorubicin Hydrochloride, Vinblastine Sulphate, Cisplatin*, Dromostanolone		07/05/24			

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		Propionate	structure uses, stability and storage conditions, different types of formulations and their popular brand names		07/05/2011		
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Teacher Signature 

Academic I/C 

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