MONAD UNIVERSITY

Estd.Under U.P. Govt. University Act 23 of 2010 & U/S 2(f) of the U.G.C. Act 1956.
N.H.24, Delhi Hapur Road, Village & Post – Kastla, Kasmabad,
P.O. Pilkhuwa – 245101, District Hapur (U.P.) India
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Lesson Plan

Program- D.Pharm
Year - I
Course DPH-111 PHARMACEUTICS-I
Session - 2020-2021

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	**Introduction of different dosage forms**	1	0	0	1
3	D+2	**different dosage forms** classification with examples-their relative applications	1	0	0	1
4	D+3	Familiarization with new drug delivery systems	1	0	0	1
5	D+4	**Introduction to Pharmacopoeias** with special reference to the Indian Pharmacopoeia.	1	0	0	1
6	D+5	Tutorial (Problem solving session/ class test)	0	1	0	1
7	D+6	**Metrology–**Systems of weights and measures	1	0	0	1
8	D+7	Calculations including conversion from one to another system	1	0	0	1
9	D+8	Percentage calculations and adjustments	1	0	0	1
10	D+9	alligation method in calculations	1	0	0	1
11	D+10	Tutorial (Problem solving session/ class test)	0	1	0	1

		TOTAL	8	2	0	**10**
12	D+11	isotonic solutions.	1	0	0	1
13	D+12	**Packing of Pharmaceuticals**	1	0	0	1
14	D+13	Desirable features of a container	1	0	0	1
15	D+14	Study of glass and plastics as materials for containers	1	0	0	1
16	D+15	Tutorial (Problem solving session/ class test)	0	1	0	1
17	D+16	rubber as material for closures-their merits and demerits. Introduction to aerosol packaging	1	0	0	1
18	D+17	**Size reduction:** Objectives, and factors affecting size reduction, methods of size reduction	1	0	0	1
19	D+18	Study of Hammer mill, Ball mill, Fluid Energy, Mill and Disintegrator. **Size separation–**Size separation by sifting. Official Standard for powders	1	0	0	1
20	D+19	Sedimentation methods of size separation. Construction and working of cyclone separator.	1	0	0	1
21	D+20	Tutorial (Problem solving session/ class test)	0	1	0	1
		TOTAL	**8**	2	0	**10**
22	D+21	**Mixing and Homogenization–**Liquid mixing and powder mixing	1	0	0	
23	D+22	Mixing of semisolids, Study of Silverson Mixer–Homogenizer	1	0	0	1
24	D+23	Planetary Mixer; Agitated powder mixer; Triple Roller Mill	1	0	0	1
25	D+24	Propeller Mixer, Colloid Mill and Hand Homogenizer. Double cone mixer.	1	0	0	1
26	D+25	Tutorial (Problem solving session/ class test)	0	1	0	1
27	D+26	**Clarification and Filtration –**Theory of filtration, Filter media;	1	0	0	1

28	D+27	Filter aids and selection of filters	1	0	0	1
29	D+28	Study of the following filtration equipment	1	0	0	1
30	D+29	Filter Press, Sintered Filters	0	1	0	1
31	D+30	Tutorial (Problem solving session/ class test)	1	0	0	
		TOTAL	**8**	**2**	**0**	**10**
32	D+31	Filter Candles, Meta filter	1	0	0	1
33	D+32	**Extraction and Galenicals**	1	0	0	1
34	D+33	Study of percolation and maceration and their modification	1	0	0	1
35	D+34	continuous hot extraction–Applications in the preparation of tinctures and extracts	1	0	0	1
	D+35	Tutorial (Problem solving session/ class test)	0	1	0	1
36	D+36	Introduction to Ayurvedic dosage forms.	1	0	0	1
37	D+37	**Heat processes Evaporation–**Definition Factors affecting evaporation	1	0	0	1
38	D+38	Study of evaporating still and Evaporating Pan.	1	0	0	1
39	D+39	**Distillation–**Simple distillation and Fractional distillation	1	0	0	1
40	D+40	Tutorial (Problem solving session/ class test)	0	1	0	1
		TOTAL	**8**	**2**	**0**	**10**
41	D+41	Steam distillation and vacuum distillation	1	0	0	1
42	D+42	Study of vacuum still, preparation of Purified Water I.P. .	1	0	0	1
43	D+43	**Introduction to drying processes**	1	0	0	1
44	D+44	Study of Tray Dryers: Fluidized Bed Dryer	1	0	0	1
45	D+45	Tutorial (Problem solving session/ class test)	0	1	0	1
46	D+46	Vacuum Dryer and Freeze Dryer	1	0	0	1
47	D+47	water for injection I.P. Construction and working of the	1	0	0	1

		still used for the same				
48	D+48	**Sterilization–**Concept of sterilization	1	0	0	1
49	D+49	**Sterilization** its differences from disinfection Thermal resistance of micro– organisms	1	0	0	1
50	D+50	Tutorial (Problem solving session/ class test)	0	1	0	1
		TOTAL	**8**	**2**	**0**	**10**

51	D Day					
52	D+51	Detailed study of the following sterilization process,	1	0	0	1
53	D+52	Sterilization with moist heat	1	0	0	1
54	D+53	Sterilization by radiation	1	0	0	1
55	D+54	Sterilization by radiation	1	0	0	1
56	D+55	Tutorial (Problem solving session/ class test)	0	1	0	1
57	D+56	Sterilization by filtration	1	0	0	1
58	D+57	Gaseous sterilization.	1	0	0	1
59	D+58	**Aseptic techniques:** Application of sterilization processes	1	0	0	1
60	D+59	hospitals particularly with reference to surgical dressings and intravenous fluids	1	0	0	1
61	D+60	Tutorial (Problem solving session/ class test)	0	1	0	1
		TOTAL	**8**	**2**	**0**	**10**
62	D+61	Precautions for safe and effective handling of sterilization equipment.	1	0	0	1
63	D+62	**Processing of Tablets**	1	0	0	1
64	D+63	**Tablets-**Definition; Different types of compressed tablets and their properties	1	0	0	1

65	D+64	Processes involved in the production of tablets	1	0	0	1
66	D+65	Tutorial (Problem solving session/ class test)	0	1	0	1
67	D+66	Tablets excipients; Defects in tablets	1	0	0	1
68	D+67	Evaluation of Tablets; Physical Standards including Disintegration and Dissolution	1	0	0	1
69	D+68	Tablet coating–sugar coating; film coating,	1	0	0	1
70	D+69	enteric coating and microencapsulation	1	0	0	1
71	D+70	Tutorial (Problem solving session/ class test)	0	1	0	1
		TOTAL	**8**	**2**	**0**	**10**
72	D+71	**Processing of Capsules–**Hard and soft gelatin capsules	1	0	0	
73	D+72	**Processing of Capsule** filling of capsules	1	0	0	1
74	D+73	handling and storage of capsules	1	0	0	1
75	D+74	Special applications of capsules	1	0	0	1
76	D+75	Tutorial (Problem solving session/ class test)	0	1	0	1
77	D+76	**Study** of immunological products	1	0	0	1
78	D+77	**Study** of immunological products like sera vaccines,	1	0	0	1
79	D+78	**Study** of immunological products like sera vaccines, toxoids & their preparations.	1	0	0	1
80	D+79	reference to surgical dressings and intravenous fluids	0	1	0	1
81	D+80	Tutorial (Problem solving session/ class test)	1	0	0	
		TOTAL	**8**	**2**	**0**	**10**

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Lesoon Plan

Program- D.Pharm
Semester- I
Course DPH-111 PHARMACEUTICS-I
Session - 2020-2021

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	To Prepare and Submit 10 ml of Chloroform Water IP.	0	0	4	4
3	D+2	To Prepare and Submit 20 ml of Rose Water NF.	0	0	4	4
4	D+3	To Prepare and Submit 20 ml of Aq. Iodine Solution IP.	0	0	4	4
5	D+4	To Prepare and Submit 10 ml of Camphor Water IP.	0	0	4	
6	D+5	To Prepare and Submit 20 ml of Strong Ammonium Acetate Solution BP	0	0	4	4
7	D+6	To Prepare and Submit 20 ml of Alcoholic Iodine Solution BP.	0	0	4	4
8	D+7	To Prepare and Submit 20 ml of Aromatic Ammonia Spirit USP.	0	0	4	4
9	D+8	To Prepare and Submit 20 ml of Camphor Spirit USP.	0	0	4	4
10	D+9	To Prepare and Submit 10 gm of Salicylic acid Cream.	0	0	4	4
11	D+10	To Prepare and Submit 20 gm of Cold Cream.	0	0	4	4
			0	0	4	4
12	D+11	To Prepare and Submit 20 gm of Shampoo.	0	0	4	4

13	D+12	To Prepare and Submit 10 ml of compound NaCl Mouth wash.	0	0	4	4
14	D+13	Formulation and Evaluation of PCM/ Aspirin Tablets by Granulation techniques.	0	0	4	4
15	D+14	To Prepare, submit and Evaluate 5 capsules of PCM.	0	0	4	4
16	D+15	To Prepare and Submit 10 ml of Zinc Sulphate Eye drops BP.	0	0	4	4
17	D+16	To Prepare and Submit 10 ml of Sodium Chloride Eye drops BP.	0	0	4	4
18	D+17	Sterilization of Prepared Eye drop of Zinc Sulphate Eye drops BP and Sodium Chloride Eye drops BP by Autoclaving Method.	0	0	4	4
19	D+18	To Prepare and Submit 20 ml of Liquorice Liquid Extract BP.	0	0	4	4
20	D+19	To Prepare and Submit 20 ml of Strong Ginger Tincture BP.	0	0	4	4
21	D+20	To Prepare and Submit 20 ml of Iodine Tincture USP.	0	0	4	4
22	D+21	Preparation and Sterilization of Nutrient Broth.	0	0	4	4
23	D+22	Preparation of Glassware and sterilization equipment for microbiological work by Autoclaving.	0	0	4	4
24	D+23	To cultivate the Micro-organism in Nutrient broth medium.	0	0	4	4
25	D+24	To Prepare and Submit 10 ml of Sodium Chloride Eye drops BP.	0	0	4	4
26	D+25	Sterilization of Prepared Eye drop of Zinc Sulphate Eye drops BP and Sodium Chloride Eye drops BP by Autoclaving Method.	0	0	4	4
			0	0	100	100

MONAD UNIVERSITY

Program- D.Pharm

year- 1st year

Course DPH-112PHARMACEUTICAL CHEMISTRY-I

Session - 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day	**General discussion** on the following inorganic compounds including important physical and chemical properties	1	0	0	1
2	D+1	medicinal and Pharmaceutical uses, storage conditions and chemical incompatibility	1	0	0	1
3	D+2	**(A) Acids, bases and buffers** Boric acid*, Hydrochloric acid,	1	0	0	1
4	D+3	strong ammonium hydroxide	1	0	0	1
5	D+4	**Tutorial**	0	1	0	1
6	D+5	Calcium hydroxide	1	0	0	1
7	D+6	Sodium hydroxide and official buffers	1	0	0	1
8	D+7	**(B) Antioxidants–**Hypo phosphorous acid, Sulphur dioxide	1	0	0	1
9	D+8	Sodium bisulphite, Sodium Meta bisulphite,	1	0	0	1
10	D+9	Sodium thiosulphate, Nitrogen and Sodium Nitrite	1	0	0	1
11	D+10	**Tutorial**	0	1	0	1
12	D+11	**(C) Gastrointestinal agents—**	1	0	0	1

		(i) Acidifying agents Dilute hydrochloric acid				
13	D+12	(ii)Antacids-Sodium bicarbonate, Aluminium hydroxide gel	1	0	0	1
14	D+13	Aluminium Phosphate	1	0	0	1
15	D+14	Calcium carbonate Magnesium carbonate	1	0	0	1
16	D+15	Tutorial	0	1	0	1
17	D+16	Magnesium trisilicate, Magnesium oxide	1	0	0	1
18	D+17	Combinations of antacid preparations	2	0	0	1
19	D+18	Protectives and Adsorbents –Bismuth subcarbonate and Kaolin.	1	0	0	1
20	D+19	Saline Cathartics –Sodium potassium tartrate	2	0	0	1
21	D+20	Protectives and Adsorbents Magnesium sulphate.	1	0	0	1
22	D+21	**Tutorial**	0	1	0	1
		Total	19	4	0	23
23	D+22	**General discussion** on the following inorganic compounds including important physical and chemical properties, medicinal and Pharmaceutical uses, storage conditions and chemical incompatibility	1	0	0	1
24	D+23	**Topical Agents-** i. Protectives-Talc, Zinc Oxide, Calamine,	1	0	0	1
25	D+24	i. Zinc stearate, Titanium dioxide, Silicone polymers	1	0	0	1
26	D+25	**Tutorial**	0	1	0	1
27	D+26	(ii) Antimicrobials and Astringents–Hydrogen peroxide*, Potassium permanganate,	1	0	0	1
28	D+27	Chlorinated lime	1	0	0	1
29	D+28	Iodine, Solutions of Iodine, Povidone-iodine	1	0	0	1
30	D+29	Boric acid, Borax. Silver nitrate, Mild silver protein,	1	0	0	1

31	D+30	Mercury, Yellow mercuric oxide, Ammoniated mercury	1	0	0	1
32	D+31	Tutorial	0	1	0	1
33	D+32	Sulphur and its compounds–Sublimed sulphurprecipitated sulphur, selenium sulphide	1	0	0	1
34	D+33	selenium sulphide	1	0	0	1
35	D+34	Astringents:-Alum	1	0	0	1
36	D+35	Zinc Sulphate	1	0	0	1
37	D+36	Tutorial	0	1	0	1
38	D+37	**Dental Products–Sodium** Fluride, Stannous Flouride, Calcium carbonate	1	0	0	1
39	D+38	Sodium metaphosphate, Dicalcium phosphate,	1	0	0	1
40	D+39	Strontium chloride, Zinc chloride	1	0	0	1
41	D+40	**(F) Inhalants–**Oxygen, Carbon dioxide, Nitrous oxide	1	0	0	1
42	D+41	**(G) Respiratory stimulants–**Ammonium Carbonate	1	0	0	1
43	D+42	**Tutorial**	0	1	0	1
44	D+43	**(H) Expectorants and Emetics–**Ammonium chloride, *Potassium iodide, Antimony potassium tartrate.	2	0	0	1
45	D+44	**(I) Antidotes-**Sodium nitrate	1	0	0	1
		Total	20	4		24
46	D+45	**Major Intra and Extracellular electrolytes-** **(**A) Electrolytes used for replacement therapy –Sodium chloride and its preparations	1	0	0	1
47	D+46	Potassium chloride and its preparations	1	0	0	1
48	D+47	Revision	1	0	0	1
49	D+48	**Tutorial**	0	1	0	1
50	D+49	(B) Physiological acid-base balance and electrolytes used-Sodium acetate,	1	0	0	1
51	D+50	Potassium acetate, Sodium bicarbonate injection,	1	0	0	1

52	D+51	Tutorial	0	1	0	1
53	D+52	Sodium citrate	1	0	0	1
54	D+53	Potassium citrate, Sodium lactate injection	1	0	0	1
55	D+54	Ammonium chloride and its injection.	1	0	0	1
56	D+55	(C) Combination of oral electrolyte powders and solutions cont….	1	0	0	1
57	D+56	(C) Combination of oral electrolyte powders and solutions.	1	0	0	1
58	D+57	Tutorial	0	1	0	1
59	D+58	Class test	1	0	0	1
60	D+59	**Inorganic Official** compounds of Iron	1	0	0	1
61	D+60	**Inorganic Official** compounds of Calcium Ferrous Sulfate	1	0	0	1
62	D+61	**Inorganic Official** compounds of Calcium gluconate	1	0	0	1
63	D+62	Revision	2	0	0	1
64	D+63	Class test	1	0	0	1
65	D+64	Tutorial	0	1	0	1
		Total	18	4		22
66	D+65	**Radio pharmaceuticals and Contrast media-**Radio activity-Alpha,	1	0	0	1
67	D+66	**Radio pharmaceuticals and Contrast media-** Beta and Gamma Radiations,	1	0	0	1
68	D+67	Biological effects of radiations	1	0	0	1
69	D+68	Measurement of radio activity, G. M. Counter Radio isotopes their uses, storage and precautions with special reference to the official preparations cont….	1	0	0	1
70	D+69	Tutorial	0	1	0	1

71	D+70	Measurement of radio activity, G. M. Counter Radio isotopes their uses, storage and precautions with special reference to the official preparations	1	0	0	1
72	D+71	Radio opaque Contrast media–Barium sulfate.	1	0	0	1
73	D+72	Revision	1	0	0	1
74	D+73	Quality control of Drugs and Pharmaceuticals-Importance of quality control, significant errors	1	0	0	1
75	D+74	Tutorial		1		1
76	D+75	methods used for quality control, sources of impurities in Pharmaceuticals	1	0	0	1
77	D+76	Limit tests for Arsenic, chloride	1	0	0	1
78	D+77	sulphate, Iron and Heavy metals.	1	0	0	1
79	D+78	Class test	1	0	0	1
80	D+79	Tutorial	0	1	0	1
81	D+80	Limit tests for mercury.	1	0	0	1
82	D+81	significant errors in quality control of drugs	1	0	0	1
83	D+82	Revision	2	0	0	1
84	D+83	Identification tests for cations as per Indian Pharmacopoeia	1	0	0	1
85	D+84	Identification tests for anions as per Indian Pharmacopoeia	1	0	0	1
86	D+85	Tutorial		1		1
		Total	18	4		22

Monad University

Program- D.Pharm

year- 1st year

Course DPH-112P PHARMACEUTICAL CHEMISTRY-I

Session - 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	General Introduction of Glassware.	0	0	4	4
3	D+2	To perform the assay of Boric acid.	0	0	4	4
4	D+3	To perform assay of Hydrogen peroxide.	0	0	4	4
5	D+4	To perform assay of potassium iodide.	0	0	4	4
6	D+5	To perform the standardization of 0.1 N Sulphuric Acid.	0	0	4	4
7	D+6	To perform the standardization of 0.1 N Sodium Hydroxide.	0	0	4	4
8	D+7	To perform assay of sodium bicarbonate.	0	0	4	4
9	D+8	To perform assay of calcium gluconate.	0	0	4	4
10	D+9	To perform assay of Magnesium sulphate.	0	0	4	4
11	D+10	To perform assay of NaCl.	0	0	4	4
		TOTAL				**40**
12	D+11	To perform assay of potassium chloride.	0	0	4	4
13	D+12	To perform assay of ferrous sulphate.	0	0	4	4
14	D+13	To perform the limit test of Chloride.	0	0	4	4
15	D+14	To perform the limit test of Sulphate.	0	0	4	4
16	D+15	To perform the limit test of Iron.	0	0	4	4

17	D+16	To perform the limit test of Heavy Metals.	0	0	4	4
18	D+17	To perform the limit test of Arsenic.	0	0	4	4
19	D+18	To perform the Salt analysis of Unknown sample.	0	0	4	4
20	D+19	To perform the Salt analysis of Unknown sample.	**0**	**0**	4	4
21	D+20	To perform the Salt analysis of Unknown sample	**0**	**0**	4	4
22	D+21	To perform the Salt analysis of Unknown sample	**0**	**0**	4	4
		Total				**44**

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Lesson Plan

Program- D.Pharm
year- 1st year
Course DPH-113PHARMACOGNOSY
Session - 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	Introduction ofPharmacognosy, scope of Pharmacognosy.	1	0	0	1
3	D+2	indigenous system of medicine.	1	0	0	1
4	D+3	Various systems of classification of drugs of natural origin.	1	0	0	1
5	D+4	Adulteration and drug evaluation.	1	0	0	1
6	D+5	significance of Pharmacopoeial standards	1	0	0	1
7	D+6	Tutorial	0	1	0	1
8	D+7	Brief outline of occurrence	1	0		1
9	D+8	distribution, and outline of isolation	1	0	0	1
10	D+9	identification tests, therapeutic effects and pharmaceutical applications of alkaloids,	1	0	0	1
11	D+10	Tutorial	0	1	0	1
12	D+11	terpenoids, glycosides, volatile oils, tannins and resins.	1	0	0	1
13	D+12	**Occurrence, distribution, organoleptic evaluation, chemical constituents including tests wherever applicable and therapeutic efficacy of following**	1	0	0	1

		categories of drugs. (a) Laxatives: Aloes, Rhuburb, Castor oil, Ispaghula, Senna.				
14	D+13	Tutorial	0	1	0	1
15	D+14	(b) Cardiotonics-Digitalis, Arjuna.	1	0	0	1
16	D+15	(c) Carminatives & G.I. regulators –Umbelliferous fruits,	1	0	0	1
17	D+16	Coriander, Fennel, Ajowan, Cardamom Ginger	1	0	0	1
18	D+17	Black pepper, Asafoetida, Nutmeg, Cinnamon, Clove.	1	0	0	1
19	D+18	(d) Astringents–Catechu.	1	0	0	1
20	D+19	Tutorial	0	1	0	1
21	D+20	(e) Drugs acting on nervous system-Hyoscyamus, Belladonna, .	1	0	0	1
22	D+21	Aconite, Ashwagandha	1	0	0	1
23	D+22	Ephedra, Opium	1	0	0	0
24	D+23	Cannabis, Nux vomica	1	0	0	0
		TOTAL	**19**	**4**		23
25	D+24	(f) Antihypertensives-Rauwolfia.	1	0	0	0
26	D+25	(g) Antitussives-Vasaka, Tolu balsam, Tulsi.	1	0	0	1
27	D+26	(h) Antirheumatics-Guggul, Colchicum.	1	0	0	1
28	D+27	(i) Antitumour-Vinca.	1	0	0	1
29	D+28	**Tutorial**	0	1	0	1
30	D+29	(j) Antileprotics-Chaulmoogra Oil.	1	0	0	1
31	D+30	**Occurrence, distribution, organoleptic evaluation,**	1	0	0	1

		chemical constituents including tests wherever applicable and therapeutic efficacy of following categories of drugs. (k) Antidiabetics -Pterocarpus, Gymnema, Sylvestro.				
32	D+31	(l) Diuretics–Gokhru, Punarrnava.	1	0	0	1
33	D+32	(m) Antidysentrics-Ipecacuanha.	1	0	0	1
34	D+33	Tutorial	0	1	0	1
35	D+34	(n) Antiseptics and disinfectants Benzoin, Myrrh. Nim, curcuma.	1	0	0	1
36	D+35	(o) Antimalarials–Cinchona.	1	0	0	1
37	D+36	(p) Oxytocics-Ergot.	1	0	0	1
38	D+37	(q) Vitamines-Shark liver Oil and Amla.	1	0	0	1
39	D+38	Tutorial	0	1	0	1
40	D+39	(r) Enzymes-Papaya, Diastase, Yeast.	1	0	0	1
41	D+40	(s) Perfumes and flavouring agents –Peppermint Oil, Lemon Oil, Orange Oil	1	0	**0**	1
42	D+41	Lemon grass Oil, Sandalwood.	1	0	0	1
43	D+42	(t) Pharmaceutical aids-Honey, Arachis Oil,	1	0	0	1
44	D+43	Starch, Kaolin, Pectin, Olive oil,	1	0	0	1
45	D+44	Lanolin, Beeswax, Acacia,	1	0	0	1
46	D+45	Tutorial	0	1	0	1
		TOTAL	**18**	**4**		**22**
47	D+46	Tragacanth, Sodium alginate	1	0	0	1
48	D+47	Agar, Guar gum, Gelatin.	1	0	0	1

49	D+48	(u) Miscellaneous–Liquorice, Garlic,	1	0	0	1
50	D+49	Picrorhiza, Dioscorea,	1	0	0	1
51	D+50	Linseed, Shatavari,	1	0	0	1
52	D+50	Shankhapusphi, Pyrethrum, Tobacco.	1	0	0	1
53	D+51	**Tutorial**	0	1	0	1
54	D+52	Collection and preparation of crude drug for the market as exemplified by Ergot, opium, Rauwolfia, Digitalis, Senna.	1	0	0	1
55	D+53	Study of source, preparation and identification of fibres……..	1	0	0	1
56	D+53	used in sutures and surgical dressings—cotton, silk,	1	0	0	1
57	D+54	wool and regenerated fibre.	1	0	0	1
58	D+55	**Tutorial**	0	1	0	1
59	D+56	Gross anatomical studies of Senna, Datura,	1	0	0	1
60	D+57	Cinnamon, Cinchona,	1	0	0	1
61	D+58	Fennel, Clove, Ginger, Nux vomica	1	0	0	1
62	D+59	Ipecacuanha.	1	0	**0**	1

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Lesson Plan

Program- D.Pharm
year- 1st year
Course DPH-113 PHARMACOGNOSY
Session - 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day	To study the parts of compound microscope.	0	0	0	0
2	D+1	To study the morphology of Rauwolfia and Vinca.	0	0	4	4
3	D+2	To study the morphology of Coriander and Fennel.	0	0	4	4
4	D+3	To study the morphorlogy of Rhubarb and Isphagula.	0	0	4	4
5	D+4	To study the morphology of Ashwagandha and Nux-vomica.	0	0	4	4
6	D+5	To study the morphology of Gokhru and Black pepper.	0	0	4	4
7	D+6	To study the morphology of Aloe and Castor oil.	0	0	4	4
8	D+7	To study the morphology of Clove and Ginger.	0	0	4	4
9	D+8	To perform the identification tests for alkaloids.	0	0	4	4
10	D+9	To study the morphology of Tulsi and Neem.	0	0	4	4
11	D+10	To study the morphology of Guggul and Amla.	0	0	4	4
		TOTAL				**40**
12	D+11	To study the transverse section of Clove.	0	0	4	**4**
13	D+12	To study the microscopy of Datura leaf.	0	0	4	4
14	D+13	To study the transverse section of Fennel.	0	0	4	4

15	D+14	To study the transverse section of Senna leaf.	0	0	4	4
16	D+15	To study the transverse section of Nux-vomica seed.	0	0	4	4
17	D+16	To study the transverse section of Ipecacuanha.	0	0	4	4
18	D+17	To study the morphorlogy of Senna and Belladona.	0	0	4	4
19	D+18	To study the morphorlogy of Ipecac and Punarnava.	0	0	4	4
20	D+19	To study the morphorlogy of Shatavari and Shankhpushpi.	0	0	4	4
21	D+20	To study the morphorlogy of Digitalis and Arjuna.	0	0	4	4
22	D+21	To study the morphorlogy of Datura and Liquorice.	0	0	4	4
23	D+22	To perform the identification tests for starch, tragacanth and agar.	0	0	4	4
24	D+23	To study the various types of calcium oxalate crystals in powdered drug.i.e. Liquorice& Rhubarb.	0	0	4	4
25	D+24	To study the morphological and microscopical (powder) characters of Liquorice along with its chemical test.	0	0	4	4
26	D+25	To study the morphological and microscopical (powder) characters of Rhubarb along with its chemical test.	0	0	4	4
27	D+26	To determine the swelling index of Isabgol seeds.	0	0	4	4
28	D+27	To determine the ash value, total ash for given plant sample-Cinchona.	0	0	4	4
29	D+28	To determine the LOD (Loss on Drying) for given powder sample i.e. Coriander and Liquorice.	0	0	4	4
		TOTAL				**72**

Signature of faculty

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Lesson plan

Program- DIPLOMA IN PHARMACY

Course- BIOCHEMISTRY AND CLINICAL PATHOLOGY

Course Code- DPH-114T

Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	Introduction about biochemistry	1	0	0	1
3	D+2	Chemistry of proteins and qualitative test for proteins	1	0	0	1
4	D+3	Role and functions of proteins and its deficiency diseases	1	0	0	1
5	D+4	Role and functions of proteins and its deficiency diseases	1	0	0	1
6	D+5	Problem Solving Session/ class test	0	1	0	1
7	D+6	Chemistry of polypeptides and amino acids	1	0	0	1
8	D+7	Classification of amino acids and polypeptides	1	0	0	1
9	D+8	Qualitative tests of amino acids	1	0	0	1
10	D+9	Deficiency Diseases of amino acids and polypeptides	1	0	0	1
11	D+10	Problem Solving Session/ class test	0	1	0	1
12	D+11	Chemistry of carbohydrates	1	0	0	1
13	D+12	Role of carbohydrates	1	0	0	1

14	D+13	Qualitative tests for carbohydrates	1	0	0	1
15	D+14	Diseases related to carbohydrates metabolism	1	0	0	1
16	D+15	Problem Solving Session/ class test	0	1	0	1
17	D+16	Classification of carbohydrates	1	0	0	1
18	D+17	Diseases related to deficiency of amino acids	1	0	0	1
19	D+18	Chemistry of amino acids	1	0	0	1
20	D+19	Chemistry of polypeptides	1	0	0	1
21	D+20	Qualitatively test for carbohydrates	1	0	0	1
22	D+21	Problem Solving Session/class test	0	1	0	1
		TOTAL	17	04	0	21
23	D+22	Chemistry of lipids	1	0	0	1
24	D+23	Role of lipids	1	0	0	1
25	D+24	Classification of lipids	1	0	0	1
26	D+25	Problem Solving Session/ class test	0	1	0	1
27	D+26	Diseases related to lipid metabolism	1	0	0	1
28	D+27	Qualitative test for lipids	1	0	0	1
29	D+28	Qualitative test for lipids	1	0	0	1
30	D+29	Important and function of lipids	1	0	0	1
31	D+30	Problem Solving Session/ class test	0	1	0	1

S. No.	**Day**	**Subject**	**L**	**T**	**P**	**Total**
32	D Day					
33	D+31	chemistry of Vitamins	1	0	0	1
34	D+32	Problem Solving Session/ class test	0	1	0	1
35	D+33	Importance and function of Vitamins	1	0	0	1
36	D+34	Important types of vitamin body required balance diet	1	0	0	1
37	D+35	Problem Solving Session/ class test	0	1	0	1
38	D+36	Chemistry of Coenzymes	1	0	0	1
39	D+37	Importance of Coenzymes	1	0	0	1
40	D+38	Functions of Coenzymes	1	0	0	1
41	D+39	Role of Vitamins	1	0	0	1
42	D+40	Problem Solving Session/ class test	0	1	0	1
43	D+41	Role of minerals in life processes	1	0	0	1
44	D+42	Classification of minerals	1	0	0	1
45	D+43	Functions of minerals and its uses	1	0	0	1
46	D+44	Importance of water and its resources	1	0	0	1
47	D+45	Problem Solving Session/ class test	0	1	0	1
48	D+46	Functions of Water	1	0	0	1

49	D+47	Role of Water in life processes	1	0	0	1
50	D+48	Problem Solving Session/ class test	0	1	0	1
		TOTAL	20	07	0	27

S. No.	Day	Subject	L	T	P	Total
51	D Day					
52	D+49	Enzymes and its types	1	0	0	1
53	D+50	Functions of enzymes	1	0	0	1
54	D+51	Factor affecting enzymatic action	1	0	0	1
55	D+52	Therapeutic and pharmaceutical importance of enzymes	1	0	0	1
56	D+53	Problem Solving Session/ class test	0	1	0	1
57	D+54	Concept of normal and abnormal metabolism of proteins	1	0	0	1
58	D+55	Concept of Metabolism of Carbohydrates	1	0	0	1
59	D+56	Concept of Metabolism of Lipids	1	0	0	1
60	D+57	Importance of balance diet	1	0	0	1
61	D+58	Problem Solving Session/ class test	0	1	0	1
		TOTAL	08	2	0	10
62	D+59	Introduction, pathology of blood	1	0	0	1
63	D+60	Introduction and pathology of urine	1	0	0	1
64	D+61	Lymphocytes their role in health and disease	1	0	0	1
65	D+62	Platelets their role in health and disease	1	0	0	1
66	D+63	Problem Solving Session/ class test	0	1	0	1
67	D+64	Function of erythrocytes	1	0	0	1
68	D+65	Erythrocytes abnormal cells and their significance	1	0	0	1
69	D+66	Concept of abnormal constituents of urine and their significance in diseases.	1	0	0	1
70	D+67	Erythrocytes importance and function	1	0	0	1
71	D+68	Problem Solving Session/ class test	0	1	0	1
		TOTAL	08	2	0	10

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Lesson plan

Program- DIPLOMA OF PHARMACY
D.Pharma- Ist Year
Course- BIOCHEMISTRY AND CLINICAL PATHOLOGY
Course Code-- DPH-114
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	To determine the identification test for carbohydrate (Glucose).	0	0	4	4
3	D+2	To determine the identification test for carbohydrate (fructose).	0	0	4	4
4	D+3	To determine the identification test for protein.	0	0	4	4
5	D+4	To determine the identification test for lipid (Paraffin oil)	0	0	4	4
6	D+5	To determine the identification test for lipid (peppermint oil).	0	0	4	4
7	D+6	To determine the identification test for carbohydrates in unknown solution.	0	0	4	4
8	D+7	To perform physical test for urine.	0	0	4	4
9	D+8	To identify the normal inorganic constituents in the urine.	0	0	4	4
10	D+9	To identify the normal organic constituents in the urine.	0	0	4	4
11	D+10	To perform the qualitative test for abnormal constituents in the urine.	0	0	4	4
12	D+11	To analyze the sample of saliva.	0	0	4	4
13	D+12	To calculate the Rf value to given amino acid by the thin layer chromatography.	0	0	4	4
	D+13	To perform the identification test for the given sample				

16	D+15	To perform the chemical and physical test for cholesterol (stearic acid).	0	0	4	4
17	D+ 17	To perform the identification test for the given lipid sample (Bee Wax).	0	0	4	4
18	D+18	To perform the study of estimation of glucose in the blood.	0	0	4	4
19	D+19	To perform the study of determination of creatinine in the blood.	0	0	4	4
20	D+20	To perform the identification test for carbohydrates (Dextrose).	0	0	4	4
21	D+21	To perform the practice in injecting the drug by I.V and I.M.	0	0	4	4
		TOTAL	0	0	84	84

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Lesson Plan

Program:- D.Pharm

Year :- 1st year

Course:- HUMAN ANATOMY AND PHYSIOLOGY

Course code (DPH-115)

Session:- 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	Scope of Anatomy and Physiology.	1	0	0	1
3	D+2	Definition of various terms used in anatomy.	1	0	0	1
4	D+3	Structure and functions of cell.	1	0	0	1
5	D+4	Cell Membrane	1	0	0	1
6	D+5	Cell organelles	1	0	0	1
7	D+6	Tutorial	0	1	0	1
8	D+7	Structure of cytoplasm and nucleus.	1	0		1
9	D+8	Structure and function of mitochondria and golgi complex.	1	0	0	1
10	D+9	Structure and functions of lysosomes and ribosomes	1	0	0	1
11	D+10	Tutorial	0	1	0	1

12	D+11	Difference between prokaryotic and eukaryotic cell	1	0	0	1
13	D+12	**Elementary tissues of the body**	1	0	0	1
14	D+13	Tutorial	0	1	0	1
15	D+14	Epithelial tissue	1	0	0	1
16	D+15	Muscular tissue,	1	0	0	1
17	D+16	Connective tissue,	1	0	0	1
18	D+17	Nervous tissue	1	0	0	1
19	D+18	Structure and function of skeleton.	1	0	0	1
20	D+19	Tutorial	0	1	0	1
21	D+20	Classification of joints	1	0	0	1
22	D+21	Functions of joints	1	0	0	1
23	D+22	Joint disorders	1	0	0	0
		TOTAL	**18**	**4**		22
24	D+23	**Description about blood**	1	0	0	0
25	D+24	Composition of blood	1	0	0	1
26	D+25	RBC, WBC and Platelets	1	0	0	1
27	D+26	Functions of blood elements.	1	0	0	1
28	D+27	**Tutorial**	0	1	0	1
29	D+28	Blood group.	1	0	0	1
30	D+29	Coagulation of blood	1	0	0	1
31	D+30	Brief information regarding disorders of blood	1	0	0	1
32	D+31	Name of lymph glands	1	0	0	1
33	D+32	Tutorial	0	1	0	1
34	D+33	Functions of lymph glands	1	0	0	1
35	D+34	Structure of various parts of heart	1	0	0	1
36	D+35	Functions of various parts of heart	1	0	0	1
37	D+36	Arterial system of heart with reference to name of main arteries	1	0	0	1

38	D+37	Tutorial	0	1	0	1
39	D+38	Venous system of heart with reference to name of main veins	1	0	0	1
40	D+39	Blood pressure and its recording	1	0	0	1
41	D+40	Brief information about cardiovascular disorders	1	0	0	1
42	D+41	Cardiovascular disorders	1	0	0	1
43	D+42	**Various parts of respiratory system and their functions**	1	0	0	1
44	D+43	Structure and functions of respiratory tract	1	0	0	1
45	D+44	Tutorial	0	1	0	1
46	D+45	Class test	1	0	0	1
47	D+46	Physiology of respiration	1	0	0	1
		TOTAL	**20**	**4**		**24**
48	D+47	Urinary system	1	0	0	1
49	D+48	**Various parts of urinary system and their functions**	1	0	0	1
50	D+49	Structure and function of kidney	1	0	0	1
51	D+50	Physiology of urine formation	1	0	0	1
52	D+51	**Tutorial**	0	1	0	1
53	D+52	Pathophysiology of renal diseases	1	0	0	1
54	D+53	Pathophysiology of edema	1	0	0	1
55	D+54	Class test	1	0	0	1
56	D+55	**Structure of skeletal muscle**	1	0	0	1
57	D+56	**Tutorial**	0	1	0	1
58	D+57	Physiology of muscle contraction	1	0	0	1
59	D+58	Names and position of various skeletal muscles	1	0	0	1
60	D+59	Class test	1	0	0	1
61	D+60	Attachment and functions of various skeletal muscles	1	0	0	1
62	D+61	**Tutorial**	0	1	0	1

63	D+62	Physiology of neuromuscular junction	1	0	0	1
64	D+63	**Various parts of central nervous system**	1	0	0	1
65	D+64	Brain and its parts	1	0	0	1
66	D+65	Class test	1	0	0	1
67	D+66	Functions and reflex action	1	0	0	1
68	D+67	Anatomy and physiology of autonomic nervous system	1	0	0	1
69	D+68	**Tutorial**	0	1	0	1
		Total	18	4		22
70	D+69	**Elementary knowledge of structure and functions of the organs** of taste and smell	1	0	0	1
71	D+70	Structure and functions of the organs of ear, eye and skin continue…	1	0	0	1
72	D+71	Structure and functions of the organs of ear, eye and skin	1	0	0	1
73	D+72	Physiology of pain	1	0	0	1

74	D+73	**Tutorial**	0	1	0	1
75	D+74	**Digestive system**	1	0	0	1
76	D+75	Names of various parts of digestive system and their functions	1	0	0	1
77	D+76	Class test	1	0	0	1
78	D+77	Structure and functions of liver	1	0	0	1
79	D+78	**Tutorial**	0	1	0	1
80	D+79	Physiology of digestion	1	0	0	1
81	D+80	And physiology of absorption	1	0	0	1
82	D+81	Class test	1	0	0	1
83	D+82	**Endocrine glands and hormones.** location of glands	1	0	0	1
84	D+83	Location and functions of pituitary gland	1	0	0	1

85	D+84	Tutorial	0	1	0	1
86	D+85	Class test	1	0	0	1
87	D+86	Location and function of thyroid gland and its hormones	1	0	0	1
88	D+87	Location and functions of adrenal gland	1	0	0	1
89	D+88	Location and functions of Pancreas and its hormones	1	0	0	1
90	D+89	Tutorial	0	1	0	1
91	D+90	**Reproductive system**- Anatomy and Physiology of Reproductive system continue…	1	0	0	1
92	D+91	Anatomy and physiology of reproductive system	1	0	0	1
93	D+92	Tutorial	0	1	0	1
		Total	19	5		24

Signature of faculty

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Lesson plan

Program- D.Pharm

year- 1st year

Course code DPH-115-P

Course name HUMAN ANATOMY AND PHYSIOLOGY

Session - 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day	To study the human skeleton system with the help of charts and models.	0	0	0	0
2	D+1	To study the compound microscope.	0	0	4	4
3	D+2	To find the bleeding time of our own sample.	0	0	4	4
4	D+3	To find the clotting time of our own sample.	0	0	4	4
5	D+4	To determine the blood pressure of a person.	0	0	4	4
6	D+5	To estimate the own body temperature.	0	0	4	4
7	D+6	To record the pulse rate.	0	0	4	4
8	D+7	To determine the amount of haemoglobin in human blood sample.	0	0	4	4
9	D+8	To count the RBCs in our own blood sample by haemocytometer.	0	0	4	4
10	D+9	To count the WBCs in our own blood sample.	0	0	4	4
11	D+10	To study the blood glucose level with the help of glucometer.	0	0	4	4

		TOTAL				**44**
13	D+12	To study the respiratory system.	0	0	4	4
14	D+13	To study the Nervous system.	0	0	4	4
15	D+14	To study the digestive system.	0	0	4	4
16	D+15	To study the cardiovascular system.	0	0	4	4
17	D+16	To study the urinary system.	0	0	4	4
18	D+17	To study the special sense organs (Ear & Eye).	0	0	4	4
19	D+18	To study smooth muscle with the help of microscope .	0	0	4	4
20	D+19	To study cardiac muscle with the help of microscope.	0	0	4	4
21	D+20	To study the nervous and muscular tissue with the help of microscope.	0	0	4	4
22	D+21	To study the Epithelial and connective tissue with the help of microscope.	0	0	4	4
23	D+22	To study the histology of taste buds and salivary glands.	0	0	4	4
24	D+23	To study the histology of endocrine glands.	0	0	4	4
		TOTAL				**48**

Signature faculty

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Lesson Plan

Program-DIPLOMA IN PHARMACY
Year - Istyr
Course Code-DPH116T
Course-HEALTH EDUCATION & COMMUNITY PHARMACY
Session-2020-21

S. No.	Day	Subject	L	T	Total
1	D+1	Definition of physical health, mental health, social health, spiritual health	1	0	1
2	D+2	Determinants of health, indicators of health	1	0	1
3	D+3	Concept of disease	1	0	1
4	D+4	Discussion Session/ Revision/Class Test	0	1	1
5	D+5	Natural history of diseases	1	0	1
6	D+6	The disease agents	1	0	1
7	D+7	Concept of prevention of diseases	1	0	1
8	D+8	Discussion Session/ Revision/Class Test	0	1	1
9	D+9	Classification of foods requirements	1	0	1
10	D+10	Disease induced due to deficiency of Proteins	1	0	1
11	D+11	Disease induced due to deficiency of Vitamins	1	0	1
12	D+12	Discussion Session/ Revision/Class Test	0	1	1
13	D+13	Disease induced due to deficiency of minerals	1	0	1
14	D+14	Treatment and prevention	1	0	1
15	D+15	Treatment and prevention	1	0	1
16		**TOTAL CLASS**	**12**	**3**	**15**
17	D+16	Discussion Session/ Revision/Class Test	0	1	1
18	D+17	Demography cycle, fertility, family planning	1	0	1
19	D+18	Contraceptive methods	1	0	1
20	D+19	Behavioral methods	1	0	1
21	D+20	Discussion Session/ Revision/Class Test	0	1	1
22	D+21	Natural family planning method	1	0	1
23	D+22	Hormonal contraceptives	1	0	1
24	D+23	Emergency treatment in shock, snake-bite, burns poisoning, heart disease	1	0	1

25	D+24	Discussion Session/ Revision/Class Test	0	1	1
26	D+25	Fractures and resuscitation methods	1	0	1
27	D+26	Sources of water supply, water pollution, purification of water, health and air	1	0	1
28	D+27	Noise light–solid waste disposal and control –medical entomology	1	0	1
29	D+28	Discussion Session/ Revision/Class Test	0	1	1
30	D+29	Arthropod borne diseases and their control	1	0	1
31	D+ 30	Rodents, animals and diseases	1	0	1
32	D+31	Chemical method, mechanical methods	1	0	1
33	D+32	Elements of minor surgery and dressings	1	0	1
34	D+33	Discussion Session/ Revision/Class Test	0	1	1
35	D+34	Population problem of India	1	0	1
36	D+35	Discussion Session/ Revision/Class Test	0	1	1
37		**Total Class**	**14**	**6**	**20**
38	D+36	Fundamental principles of microbiology classification of microbes	1	0	1
39	D+37	isolation, staining techniques of organisms of common diseases	1	0	1
40	D+38	Communicable diseases,Causative agents	1	0	1
41	D+39	Discussion Session/ Revision/Class Test	0	1	1
42	D+40	Modes of transmission and prevention	1	0	1
43	D+41	Respiratory infections—Chicken pox, measles	1	0	1
44	D+42	Influenza, diphtheria, whooping cough, Tuberculosis	1	0	1
45	D+43	Discussion Session/ Revision/Class Test	0	1	1
46	D+44	Arthropod borne infections –plague, Malaria, Filariasis	1	0	1
47	D+45	Surface infections –Rabies, Trachoma, Tetanus, and Leprosy	1	0	1
48	D+46	Sexually transmitted diseases –Syphilis. Gonorrhea. AIDS	1	0	1
49	D+47	Discussion Session/ Revision/Class Test	0	1	1
50	D+48	Typhoid, Food poisoning, Hookworm infection.	1	0	1
51		Total Class	**10**	**3**	**13**
52	D+49	Non-communicable diseases –Causative agents, prevention, care and control	1	0	1
53	D+50	Cancer, Diabetes, Blindness	1	0	1
54	D+51	Cardiovascular diseases	1	0	1
55	D+52	Discussion Session/ Revision/Class Test	0	1	1

56	D+53	Epidemiology– Its scope, methods, uses, and dynamics of disease transmission	1	0	1
57	D+54	Immunity and immunization	1	0	1
58	D+55	Immunological products and their dose schedule	1	0	1
59	D+56	Discussion Session/ Revision/Class Test	0	1	1
60	D+57	Principles of disease control and prevention, hospital acquired infection, prevention and control	1	0	1
61	D+58	Disinfection, types of disinfection, disinfection procedures, for faeces, urine, sputum	1	0	**1**
62	D+59	Room linen, dead –bodies, instruments	1	0	1
63	D+60	Discussion Session/ Revision/Class Test	0	1	1
64		**Total Class**	**9**	**3**	**12**

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Lesson Plan

Program- D.Pharm
year- 2nd year
Course DPH-211 PHARMACEUTICS-II
Session - 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day	**1. Dispensing Pharmacy:** **(i) Prescriptions –**Reading and understanding of prescription;	1	0	0	1
2	D+1	Latin terms commonly used (Detailed study is not necessary),	1	0	0	1
3	D+2	Modern methods of prescribing,	1	0	0	1
4	D+3	adoption of metric system.	1	0	0	1
5	D+4	Calculations involved in dispensing.	1	0	0	1
6	D+5	**(ii) Incompatibilities in Prescriptions –**Study of various types of incompatibilities –physical, chemical	1	0	0	1
7	D+6	**Tutorial**	0	1	0	1
8	D+7	and therapeutic.	1	0	0	1
9	D+8	**(iii) Posology—**Dose and Dosage of drugs, Factors influencing dose,	1	0	0	1
10	D+9	Calculations of doses on the basis of age sex and surface area. Veterinary doses.	1	0	0	1
11	D+10	**2. Dispensed Medications:** **(Note: A detailed study of the following dispensed**	1	0	0	1

		medication is necessary. Methods of preparation with theoretical and practical aspects, use of appropriate containers and closures. Special labelling requirements and storage conditions should be high –lighted).				
12	D+11	**Tutorial**	0	1	0	1
13	D+12	**(i) Powders –**Types of powders –Advantages and disadvantages of powders, Granules, Cachets	1	0	0	1
14	D+13	and Tablet triturates.	1	0	0	1
15	D+14	Preparation of different types of powders encountered in prescriptions.	1	0	0	1
16	D+15	Weighing methods, possible errors in weighing,	1	0	0	1
17	D+16	minimum weighable amounts and weighing of material below the minimum weighable amount,	1	0	0	1
18	D+17	**Tutorial**	0	1	0	1
19	D+18	geometric dilution and proper usage and care of dispensing **balance.**	1	0	0	1
20	D+19	**(ii) Liquid Oral Dosage Forms:** **(a). Monophasic–**Theoretical aspects including commonly used vehicles, essential adjuvant like stabilizers,	1	0	0	1
21	D+20	, colourants and flavours, with examples.	1	0	0	1
22	D+21	Tutorial	0	1	0	**0**
23	D+22	Review of the following monophasic liquids with details of formulation and practical methods. • Liquids for internal administration	1	0	0	1
24	D+23	• Liquids for external administration or used on mucus membranes.	1	0	0	1
25	D+24	• Mixtures and concentrates • Gargles	1	0	0	1
26	D+25	• Syrups • Mouth washes Throat –paints Douches	1	0	0	1
27	D+27	**Tutorial**	0	1	0	1
28	D+28	• Elixirs	1	0	0	1

29	D+29	• Ear Drops Nasal drops & Sprays Liniments, Lotions.	1	0	0	1
30	D+30	**(b) Biphasic Liquid Dosage Forms:** **(i) Suspension (elementary study)-** Suspensions containing diffusible solids	1	0	0	1
31	D+31	and liquids and their preparations.	1	0	0	1
32	D+32	Tutorial	0	1	0	1
33	D+33	Study of the adjuvants used like thickening agents, wetting agents,	1	0	0	1
34	D+34	their necessity and quantity to be incorporated.	1	0	0	1
35	D+35	Suspensions of precipitate forming liquids like, tinctures, their preparations and stability.	1	0	0	1
36	D+36	Suspensions produced by chemical reaction	1	0	0	1
37	D+37	Tutorial	0	1	0	1
38	D+38	An introduction to flocculated, non-flocculated suspension system.	1	0	0	1
39	D+39	**(b) Biphasic Liquid Dosage Forms:** **(ii) Emulsions –**Types of emulsions, identification of emulsion system,	1	0	0	1
40	D+40	formulation of emulsions, selection of emulsifying agents.	1	0	0	1
41	D+41	Instabilities in emulsions. Preservation of emulsions.	1	0	0	1
42	D+42	Tutorial	0	1	0	1
43	D+43	**(iii) Semi –Solid Dosage Forms:**	1	0	0	1
44	D+44	**(a) Ointments–**Types of ointments, classification and selection of dermatological vehicles.	1	0	0	1
45	D+45	Preparation and stability of ointments by the following processes: (i) Trituration (ii) Fusion	1	0	0	1
46	D+46	(iii) Chemical reaction (iv) Emulsification.	1	0	0	1
47	D+47	**Total**	**38**	**8**		**46**
48	D+48	**(b) Pastes---** Difference between ointments and pastes, bases of pastes.	1	0	0	1
49	D+49	Preparation of pastes and their preservation.	1	0	0	1

50	D+50	**(c) Jellies –**An introduction to the different types of jellies	1	0	0	1
51	D+51	and their preparation.	1	0	0	1
52	D+52	**Tutorial**	0	1	0	1
53	D+53	**(d) An elementary study of poultice.**	1	0	0	1
54	D+54	**(e) Suppositories and pessaries –**Their relative merits and demerits,	1	0	0	1
55	D+55	types ofsuppositories,	1	0	0	1
56	D+56	**Tutorial**	0	1	0	1
57	D+57	suppository bases, classification, properties,	1	0	0	1
58	D+58	Preparation and packing of suppositories.	1	0	0	1
59	D+59	Use of suppositories for drug absorption	1	0	0	1
60	D+60	Tutorial	0	1	0	1
61	D+61	**(iv)Dental and Cosmetic Preparations:** Introduction to Dentrifices,	1	0	0	1
62	D+62	Facial cosmetics,	1	0	0	1
63	D+63	Deodorants, Antiperspirants, Shampoos,	1	0	0	1
64	D+64	Hair dressing and Hair removers.	1	0	**0**	1
65	D+65	**(v) Sterile Dosage Forms:**	1	0	0	1
66	D+66	Tutorial	0	1	0	1
67	D+67	**(a) Parenteral dosage forms—**Definitions	1	0	0	1
68	D+68	, General requirements for parenteral dosage forms.	1	0	0	1
69	D+69	Types of parenteral formulations,	1	0	0	1
70	D+70	vehicles, adjuvants, processing,	1	0	0	1
71	D+71	personnel, facilities and Quality control.	1	0	0	1
72	D+72	**Tutorial**	0	1	0	1
73	D+73	Preparation of Intravenous fluids and admixtures –	1	0	0	1
74	D+74	Total parenteral nutrition, Dialysis fluids.	1	0	0	1

75	D+75	**(b) Sterility testing, particulate matter monitoring –** Faulty seal packaging.	1	0	0	1
76	D+76	**(c) Ophthalmic Products –**Study of essential characteristics of different ophthalmic preparations.	1	0	0	1
		Total	**24**	**5**		**29**

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Lesson Plan

Program- D.Pharm
year- 2nd year
Course DPH-211 P PHARMACEUTICS-II
Session - 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	To prepare & submit 20 ml of Simple Syrup.	0	0	4	4
3	D+2	To prepare 20 gm of Zinc Oxide and Starch Dusting powder.	0	0	4	4
4	D+3	To prepare and pack 20 gm of Talc dusting powder.	0	0	4	4
5	D+4	To prepare and pack 20 gm of Kaolin Powder.	0	0	4	4
6	D+5	To prepare & pack 20 ml of Pottasium Permagnate gargles.	0	0	4	4
7	D+6	To prepare & submit 20ml Mouth Wash.	0	0	4	4
8	D+7	To prepare & submit 20ml of Magnesium Sulphate Oral Suspension.	0	0	4	4
9	D+8	To prepare & submit 20ml of Calamine Lotion.	0	0	4	4
10	D+9	To prepare & submit 20ml of Milk of Magnesia suspension.	0	0	4	4
11	D+10	To prepare & submit 20ml of Calamine lotion.	0	0	4	4
		Total				**40**
12	D+11	To prepare & pack 20gm of Tooth Powder.	0	0	4	4
13	D+12	To prepare & pack 20gm Clear Liquid Shampoo.	0	0	4	4
14	D+13	To prepare & pack 20gm of After Shaving Lotion.	0	0	4	4

15	D+14	To prepare & pack 20ml of Ferrous Sulphate Syrup USP.	0	0	4	4
16	D+15	To prepare & pack 20gm Zinc Oxide Ointment.	0	0	4	4
17	D+16	To prepare & submit 10ml Chloramphenicol Ear Drop.	0	0	4	4
18	D+17	To prepare & submit 10 ml of Elixir as non-aqueous preparation.	0	0	4	4
19	D+18	To prepare & submit 10ml Ephedrine Nasal Drops.	0	0	4	4
20	D+19	To prepare & submit 10ml Turpentine Liniment.	0	0	4	4
21	D+20	To prepare & submit 20ml Methyl Salicylate Liniment B.P.	**0**	**0**	4	4
		Total				40
22	D+21	To prepare & submit 20gm of Sodium Alginate Beads.	**0**	**0**	4	4
23	D+22	To prepare & submit Zinc Sulphate Eye Drop.	**0**	**0**	4	4
24	D+23	To prepare & submit 20gm Toothpaste.	**0**	**0**	4	4
25	D+24	To prepare & submit 20gm clear liquid Shampoo.	**0**	**0**	4	4
26	D+25	To prepare & submit 20gm of Glycerin Suppositories.	**0**	**0**	4	4
27	D+26	To prepare & submit 30 gm insufflations.	**0**	**0**	4	4
28	D+27	To demonstrate physical incompatibility (immiscibility) & its method of correction.	**0**	**0**	4	4
29	D+28	To prepare & submit 20gm of Glycero gelatin Jelly.	**0**	**0**	4	4
30	D+29	To prepare & submit 20gm Mixture.	**0**	**0**	4	4
31	D+30	To demonstrate chemical incompatibility (immiscibility) & its method of correction.	**0**	**0**	4	4
		Total				**40**

Signature of faculty

Monad university

Program- D.Pharma

year- 2nd year

Course code DPH-212

Course name PHARMACEUTICAL CHEMISTRY-II

Session - 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	**Introduction to the nomenclature** of organic chemical systems with particular reference	1	0	0	1
3	D+2	heterocyclic system containing up to 3 rings continue…….	1	0	0	1
4	D+3	heterocyclic system containing up to 3 rings	1	0	0	1
5	D+4	**Antiseptics and Disinfectants** –Proflavine, * Benzalkoniumchloride,	1	0	0	1
6	D+5	Cetrimide, Chlorocresol	1	0	0	1
7	D+6	**Tutorial**	0	1	0	1
8	D+7	Chloroxylene	1	0	0	1
9	D+8	Formaldehyde solution,	1	0	0	1
10	D+9	Liquified	1	0	0	1
11	D+10	phenol	1	0	0	1
12	D+11	Nitrofurantoin	1	0	0	1
13	D+12	Tutorial	0	1	0	**0**
14	D+13	**Sulfonamides-Sulfadiazine,**	1	0	0	1
15	D+14	Sulfaguanidine*,	1	0	0	1
16	D+15	Phthalysulfathiazole,	1	0	0	1
17	D+16	Succinylsulfathiazole	1	0	0	1

18	D+17	Class test	1	0	0	1
19	D+18	Tutorial	0	1	0	1
20	D+19	Sulfadimethoxine,	1	0	0	1
21	D+20	Sulfamethoxypridazine,	1	0	0	1
22	D+21	co-trimoxazole, Sulfacetamide	1	0	0	
23	D+22	Tutorial	0	1	0	1
24	D+23	**Antileprotic Drugs –**Clofazimine,	1	0	0	1
25	D+24	Thiambutosine, Dapsone*, Solapsone	1	0	0	1
26	D+25	**Anti-tubercular Drugs –**Isoniazid*, PAS	1	0	0	1
27	D+26	Streptomycin, Rifampicin, Ethambutol*,	1	0	0	1
28	D+27	Tutorial	0	1	0	1
29	D+28	Thiacetazone, Ethionamide,	1	0	0	1
30	D+29	Cycloserine, Pyrazinamide	1	0	0	1
		Total	**25**	**5**		**30**
31	D+30	**Antiamoebic and Anthelmintic Drugs-** Emetine, Metronidazole	1	0	0	1
32	D+31	Halogenated hydroxyquinolines,	1	0	0	1
33	D+32	diloxanidefuroate, Paramomycin,	1	0	0	1
34	D+33	Piperazine*, Mebendazole	1	0	0	1
35	D+34	**Tutorial**	0	1	0	1
36	D+35	**Antibiotics** –Benzyl Penicillin*, Phenoxy methyl Penicillin*,	1	0	0	1
37	D+36	Benzathine Penicillin Ampicillin	1	0	0	1
38	D+37	Tutorial	0	1	0	1
39	D+38	Cloxacillin, Carbenicillin, Gentamicin,	1	0	0	1
40	D+39	Neomycin, Erythromycin, Tetracycline, Cephalexin, Cephaloridine,	1	0	**0**	1
41	D+40	Cephalothin, Griseofulvin, Chloramphenicol.	1	0	0	1
42	D+41	**Antifungal agents –**Undecylenic acid,	1	0	0	1
43	D+42	**Tutorial**	0	1	0	1
44	D+43	Tolnaftate, Nystatin,	1	0	0	1

45	D+44	Amphotericin, Hamycin	1	0	0	1
46	D+45	**Antimalarial** Drugs–Chloroquine*,	1	0	0	1
47	D+46	Amodiaquine, Primaquine,	1	0	0	1
48	D+47	**Tutorial**	0	1	0	1
49	D+48	Proguanil, Pyrimethamine*,	1	0	0	1
50	D+49	Quinine, Trimethoprim	1	0	0	1
51	D+50	**Tranquilizers –**Chlorpromazine*, Prochlorperazine,	1	0	0	1
52	D+51	TrifluoPerazine, Thiothixene, Haloperidol	1	0	0	1
53	D+52	Triperidol, Oxypertine, Chlordiazepoxide,	1	0	0	1
54	D+53	Diazepam*, Lorazepam, Meprobamate	1	0	0	1
55	D+54	Tutorial	0	1	0	1
56	D+55	**Hypnotics—**Phenobarbitone*, Butobarbitone, Cyclobarbitone, Nitrazepam, Glutethimide*, Methyprylone, Paraldehyde, Triclofos sodium.	1	0	0	1
57	D+56	**General Anaesthetics –**Halothane*, Cyclopropane*, Diethyl ether*, Methohexital sodium, Thiopental sodium, Trichloroethyelene.	1	0	0	1
58	D+57	**Antidepressant Drugs—**Amitriptyline, Nortryptyline, Imipramine*, Phenelzine, Tranylcypromine.	1	0	**0**	1
59	D+58	**Analeptics –**Theophylline, Caffeine*, Coramine*, Dextroamphetamine. **Adrenergic Drugs –**Adrenaline*, Noradrenaline, Isoprenaline*, Phenylephrine Salbutamol, Terbutaline, Ephedrine *, Pseudoephedrine.	1	0	0	1
		Total	**25**	**5**		**30**
60	D+59	**Adrenergic Antagoinst –**Tolazoline, Propranolol*, Practolol	1	0	0	1
61	D+60	**Cholinergic Drugs –**Neostigmine*, Pyridostigmine, Pralidoxime, Pilocarpine, Physostigmine*	1	0	0	1
62	D+61	**Cholinergic Antagonists –**Atropine*, Hysocine, Homatropine,	1	0	0	1
63	D+62	Propantheline*, Benztrophine, Tropicamide, Biperiden.*	1	0	0	1

64	D+63	**Tutorial**	0	1	0	1
65	D+64	**Diuretic Drugs –**Furosemide*, Chlorothiazide, Hydrochlorothaizide*,	1	0	0	1
66	D+65	Benzthiazide, Urea*, Mannitol *, Ethacrynic Acid.	1	0	0	1
67	D+66	Tutorial	0	1	0	1
68	D+67	**Cardiovascular Drugs –**Ethyl nitrite*, Glyceryltrinitrate,	1	0	0	1
69	D+68	Alpha methyl dopa, Guanethidine,	1	0	0	1
70	D+69	Clofibrate, Quinidine	1	0	0	1
71	D+70	**Tutorial**	0	1	0	1
72	D+71	**Hypoglycemic Agents –**Insulin, Chlorpropamide*, Tolbutamide,	1	0	0	1

73	D+72	Glibenclamide, Phenformin *, Metformin.	1	0		1
74	D+73	**Coagulants and Anti –Coagulants –**Heparin, Thrombin, Menadione	1	0	0	1
75	D+74	Bishydroxycoumarin, Warfarin Sodium.	1	0	0	1
76	D+75	**Local Anesthetics –**Lignocaine*,	1	0	0	1
77	D+76	Tutorial	0	1	0	1
78	D+77	Procaine*,	1	0	0	1
79	D+78	Benzocaine	1	0	0	1
80	D+79	**Histamine and Anti–histaminic Agents-**Histamine cont……	1	0	0	1
81	D+80	**Histamine and Anti–histaminic Agents-**Histamine,	1	0	0	1
82	D+81	Diphenhydramine*,	1	0	0	1
83	D+82	Promethazine,	1	0	0	1
84	D+83	**Tutorial**	0	1	0	1
85	D+84	**Analgesics and Anti-pyretics–**Morphine, Pethidine*, Codeine, Methadone	1	0	0	1
86	D+85	Aspirin*, Paracetamol*, Analgin,	1	0	0	1
87	D+86	Dextropropoxyphene, Pentazocine	1	0	0	1
88	D+87	Cyproheptadine, Mepyramine,	1	0	0	1

89	D+88	Pheniramine, Chlorpheniramine*.	1	0	0	1
		Total	**25**	**5**		**30**
90	D+89	**Non-steroidal anti-inflammatory Agents –** Indomethacin*, phenylbutazone*,	1	0	0	1
91	D+90	Oxyphenbutazone, Ibuprofen,	1	0	0	1
92	D+91	Thyroxine and Antithyroids –Thyroxine*,	1	0	0	1
93	D+92	Methimazole, Methylthiouracil, Propylthiouracil	1	0	0	1
94	D+93	**Tutorial**	0	1	0	1
95	D+94	**Diagnostic Agents-**Iopanoic Acid, Propyliodone,	1	0	0	1
96	D+95	Sulfobromophthalein. Sodium indigotindisulfonate	1	0	0	1
97	D+96	Indigo Carmine,Evans blue, Congo Red, Fluorescein Sodium	1	0	0	1
98	D+97	Tutorial		1	0	1
99	D+98	**Anticonvulsants,** cardiac glycosides,	1	0	0	1
100	D+99	Antihypertensives, Antiarrhythmic	1	0	0	1
101	D+100	Vitamins	1	0	0	1
102	D+101	Class test	1	0	0	1
103	D+102	**Tutorial**	0	1	0	1

104	D+103	**Steroidal Drugs –**Betamethazone,	1	0	0	1
105	D+104	Cortisone, Hydrocortisone,	1	0	0	1
106	D+105	prednisolone,	1	0	0	1
107	D+106	**Anti- Neoplastic Drugs –**Actinomycins,	1	0	0	1
108	D+107	Tutorial	0	1	0	1
109	D+108	Azathioprine, Busulphan,	1	0	0	1
110	D+109	Chlorambucil, Cisplatin	1	0	0	1
111	D+110	Cyclophosphamide	1	0	0	1
112	D+111	**Tutorial**	0	1	0	1
113	D+112	Daunorubicin hydrochloride,	1	0	0	1

114	D+113	Fluorouracil, Mercaptopurine	1	0	0	1
115	D+114	Methotrexate, Mytomycin.	1	0	0	1
116	D+115	Class test	1	0	0	1
117	D+116	Progesterone,	1	0	0	1
118	D+117	Tutorial	0	1	0	1
119	D+118	Testosterone,	1	0	0	1
120	D+119	Oestradiol,Nandrolone.	1	0	0	1
		Total	**22**	**6**		**28**

Signature of faculty

Monad university

Program- D.Pharm

year- 2nd year

Course DPH-212P

Course name PHARMACEUTICAL CHEMISTRY-II

Session - 2020_21

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	To identify the functional groups and elements in a given sample.	0	0	4	4
3	D+2	To identify the functional groups and elements in a given sample	0	0	4	4
4	D+3	To identify the functional groups and elements in a given sample	0	0	4	4
5	D+4	To perform the preliminary examination of unknown compound	0	0	4	4
6	D+5	To determine the melting point of unknown compound.	0	0	4	4
7	D+6	To determine the boiling point of unknown compound.	0	0	4	4
8	D+7	To determine the Solubility of an unknown compound.	0	0	4	4
9	D+8	To prepare and submit Aspirin & calculate it's percent yield.	0	0	4	4
10	D+9	To perform the Pharmacopoeialstandardisation of Aspirin.	0	0	4	4
11	D+10	To prepare and submit 7 Hydoxyl 4-Methyl Coumarin and report its Percent yield and Melting point range.	0	0	4	4
		TOTAL				**40**
12	D+11	To Prepare and synthesize Benzoyl Peroxide and to calculate it'spercentyield.	0	0	4	4

13	D+12	To perform Pharmacopoeial Standardization and analysis of Benzoyl peroxide.	0	0	4	4
14	D+13	To prepare and submit Paracetamol and report its percent yield.	0	0	4	4
15	D+14	To perform the Pharmacopoeialstandardisation of Paracetamol.	0	0	4	4
16	D+15	To prepare and submit Methyl Salicylate and to calculate it's percent yield.	0	0	4	4
17	D+16	To perform the Pharmacopoeialstandardisation of Methyl Salicylate.	0	0	4	4
18	D+17	To perform the Pharmacopoeialstandardisation of Ciprofloxacin.	0	0	4	4
19	D+18	To prepare and submit Phenacetin& calculate it's percent yield.	0	0	4	4
20	D+19	To prepare and submit benzocaine & calculate it'spercent yield.	**0**	**0**	4	4
		Total				**36**

Signature of faculty

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Lesson Plan

Program:- D.Pharm

Year :- 2nd year

Course:- PHARMACOLOGY AND TOXICOLOGY
Course code (DPH-213)

Session:- 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	Introduction of Pharmacology, scope of Pharmacology.	1	0	0	1
3	D+2	Routes of administration of drugs, their advantages and disadvantages.	1	0	0	1
4	D+3	and their advantages and disadvantages.	1	0	0	1
5	D+4	Various processes of absorption of drugs and the factors affecting them	1	0	0	1
6	D+5	Metabolism	1	0	0	1
7	D+6	Tutorial	0	1	0	1
8	D+7	Distribution of drugs.	1	0		1
9	D+8	And excretion of drugs.	1	0	0	1
10	D+9	General mechanism of drugs action and the factors which modify drug action. Pharmacological classification of drugs.	1	0	0	1

11	D+10	Tutorial	0	1	0	1
12	D+11	(i) Drugs acting on the Central Nervous System: (a) General anaesthetics, adjunctions to anesthesia, intravenous anesthetics continue…….	1	0	0	1
13	D+12	**(i) Drugs acting on the Central Nervous System:** (a) General anaesthetics, adjunction to anesthesia, intravenous anesthetics.	1	0	0	1
14	D+13	Tutorial	0	1	0	1
15	D+14	b) Analgesic antipyretics	1	0	0	1
16	D+15	and non-steroidal anti –inflammatory drugs,	1	0	0	1
17	D+16	Narcotic analgesics,	1	0	0	1
18	D+17	Anti-rheumatic	1	0	0	1
19	D+18	antigout remedies,	1	0	0	1
20	D+19	Tutorial	0	1	0	1
21	D+20	(c)Centrally acting muscle relaxants	1	0	0	1
22	D+21	anti-parkinsonism agents	1	0	0	1
23	D+22	Sedatives and Hypnotics,	1	0	0	0
24	D+23	Psychopharmacological agents, anti convulsants, analeptics.	1	0	0	0
		TOTAL	**19**	**4**		23
25	D+24	**Pharmacological classification of drugs.** The discussion of drugs should emphasize the following aspect: **(ii) Local anaesthetics continue…..**	1	0	0	0
26	D+25	**Pharmacological classification of drugs.** The discussion of drugs should emphasize the following aspect: **(ii) Local anesthetics.**	1	0	0	1
27	D+26	**(iii) Drug acting on autonomic nervous system.** (a) Cholinergic drug, Anticholinergic drugs,	1	0	0	1
28	D+27	Anti-cholinesterase drugs continue…..	1	0	0	1
29	D+28	**Tutorial**	0	1	0	1
30	D+29	Anti-cholinesterase drugs.	1	0	0	1
31	D+30	(b) Adrenergic drugs	1	0	0	1
32	D+31	adrenergic receptor blockers	1	0	0	1
33	D+32	(c) Neurons	1	0	0	1

34	D+33	Tutorial	0	1	0	1
35	D+34	Neurons blockers	1	0	0	1
36	D+35	ganglion blockers	1	0	0	1
37	D+36	(d) Neuromuscular blockers	1	0	0	1
38	D+37	Drugs used in myasthenia gravis.	1	0	0	1
39	D+38	Tutorial	0	1	0	1
40	D+39	**Drugs acting on eye,** mydriatics, drugs used in glaucoma.	1	0	0	1
41	D+40	**Drugs acting on respiratory system –**Respiratory stimulants, Bronchodilators, Nasal decongestants, Expectorants and Antitussive agents overview	1	0	0	1
42	D+41	**Drugs acting on respiratory system –**Respiratory stimulants,	1	0	0	1
43	D+42	Bronchodilators	1	0	0	1
44	D+43	Nasal decongestants, Expectorants and Antitussive agents.	1	0	0	1
45	D+44	**Antacids, Physiological role of** histamine and serotonin, Histamine and Antihistamines, Prostaglandins.	1	0	0	1
46	D+45	Tutorial	0	1	0	1
		TOTAL	**18**	**4**		**22**
47	D+46	**Cardio Vascular drugs, Cardio tonics,** Antiarrhythmic agents, Antianginal agents,	1	0	0	1
48	D+47	Antihypertensive agents	1	0	0	1
49	D+48	Peripheral Vasodilators	1	0	0	1
50	D+49	drugs used in atherosclerosis	1	0	0	1
51	D+50	**Tutorial**	0	1	0	1
52	D+51	**Drugs acting on the blood**	1	0	0	1
53	D+52	**and blood forming organs**	1	0	0	1
54	D+53	Haematinics	1	0	0	1
55	D+54	Class test	1	0	0	1
56	D+55	**Tutorial**	0	1	0	1
57	D+56	Coagulants and anti-Coagulants, Haemostatics, Blood	1	0	0	1

		substitutes and plasma expanders				
58	D+57	**Drugs affecting renal function-**Diuretics	1	0	0	1
59	D+58	Antidiuretics	1	0	0	1
60	D+59	**Hormones and hormone antagonists –**hypoglycemic agents,	1	0	0	1
61	D+60	**Tutorial**	0	1	0	1
62	D+61	Antithyroid drugs,	1	0	0	1
63	D+62	sex hormones and oral contraceptives, corticosteroids	1	0	0	1
64	D+63	oral contraceptives, corticosteroids	1	0	0	1
65	D+64	**Drugs acting on digestive system-**Carminatives, digestants Bitters, Antacids	1	0	0	1
66	D+65	Tutorial	0	1	0	1
67	D+66	drugs used in Peptic ulcer	1	0	0	1
68	D+67	purgatives, and laxatives	1	0	0	1
69	D+68	Antidiarrheal, Emetics	1	0	0	1
70	D+69	Tutorial	0	1	0	1
		Total	20	5		25
71	D+70	**Chemotherapy of microbial disease:** Urinary antiseptics,	1	0	0	1
72	D+71	Sulphonamides,	1	0	0	1
73	D+72	Penicillins,	1	0	0	1
74	D+73	Streptomycin Tetracylines	1	0	0	1
75	D+74	antibiotics, Antitubercular agents	1	0	0	1
76	D+75	Tutorial	0	1	0	1
77	D+76	Antifungal agents,	1	0	0	1
78	D+77	antiviral drugs,	1	0	0	1
79	D+78	antileprotic drugs	1	0	0	1
80	D+79	Tutorial	0	1	0	1

81	D+80	Chemotherapy of protozoal	1	0	0	1
82	D+81	Anthelmintic drugs continue	1	0	0	1
83	D+82	Anthelmintic drugs	1	0	0	1
84	D+83	Chemotherapy of cancer continue…….	1	0	0	1
85	D+84	Chemotherapy of cancer	1	0	0	1
86	D+85	Tutorial	0	1	0	1
87	D+86	Class test	1	0	0	1
88	D+87	Disinfectants	1	0	0	1
89	D+88	Antiseptics continue……..	1	0	0	1
90	D+89	antiseptics.	1	0	0	1
91	D+90	Anti-spasmodics	1	0	0	1
92	D+91	Antiemetics	1	0	0	1
93	D+92	Tutorial	0	1	0	1
		Total	18	4		22

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Program- D.Pharm

year- 2nd year

Course DPH-213-P
Course name PHARMACOLOGY AND TOXICOLOGY

Session - 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day	To study about common Lab animals.	0	0	0	0
2	D+1	To prepare physiological salt solutions	0	0	4	4
3	D+2	To study the various instruments & apparatus used in the pharmacology laboratory.	0	0	4	4
4	D+3	To study the anticonvulsant activity by using by electro-convulsometer in rats.	0	0	4	4
5	D+4	To study muscle relaxant activity of Diazepam by using Rota rod apparatus.	0	0	4	4
6	D+5	To study the effect of Local anaesthetic on Rabbit cornea.	0	0	4	4
7	D+6	To study various anaesthetic agents used in Laboratory animal.	0	0	4	4
8	D+7	To study the effect of pentobarbital sodium on righting reflex (hypnosis) in mice.	0	0	4	4
9	D+8	To study the effect of K^+, Ca^{++} ach. & adrenaline on frog's heart.	0	0	4	4
10	D+9	To study the biological standardization (bio assay) Methods.	0	0	4	4
11	D+10	To obtain a graded dose response curve of histamine &	0	0	4	4

		determine the concentration of the same in a solution (of unknown concentration) using matching bioassay.				
		TOTAL				**40**
12	D+11	To study Student Organ Bath.	0	0	4	4
13	D+12	To take normal DRC and to find out ceiling effect of acetylcholine.	0	0	4	4
14	D+13	To study the anticonvulsant property of diazepam against pentylenetetrazol induced colonic convulsion in mice.	0	0	4	4
15	D+14	To study the drug profile of chloramphenicol.	0	0	4	4
16	D+15	To study the drug profile of Sulphonamide drug.	0	0	4	4
17	D+16	To study the different types of routes of administration of the drugs.	0	0	4	4
18	D+17	To record the DRC of atropine using isolated chicken ileum preparation.	0	0	4	4
19	D+18	To study the CNS depressant property of diazepam on locomotor activity of mice using actophotometer.	0	0	4	4
		TOTAL				**32**

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Lesson Plan

Course - **DIPLOMA IN PHARMACY**
Semester- **IIndYear**
Subject Name - PHARMACEUTICAL JURISPRUDENCE
Subject Code-DPH-214
Session- **2020-21**

S. No.	Day	Subject	L	T	Total
1	D+1	**Origin and nature of Pharmaceutical legislation in India**	1	0	1
2	D+2	its scope and objectives	1	0	1
3	D+3	Evolution of the "Concept of Pharmacy" as an integral part of the Health Care System	1	0	1
4	D+4	Discussion Session/ Revision/Class Test	0	1	1
5	D+5	Evolution of the "Concept of Pharmacy" as an integral part of the Health Care System	1	0	1
6	D+6	**Principles and significance of Professional Ethics**	1	0	1
7	D+7	Critical study of the code of Pharmaceutical Ethics drafted by Pharmacy Council of India.	1	0	1
8	D+8	Discussion Session/ Revision/Class Test	0	1	1
9	D+9	Critical study of the code of Pharmaceutical Ethics drafted by Pharmacy Council of India.	1	0	1
10	D+10	**Pharmacy Act, 1948 –**The General study of the Pharmacy Act with special reference to Education Regulations	1	0	1
11	D+11	**Pharmacy Act, 1948 –**The General study of the Pharmacy Act with special reference to Education Regulations	1	0	1
12	D+12	Discussion Session/ Revision/Class Test	0	1	1
13	D+13	working of State and Central Councils	1	0	1
14	D+14	constitution of these councils and functions	1	0	1
15	D+15	Registration procedures under the Act.	1	0	1
16		**TOTAL CLASS**	**12**	**3**	**15**
17	D+16	Discussion Session/ Revision/Class Test	0	1	1
18	D+17	**The Drugs and Cosmetics Act, 1940—**General study of the Drugs and Cosmetics Act and the Rules thereunder.	1	0	1
19	D+18	General study of the Drugs and Cosmetics Act and the Rules thereunder.	1	0	1
20	D+19	Definitions and salient features related to retail and wholesale distribution of drugs.	1	0	1
21	D+20	Discussion Session/ Revision/Class Test	0	1	1
22	D+21	The powers of Inspectors	1	0	1

23	D+22	the sampling procedures and the procedure and formalities in obtaining licenses under the rule	1	0	1
24	D+23	the sampling procedures and the procedure and formalities in obtaining licenses under the rule	1	0	1
25	D+24	Discussion Session/ Revision/Class Test	0	1	1
26	D+25	Facilities to be provided for running a Pharmacy effectively	1	0	1
27	D+26	Facilities to be provided for running a Pharmacy effectively	1	0	1
28	D+27	General study of the Schedules with special reference of schedules C, C1and salient features of labelling and storage condition of drugs.	1	0	1
29	D+28	Discussion Session/ Revision/Class Test	0	1	1
30	D+29	General study of the Schedules with special reference of schedules F, G, and salient features of labelling and storage condition of drugs.	1	0	1
31	D+30	General study of the Schedules with special reference of schedules J,H and salient features of labelling and storage condition of drugs.	1	0	1
32	D+31	General study of the Schedules with special reference of schedules P and X and salient features of labelling and storage condition of drugs.	1	0	1
33		**TOTAL CLASS**	12	4	16
34	D+32	Discussion Session/ Revision/Class Test	0	1	1
35	D+33	**The Drug and Magic Remedies (Objectionable Advertisement) Act, 1945**	1	0	1
36	D+34	General study of the Act Objectives	1	0	1
37	D+35	General study of the Act Objectives	1	0	1
38	D+36	Discussion Session/ Revision/Class Test	0	1	1
39	D+37	special reference to be laid on Advertisements	1	0	1
40	D+38	special reference to be laid on Advertisements	1	0	1
41	D+39	Magic remedies and objectionable and permitted advertisements	1	0	1
42	D+40	Discussion Session/ Revision/Class Test	0	1	1
43	D+41	Magic remedies and objectionable and permitted advertisements	1	0	1
44	D+42	disease which cannot be claimed to be cured.	1	0	1
45	D+43	disease which cannot be claimed to be cured.	1	0	1
46	D+44	Discussion Session/ Revision/Class Test	0	1	1
47	D+45	**Narcotic Drugs and Psychotropic Substances Act, 1985**	1	0	1
48	D+46	A brief study of the act with special reference to its objectives	1	0	1
49	D+47	A brief study of the act with special reference to its objectives	1	0	1

50	D+48	Discussion Session/ Revision/Class Test	0	1	1
51	D+49	offences and punishment	1	0	1
52		**TOTAL CLASS**	**12**	**4**	**16**
53	D+50	**Brief introduction to the study of the following acts.**	1	0	1
54	D+51	Latest Drugs (Price Control) Order in force.	1	0	1
55	D+52	Discussion Session/ Revision/Class Test	0	1	1
56	D+53	Latest Drugs (Price Control) Order in force.	1	0	1
57	D+54	Poisons Act 1919 (as amended to date)	1	0	1
58	D+55	Poisons Act 1919 (as amended to date)	1	0	1
59	D+56	Discussion Session/ Revision/Class Test	0	1	1
60	D+57	Medicinal and Toilet Preparations (Excise Duties) Act,1995 (as amended to date)	1	0	1
61	D+58	Medicinal and Toilet Preparations (Excise Duties) Act,1995 (as amended to date)	1	0	1
62	D+59	Medical Termination of Pregnancy Act, 1971 (as amended to date).	1	0	1
63	D+60	Discussion Session/ Revision/Class Test	0	1	1
64	D+61	Medical Termination of Pregnancy Act, 1971 (as amended to date).	1	0	1
		TOTAL CLASS	**9**	**3**	**12**

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Lesson Plan

Program- D.Pharm
year- 2nd year
Course code- DPH-215
Course name- DRUG STORE AND BUSINESS MANAGEMENT
Session - 2020-2021

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	Introduction of Trade, Industry and Commerce	1	0	0	1
3	D+2	Functions and subdivision of Commerce	1	0	0	1
4	D+3	Introduction of Elements of Economics and Management	1	0	0	1
5	D+4	Introduction of Elements of Economics and Management	1	0	0	1
6	D+5	Forms of Business Organizations.	1	0	0	1
7	D+6	Tutorial	0	1	0	1
8	D+7	Forms of Business Organizations.	1	0		1
9	D+8	Channels of Distribution.	1	0	0	1
10	D+9	Channels of Distribution.	1	0	0	1
11	D+10	Tutorial	0	1	0	1
12	D+11	**Drug House Management –**Selection of Site	1	0	0	1
13	D+12	Space Lay-out and legal requirements.	1	0	0	1
14	D+13	Tutorial	0	1	0	1
15	D+14	Space Lay-out and legal requirements.	1	0	0	1
16	D+15	Importance and objectives of Purchasing	1	0	0	1

17	D+16	selection of suppliers, credit information	1	0	0	1
18	D+17	selection of suppliers, credit information	1	0	0	1
19	D+18	tenders, contracts and price determination	1	0	0	1
20	D+19	Tutorial	0	1	0	1
21	D+20	tenders, contracts and price determination	1	0	0	1
22	D+21	legal requirements thereto	1	0	0	1
23	D+22	Codification, handling of drug stores and other hospital supplies.	1	0	0	0
24	D+23	Codification, handling of drug stores and other hospital supplies.	1	0	0	0
		TOTAL	**19**	**4**		23
25	D+24	**Inventory Control –**objects and importance	1	0	0	0
26	D+25	modern techniques like ABC, VED analysis	1	0	0	1
27	D+26	modern techniques like ABC, VED analysis	1	0	0	1
28	D+27	Class test	1	0	0	1
29	D+28	**Tutorial**	0	1	0	1
30	D+29	the lead time inventory carrying cost	1	0	0	1
31	D+30	safety stock	1	0	0	1
32	D+31	minimum and maximum stock levels	1	0	0	1
33	D+32	minimum and maximum stock levels	1	0	0	1
34	D+33	Tutorial	0	1	0	1
35	D+34	economic order quantity	1	0	0	1
36	D+35	economic order quantity	1	0	0	1
37	D+36	scrap and surplus disposal	1	0	0	1
38	D+37	scrap and surplus disposal	1	0	0	1
39	D+38	Tutorial	0	1	0	1
40	D+39	Class test/Revision	1	0	0	1
41	D+40	Market Research	1	0	0	1
42	D+41	Market Research	1	0	0	1

43	D+42	Salesmanship	1	0	0	1
44	D+43	qualities of a salesman	1	0	0	1
45	D+44	qualities of a salesman	1	0	0	1
46	D+45	Tutorial	0	1	0	1
		TOTAL	**18**	**4**		**22**
47	D+46	Advertising and Window Display	1	0	0	1
48	D+47	Advertising and Window Display	1	0	0	1
49	D+48	Advertising and Window Display	1	0	0	1
50	D+49	Recruitment**,** training	1	0	0	1
51	D+50	**Tutorial**	0	1	0	1
52	D+51	evaluation and compensation of the pharmacist	1	0	0	1
53	D+52	evaluation and compensation of the pharmacist	1	0	0	1
54	D+53	evaluation and compensation of the pharmacist	1	0	0	1
55	D+54	evaluation and compensation of the pharmacist	1	0	0	1
56	D+55	**Tutorial**	0	1	0	1
57	D+56	Banking and Finance Service	1	0	0	1
58	D+57	Banking and Finance Service	1	0	0	1
59	D+58	functions of the bank	1	0	0	1
60	D+59	functions of the bank	1	0	0	1
61	D+60	**Tutorial**	0	1	0	1
62	D+61	Finance Planning and sources of finance.	1	0	0	1
63	D+62	Finance Planning and sources of finance.	1	0	0	1
64	D+63	Finance Planning and sources of finance.	1	0	0	1
65	D+64	Introduction to the accounting concepts and conventions	1	0	0	1
66	D+65	Tutorial	0	1	0	1
67	D+66	Introduction to the accounting concepts and conventions	1	0	0	1
68	D+67	Introduction to the accounting concepts and conventions	1	0	0	1
69	D+68	Double entry Book keeping	1	0	0	1
70	D+69	Tutorial	0	1	0	1

		Total	20	5		25
71	D+70	Double entry Book keeping	1	0	0	1
72	D+71	Double entry Book keeping	1	0	0	1
73	D+72	Different kinds of accounts	1	0	0	1
74	D+73	Different kinds of accounts	1	0	0	1

75	D+74	Class test/ Revision	1	0	0	1
76	D+75	Tutorial	0	1	0	1
77	D+76	Class test/ Revision	1	0	0	1
78	D+77	Class test/ Revision	1	0	0	1
79	D+78	General Leger and Trial Balance	1	0	0	1
80	D+79	Tutorial	0	1	0	1
81	D+80	General Leger and Trial Balance	1	0	0	1
82	D+81	Profit and Loss Account	1	0	0	1
83	D+82	Profit and Loss Account	1	0	0	1
84	D+83	Balance Sheet	1	0	0	1
85	D+84	Balance Sheet	1	0	0	1
86	D+85	Tutorial	0	1	0	1
87	D+86	Simple technique of analyzing financial statements	1	0	0	1
88	D+87	Simple technique of analyzing financial statements	1	0	0	1
89	D+88	Introduction to Budgeting	1	0	0	1
90	D+89	Introduction to Budgeting	1	0	0	1
91	D+90	Class test/ Revision	1	0	0	1
92	D+91	Class test/ Revision	1	0	0	1
93	D+92	Tutorial	0	1	0	1
		Total	18	4		22

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Lesson Plan

Program- D.Pharm
Year - II
Course - HOSPITAL AND CLINICAL PHARMACY
Course code (DPH-216)
Session - 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	Definition of Hospitals and its Function	1	0	0	1
3	D+2	Classification of hospital based on organization	1	0	0	1
4	D+3	Classification of hospital based on Management and Health delivery system in India	1	0	0	1
5	D+4	Definition of Hospital Pharmacy	1	0	0	1
6	D+5	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
7	D+6	Functions and objectives of Hospital Pharmaceutical services	1	0	0	1
8	D+7	Location, Layout, Flow chart of material and men for hospital	1	0	0	1
9	D+8	Personnel and facilities requirements including equipment based on individual and basic needs	1	0	0	1
10	D+9	Requirements and abilities required for Hospital pharmacists	1	0	0	1
11	D+10	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
12	D+11	Drug Distribution system in Hospitals	1	0	0	1
13	D+12	Out –patient services in Hospitals	1	0	0	1
14	D+13	In-patient services – (a) types of services (b) detailed discussion of unit Dose system, Floor ward stock system	1	0	0	1
15	D+14	Satellite pharmacy services, Central sterile services, Bed Side Pharmacy	1	0	0	1
16	D+15	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
17	D+16	Manufacturing type based hospitals	1	0	0	1

18	D+17	Economical considerations, estimation of demand	1	0	0	1
19	D+18	Sterile manufacture-large and small volume parenteral	1	0	0	1
20	D+19	Facilities and requirements for manufacturing parenteral	1	0	0	1
21	D+20	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
22	D+21	Layout production and planning and man-power requirements	1	0	0	1
23	D+22	Non-sterile manufacture like Liquid orals	1	0	0	1
24	D+23	External preparations like bulk concentrates and Procurement of stores and testing of raw materials	1	0	0	1
		Total	**19**	**4**	0	**23**
25	D+24	Nomenclature and uses of surgical instruments	1	0	0	1
26	D+25	Hospital Equipment and health accessories	1	0	0	1
27	D+26	P.T.C (Pharmacy Therapeutic Committee) and its functions	1	0	0	1
28	D+27	Hospital Formulary System and their organization	1	0	0	1
29	D+28	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
30	D+29	Hospital Formulary functioning and composition.	1	0	0	1
31	D+30	Drug Information service	1	0	0	1
32	D+31	Drug Information Bulletin and its role in hospitals	1	0	0	1
33	D+32	Surgical dressing like cotton.	1	0	0	1
34	D+33	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
35	D+34	Adhesive tapes including their pharmacopoeial tests for quality	1	0	0	1
36	D+35	Other hospital supply e.g. I.V sets B.G sets, Ryals tubes, Catheters, Syringes etc	1	0	0	1
37	D+36	gauze, bandages and their quality control	1	0	0	1
38	D+37	Application of computer in maintenance of records	1	0	0	1
39	D+38	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
40	D+39	inventory control and its role in hospital pharmacy	1	0	0	1
41	D+40	medication and monitoring	1	0	0	1
42	D+41	drug information and data storage	1	0	0	1
43	D+42	retrieval in hospital and its functions	1	0	0	1
44	D+43	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
45	D+44	Retail pharmacy establishments.	1	0	0	1
46	D+45	Role of surgical instruments in hospital	1	0	0	1
47	D+46	Quality control of parenteral and its factors.	1	0	0	1

		Total	**19**	**4**	**0**	**23**
48	D+47	Introduction of Clinical Pharmacy Practice	1	0	0	1
49	D+48	Definition and scope of Clinical Pharmacy Practice	1	0	0	1
50	D+49	Modern dispensing aspects	1	0	0	1
51	D+50	Pharmacists and Patient counseling	1	0	0	1
52	D+51	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
53	D+52	Pharmacist advice for the use of common drugs	1	0	0	1
54	D+53	Maintenance of medication history	1	0	0	1
55	D+54	Common daily terminology used in the Practice of Medicine	1	0	0	1
56	D+55	manifestation and pathophysiology including salient symptoms to understand the disease like Tuberculosis and Hepatitis	1	0	0	1
57	D+56	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
58	D+57	Manifestation and pathophysiology including salient symptoms to understand the disease Rheumatoid and Arthritis	1	0	0	1
59	D+58	Manifestation and pathophysiology including salient symptoms to understand the disease Diabetes, Peptic Ulcer, Hypertension	1	0	0	1
60	D+59	Manifestation and pathophysiology including salient symptoms to understand the disease Cardiovascular diseases, Epilepsy	1	0	0	1
61	D+60	Physiological parameters with their significance	1	0	0	1
62	D+61	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
63	D+62	Definition and introduction Drug Interactions	1	0	0	1
64	D+63	Mechanism of Drug Interaction	1	0	0	1
65	D+64	Drug –drug interaction with reference to analgesics, diuretics	1	0	0	1
66	D+65	Drug –drug interaction with reference to cardiovascular drugs	1	0	0	1
67	D+66	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
68	D+67	Drug –drug interaction with reference to Gastro-intestinal agents	1	0	0	1
69	D+68	Drug –drug interaction of Vitamins and Hypoglycemic agents.	1	0	0	1
70	D+69	Drug –food interaction and Some common examples of food food interaction and drug drug interaction	1	0	0	1
		Total	**19**	**4**	**0**	**23**
71	D+70	Definition of Adverse Drug Reactions	1	0	0	1
72	D+71	Significance of Adverse Drug Reactions	1	0	0	1

73	D+72	Drug –induced diseases and Teratogenicity	1	0	0	1
74	D+73	Drugs in Clinical Toxicity	1	0	0	1
75	D+74	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
76	D+75	Introduction, definition and effects of Drugs in Clinical Toxicity	1	0	0	1
77	D+76	General treatment of poisoning	1	0	0	1
78	D+77	Systematic antidotes with examples	1	0	0	1
79	D+78	Treatment of insecticide poisoning	1	0	0	1
80	D+79	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
81	D+80	Heavy metal poison	1	0	0	1
82	D+81	Treatment of Narcotic drugs	1	0	0	1
83	D+82	Treatments of Barbiturate	1	0	0	1
84	D+83	Organophosphorus poisons	1	0	0	1
85	D+84	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
86	D+85	Definition and introduction of Drug dependences	1	0	0	1
87	D+86	Introduction and causes of Drug abuse	1	0	0	1
88	D+87	Addictive drugs and their treatment	1	0	0	1
89	D+88	Drug complications and its treatment	1	0	0	1
90	D+89	Tutorial(Discussion Session/Revision/Class Test)	0	1	0	1
91	D+90	Definition of Bio–availability of drugs	1	0	0	1
92	D+91	Types of bioavailability	1	0	0	1
93	D+92	Factors affecting bioavailability	1	0	0	1
		Total	**19**	**4**	**0**	**23**

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Lesson Plan

Program- D.Pharm
Year - II
Course - HOSPITAL AND CLINICAL PHARMACY
Course code (DPH-216)
Session - 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	To prepare 100ml of compound sodium chloride i.v. infusion.	4	0	0	4
3	D+2	To prepare 100ml of compound sodium bicarbonate i.v. infusion.	4	0	0	4
4	D+3	To prepare 100ml of 5% w/v dextrose solution for injection I.P.	4	0	0	4
5	D+4	To prepare 100ml of normal saline solution for injection.	4	0	0	4
6	D+5	To sterilize various surgical instruments by dry heat sterilization.	4	0	0	4
7	D+6	To sterilize the following objects by moist heat sterilization method using Autoclave. ● Rubber gloves ● Rubber closure ● Surgical dressing	4	0	0	4
8	D+7	To study various equipments, clothing and materials used in aseptic technique.	4	0	0	4
9	D+8	To perform the identification test for the absorbent cotton wool.	4	0	0	4

10	D+9	To perform the limit test for chloride &sulphate.	4	0	0	4
11	D+10	To find out the % variation in the length and width of given sample of bandage.	4	0	0	4
12	D+11	To prepare 100 ml of 20% w/v Mannitol I.V infusion.	4	0	0	4
13	D+12	To prepare 100 ml of compound sodium lactate for injection I.P.	4	0	0	4
14	D+13	To sterilize rubber gloves.	4	0	0	4
15	D+14	To prepare water for injection.	4	0	0	4
16	D+15	To determine the sinking time of absorbent cotton wool.	4	0	0	4
17	D+16	To determine the no. of threads per 10 cm of absorbent ribbon gauge.	4	0	0	4
18	D+17	To determine the loss on drying of absorbent cotton wool.	4	0	0	4
19	D+18	To evaluate the given sample of cotton wool by fluorescence test.	4	0	0	4
20	D+19	To prepare 50 ml of 5% dextrose solution and sterilize it by filtration method.	4	0	0	4
21	D+20	To study various components of computer	4	0	0	4
		Total	**80**	**0**	**0**	**80**

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Lesson Plan

Program- **BACHELOR OF PHARMACY**
Semester- **Ist SEMESTER**
Course- **Human Anatomy & Physiology-I**
Course Code- **BP-101 T**
Session- **2020-21**

S. No.	Day	Subject	L	T	Total
1	D+1	Definition and scope of anatomy and physiology	1	0	1
2	D+2	Levels of structural organization and body systems	1	0	1
3	D+3	Basic life processes, homeostasis	1	0	1
4	D+4	Discussion Session/ Revision/Class Test	0	1	1
5	D+5	Basic anatomical terminology.	1	0	1
6	D+6	Structure and functions of cell	1	0	1
7	D+7	Transport across cell membrane, cell division, cell junctions.	1	0	1
8	D+8	Discussion Session/ Revision/Class Test	0	1	1
9	D+9	General principles of cell communication	1	0	1
10	D+10	intracellular signaling pathway activation by extracellular signal molecule	1	0	1
11	D+11	Forms of intracellular signaling: a) Contact-dependent b) Paracrine c) Synaptic d) Endocrine	1	0	1
12	D+12	Discussion Session/ Revision/Class Test	0	1	1

13	D+13	Classification of tissues, structure	1	0	1
14	D+14	Location and functions of epithelial and muscular tissues	1	0	1
15	D+15	Location and functions of nervous and connective tissues	1	0	1
16		**TOTAL CLASS**	**12**	**3**	**15**
17	D+16	Discussion Session/ Revision/Class Test	0	1	1
18	D+17	Structure and functions of skin	1	0	1
19	D+18	Divisions of skeletal system	1	0	1
20	D+19	types of bone	1	0	1
21	D+20	Discussion Session/ Revision/Class Test	0	1	1
22	D+21	Salient features and functions of bones of axial skeletal system	1	0	1
23	D+22	Salient features and functions of bones of appendicular skeletal system	1	0	1
24	D+23	Organization of skeletal muscle	1	0	1
25	D+24	Discussion Session/ Revision/Class Test	0	1	1
26	D+25	Physiology of muscle contraction,	1	0	1
27	D+26	Physiology of neuromuscular junction	1	0	1
28	D+27	Structural and functional classification of joints	1	0	1
29	D+28	Discussion Session/ Revision/Class Test	0	1	1
30	D+29	types of joints movements and its articulation	1	0	1
31		**TOTAL CLASS**	10	4	14
32	D+30	Body fluids,	1	0	1
33	D+31	composition and functions of blood	1	0	1
34	D+32	Discussion Session/ Revision/Class Test	0	1	1
35	D+33	hemopoeisis,	1	0	1
36	D+34	formation of hemoglobin,	1	0	1
37	D+35	anemia,	1	0	1
38	D+36	Discussion Session/ Revision/Class Test	0	1	1

39	D+37	mechanisms of coagulation,	1	0	1
40	D+38	blood grouping,	1	0	1
41	D+39	Rh factors, transfusion, its significance	1	0	1
42	D+40	Discussion Session/ Revision/Class Test	0	1	1
43	D+41	disorders of blood	1	0	1
44	D+42	Reticulo endothelial system.	1	0	1
45	D+43	Lymphatic organs and tissues, lymphatic vessels	1	0	1
46	D+44	Discussion Session/ Revision/Class Test	0	1	1
47	D+45	lymph circulation and functions of lymphatic system	1	0	1
48		**TOTAL CLASS**	**12**	**4**	**16**
49	D+46	Classification of peripheral nervous system:	1	0	1
50	D+47	Structure and functions of sympathetic nervous system.	1	0	1
51	D+48	Discussion Session/ Revision/Class Test	0	1	1
52	D+49	Structure and functions of parasympathetic nervous system.	1	0	1
53	D+50	Origin and functions of spinal nerves.	1	0	1
54	D+51	Origin and functions of cranial nerves	1	0	1
55	D+52	Discussion Session/ Revision/Class Test	0	1	1
56	D+53	Structure and functions of eye and their disorders.	1	0	1
57	D+54	Structure and functions of ear and their disorders.	1	0	1
58	D+55	Structure and functions of nose and tongue and their disorders.	1	0	1
59	D+56	Discussion Session/ Revision/Class Test	0	1	1
60	D+57	Structure and functions of nose and tongue and their disorders	1	0	1
61		**TOTAL CLASS**	**9**	**3**	**12**
62	D+58	Heart – anatomy of heart	1	0	1
63	D+59	blood circulation, blood vessels	1	0	1

64	D+60	Discussion Session/ Revision/Class Test	0	1	1
65	D+61	structure and functions of artery and vein	1	0	1
66	D+62	structure and functions of capillaries	1	0	1
67	D+63	elements of conduction system of heart and heart beat	1	0	1
68	D+64	Discussion Session/ Revision/Class Test	0	1	1
69	D+65	Its regulation by autonomic nervous system	1	0	1
70	D+66	cardiac output, cardiac cycle	1	0	1
71	D+67	Regulation of blood pressure	1	0	1
72	D+68	Discussion Session/ Revision/Class Test	0	1	1
73	D+69	pulse, electrocardiogram and disorders of heart.	1	0	1
		TOTAL CLASS	**9**	**3**	**12**

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Lesson Plan

Program- **BACHELOR OF PHARMACY**
Semester- **Ist SEMESTER**
Course- **Human Anatomy & Physiology-I**
Course Code- **BP-107 P**
Session- **2020-21**

S. No.	Day	Subject	P	Total
1	D+1	Study of compound microscope	4	4
2	D+2	Microscopic study of epithelial and connective tissue	4	4
3	D+3	Microscopic study of muscular and nervous tissue	4	4
4	D+4	Identification of axial bones	4	4
5	D+5	Identification of appendicular bones	4	4
6	D+6	Introduction to hemocytometry	4	4
7	D+7	Enumeration of white blood cell (WBC) count	4	4
8	D+8	Enumeration of total red blood corpuscles (RBC) count	4	4
9	D+9	Determination of bleeding time	4	4
10	D+10	Determination of clotting time	4	4
11	D+11	Estimation of hemoglobin content	4	4
12	D+12	Determination of blood group	4	4
13	D+13	Determination of erythrocyte sedimentation rate (ESR)	4	4

14	D+14	Determination of heart rate and pulse rate	4	4
15	D+15	Recording of blood pressure	4	4
		Total	60	60

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Lesson Plan

Program: Bachelor of Pharmacy **Semester: I Semester**
Course: Pharmaceutical Analysis **Course Code: BP-102 T**
Session: 2020-2021

S no.	Day	Subject	Lecture	Tutorial	Total
1.	D+1	Pharmaceutical analysis: Definition, scope and Different techniques of analysis	1	0	1
2.	D+2	Methods of expressing concentration	1	0	1
3.	D+3	Primary and secondary standards	1	0	1
4.	D+4	Discussion Session/ Revision/Class Test	0	1	1
5.	D+5	Preparation and standardization of Oxalic acid & sodium hydroxide	1	0	1
6.	D+6	Preparation and standardization of hydrochloric acid & sodium thiosulphate	1	0	1
7.	D+7	Preparation and standardization of sulphuric acid & potassium permanganate	1	0	1
8.	D+8	Discussion Session/ Revision/Class Test	0	1	1
9.	D+9	Preparation and standardization of ceric-ammonium sulphate and Sources of errors	1	0	1
10.	D+10	Types of errors and Methods of minimizing errors	1	0	1
11.	D+11	Accuracy, precision and significant figures	1	0	1
12.	D+12	Discussion Session/ Revision/Class Test	0	1	1
13.	D+13	Pharmacopoeia and Sources of impurities in medicinal agents	1	0	1
14.	D+14	Limit tests	1	0	1
15.		Total	11	3	14
16.	D+15	Acid base titration: Theories of acid base indicators	1	0	1
17.	D+16	Discussion Session/ Revision/Class Test	0	1	1
18.	D+17	Classification of acid base titrations	1	0	1
19.	D+18	Theory involved in titrations of strong, weak, and very weak acids and bases	1	0	1

20.	D+19	Theory involved in titrations of strong, weak, and very weak acids and bases	1	0	1
21.	D+20	Discussion Session/ Revision/Class Test	0	1	1
22.	D+21	Neutralization curves	1	0	1
23.	D+22	Non aqueous titration: Solvents	1	0	1
24.	D+23	Acidimetry titration	1	0	1
25.	D+24	Discussion Session/ Revision/Class Test	0	1	1
26.	D+25	Alkalimetry titration	1	0	1
27.	D+26	Estimation of Sodium benzoate	1	0	1
28.	D+27	Estimation of Ephedrine hydrochloride	1	0	1
29.	D+28	Discussion Session/ Revision/Class Test	0	1	1
30.		Total	10	4	14
31.	D+29	Precipitation titrations: Mohr's, Volhard's method	1	0	1
32.	D+30	Modified Volhard's and Fajans method	1	0	1
33.	D+31	Estimation of sodium chloride	1	0	1
34.	D+32	Discussion Session/ Revision/Class Test	0	1	1
35.	D+33	Complexometric titration: Classification	1	0	1
36.	D+34	Metal ion indicators	1	0	1
37.	D+35	Masking and demasking reagents	1	0	1
38.	D+36	Discussion Session/ Revision/Class Test	0	1	1
39.	D+37	Estimation of Magnesium sulphate and calcium gluconate	1	0	1
40.	D+38	Gravimetry: Principle and steps involved in gravimetric analysis	1	0	1
41.	D+39	Purity of the precipitate: co-precipitation, post precipitation and Estimation of barium sulphate	1	0	1
42.	D+40	Discussion Session/ Revision/Class Test	0	1	1
43.	D+41	Basic Principles,methods and application of diazotisation titration	1	0	1
44.		Total	10	3	13
45.	D+42	Redox titrations: Concepts of oxidation and reduction	1	0	1
46.	D+43	Types of redox titrations (Principles and applications,	1	0	1
47.	D+44	Discussion Session/ Revision/Class Test	0	1	1
48.	D+45	Cerimetry	1	0	1
49.	D+46	Iodimetry	1	0	1
50.	D+47	Iodometry	1	0	1
51.	D+48	Discussion Session/ Revision/Class Test	0	1	1
52.	D+49	Bromatometry	1	0	1
53.	D+50	Dichrometry	1	0	1
54.	D+51	Titration with potassium iodate	1	0	1
55.	D+52	Discussion Session/ Revision/Class Test	0	1	1
56.		Total	8	3	11

57.	D+53	Electrochemical methods of analysis: Conductometry- Introduction, Conductivity cell,	1	0	1
58.	D+54	Conductometric titrations and its applications	1	0	1
59.	D+55	Potentiometry - Electrochemical cell	1	0	1
60.	D+56	Discussion Session/ Revision/Class Test	0	1	1
61.	D+57	Construction and working of reference (Standard hydrogen, silver chloride electrode and calomel electrode)	1	0	1
62.	D+58	Construction and working of indicator electrodes (metal electrodes and glass electrode)	1	0	1
63.	D+59	Methods to determine end point of potentiometric titration and applications.	1	0	1
64.	D+60	Discussion Session/ Revision/Class Test	0	1	1
65.	D+61	Polarography – Principle and Ilkovic equation	1	0	1
66.	D+62	Construction and working of dropping mercury, rotating platinum electrode and its applications	1	0	1
67.		Total	8	2	10

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Lab Practical Lesson Plan

Program: Bachelor of Pharmacy **Semester: I Semester**
Course: Pharmaceutical Analysis **Course Code: BP-108 P**
Session: 2020-2021

S no.	Day	Objective	Practical	Total
1.	D+1	Limit Test of Chloride	1	1
2.	D+2	Limit Test of Sulphate	1	1
3.	D+3	Limit Test of Iron	1	1
4.	D+4	Limit Test of Arsenic	1	1
5.	D+5	Preparation and standardization of Sodium hydroxide	1	1
6.	D+6	Preparation and standardization of Sulphuric acid	1	1
7.	D+7	Preparation and standardization of Sodium thiosulfate	1	1
8.	D+8	Preparation and standardization of Potassium permanganate	1	1
9.	D+9	Preparation and standardization of Ceric ammonium sulphate	1	1
10.	D+10	Assay of Ammonium chloride by acid base titration	1	1
11.	D+11	Assay of Ferrous sulphate by Cerimetry	1	1
12.	D+12	Assay of Copper sulphate by Iodometry	1	1
13.	D+13	Assay of Calcium gluconate by complexometry	1	1
14.	D+14	Assay of Hydrogen peroxide by Permanganometry	1	1
15.	D+15	Assay of Sodium benzoate by non-aqueous titration	1	1
16.	D+16	Assay of Sodium Chloride by precipitation titration	1	1
17.	D+17	Determination of Normality by Conductometric titration of strong acid against strong base	1	1
18.	D+18	Determination of Normality by Conductometric titration of strong acid and weak acid against strong base	1	1
19.	D+19	Determination of Normality by Potentiometric titration of strong acid against strong base	1	1
20.		Total	19	19

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Course Plan

Program- BACHELOR OF PHARMACY
Semester- Ist
Course- PHARMACEUTICS-I
Course Code- BP 103T
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
	D Day					
1	D+1	History of profession of Pharmacy in India in relation to pharmacy education,	1	0	0	1
2	D+2	Industry and organization	1	0	0	1
3	D+3	Pharmacy as a career, Pharmacopoeias: Introduction to IP	1	0	0	1
4	D+4	USP and Extra Pharmacopoeia	1	0	0	1
5	D+5	Introduction to dosage forms,	1	1	0	1
6	D+6	Classification and definitions	1	0	0	1
7	D+7	Definition, Parts of prescription,	1	0	0	1
8	D+8	Handling of Prescription and Errors in prescription.	1	0	0	1
9	D+9	Posology: Definition, Factors affecting posology.	1	0	0	1
10	D+10	Pediatric dose calculations based on age, body weight and body surface area.	1	0	0	1
		TOTAL	**10**	**0**	**0**	**10**
11	D+11	Weights and measures – Imperial & Metric system,	1	0	0	1
12	D+12	Calculations involving percentage solutions,	1	0	0	1
13	D+13	Alligation, proof spirit and	1	0	0	1
14	D+14	Isotonic solutions based on freezing point and molecular weight.	1	0	0	1
15	D+15	Powders: Definition, classification,	1	0	0	1

16	D+16	Advantages and disadvantages,Simple & compound powders	1	0	0	1
17	D+17	Official preparations, dusting powders, effervescent,	1	0	0	1
18	D+18	Efflorescent and hygroscopic powders, eutectic mixtures. Geometric dilutions	1	0	0	1
19	D+19	Liquid dosage forms: Advantages and disadvantages of liquid dosage forms.	1	0	0	1
20	D+20	Excipients used in formulation of liquid dosage forms. Solubility enhancement techniques	1	0	0	1
		TOTAL	**10**	**0**	**0**	**10**
21	D+21	Monophasic liquids: Definitions and preparations of Gargles, Mouthwashes, Throat Paint,	1	0	0	1
22	D+22	Eardrops, Nasal drops, Enemas,.	1	0	0	1
23	D+23	Syrups, Elixirs, Liniments and Lotions	1	0	0	1
24	D+24	Suspensions: Definition, advantages and disadvantages, classifications, Preparation of suspensions	1	1	0	1
25	D+25	Flocculated and Deflocculated suspension & stability problems and methods to overcome	1	1	0	1
26	D+26	Emulsions: Definition, classification, emulsifying agent,	1	0	0	1
27	D+27	Test for the identification of type ofemulsion,	1	0	0	1
28	D+28	Methods of preparation & stability problems and methods to overcome	1	0	0	1
		TOTAL	**08**	**0**	**0**	**8**
29	D+29	Suppositories: Definition, types.	1	0	0	1
30	D+30	Advantages and disadvantages.	1	0	0	1
31	D+31	Types of bases, methods of preparations	1	0	0	1
32	D+32	. Displacement value & its calculations	1	0	0	1
33	D+33	Evaluation of suppositories	1	0	0	1
34	D+34	Pharmaceutical incompatibilities: Definition, classification	1	0	0	1
35	D+35	Physical, chemical with examples	1	0	0	1
36	D+36	Therapeutic incompatibilities with examples	1	0	0	1
		TOTAL	**08**	**0**	**0**	**08**
37	D+37	Semisolid dosage forms: Definitions, classification.	1	0	0	1
38	D+38	Mechanisms.	1			
39	D+39	Factors influencing dermal penetration of drugs.	1	0	0	1
40	D+40	Preparation of ointments, pastes.	1	0	0	1

41	D+41	Creams and gels.	1	0	0	1
42	D+42	Excipients used in semi solid dosage forms.	1	0	0	1
43	D+43	Evaluation of semi solid dosages forms.	1	0	0	1
		TOTAL	**7**	**0**	**0**	**7**

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Course Plan

Program- BACHELOR OF PHARMACY
Semester- Ist
Course-. PHARMACEUTICS-I
Course Code- BP109P
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
	D Day					
1	D+1	To prepare & submit ORS powder.	0	0	4	4
2	D+2	To prepare & submit Calamine lotion	0	0	4	4
3	D+3	To prepare & submit Dusting powder	0	0	4	4
4	D+4	To prepare & submit Syrup I	0	0	4	4
5	D+5	To prepare & submit Liquid paraffin emulsion	0	0	4	4
6	D+6	To prepare & submit Iodine gargle	0	0	4	4
7	D+7	To prepare & submit Paracetamol pediatric elixir	0	0	4	4
8	D+8	To prepare & submit Aluminimum Hydroxide gel	0	0	4	4
9	D+9	To prepare & submit Cresol with soap solution	0	0	4	4
10	D+10	To prepare & submit Turpentine Liniment	0	0	4	4
		TOTAL	0	0	40	40

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Course Plan

Program- BACHELOR OF PHARMACY
Semester- I
Course- PHARMACEUTICAL INORGANIC CHEMISTRY
Course Code- BP 104T
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	General Introduction pharmaceutical substances	1	0	0	1
3	D+2	History of pharmacopoeia	1	0	0	1
4	D+3	Sources of Impurities	1	0	0	1
5	D+4	Types of Impurities	1	0	0	1
6	D+5	Problem Solving Session/ class test	0	1	0	1
7	D+6	Limit test for chloride and sulphate	1	0	0	1
8	D+7	Limit test for Arsenic	1	0	0	1
9	D+8	Limit test for Lead and Heavy metals	1	0	0	1
10	D+9	Limit test for Iron	1	0	0	1
11	D+10	Problem Solving Session/ class test	0	1	0	1
		TOTAL	08	2	0	10
12	D+11	Acid & Bases	1	0	0	1
13	D+12	Buffers	1	0	0	1
14	D+13	Buffer equation & buffer preparation	1	0	0	1
15	D+14	Problem Sloving Session\ class test	0	1	0	1
16	D+15	isotonic solutions	1	0	0	1
17	D+16	Measurements of tonicity	1	0	0	1
18	D+17	Methods of adjusting isotonicity and its calculation	1	0	0	1
19	D+18	Problem Solving Session/ class test	0	1	0	1

20	D+19	Functions of major physiological ions, Physiological acid base balance	1	0	0	1
21	D+20	Electrolytes used in replacement therapy-sodium chloride KaCl	1	0	0	1
22	D+21	Calcium gluconate and ORS	1	0	0	1
23	D+22	Problem Sloving Session\ class test	0	1	0	1
24	D+23	Dental product- Dentifrices,role of fluoride in dental caries	1	0	0	1
25	D+23	Desensitizing Agents	1	0	0	1
26	D+24	Problem Solving Session/ class test	0	1	0	1
		TOTAL	11	4	0	15
27	D+25	Gastrointestinal Agents Acidifers: Ammonium chloride and Dil.HCl	1	0	0	1
28	D+26	Antacid: Ideal properties of antacid,	1	0	0	1
29	D+27	Combination of antacid, NaHCO3, AlOH2 and MgOH2 mixture	1	0	0	1
30	D+28	Cathartics: magnesium sulphate, sodium orthophosphate	1	0	0	1
31	D+29	Problem Sloving Session\ class test	0	1	0	1
32	D+30	Antimicrobials: Mechanism & classification	1	0	0	1
33	D+31	Potassium permanganate, boric acid	1	0	0	1
34	D+32	Hydrogen peroxide, chlorinated lime	1	0	0	1
35	D+33	Problem Solving Session/ class test	0	1	0	1
36	D+34	Iodine and its preparation	1	0	0	1
37	D+35	Miscellaneous compounds Expectorants: potassium iodide	1	0	0	1
38	D+37	Emetics: copper sulphate	1	0	0	1
39	D+38	Haematinics: ferrous sulphate, ferrous gluconate	1	0	0	1
40	D+40	Problem Solving Session/ class test	0	1	0	1
		TOTAL	10	3	0	13
41	D+41	Poison and Antidote: sodium thiosulphate	1	0	0	1
42	D+42	Sodium nitrite 333	1	0	0	1
43	D+43	Activated charcoal	1	0	0	1
44	D+44	Problem sloving session/ class test	0	1	0	1
45	D+45	Astringents: Zinc Sulphate ,Potash Alum	1	0	0	1
46	D+46	Sodium potassium tartarate	1	0	0	1

47	D+47	Ammonium Chloride*	1	0	0	1
48	D+48	Problem sloving session/ class test	0	1	0	1
		TOTAL	06	02	0	08
49	D+49	Radiopharmaceuticals: Radio activity and its measurement	1	0	0	1
50	D+50	Properties of radiation compound & Half life of radioactive compound	1	0	0	1
51	D+51	Radio isotopes- Sodium iodide I^{131}	1	0	0	1
52	D+52	Problem Solving Session/ class test	0	1	0	1
53	D+53	Storage conditions & precautions of radiopharmaceuticals	1	0	0	1
54	D+54	Pharmaceutical application of radioactive substances	1	0	0	1
55	D+55	Problem Solving session / class test	0	1	0	1
		TOTAL	05	2	0	7

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Course Plan

Program- BACHELOR OF PHARMACY
Semester- I
Course- PHARMACEUTICAL INORGANIC CHEMISTRY
Course Code- BP 110 P
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	General introduction to Glasswares in Chemistry Laboratory.	0	0	4	4
3	D+2	To perform the limit test for Chloride.	0	0	4	4
4	D+3	To perform the limit test for Iron.	0	0	4	4
5	D+4	To perform the limit test for Sulphate.	0	0	4	4
6	D+5	To perform the limit test for Lead.	0	0	4	4
7	D+6	To perform the limit test for Arsenic.	0	0	4	4
8	D+7	To perform the limit test for heavy metals in an unknown sample.	0	0	4	4
9	D+8	To prepare and submit potash alum and calculate its percentage yield.	0	0	4	4
10	D+9	To prepare and submit ferrous sulphate and calculate its percentage yield.	0	0	4	4
11	D+10	To prepare and submit boric acid and calculate its	0	0	4	4

		percentage yield.				
12	D+11	To perform the test for purity on swelling properties of bentonite.	0	0	4	4
13	D+12	To perform the test for identification of copper sulphate and magnesium hydroxide.	0	0	4	4
		TOTAL	0	0	48	48

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Course Plan

Program- BACHELOR OF PHARMACY
Semester- 1
Course- Communication Skills
Course Code- BP 105T
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	Communication skills:- introduction, definition, the importance of communication	1	0	0	1
3	D+2	The communication process- source, message, Encoding	1	0	0	1
4	D+3	Channel, Decoding, Receiver	1	0	0	1
5	D+4	Feedback, Context	1	0	0	1
6	D+5	Problem Solving Session/ class test	0	1	0	1
7	D+6	Barrier to communication:- physiological Barriers, Physical Barriers, Cultural Barriers	1	0	0	1
8	D+7	Language Barriers, Gender Barriers, Interpersonal Barriers, Emotional & physiological Barriers	1	0	0	1
9	D+8	Perspectives in communication:- introduction, Visual perception, Language	1	0	0	1
10	D+9	Factor Affecting Our perspective:- Past Experiences, Prejudices, Feelings, Environment	1	0	0	1
11	D+10	Problem Solving Session/ class test	0	1	0	1
		TOTAL	08	2	0	10
12	D+11	Elements of Communication:- Introduction,Face to Face Communication-Tone of voice	1	0	0	1
13	D+12	Verbal communication	1	0	0	1
14	D+13	Physical Communication	1	0	0	1
15	D+14	Non- Verbal Communication(body language)	1	0	0	1
16	D+15	Problem Solving Session/ class test	0	1	0	1

17	D+16	Communication Styles:- Introduction, The communication style matrix with example	1	0	0	1
18	D+17	Direct communication style & spirited Communication style	1	0	0	1
19	D+18	Systematic Communication Style	1	0	0	1
20	D+19	Considerate Communication Style	1	0	0	1
21	D+20	Problem Solving Session/ class test	0	1	0	1
		TOTAL	08	2	0	10
22	D+21	Basic Listening Skills:- Introduction, self- awareness	1	0	0	1
23	D+22	Active Listening, Becoming an Active Listener	1	0	0	1
24	D+23	Listening in Difficult Situations	1	0	0	1
25	D+24	Writing Effectively:- Subject Lines, Put the Main Point First, Know Your Audience	1	0	0	1
26	D+25	Problem Solving Session/ class test	0	1	0	1
27	D+26	Writing effect on Organization of the Message	1	0	0	1
28	D+27	Effective Written Communication:- Introduction	1	0	0	1
29	D+28	When & When not to use Written Communication- complexity of the topic, Amount of Discussion Required	1	0	0	1
30	D+29	Shades of Meaning, Formal Communication	1	0	0	1
31	D+30	Problem Solving Session/ class test	0	1	0	1
		TOTAL	08	2	0	10
32	D+31P	Interview Skills:- Introduction	1	0	0	1
33	D+32	Purpose of an interview	1	0	0	1
34	D+33	Do's & Don't of an Interview	1	0	0	1
35	D+34	Problem sloving session/ class test	0	1	0	1
36	D+35	Giving Presentations:- Dealing with fears & planning your presentation	1	0	0	1
37	D+36	Structure & Presentation, Delivery your Presentation	1	0	0	1
	D+37	Techniques of Delivery	1	0	0	1
38	D+38	Problem sloving session/ class test	0	1	0	1
39		TOTAL	06	02	0	08
40	D+39	Group Discussion:- Introduction	1	0	0	1
41	D+40	Communication Skills in group discussion	1	0	0	1
42	D+41	Do's & Don't of group discussion	1	0	0	1
43	D+42	Problem Solving Session/ class test	0	1	0	1

		TOTAL	03	01	0	04

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Course Plan

Program- **BACHELOR OF PHARMACY**
Semester- **Ist**
Course- **REMEDIAL BIOLOGY**
Course Code- **BP 106RBT**
Session- **2020-2021**

S. No.	Day	Subject	L	T	P	Total
	D Day					
1	D+1	Definition and characters of living organisms, Diversity in the living world, Binomial nomenclature	1	0	0	1
2	D+2	Five kingdoms of life and basis of classification,	1	0	0	1
3	D+3	Salient features of Monera, Potista	1	0	0	1
4	D+4	Salient features of Fungi, Animalia, Salient features of Plantae, Virus,	1	0	0	1
5	D+5	Morphology of different parts of flowering plants – Root, stem, inflorescence, flower,.	1	1	0	1
6	D+6	leaf, fruit, seed, General Anatomy of Root stems	1	0	0	1
7	D+7	General Anatomy of leaf of monocotyledons & Dicotylidones.	1	0	0	1
		TOTAL	**07**	**0**	**0**	**07**
8	D+8	Composition of blood, blood groups, coagulation of blood	1	0	0	1
9	D+9	Composition and functions of lymph	1	0	0	1
10	D+10	Human circulatory system	1	0	0	1
11	D+11	Structure of human heart and blood vessels	1	0	0	1
12	D+12	Cardiac cycle	1	0	0	1
13	D+13	Cardiac output and ECG	1	0	0	1

14	D+14	Human alimentary canal and digestive glands.	1	0	0	1
		TOTAL	**07**	**0**	**0**	**07**
15	D+15	Modes of excretion, Human excretory system-structure and function	1	0	0	1
16	D+16	Urine formation, Rennin angiotensin system	1	0	0	1
17	D+17	Definition and classification of nervous system, Structure of a neuron	1	0	0	1
18	D+18	Generation and conduction of nerve impulse ,Structure of brain and spinal cord	1	0	0	1
19	D+19	Functions of cerebrum, cerebellum, Functions of hypothalamus and medulla oblongata.	1	0	0	1
20	D+20	Endocrine glands and their secretions, Functions of hormones secreted by endocrine glands	1	0	0	1
21	D+21	Parts of female reproductive system , Parts of male reproductive system	1	0	0	1
22	D+22	Spermatogenesis and Oogenesis	1	0	0	1
		TOTAL	**8**	**0**	**0**	**8**
23	D+23	Essential mineral, macro and micronutrients	1	0	0	1
24	D+24	Nitrogen metabolism, Nitrogen cycle Biological nitrogen fixation	1	0	0	1
25	D+25	Autotrophic nutrition, Photosynthesis	1	0	0	1
26	D+26	photosynthesis, Photosynthetic pigments Factors affecting photosynthesis	1	0	0	1
27	D+27	Essential mineral, macro and micronutrients, Nitrogen metabolism, Nitrogen cycle	1	0	0	1
		TOTAL	**05**	**0**	**0**	**5**
28	D+28	Plant respiration, glycolysis, fermentation (anaerobic).	1	0	0	1
29	D+29	Phases and rate of plant growth, Condition of growth	1			
30	D+30	Introduction to plant growth regulators	1	0	0	1
31	D+31	Structure and functions of plant cell and cell organelles.	1	0	0	1
32	D+32	Plant Cell division	1	0	0	1
33	D+33	Definition, types of plant tissues, location and functions.	1	0	0	1
		TOTAL	**6**	**0**	**0**	**6**

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Course Plan

Program- BACHELOR OF PHARMACY
Semester- Ist
Course- REMEDIAL BIOLOGY
Course Code- BP 106RBT
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
	D Day					
1	D+1	Introduction to experiments in biology. a) Study of Microscope b) Section cutting techniques c) Mounting and staining. d) Permanent slide preparation	0	0	4	4
2	D+2	Study of Stem, and its modifications.	0	0	4	4
3	D+3	To study about cell and cell inclusions.	0	0	4	4
4	D+4	To study the bones of human skull.	0	0	4	4
5	D+5	Determination of blood group.	0	0	4	4
6	D+6	Determination of blood pressure	0	0	4	4
7	D+7	To study the human appendicular skeleton	0	0	4	4
8	D+8	To study the thoracic cage of human body.	0	0	4	4
9	D+9	Microscopic study and identification of tissues	0	0	4	4

		with the help of permanent slides.				
		TOTAL	**0**	**0**	**36**	**36**

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Course Plan

Program- BACHELOR OF PHARMACY
Semester- 1
Course- Remedial Mathematics
Course Code- BP 106RMT
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	Partial fraction:- lntroduction, polynomial, Rational fractions	1	0	0	1
3	D+2	Proper & Improper fractions, Partial fractions its resolving & application of partial fraction in chemical kinetics and pharmacokinetics	1	0	0	1
4	D+3	Functions:- Real valued functions and its classification	1	0	0	1
5	D+4	Limit and continuity:- introduction, limit of a function & definition of limit of a functions	1	0	0	1
6	D+5	Problem Sloving Session/ Class Test	0	1	0	1
7	D+6	Logarithms:- Introduction, Definition	1	0	0	1
8	D+7	Theorems/properties of logarithms, common logarithms	1	0	0	1
9	D+8	Characteristics & Mantissa	1	0	0	1
10	D+9	Worked Examples	1	0	0	1
11	D+10	Application of logarithm to solve pharmaceutical problems	0	1	0	1
		TOTAL	08	02	0	10
12	D+11	Matrices & Determinant:- Introduction	1	0	0	1
13	D+12	Types of matrices, operation on matrices	1	0	0	1
14	D+13	Transpose of a matrix, Matrix Multiplication	1	0	0	1
15	D+14	Determinants, properties of determinants	1	0	0	1
16	D+15	Problem Sloving Session/ Class Test	0	1	0	1
17	D+16	Products of Determinants,Minor and co-factors	1	0	0	1

18	D+17	Adjugate or adjoint of a square matrix, singular & non-singular matrices	1	0	0	1
19	D+18	Inverse of a matrix,cramer's rules, characteristics equation and roots of a square matrix	1	0	0	1
20	D+19	Cayley-Hamilton therorem, Application of matrices in sloving pharmacokinetics equations	1	0	0	1
21	D+20	Problem Sloving Session/ Class Test	0	1	0	1
		TOTAL	08	02	0	10
22	D+21	DIFFERENTIATION introduction, derivatives of functions	1	0	0	1
23	D+22	Derivative of a constant, Derivative of a product of a constant and a function	1	0	0	1
24	D+23	Derivative of the product and quotient of two functions	1	0	0	1
25	D+24	Problem Sloving Session/ Class Test	0	1	0	1
26	D+25	Derivative if trigonometric functions from first principles (**without proof**).	1	0	0	1
27	D+26	Successive Differentiation	1	0	0	1
28	D+27	Conditions for a function to be maximum & minimum at a point, Application	1	0	0	1
29	D+28	Problem Sloving Session/ Class Test	0	1	0	1
		TOTAL	06	02	0	08
30	D+29	**Analytical Geometry:-** introduction Signs of the coordinates, Distance formula	1	0	0	1
31	D+30	Straight line:-slope & gradient of a straight lines Slope of a line joining two points- intercept	1	0	0	1
32	D+31	Conditions for parallelism & perpendicularity of two lines	1	0	0	1
33	D+32	Problem Sloving Session/ Class Test	0	1	0	1
34	D+33	Integration:- Introduction, Definition, standard formula	1	0	0	1
35	D+34	Rules of Integration, methods of substitution & partial fractions	1	0	0	1
36	D+35	Integration by parts, definite integral part & Application	1	0	0	1
37	D+36	Problem Sloving Session/ Class Test	0	1	0	1
		TOTAL	06	02	0	08
38	D+37	Differential Equations:-.some basic definition,order and degree, equation in separable form	1	1	0	1
39	D+38	Homogeneous & Linear Differential equations Application in sloving pharmacokinetics equations	1	0	0	1
40	D+39	Problem Sloving Session/ Class Test	0	1	0	1
41	D+40	Laplace Transform:- Introduction, definition, properties Laplace transforms of elementary functions &Inverse Laplace transform	1	0	0	1
42	D+41	Application to solve differential equations, Application in solving chemical kinetics &	1	0	0	1

		pharmacokinetics equations				
43	D+42	Problem Sloving Session/ Class Test	0	1	0	1
		TOTAL				

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Lesson plan

Program- BACHELOR OF PHARMACY
Semester- III
Course- PHARMACEUTICAL ORGANIC CHEMISTRY-II
Course Code- BP 301T
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
	D Day					
1	D+1	Analytical, synthetic and	1	0	0	1
2	D+2	other evidences in the derivation of structure of benzene	1	0	0	1
3	D+3	Orbital picture, resonance in benzene	1	0	0	1
4	D+4	aromatic characters, Huckel's rule	1	0	0	1
5	D+5	Reactions of benzene - nitration, sulphonation, halogenationreactivity	1	1	0	1
6	D+6	Friedelcrafts alkylation- reactivity, limitations, Friedelcrafts acylation.	1	0	0	1
7	D+7	Substituents, effect of substituents on reactivity and orientation of mono substituted benzene compounds towards electrophilic substitution reaction	1	0	0	1
8	D+8	Substituents, effect of substituents on reactivity and orientation of mono substituted benzene compounds towards electrophilic substitution reaction	1	0	0	1
9	D+9	Structure and uses of DDT, Saccharin.	1	0	0	1
10	D+10	Structure and uses of BHC and Chloramine	1	0	0	1
		TOTAL	**10**	**0**	**0**	**10**
11	D+11	Acidity of phenols, effect of substituents on acidity,	1	0	0	1
12	D+12	Qualitative tests	1	0	0	1
13	D+13	Structure and uses of phenol	1	0	0	1
14	D+14	Structure and uses of cresols	1	0	0	1
15	D+15	Structure and uses of resorcinol	1	0	0	1

16	D+16	Structure and uses of naphthols	1	0	0	1
17	D+17	Basicity of amines, effect of substituents on basicity	1	0	0	1
18	D+18	synthetic uses of aryl diazonium salts	1	0	0	1
19	D+19	Acidity, effect of substituents on acidity	1	0	0	1
20	D+20	Important reactions of benzoic acid.	1	0	0	1
		TOTAL	**10**	**0**	**0**	**10**
21	D+21	Fats and Oils	1	0	0	1
22	D+22	Fatty acids – reactions	1	0	0	1
23	D+23	Hydrolysis, Hydrogenation, Saponification	1	0	0	1
24	D+24	Rancidity of oils, Drying oils	1	0	0	1
25	D+25	Analytical constants – Acid value	1	1	0	1
26	D+26	Saponification value, Ester value,	1	0	0	1
27	D+27	Iodine value	1	0	0	1
28	D+28	Acetyl value	1	0	0	1
29	D+29	Reichert Meissl (RM) value – significance	1	1	0	1
30	D+30	principle involved in their determination	0	0	0	1
		TOTAL	**09**	**01**	**0**	**10**
31	D+31	Polynuclear hydrocarbons	1	0	0	1
32	D+32	Synthesis, reactions	1	0	0	1
33	D+33	Structure and medicinal uses of Naphthalene,	1	0	0	1
34	D+34	Derivatives of Naphthalene	0	1	0	1
35	D+35	Structure and medicinal uses of Phenanthrene	1	0	0	1
36	D+36	Derivatives of Phenanthrene	1	0	0	1
37	D+37	Structure and medicinal uses of Anthracene	1	0	0	1
38	D+38	Derivatives of Anthracene	0	1	0	1
39	D+39	Structure and medicinal uses of Diphenylmethane	1	0	0	1
40	D+40	Derivatives of Diphenylmethane	1	0	0	1
41	D+41	Structure and medicinal uses of Triphenylmethane	1	0	0	1
42	D+42	Derivatives of Triphenylmethane	1	0	0	1
		TOTAL	**10**	**02**	**0**	**12**
43	D+43	Cyclo alkanes	1	0	0	1
44	D+44	Stabilities – Baeyer's strain theory	1			

45	D+45	Limitation of Baeyer's strain theory	1	0	0	1
46	D+46	Coulson theory	1	0	0	1
47	D+47	Moffitt's modification theory	1	1	0	1
48	D+48	Sachse Mohr's theory	1	0	0	1
49	D+49	Reactions of cyclopropane	0	0	0	1
50	D+50	Reactions of cyclobutane	1	1	0	1
		TOTAL	7	2	0	9

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Lesson Plan

Program- BACHELOR OF PHARMACY
Semester- III
Course- PHARMACEUTICAL ORGANIC CHEMISTRY-II
Course Code- BP 305P
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
	D Day					
1	D+1	To determine the acid value of the given sample of castor oil.	0	0	4	4
2	D+2	To determine the saponification value of the given sample of castor oil.	0	0	4	4
3	D+3	To determine the iodine value of the given sample of castor oil.	0	0	4	4
4	D+4	To prepare and submit phenyl benzoate from phenol.	0	0	4	4
5	D+5	To prepare and submit benzil from benzoin.	0	0	4	4
6	D+6	To prepare and submit cinnamic acid from benzaldehyde.	0	0	4	4
7	D+7	To prepare and submit benzoic acid from benzyl chloride.	0	0	4	4
8	D+8	To prepare and submit acetanilide from aniline.	0	0	4	4
9	D+9	To prepare and submit 2,4,6- Tri bromo aniline from aniline.	0	0	4	4
10	D+10	To prepare and submit Dibenzal acetone from benzaldehyde by claison Schmidt reaction.	0	0	4	4
11	D+11	To prepare and submit 5-nitro salicylic acid from salicylic acid.	0	0	4	4
		TOTAL	0	0	44	44

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Lesson Plan

Program- B.Pharm

Semester- III

Course BP-302T PHYSICAL PHARMACEUTICS - I

Session - 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	Introduction of subject, Contributor	1	0	0	1
3	D+2	**Solubility of drugs:** Solubility expressions,	1	0	0	1
4	D+3	mechanisms of solute solvent interactions, ideal solubility parameters, solvation & association, quantitative approach to the factors influencing solubility of drugs,	1	0	0	1
5	D+4	diffusion principles in biological systems. Solubility of gas in liquids, solubility of liquids in liquids, (Binary solutions, ideal solutions)	1	0	0	1

6	D+5	Tutorial (Problem solving session/ class test)	0	1	0	1
7	D+6	Raoult's law, real solutions. Partially miscible liquids,	1	0	0	1
8	D+7	Critical solution temperature and applications. Distribution law,	1	0	0	1
9	D+8	its limitations and applications	1	0	0	1
10	D+9	Practice Imaginative Sympathy	1	0	0	1
11	D+10	Tutorial (Problem solving session/ class test)	0	1	0	1
		TOTAL	8	2		**10**
12	D+11	**States of Matter and properties of matter:** State of matter, changes in the state of matter,	1	0	0	1
13	D+12	latent heats, vapour pressure, sublimation critical point,	1	0	0	1
14	D+13	eutectic mixtures, gases , aerosols – inhalers, relative humidity,	1	0	0	1
15	D+14	liquid complexes,	1	0	0	1
16	D+15	Tutorial (Problem solving session/ class test)	0	1	0	1
17	D+16	liquid crystals,glassy states,				
18	D+17	solidcrystalline, amorphous & polymorphism.	1	0	0	1
19	D+18	**Physicochemical properties of drug molecules:** Refractive index,	1	0	0	1
20	D+19	optical rotation, dielectric constant, dipole moment,	1	0	0	1

21	D+20	dissociation constant, determinations and applications	1	0	0	1
22	D+21	Tutorial (Problem solving session/ class test)	0	1	0	1
		TOTAL	**8**	**2**		**10**
23	D+22	**Surface and interfacial phenomenon:** Liquid interface, surface & interfacial tensions,	1	0	0	
24	D+23	surface free energy, measurement of surface & interfacial tensions,	1	0	0	1
25	D+24	Presentation	1	0	0	1
26	D+25	spreading coefficient,	1	0	0	1
27	D+26	Tutorial (Problem solving session/ class test)	0	1	0	1
28	D+27	surface active agents, HLB Scale	1	0	0	1
29	D+28	solubilisation, detergency, adsorption at liquid interfaces, ,	1	0	0	1
30	D+29	adsorption at solid interface.	1	0	0	1
31	D+30	Class test	0	1	0	1
32	D+31	Tutorial (Problem solving session/ class test)	1	0	0	0
		TOTAL	**8**	**2**	**0**	**10**
33	D+32	**Complexation and protein binding:** Introduction,	1	0	0	1
34	D+33	Classification of Complexation,	1	0	0	1
35	D+34	Applications, methods of analysis,	1	0	0	1
	D+35	protein binding	1	0	0	1
36	D+36	Tutorial (Problem solving session/ class test)	0	1	0	1
37	D+37	Complexation and drug action,	1	0	0	1
38	D+38	Complexation and drug action,……	1	0	0	1

39	D+39	and thermodynamic treatment of stability constants.	1	0	0	1
40	D+40	Class test	1	0	0	1
41	D+41	Tutorial (Problem solving session/ class test)	0	1	0	1
		TOTAL	**8**	**2**	**0**	**10**
		pH, buffers and Isotonic solutions:	1	0	0	1
42	D+42	Sorensen's pH scale, buffer capacity,	1	0	0	1
43	D+43	pH determination (electrometric and calorimetric),	1	0	0	1
44	D+44	applications of buffers,	1	0	0	1
45	D+45	Tutorial (Problem solving session/ class test)	0	1	0	1
46	D+46	buffer equation,	1	0	0	1
47	D+47	buffers in pharmaceutical and biological systems,	1	0	0	1
48	D+48	Buffer isotonic solutions.	1	0	0	1
49	D+49	Class test	1	0	0	1
50	D+50	Tutorial (Problem solving session/ class test)	0	1	0	1
		TOTAL	**8**	**2**	**0**	**10**

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Lesson Plan

Program- B.Pharm

Semester- III

Course -BP-306 P PHYSICAL PHARMACEUTICS -I

Session - 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	Determination the solubility of drug at room temperature	0	0	4	4
3	D+2	Determination of pKa value by Half Neutralization/ Henderson Hasselbalch equation.	0	0	4	4
4	D+3	Determination of Partition co- efficient of benzoic acid in benzene and water	0	0	4	4
5	D+4	Determination of Partition co- efficient of Iodine in CCl_4 and water.	0	0	4	4
6	D+5	Determination of % composition of NaCl in a solution using phenol-water system by CST method	0	0	4	4
7	D+6	Determination of surface tension of given liquids by	0	0	4	4

		drop count and drop weight Method				
8	D+7	Determination of HLB number of a surfactant by saponification method	0	0	4	4
9	D+8	Determination of Freundlich and Langmuir constants using activated char coal	0	0	4	4
10	D+9	Determination of critical micellar concentration of surfactants	0	0	4	4
11	D+10	Determination of stability constant and donor acceptor ratio of PABA-Caffeine complex by solubilitymethod	0	0	4	4
		TOTAL				**40**
12	D+11	Determination of stability constant and donor acceptor ratio of Cupric-Glycine complex by pH titration metho	0	0	4	4

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Lesson Plan

Program- **BACHELOR OF PHARMACY**
Semester- **III[rd] SEMESTER** **CourseCode- BP-303 T**
Course- **PHARMACEUTICAL MICROBIOLOGY** **Session-2020-21**

S. No.	Day	Subject	L	T	Total
1	D+1	Introduction, history of microbiology, its branches, scope and its importance	1	0	1
2	D+2	Introduction to Prokaryotes and Eukaryotes	1	0	1
3	D+3	Study of ultra-structure and morphological classification of bacteria	1	0	1
4	D+4	Discussion Session/ Revision/Class Test	0	1	1
5	D+5	Nutritional requirements, raw materials used for culture media	1	0	1
6	D+6	Physical parameters for growth, growth curve	1	0	1
7	D+7	Isolation and preservation methods for pure cultures	1	0	1
8	D+8	Discussion Session/ Revision/Class Test	0	1	1
9	D+9	Cultivation of anaerobes	1	0	1
10	D+10	Quantitative measurement of bacterial growth	1	0	1
11	D+11	Quantitative measurement of bacterial growth (total & viable count)	1	0	1
12	D+12	Discussion Session/ Revision/Class Test	0	1	1

13	D+13	Study of different types of phase constrast microscopy	1	0	1
14	D+14	Dark field microscopy and electron microscopy	1	0	1
15	D+15	Discussion Session/ Revision/Class Test	1	0	1
16		**TOTAL CLASS**	**12**	**3**	**15**
17	D+16	Discussion Session/ Revision/Class Test	0	1	1
18	D+17	Identification of bacteria using staining techniques (simple)	1	0	1
19	D+18	Gram′s &Acid fast staining	1	0	1
20	D+19	Biochemical tests (IMViC)	1	0	1
21	D+20	Discussion Session/ Revision/Class Test	0	1	1
22	D+21	Study of principle, procedure, merits, demerits	1	0	1
23	D+22	Applications of physical,chemical gaseous,radiation	1	0	1
24	D+23	Mechanical method of sterilization	1	0	1
25	D+24	Discussion Session/ Revision/Class Test	0	1	1
26	D+25	Evaluation of the efficiency of sterilization methods	1	0	1
27	D+26	Equipments employed in large scale sterilization	1	0	1
28	D+27	Equipments employed in large scale sterilization	1	0	1
29	D+28	Discussion Session/ Revision/Class Test	0	1	1
30	D+29	Sterility indicators	1	0	1
31		**TOTAL CLASS**	**10**	**4**	**14**
32	D+30	Study of morphology, classification, reproduction/replication of Fungi	1	0	1
33	D+31	Study of morphology, classification, reproduction/replication of Virus	1	0	1
34	D+32	Discussion Session/ Revision/Class Test	0	1	1
35	D+33	Classification and mode of action of disinfectants	1	0	1
36	D+34	Factors influencing disinfection , antiseptics	1	0	1
37	D+35	Evaluation for bacteriostatic and bactericidal actions	1	0	1

38	D+36	Discussion Session/ Revision/Class Test	0	1	1
39	D+37	Sterility testing of products (Solids)	1	0	1
40	D+38	Sterility testing of products (Liquids)	1	0	1
41	D+39	Sterility testing of products (ophthalmic)	1	0	1
42	D+40	Discussion Session/ Revision/Class Test	0	1	1
43	D+41	Sterility testing of products (others)	1	0	1
44	D+42	Cultivation of Fungi	1	0	1
45	D+43	Cultivation of Viruses	1	0	1
46	D+44	Discussion Session/ Revision/Class Test	0	1	1
47	D+45	Cultivation of Viruses	1	0	1
48		**TOTAL CLASS**	**12**	**4**	**16**
49	D+46	Designing of aseptic area	1	0	1
50	D+47	Laminar flow equipments	1	0	1
51	D+48	Discussion Session/ Revision/Class Test	0	1	1
52	D+49	Study of different sources of contamination in an aseptic area	1	0	1
53	D+50	Study of different sources of contamination in an aseptic area	1	0	1
54	D+51	Methods of prevention	1	0	1
55	D+52	Discussion Session/ Revision/Class Test	0	1	1
56	D+53	Clean area classification	1	0	1
57	D+54	Principles and methods of different microbiological assay	1	0	1
58	D+55	Methods for standardization of antibiotics, vitamins and amino acids	1	0	1
59	D+56	Discussion Session/ Revision/Class Test	0	1	1
60	D+57	Assessment of a new antibiotic	1	0	1
61		**TOTAL CLASS**	**9**	**3**	**12**
62	D+58	Type of spoilage	1	0	1

63	D+59	Factors affecting the microbial spoilage	1	0	1
64	D+60	Discussion Session/ Revision/Class Test	0	1	1
65	D+61	Sources and types of microbial contaminants	1	0	1
66	D+62	Preservation of pharmaceutical products using antimicrobial agents	1	0	1
67	D+63	Evaluation of microbial stability of formulations	1	0	1
68	D+64	Discussion Session/ Revision/Class Test	0	1	1
69	D+65	Growth of animal cells in culture	1	0	1
70	D+66	General procedure for cell culture	1	0	1
71	D+67	General procedure for Primary, established and transformed cell cultures	1	0	1
72	D+68	Discussion Session/ Revision/Class Test	0	1	1
73	D+69	Application of cell cultures in pharmaceutical industry and research	1	0	1
		TOTAL CLASS	**9**	**3**	**12**

Signature

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Lab Practical Lesson Plan

Program: Bachelor of Pharmacy

Semester: III[rd] Semester

Course: Pharmaceutical Microbiology

Course Code: BP-307 P

Session: 2020-2021

S no.	Day	Objective	Practical	Total
1.	D+1	Introduction and study of different equipments and processing, e.g., B.O.D. incubator, laminar flow	1	1
2.	D+2	Introduction and study of different equipments and processing, e.g., aseptic hood, autoclave	1	1
3.	D+3	Introduction and study of different equipments and processing, e.g., hot air sterilizer, deep freezer, refrigerator, microscopes used in experimental microbiology	1	1
4.	D+4	Sterilization of glassware, preparation and sterilization of media.	1	1
5.	D+5	Sub culturing of bacteria and fungus. Nutrient stabs and slants preparations	1	1
6.	D+6	Staining methods- Simple, Grams staining and acid fast staining (Demonstration with practical).	1	1
7.	D+7	Isolation of pure culture of micro-organisms by multiple streak plate technique and other techniques.	1	1
8.	D+8	Microbiological assay of antibiotics by cup plate method and other methods	1	1
9.	D+9	Motility determination by Hanging drop method.	1	1
10.	D+10	Motility determination by Hanging drop method.	1	1
11.	D+11	Sterility testing of pharmaceuticals	1	1
12.	D+12	Bacteriological analysis of water	1	1
13.	D+13	Biochemical test.	1	1
14.		Total	13	13

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Course Plan

Program- BACHELOR OF PHARMACY
Semester- III
Course-. PHARMACEUTICAL ENGINEERING
Course Code- BP 304 T
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
	D Day					
1	D+1	Flow of fluids: Types of manometers, Reynolds number and its significance,	1	0	0	1
2	D+2	Bernoulli's theorem and its applications, Energy losses, Orifice meter,	1	0	0	1
3	D+3	Venturimeter, Pitot tube and Rotometer.	1	0	0	1
4	D+4	Size Reduction: Objectives, Mechanisms & Laws governing size reduction	1	0	0	1
5	D+5	Factors affecting size reduction, principles, construction, working, uses, merits and demerits of Hammer mill,	1	1	0	1
6	D+6	Ball mill, fluid energy mill,	1	0	0	1
7	D+7	Edge runner mill & end runner mill.	1	0	0	1
8	D+8	Size Separation: Objectives, applications & mechanism of size separation, official standards of powders, sieves, size separation	1	0	0	1
9	D+9	Principles, construction, working, uses, merits and demerits of Sieve shaker, cyclone separator	1	0	0	1
10	D+10	Air separator, Bag filter & elutriation tank.	1	0	0	1
		TOTAL	**10**	**0**	**0**	**10**
11	D+11	Heat Transfer: Objectives, applications & Heat transfer mechanisms.	1	0	0	1

12	D+12	. Fourier's law, Heat transfer by conduction,	1	0	0	1
13	D+13	Convection & radiation. Heat interchangers & heat exchangers.	1	0	0	1
14	D+14	Evaporation: Objectives, applications and factors influencing evaporation, differences between evaporation and other heat process	1	0	0	1
15	D+15	Principles, construction, working, uses, merits and demerits of Steam jacketed kettle, ,	1	0	0	1
16	D+16	Horizontal tube evaporator, climbing film evaporator, forced circulation evaporator	1	0	0	1
17	D+17	Multiple effect evaporator& Economy of multiple effect evaporator.	1	0	0	1
18	D+18	Distillation: Basic Principles and methodology of simple distillation,	1	0	0	1
19	D+19	Flash distillation, fractional distillation	1	0	0	1
20	D+20	Distillation under reduced pressure, steam distillation & molecular distillation	1	0	0	1
		TOTAL	**10**	**0**	**0**	**10**
21	D+21	Drying: Objectives, applications & mechanism of drying process,	1	0	0	1
22	D+22	measurements & applications of Equilibrium Moisture content,	1	0	0	1
23	D+23	rate of drying curve. principles, construction, working, uses, merits and demerits of Tray dryer	1	0	0	1
24	D+24	drum dryer spray dryer, fluidized bed dryer, vacuum dryer, freeze dryer.	1	0	0	1
25	D+25	Mixing: Objectives, applications & factors affecting mixing, Difference between solid and liquid mixing, mechanism of solid mixing, liquids mixing and semisolids mixing.	1	0	0	1
26	D+26	Principles, Construction, Working, uses, Merits and Demerits of Double cone blender, twin shell blender	1	0	0	1
27	D+27	, ribbon blender, Sigma blade mixer, planetary mixers, Propellers,	1	0	0	1
28	D+28	Turbines, Paddles & Silverson Emulsifier,	1	0	0	1
		TOTAL	**08**	**0**	**0**	**08**
29	D+29	Filtration: Objectives, applications, Theories & Factors influencing filtration, filter aids, filter	1	0	0	1
30	D+30	Principle, Construction, Working, Uses, Merits and demerits of plate & frame filter, filter leaf,	1	0	0	1
31	D+31	Medias rotary drum filter, Meta filter & Cartridge filter,	1	0	0	1
32	D+32	Membrane filters and Seidtz filter	1	0	0	1
33	D+33	Centrifugation: Objectives, principle & applications of Centrifugation,	1	0	0	1

34	D+34	Principles, construction, working, uses, merits and demerits of Perforated basket centrifuge	1	0	0	1
35	D+35	Principles, construction, working, uses, merits and demerits of Non-perforated basket centrifuge,	1	0	0	1
36	D+36	Principles, construction, working, uses, merits and demerits of semi continuous centrifuge & super centrifuge.	1	0	0	1
		TOTAL	**08**	**0**	**0**	**08**
37	D+37	Materials of pharmaceutical plant construction,	1	0	0	1
38	D+38	Corrosion and its prevention:	1			
39	D+39	Factors affecting during materials selected for Pharmaceutical plant construction,..	1	0	0	1
40	D+40	Theories of corrosion, types of corrosion and there prevention	1	0	0	1
41	D+41	Ferrous and nonferrous metals,	1	0	0	1
42	D+42	Inorganic and organic non metals,	1	0	0	1
43	D+43	Basic of material handling systems	1	0	0	1
		TOTAL	**7**	**0**	**0**	**7**

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Course Plan

Program- BACHELOR OF PHARMACY
Semester- III
Course-. PHARMACEUTICAL ENGINEERING
Course Code- BP308P
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
	D Day					
1	D+1	To study the effect of time on the Rate of Crystallization	0	0	4	4
2	D+2	To calculate the efficiency of steam distillation	0	0	4	4
3	D+3	To determine the overall heat transfer coefficient by heat exchanger	0	0	4	4
4	D+4	Determination of moisture content and loss on drying	0	0	4	4
5	D+5	To evaluate size distribution of tablet granulations –	0	0	4	4
6	D+6	Determination of humidity of air – i) From wet and dry bulb temperatures –use of Dew point method.	0	0	4	4
7	D+7	Demonstration of colloid mil	0	0	4	4
8	D+8	To verify the laws of size reduction using ball mill	0	0	4	4
		TOTAL	0	0	32	32

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Course Plan

Program- BACHELOR OF PHARMACY
Semester- Vth
Course- PHARMACEUTICAL MEDICINAL CHEMISTRY-ll
Course Code- BP 501T
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
	D Day					
1	D+1	Antihistaminic agents: Histamine, receptors and distribution in the human body	1	0	0	1
2	D+2	H1- antagonists: Diphenhydramine hydrochloride,	1	0	0	1
3	D+3	dimenhydrinate, doxylamines cuccinate,	1	0	0	1
4	D+4	Problem Solving Session/ class test	0	1	0	1
5	D+5	celmastine fumarate, triprolidine hydrochloride	1	0	0	1
6	D+6	H2- antagonists: cimetidine, famotidine and Ranitidin	1	0	0	1
7	D+7	Gastric proton pump inhibitors: Omeprazole, lansoprazole, Rabeprazole	1	0	0	1
8	D+8	Problem Solving Session/ class test	0	1	0	1
9	D+9	Anti-neoplastic agents: Alkylating agents: meclorethamine, cyclophosphamide	1	0	0	1
10	D+10	melphalan, chloroambucil, Thiotepa	1	0	0	1
11	D +11	Antimetabolites: mercaptopurine, thioguanine, fluorouracil,	1	0	0	1
12	D+12	floxuridine methotrexate* Azathioprine	1	0	0	1
13	D+13	Problem Solving Session/ class test	0	1	0	1
14	D+14	Antibiotics: Dactinomycin, Daunorubicin, Doxorubicin	1	0	0	1
15	D+15	Plant products: Etoposide,vinblastin sulphate, vincristin sulphate	1	0	0	1
16	D+16	miscellaneous: Cisplatin Mitotane	1	0	0	1
17	D+17	Problem Solving Session/ class test	0	1	0	1
		TOTAL	13	04	0	17

18	D+18	Anti-anginal Vasodilator: amyl nitrite, nitroglycerin*, pentaerythritol tetranitrate,	1	0	0	1
19	D+19	isosorbide dinitrite* dipyridamole	1	0	0	1
20	D+20	Calcium channel blockers: verapamil, bepridil hydrochloride, Diltiazem hydrochloride, nifedipine,	1	0	0	1
21	D+21	Problem Solving Session/clss test	0	1	0	1
22	D+22	amlodipine, felodipine, nircardipine, nimodipine	1	0	0	1
23	D+23	Diuretics: Carbonic anhydrase inhibitor: acteazolamide*,	1	0	0	1
24	D+24	methazolamide Dichlorphenamide Thiazides: Chlorothiazide*,	1	0	0	1
25	D+25	Problem Solving Session/ class test	0	1	0	1
26	D+26	hydrochlorothiazide, hydroflumethiazide, cyclothiazide	1	0	0	1
27	D+27	loop diuretics: furosemide*, Bumetanide, Ethacryin acid.	1	0	0	1
28	D+28	Osmotic diuretics: Mannitol Potassium sparing Diuretics: spironolactone, triamterene, amiloride	1	0	0	1
29	D+29	Problem Solving Session/ class test	0	1	0	1
30	D+30	Anti-hypertensive agents: timolol, captropril, Lisinopril,enalapril,	1	0	0	1
31	D+31	benazepri hydrochloride Diazoxide,	1	0	0	1
32	D+32	Reserpine, hydralazine hydrochloride, minoxidil, sodium nitroprusside,	1	0	0	1
33	D+33	Problem Solving Session/ class test	0	1	0	1
		TOTAL	12	04	0	16
34	D+34	Anti-arrhythmic Drugs: structure of Quinidine sulphate, procainamide hydrochloride,	1	0	0	1
35	D+35	Disopyramide phosphate* phenytoin sodium, lidocaine hydrochloride, sotalol	1	0	0	1
36	D+36	Mexiletine hydrochloride, lorcainide hydrochloride, tocainide hydrochloride	1	0	0	1
37	D+37	Problem Solving Session/ class test	0	1	0	1
38	D+38	Anti-hyperlipidemic agents: clofibrate,lovastatin	1	0	0	1
39	D+39	Chloesteramine and chloestipol	1	0	0	1
40	D+40	Coagulant and Anticoagulants: Definition, mode of action and classification	1	0	0	1
41	D+41	Problem Solving Session/ class test	0	1	0	1
42	D+42	Menadione, acteomenadione, warfarin*Anisindione, clopidogrel	1	0	0	1
43	D+43	Drug acting in Congestive Heart Failure(CHF): Digoxin, Digitoxin	1	0	0	1
44	D+44	structure and uses of Tezosentan, Bosentan and Nesiritide	1	0	0	1
45	D+45	Problem Solving Session/ class test	0	1	0	1
		TOTAL	09	03	0	12

46	D+44	Drugs acting on Endrocrine system Nomenclature, stereochemistry and metabolism of steroids	1	0	0	1
47	D+45	sex hormones: testosterone, nandralone, progesterone, oestriol,	1	0	0	1
48	D+46	oestradiol, oestrione, diethyl stilbestrol	1	0	0	1
49	D+47	Drugs for erectile dysfunction: sildenafil, tadalafil	1	0	0	1
50	D+48	Problem sloving session/ class test	0	1	0	1
51	D+49	oral contraceptives: mifepristone, norgestril, levonorgestrol	1	0	0	1
52	D+50	Corticosteroids: cortisone, hydrocortisone, Prednisolone, betamethasone, dexamethasone	1	0	0	1
53	D+51	Thyroid and antithyroid drugs: L-thyroxine, L-thyronine, propylthiouracil, methimazole	1	0	0	1
54	D+52	Problem sloving session/ class test	0	1	0	1
		TOTAL	07	02	0	09
55	D+53	Antidiabetic agents: Insulin and its preparation	1	0	0	1
56	D+54	Sulfonyl ureas: Tolbutamide*, chlorpropamide, Glipizide, Glimepride Biguanides: Metformin	1	0	0	1
57	D+55	Thiazolidinediones: Pioglitazone,Rosiglitazone Glucosidase inhibitors: Acrabose,Voglibose	1	0	0	1
58	D+56	Problem Solving Session/ class test	0	1	0	1
59	D+57	Local Anesthetics: SAR of local anesthetics	1	0	0	1
60	D+58	Miscellaneous: phenacaine, Diperodon, Dibucaine	1	0	0	1
61	D+59	Lidocaine/ Anilide derivatives: lignocaine, mepivacaine,prilocaine, Etidocaine	1	0	0	1
62	D+60	Problem Solving Session/ class test	0	1	0	1
63	D+61	Benzoic Acid Derivatives: Cocaine, Hexylcaine, Meprylcaine, cyclomethycaine,piperocaine	1	0	0	1
		TOTAL	07	02	0	09

Signature

Faculty

School of pharmacy

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Lesson Plan

Program- B.Pharm

Semester- V

Course - BP- 502T INDUSTRIAL PHARMACY

Session - 2020-21

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	**Preformulation Studies:** Introduction to preformulation,	1	0	0	1
3	D+2	goals and objectives, study of physicochemical characteristics of drug substances.	1	0	0	1
4	D+3	***a. Physical properties:*** Physical form (crystal & amorphous), particle size,	1	0	0	1
5	D+4	shape, flow properties, solubility profile (pKa, pH, partition coefficient), polymorphism	1	0	0	1
6	D+5	Tutorial (Problem solving session/ class test)	0	1	0	1
7	D+6	Class test	1	0	0	1
8	D+7	***b. Chemical Properties:*** Hydrolysis, oxidation,	1	0	0	1

		reduction, racemisation, polymerization				
9	D+8	BCS classification of drugs & its significant	1	0	0	1
10	D+9	Application of preformulation considerations in the development of solid, liquid oral and parenteral dosage forms and its impact on stability of dosage forms.	1	0	0	1
11	D+10	Tutorial (Problem solving session/ class test)	0	1	0	1
		TOTAL	8	2		**10**
12	D+11	**Tablets:** a. Introduction, ideal characteristics of tablets, classification of tablets. Excipients, Formulation of tablets, granulation methods, compression and processing problems. Equipments and tablet tooling.	1	0	0	1
13	D+12	b. Tablet coating: Types of coating, coating materials, formulation of coating composition, methods of coating, equipment employed and defects in coating.	1	0	0	1
14	D+13	c. Quality control tests: In process and finished product tests	1	0	0	1
15	D+14	**Liquid orals:** Formulation and manufacturing consideration of syrups	1	0	0	1
16	D+15	Tutorial (Problem solving session/ class test)	0	1	0	1
17	D+16	and elixirs suspensions and emulsions;	1	0	0	1
18	D+17	Filling and packaging;	1			1
19	D+18	Tutorial (Problem solving session/ class test)	0	1	0	1
20	D+19	evaluation of liquid orals	1	0	0	1

		official in pharmacopoeia				
21	D+20	Tutorial (Problem solving session/ class test)	0	1	0	1
		TOTAL	**8**	**2**		**10**
22	D+21	**Capsules:** a. ***Hard gelatin capsules:*** Introduction, Production of hard gelatin capsule shells. Size of capsules, Filling, finishing	1	0	0	1
23	D+22	and special techniques of formulation of hard gelatin capsules, manufacturing defects	1	0	0	1
24	D+23	In process and final product quality control tests for capsules.	1	0	0	1
25	D+24	b. ***Soft gelatin capsules:*** Nature of shell and capsule content, size of capsules,importance of base adsorption and minim/gram factors,	1	0	0	1
26	D+25	Tutorial (Problem solving session/ class test)	0	1	0	1
27	D+26	production, in process and final product quality control tests.	1	0	0	1
28	D+27	Packing, storage and stability testing of soft gelatin capsules and their applications.	1	0	0	1
29	D+28	**Pellets:** Introduction, formulation requirements,	1	0	0	1
30	D+29	pelletization process, equipments for manufacture of pellets	0	1	0	1
31	D+30	Tutorial (Problem solving session/ class test)	1	0	0	1
		TOTAL	**8**	**2**	**0**	**10**

32	D+31	**Parenteral Products:** a. Definition, types, advantages and limitations. Preformulation factors and essential requirements,	1	0	0	1
33	D+32	vehicles, additives, importance of isotonicity	1	0	0	1
34	D+33	b. Production procedure, production facilities and controls, aseptic processing	1	0	0	1
35	D+34	c. Formulation of injections, sterile powders, large volume parenterals and lyophilized products.	1	0	0	1
	D+35	Tutorial (Problem solving session/ class test)	0	1	0	1
36	D+36	d. Containers and closures selection, filling and sealing of ampoules, vials and infusion fluids. Quality control tests of parenteral products.	1	0	0	1
37	D+37	**Ophthalmic Preparations:** Introduction, formulation considerations;	1	0	0	1
38	D+38	formulation of eye drops, eye ointments and eye lotions;	1	0	0	1
39	D+39	methods of preparation; labeling, containers; evaluation of ophthalmic preparations	1	0	0	1
40	D+40	Tutorial (Problem solving session/ class test)	0	1	0	1
		TOTAL	**8**	**2**	**0**	**10**
41	D+41	**Cosmetics:** Formulation and preparation of the following cosmetic preparations:	1	0	0	1
42	D+42	lipsticks, shampoos, cold cream and vanishing cream,	1	0	0	1
43	D+43	tooth pastes, hair dyes and sunscreens.	1	0	0	1
44	D+44	**Pharmaceutical Aerosols:** Definition, propellants, containers, valves, types of aerosol system	1	0	0	1

45	D+45	Tutorial (Problem solving session/ class test)	0	1	0	1
46	D+46	formulation and manufacture of aerosols; Evaluation of aerosols; Quality control and stability studies.	1	0	0	1
47	D+47	**Packaging Materials Science:** Materials used for packaging of pharmaceutical products,	1	0	0	1
48	D+48	factors influencing choice of containers, legal and official requirements for containers,	1	0	0	1
49	D+49	stability aspects of packaging materials, quality control tests.	1	0	0	1
50	D+50	Tutorial (Problem solving session/ class test)	0	1	0	1
		TOTAL	**8**	**2**	**0**	**10**

Signature of faculty

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Course Plan

Program- BACHELOR OF PHARMACY
Semester- Vth
Course name- . PHARMACOLOGY-II
Course Code- BP 503T
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	Introduction to hemodynamic and electrophysiology of heart	1	0	0	1
3	D+2	Introduction to hemodynamic and electrophysiology of heart	1	0	0	1
4	D+3	Drugs used in congestive heart failure	1	0	0	1
5	D+4	Anti-hypertensive drugs. Anti-arrhythmic drug	1	0	0	1
6	D+5	Problem Solving Session/ class test	0	1	0	1
7	D+6	Anti-anginal drugs and Anti-hyperlipidemic drugs	1	0	0	1
8	D+7	Drug used in the therapy of shock	1	0	0	1
9	D+8	Hematinics, coagulants and anticoagulants. Fibrinolytics and anti-platelet drugs	1	0	0	1
10	D+9	Hematinics, coagulants and anticoagulants Fibrinolytics and anti-platelet drugs	1	0	0	1

11	D+10	Problem Solving Session/ class test	0	1	0	1
		TOTAL	08	2	0	10
12	D+11	Plasma volume expanders	1	0	0	1
13	D+12	Diuretics and Anti-diuretics.	1	0	0	1
14	D+13	Introduction to autacoids and classification	1	0	0	1
15	D+14	Histamine, 5-HT and their antagonists. Prostaglandins, Thromboxanes and Leukotrienes	1	0	0	1
16	D+15	Problem Solving Session/ class test	0	1	0	1
17	D+16	Histamine, 5-HT and their antagonists. Prostaglandins, Thromboxanes and Leukotrienes	1	0	0	1
18	D+17	Prostaglandins, Thromboxanes and Leukotrienes	1	0	0	1
19	D+18	Angiotensin, Bradykinin and Substance P	1	0	0	1
20	D+19	Non-steroidal anti-inflammatory agents	1	0	0	1
21	D+20	Problem Solving Session/ class test	0	1	0	1
		TOTAL	08	2	0	10
22	D+21	Anti-gout drugs and Antirheumatic drugs	1	0	0	1
23	D+22	Basic concepts in endocrine pharmacology	1	0	0	1
24	D+23	Anterior Pituitary hormones- analogues and their inhibitors	1	0	0	1
25	D+24	Thyroid hormones- analogues and their inhibitors.	1	0	0	1
26	D+25	Problem Solving Session/ class test	0	1	0	1
27	D+26	Hormones regulating plasma calcium level- Parathormone, Calcitonin and Vitamin-D.	1	0	0	1
28	D+27	Insulin, Oral Hypoglycemic agents and glucagon	1	0	0	1
29	D+28	ACTH and corticosteroids.	1	0	0	1
30	D+29	ACTH and corticosteroids.	1	0	0	1
31	D+30	Problem Solving Session/ class test	0	1	0	1

		TOTAL	08	2	0	10
32	D+31P	Androgens and Anabolic steroids	1	0	0	1
33	D+32	Androgens and Anabolic steroids	1	0	0	1
34	D+33D	Estrogens, progesterone and oral contraceptives	1	0	0	1
35	D+34	Problem sloving session/ class test	0	1	0	1
36	D+35	Estrogens, progesterone and oral contraceptives	1	0	0	1
37	D+36	Drugs acting on the uterus	1	0	0	1
	D+37	Drugs acting on the uterus	1	0	0	1
38	D+38	Problem sloving session/ class test	0	1	0	1
39		TOTAL	06	02	0	08
40	D+39	Principles and applications of bioassay	1	0	0	1
41	D+40	Types of bioassays and bioassay of insulin	1	0	0	1
42	D+41	oxytocin, vasopressin	1	0	0	1
43	D+42	Problem Solving Session/ class test	0	1	0	1
44	D+43	ACTH,d-tubocurarine,digitalis	1	0	0	1
45	D+44	histamine and 5-HT	1	0	0	1
46	D+45	Problem Solving session / class test	0	1	0	1
		TOTAL	05	2	0	7

Signature of faculty

Mrs. Anjali singh

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Course Plan

Program- BACHELOR OF PHARMACY
Semester- Vth
Course name- . PHARMACOLOGY-II (Practical)
Course Code- BP 507P
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	Introduction to *in-vitro* pharmacology and physiological salt solutions	0	0	4	4
3	D+2	Effect of drugs on isolated frog heart	0	0	4	4
4	D+3	Effect of drugs on blood pressure and heart rate of dog	0	0	4	4
5	D+4	Study of diuretic activity of drugs using rats/mice	0	0	4	4
6	D+5	DRC of acetylcholine using frog rectus abdominis muscle	0	0	4	4
7	D+6	Effect of physostigmine and atropine on DRC of acetylcholine using frog rectus abdominis muscle and rat ileum respectively	0	0	4	4
8	D+7	Bioassay of histamine using guinea pig ileum by matching method	0	0	4	4

9	D+8	Bioassay of oxytocin using rat uterine horn by interpolation method	0	0	4	4
14	D+9	Bioassay of serotonin using rat fundus strip by three point bioassay	0	0	4	4
11	D+10	Bioassay of acetylcholine using rat ileum/colon by four point bioassay	0	0	4	4
12	D+11	Determination of PA_2 value of prazosin using rat anococcygeus muscle (by Schilds plot method)	0	0	4	4
13	D+12	Determination of PD_2 value using guinea pig ileum	0	0	4	4
14	D+13	Effect of spasmogens and spasmolytics using rabbit jejunum.	0	0	4	4
15	D+14	Anti-inflammatory activity of drugs using carrageenan induced paw-edema model	0	0	4	4
16	D+15	Analgesic activity of drug using central and peripheral methods	0	0	4	4
		TOTAL	0	0	60	60

Signature of faculty

Mrs. Anjali singh

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LESSON PLAN

PROGRAM- B-Pharm

YEAR : IIISEMESTER :V

SUBJECT:PHARMACOGNOSY AND PHYTOCHEMISTRY IISUB CODE: BP-504T

SESSION - 2020-21

S. No.	Day	Topic	L	T	P	Total
1.	D+1	**Metabolic pathways in higher plants and their determination** a) Brief study of basic metabolic pathways	1	0	0	1
2.	D+2	Formation of different secondary metabolites through –Shikimic acid pathway	1	0	0	1
3.	D+3	Acetate pathways	1	0	0	1
4.	D+4	Amino acid pathway.	1	0	0	1
5.	D+5	Revision/ class test	0	1	0	1
6.	D+6	Study of utilization of radioactive isotopes in the investigation of Biogenetic studies.	1	0	0	1

7.	D+7	Study of utilization of radioactive isotopes in the investigation of Biogenetic studies.	1	0	0	1
8.	**D+8**	Study of utilization of radioactive isotopes in the investigation of Biogenetic studies.	1	0	0	1
9.		TOTAL	7	1	0	8
10.	D+9	General introduction, composition of Alkaloids	1	0	0	1
11.	D+10	General introduction, composition of Phenylpropanoids and flavanoids	1	0	0	1
12.	D+11	General introduction-steroids, cardiac glycosides	1	0	0	1
13.	D+12	General introduction- triterpenoids, volatile oil	1	0	0	1
14.	D+13	General Introduction-Tannins, Resins.	1	0	0	1
15.	D+14	General Introduction- Glycosides, iridoids and napthaquinones	1	0	0	1
16.	D+15	Revision/ class test	0	1	0	1
17.	D+16	**Alkaloids:** Vinca, Rauwolfia	1	0	0	1
18.	D+17	**Alkaloids:** Belladona. Opium	1	0	0	1
19.	D+18	**Phenylpropanoids and Flavonoids:** Lignans, Tea, Ruta	1	0	0	1
20.	D+19	Revision/ class test	0	1	0	1
21.	D+20	**Steroids, Cardiac Glycosides &Triterpenoids**: Liquorice, Dioscorea, Digitalis	1	0	0	1
22.	D+21	**Volatile oils**: Mentha, Clove, Cinnamon	1	0	0	1
23.	D+22	**Volatile oil:** Fennel, Coriander	1	0	0	1
24.	D+23	**Tannins:** Catechu, Pterocarpus	1	0	0	1
25.	D+24	**Resins:** Benzoin, Guggul	1	0	0	1
26.	D+25	**Resins:** Ginger, Asafoetida	1	0	0	1
27.	D+26	**Resins:** Myrrh, Colophony	1	0	0	1
28.	D+27	**Glycosides:** Senna, Aloes, Bitter Almond	1	0	0	1
29.	D+28	**Iridoids, Other terpenoids&Naphthaquinones:** Gentian, Artemisia,	1	0	0	1
30.	D+29	Taxus, Carotenoids	1	0	0	1
31.	D+30	Revision/ class test	0	1	0	1

32.		TOTAL	19	3	0	22
33.	D+26	Isolation, Identification and Analysis of Phytoconstituents-Menthol	1	0	0	1
34.	D+27	Isolation, Identification and Analysis of Phytoconstituents- Terpenoids	1	0	0	1
35.	D+28	Isolation, Identification and Analysis of Phytoconstituents-Citral, Artemisin	1	0	0	1
36.	D+29	Isolation, Identification and Analysis of Phytoconstituents- Glycosides: Glycyrhetinic acid	1	0	0	1
37.	D+30	Isolation, Identification and Analysis of Phytoconstituents- Glycosides: Rutin	1	0	0	1
38.	D+31	Revision/ class test	0	1	0	1
39.		**TOTAL**	**5**	**1**		6
40.	D+32	Isolation, Identification and Analysis of Phytoconstituents-Alkaloids: Atropine	1	0	0	1
41.	D+33	Isolation, Identification and Analysis of Phytoconstituents-Alkaloids: Quinine,	1	0	0	1
42.	D+34	Isolation, Identification and Analysis of Phytoconstituents-Alkaloids: Reserpine	1	0	0	1
43.	D+35	Isolation, Identification and Analysis of Phytoconstituents-Alkaloids: Caffeine	1	0	0	1
44.	D+36	Isolation, Identification and Analysis of Phytoconstituents- Resins: Podophyllotoxin	1	0	0	1
45.	D+37	Isolation, Identification and Analysis of Phytoconstituents- Resins: Curcumin	1	0	0	1
46.	D+38	Revision/ class test	0	1	0	1
47.		TOTAL	6	1	0	7
48.	D+39	Industrial production, estimation and utilization of Forskolin	1	0	0	1
49.	D+40	Industrial production, estimation and utilization of Sennosides	1	0	0	1
50.	D+41	Industrial production, estimation and utilization of Artemisinin,	1	0	0	1
51.	D+42	Industrial production, estimation and utilization of Diosgenin	1	0	0	1
52.	D+43	Industrial production, estimation and utilization of Digoxin, Atropine	1	0	0	1
53.	D+44	Industrial production, estimation and utilization of Podophyllotoxin, Caffeine,	1	0	0	1
54.	D+45	Industrial production, estimation and utilization of Taxol	1	0	0	1

55.	D+46	Industrial production, estimation and utilization of Vincristine and Vinblastine	1	0	0	1
56.	D+47	Revision/ class test	0	1	0	1
57.		TOTAL	8	1	0	9
58.	D+48	**Basics of Phytochemistry**	1	0	0	1
59.	D+49	Modern methods of extraction	1	0	0	1
60.	D+50	Modern methods of extraction	1	0	0	1
61.	D+51	application of latest techniques like Spectroscopy in the isolation, purification and identification of crude drugs.	1	0	0	1
62.	D+52	application of latest techniques like Chromatography in the isolation, purification and identification of crude drugs.	1	0	0	1
63.	D+53	Revision/ class test	0	1	0	1
64.	D+54	application of latest techniques like Electrophoresis in the isolation, purification and identification of crude drugs. and identification of crude drugs.	1	0	0	1
		TOTAL	06	01		07

Signature of faculty

Dr. AjitKiran Kaur

School of Pharmacy

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Lesson Plan

PROGRAM- B-Pharm

YEAR- IIISEMESTER - V

SUBJECT:PHARMACOGNOSY AND PHYTOCHEMISTRY IISUB CODE: BP-508 P

SESSION - 2020-21

S. No.	Day	PRACTICAL	L	T	P	Total
1	D Day	Morphology, histology and powder characteristics & extraction & detection of: Cinchona, Cinnamon,	0	0	4	4
2	D+1	Senna, Clove, Ephedra, Fennel and Coriander	0	0	4	4
3	D+2	Exercise involving isolation & detection of active principles a. Caffeine - from tea dust.	0	0	4	4
4	D+3	b. Diosgenin from Dioscorea c. Atropine from Belladonna	0	0	4	4
5	D+4	d. Sennosides from Senna	0	0	4	4
6	D+5	Separation of sugars by Paper chromatography	0	0	4	4

7	D+6	Separation of sugars by Paper chromatography	0	0	4	4
8	D+7	TLC of herbal extract	0	0	4	4
9	D+8	TLC of herbal extract	0	0	4	4
10	D+9	Distillation of volatile oils and detection of phytoconstitutents by TLC	0	0	4	4
11	D+10	Distillation of volatile oils and detection of phytoconstitutents by TLC	0	0	4	4
		TOTAL				**44**
12	D+11	Analysis of crude drugs by chemical tests: (i) Asafoetida	0	0	4	**4**
13	D+12	(ii) Benzoin (iii)Colophony	0	0	4	4
14	D+13	(iv) Aloes (v) Myrrh	0	0	4	4
		TOTAL				**12**

Signature of faculty

Dr. AjitKiran Kaur

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Lesson Plan

Program- **BACHELOR OF PHARMACY**
Semester- **Vth SEMESTER**
Course- **Pharmaceutical Jurisprudence**
Course Code- **BP-505 T**
Session- **2020-21**

S. No.	Day	Subject	L	T	Total
1	D+1	**Drugs and Cosmetics Act, 1940 and its rules 1945:**	1	0	1
2	D+2	Objectives, Definitions,	1	0	1
3	D+3	Legal definitions of schedules to the Act and Rules	1	0	1
4	D+4	Discussion Session/ Revision/Class Test	0	1	1
5	D+5	Import of drugs – Classes of drugs and cosmetics prohibited from import	1	0	1
6	D+6	Import under license or permit.	1	0	1
7	D+7	Offences and penalties**.**	1	0	1
8	D+8	Discussion Session/ Revision/Class Test	0	1	1
9	D+9	Manufacture of drugs – Prohibition of manufacture and sale of certain drugs	1	0	1
10	D+10	Conditions for grant of license and conditions of license for manufacture of drugs	1	0	1
11	D+11	Manufacture of drugs for test,	1	0	1
12	D+12	Discussion Session/ Revision/Class Test	0	1	1

13	D+13	examination and analysis	1	0	1
14	D+14	manufacture of new drug	1	0	1
15	D+15	Loan license and repacking license.	1	0	1
16		**TOTAL CLASS**	**12**	**3**	**15**
17	D+16	Discussion Session/ Revision/Class Test	0	1	1
18	D+17	Detailed study of Schedule G, H, M, N, P,T, U, V, X, Detailed study of Schedule Y, Part XII B, Sch F & DMR (OA)	1	0	1
19	D+18	Sale of Drugs – Wholesale	1	0	1
20	D+19	Retail sale and Restricted license, Offences and penalties	1	0	1
21	D+20	Discussion Session/ Revision/Class Test	0	1	1
22	D+21	Labeling & Packing of drugs- General labeling requirements and specimen labels for drugs and cosmetics	1	0	1
23	D+22	List of permitted colors. Offences and penalties.	1	0	1
24	D+23	Administration of the Act and Rules – Drugs Technical Advisory Board	1	0	1
25	D+24	Discussion Session/ Revision/Class Test	0	1	1
26	D+25	Central drugs Laboratory, Drugs Consultative Committee,	1	0	1
27	D+26	Government drug analysts	1	0	1
28	D+27	Licensing authorities	1	0	1
29	D+28	Discussion Session/ Revision/Class Test	0	1	1
30	D+29	controlling authorities, Drugs Inspectors	1	0	1
31		**TOTAL CLASS**	10	4	14
32	D+30	**Pharmacy Act –1948**: Objectives, Definitions	1	0	1
33	D+31	Pharmacy Council of India; its constitution and functions	1	0	1
34	D+32	Discussion Session/ Revision/Class Test	0	1	1
35	D+33	Education Regulations	1	0	1

36	D+34	State and Joint state pharmacy councils; constitution and functions	1	0	1
37	D+35	Registration of Pharmacists, Offences and Penalties	1	0	1
38	D+36	Discussion Session/ Revision/Class Test	0	1	1
39	D+37	**Medicinal and Toilet Preparation Act –1955**: Objectives, Definitions, Licensing,	1	0	1
40	D+38	Manufacture In bond and Outside bond, Export of alcoholic preparations,	1	0	1
41	D+39	Manufacture of Ayurvedic, Homeopathic, Patent & Proprietary Preparations. Offences and Penalties.	1	0	1
42	D+40	Discussion Session/ Revision/Class Test	0	1	1
43	D+41	**Narcotic Drugs and Psychotropic substances Act-1985 and Rules**: Objectives, Definitions, Authorities and Officers	1	0	1
44	D+42	Constitution and Functions of narcotic & Psychotropic Consultative Committee	1	0	1
45	D+43	National Fund for Controlling the Drug Abuse, Prohibition, Control and Regulation	1	0	1
46	D+44	Discussion Session/ Revision/Class Test	0	1	1
47	D+45	opium poppy cultivation and production of poppy straw, manufacture	1	0	1
48	D+46	sale and export of opium, Offences and Penalties	1	0	1
49		**TOTAL CLASS**	**13**	**4**	**17**
50	D+47	**Study of Salient Features of Drugs and Magic Remedies Act and its rules:** Objectives, Definitions	1	0	1
51	D+48	Prohibition of certain advertisements	1	0	1
52	D+49	Discussion Session/ Revision/Class Test	0	1	1
53	D+50	Classes of Exempted advertisements, Offences and Penalties	1	0	1
54	D+51	**Prevention of Cruelty to animals Act-1960:** Objectives, Definitions, Institutional Animal Ethics Committee	1	0	1
55	D+52	CPCSEA guidelines for Breeding and Stocking of Animals, Performance of Experiments	1	0	1
56	D+53	Discussion Session/ Revision/Class Test	0	1	1
57	D+54	Transfer and acquisition of animals for experiment, Records, Power to suspend or revoke registration, Offences and Penalties	1	0	1
58	D+55	**National Pharmaceutical Pricing Authority:** Drugs Price Control Order (DPCO)- 2013. Objectives, Definitions, Sale prices of bulk drugs	1	0	1

59	D+56	Retail price of formulations, Retail price and ceiling price of scheduled formulations	1	0	1
60	D+57	Discussion Session/ Revision/Class Test	0	1	1
61		National List of Essential Medicines (NLEM)	1	0	1
62	D+58	**TOTAL CLASS**	**9**	**3**	**12**
63	D+59	**Pharmaceutical Legislations –** A brief review, Introduction	1	0	1
64	D+60	Study of drugs enquiry committee, Health survey and development committee	1	0	1
65	D+61	Discussion Session/ Revision/Class Test	0	1	1
66	D+62	Hathi committee and Mudaliar committee	1	0	1
67	D+63	**Code of Pharmaceutical ethics** D efinition, Pharmacist in relation to his job	1	0	1
68	D+64	trade, medical profession and his profession	1	0	1
69	D+65	Discussion Session/ Revision/Class Test	0	1	1
70	D+66	Pharmacist's oath	1	0	1
71	D+67	**Medical Termination of Pregnancy Act**	1	0	1
72	D+68	**Right to Information Act**	1	0	1
73	D+69	Discussion Session/ Revision/Class Test	0	1	1
74	D+70	**Introduction to Intellectual Property Rights (IPR)**	1	0	1
		TOTAL CLASS	**9**	**3**	**12**

Signature

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Lesson Plan

Program: Bachelor of Pharmacy **Semester: VII Semester**
Course: Instrumental Methods of Analysis **Course Code: BP-701 T**
Session: 2020-2021

S no.	Day	Subject	Lecture	Tutorial	Total
1.	D+1	UV Visible spectroscopy: Electronic transitions	1	0	1
2.	D+2	Chromophores & Auxochromes	1	0	1
3.	D+3	Spectral shifts and solvent effect on absorption spectra	1	0	1
4.	D+4	Discussion Session/ Revision/Class Test	0	1	1
5.	D+5	Beer and Lambert's law Derivation and deviations	1	0	1
6.	D+6	Instrumentation: Sources of radiation, wavelength selectors and sample cells	1	0	1
7.	D+7	Detectors : Photo tube, Photomultiplier tube, Photo voltaic cell, Silicon Photodiode	1	0	1
8.	D+8	Discussion Session/ Revision/Class Test	0	1	1
9.	D+9	Applications : Spectrophotometric titrations (Single component and multi component Analysis)	1	0	1
10.	D+10	Fluorimetry: Theory, Concepts of singlet, doublet and triplet electronic states	1	0	1
11.	D+11	Internal and external conversions,	1	0	1
12.	D+12	Discussion Session/ Revision/Class Test	0	1	1
13.	D+13	Factors affecting fluorescence and Quenching	1	0	1
14.	D+14	Instrumentation and applications	1	0	1
15.		Total	11	3	14
16.	D+15	**IR spectroscopy:** Introduction and fundamental modes of vibrations in poly atomic molecules	1	0	1
17.	D+16	Discussion Session/ Revision/Class Test	0	1	1
18.	D+17	Sample handling and factors affecting vibrations	1	0	1
19.	D+18	Instrumentation : Sources of radiation and wavelength selectors	1	0	1

20.	D+19	Detectors : Golay cell, Bolometer, Thermocouple, Thermister, Pyroelectric detector and applications	1	0	1
21.	D+20	Discussion Session/ Revision/Class Test	0	1	1
22.	D+21	Flame Photometry: Principle and interferences	1	0	1
23.	D+22	Instrumentation and applications	1	0	1
24.	D+23	Atomic absorption spectroscopy: Principle and interferences	1	0	1
25.	D+24	Discussion Session/ Revision/Class Test	0	1	1
26.	D+25	Instrumentation and applications	1	0	1
27.	D+26	Nepheloturbidometry: Principle and instrumentation	1	0	1
28.	D+27	Instrumentation and applications	1	0	1
29.	D+28	Discussion Session/ Revision/Class Test	0	1	1
30.		Total	10	4	14
31.	D+29	**Adsorption and partition column chromatography:** Methodology	1	0	1
32.	D+30	Advantages, disadvantages and applications	1	0	1
33.	D+31	**Thin layer chromatography:** Introduction, Principle and Methodology	1	0	1
34.	D+32	Discussion Session/ Revision/Class Test	0	1	1
35.	D+33	Rf values, advantages, disadvantages and applications	1	0	1
36.	D+34	**Paper chromatography-**Introduction and methodology	1	0	1
37.	D+35	Development techniques,	1	0	1
38.	D+36	Discussion Session/ Revision/Class Test	0	1	1
39.	D+37	Advantages, disadvantages and applications	1	0	1
40.	D+38	**Electrophoresis**: Introduction and factors affecting electrophoretic mobility	1	0	1
41.	D+39	Techniques of paper and gel **electrophoresis**	1	0	1
42.	D+40	Discussion Session/ Revision/Class Test	0	1	1
43.	D+41	Techniques of capillary electrophoresis and applications	1	0	1
44.		Total	10	3	13
45.	D+42	**Gas chromatography:** Introduction and theory	1	0	1
46.	D+43	Instrumentation	1	0	1
47.	D+44	Discussion Session/ Revision/Class Test	0	1	1
48.	D+45	Derivatization	1	0	1
49.	D+46	Temperature programming	1	0	1
50.	D+47	Advantages, disadvantages and applications	1	0	1
51.	D+48	Discussion Session/ Revision/Class Test	0	1	1
52.	D+49	**HPLC:** Introduction and theory	1	0	1
53.	D+50	Instrumentation	1	0	1
54.	D+51	Advantages and applications	1	0	1

55.	D+52	Discussion Session/ Revision/Class Test	0	1	1
56.		Total	8	3	11
57.	D+53	**Ion exchange chromatography-** Introduction and classification	1	0	1
58.	D+54	Ion exchange resins and its properties	1	0	1
59.	D+55	Mechanism of ion exchange process	1	0	1
60.	D+56	Discussion Session/ Revision/Class Test	0	1	1
61.	D+57	Factors affecting ion exchange	1	0	1
62.	D+58	Methodology and applications	1	0	1
63.	D+59	**Gel chromatography:** Introduction and theory	1	0	1
64.	D+60	Discussion Session/ Revision/Class Test	0	1	1
65.	D+61	Instrumentation and applications	1	0	1
66.	D+62	**Affinity chromatography:** Introduction and theory	1	0	1
67.	D+63	Instrumentation and applications	1	0	1
68.		Total	9	2	11

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Lab Practical Lesson Plan

Program: Bachelor of Pharmacy **Semester: VII Semester**
Course: Instrumental Methods of Analysis **Course Code: BP-705 P**
Session: 2020-2021

S no.	Day	Objective	Practical	Total
1.	D+1	Determination of absorption maxima of organic compounds	1	1
2.	D+2	Determination of effect of solvents on absorption maxima of organic compounds	1	1
3.	D+3	Estimation of dextrose by colorimetry	1	1
4.	D+4	Estimation of sulfanilamide by colorimetry	1	1
5.	D+5	Simultaneous estimation of ibuprofen and paracetamol by UV spectroscopy	1	1
6.	D+6	Assay of paracetamol by UV- Spectrophotometry	1	1
7.	D+7	Estimation of quinine sulfate by fluorimetry	1	1
8.	D+8	Study of quenching of fluorescence	1	1
9.	D+9	Determination of sodium by flame photometry	1	1
10.	D+10	Determination of potassium by flame photometry	1	1
11.	D+11	Determination of chlorides and sulphates by nephelo turbidometry	1	1
12.	D+12	Separation of amino acids by paper chromatography	1	1
13.	D+13	Separation of sugars by thin layer chromatography	1	1
14.	D+14	Separation of plant pigments by column chromatography	1	1
15.	D+15	Demonstration experiment on HPLC	1	1
16.	D+16	Demonstration experiment on Gas Chromatography	1	1
17.		Total	16	16

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Course Plan

Program- BACHELOR OF PHARMACY
Semester- VIIth
Course- PHARMACY PRACTICE
Course Code- BP 703T
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	Definition and classification of hospital Primary, secondary and tertiary hospital.	1	0	0	1
3	D+2	Classification based on clinical and non- clinical basis	1	0	0	1
4	D+3	Structure and function of hospital and medical staff	1	0	0	1
5	D+4	Problem Solving Session/ class test	0	1	0	1
6	D+5	Hospital pharmacy:- definition, organization structure and responsibilities & functions of hospital pharmacy	1	0	0	1
7	D+6	**Adverse drug reaction** classification and pharmacological effects and secondary pharmacological effect, allergic drug reactions	1	0	0	1
8	D+7	Genetically determined toxicity and toxicity withdraw of drug and Drug Interaction-	1	0	0	1
9	D+8	Problem Solving Session/ class test	0	1	0	1
10	D+9	beneficial and adverse interactions and pharmacokinetics of Drug interactions and methods or determine and adverse reactions reporting & management	1	0	0	1
11	D+10	**Community pharmacy**:- classification and structure related to retail and wholesale drug store	1	0	0	1
12	D+11	Legal requirements of establishment and maintenance of a drug store.	1	0	0	1
13	D+12	Problem Solving Session/ class test	0	1	0	1
14	D+13	dispensing of proprietary products and maintenance of record of retail and wholesale in drug store	1	0	0	1

		TOTAL	10	3	0	13
15	D+14	**Drug distribution system in hospital:-** types of drug distributions, dispensing of drug to inpatients	1	0	0	1
16	D+15	Dispensing of drug to ambulatory patients and controlled drugs.	1	0	0	1
17	D+16	**Hospital formulary:-** definition, content &, differentiation of hospital formulary and drug list	1	0	0	1
18	D+17	Problem solving session/ class test	0	1	0	1
19	D+18	Preparation & Revision, addition and deletion of drug from hospital formulary	1	0	0	1
20	D+19	**Patient medication history interview:-** need for PMHI and medication interview forms	1	0	0	1
21	D+20	**Therapeutic drug monitoring:-** need of TDM	1	0	0	1
22	D+21	Problem Solving Session/ class test	0	1	0	1
23	D+22	Factor considered during TDM and India scenario for therapeutic drug monitoring.	1	0	0	1
24	D+23	**Community pharmacy management:-** financial, materials, staff and infrastructure requirements	1	0	0	1
25	D+24	**Medication adherence:-** causes of medication non-adherence &, monitoring of patient medication adherence	1	0	0	1
26	D+25	Role of pharmacist in medication adherence	1	0	0	1
27	D+26	Problem Solving Session/ class test	0	1	0	1
		TOTAL	10	3	0	13
28	D+27	**Pharmacy and therapeutic committee: -** organization, functions and policies of P&T committee including in drug into formulary continue…	1	0	0	1
29	D+28	**Pharmacy and therapeutic committee:-** organization, functions and policies of P&T committee including in drug into formulary	1	0	0	1
30	D+29	In patient and outpatient prescription, automatic stop order, and emergency drug list preparation.	1	0	0	1
31	D+30	Problem Solving Session/ class test	0	1	0	1
32	D+31	**Informative services:-** drug and poison information centre,	1	0	0	1
33	D+32	Source of drug information, computerised services and storage & retrieval of information	1	0	0	1
34	D+33	**Counseling:-** patient counseling and step involved in it and special cases that require the pharmacist	1	0	0	1
35	D+34	Problem Solving Session/ class test	0	1	0	1
36	D+35	**Education & Training program in a hospital:-** role of pharmacist in E &T program	1	0	0	1
37	D+36	Internal and external training program, service to the nursing homes/clinics	1	0	0	1
38	D+37	Codes of ethics for community pharmacy & role of pharmacist in interdepartmental communication and community health education	1	0	0	1
39	D+38	Problem Solving Session/ class test	0	1	0	1

40	D+39	Prescribed medication order:- interpretation and legal requirements	1	0	0	1
41	D+40	Communication skills:- communication with prescribers and patients	1	0	0	1
		TOTAL	11	3	0	14
42	D+41	**Preparation & implementation:-** Budget preparation & implementation	1	0	0	1
43	D+42	**Over the counter OTC sales:-** introduction and sale of OTC	1	0	0	1
44	D+43	Rational use of common over the counter medication	1	0	0	1
45	D+44	Problem solving session/ class test	0	1	0	1
46	D+45	**Clinical pharmacy:-** introduction & concept, functions and responsibilities of clinical pharmacy	1	0	0	1
47	D+46	Role of clinical pharmacist	1	0	0	1
48	D+47	Drug therapy monitoring:- medication chart review, clinical review	1	0	0	1
49	D+48	Problem solving session/ class test	0	1	0	1
50	D+49	Pharmacist invention & medication history and pharmaceutical care	1	0	0	1
51	D+50	Dosing pattern and drug therapy based on pharmacokinetics and disease pattern	1	0	0	1
52	D+51	Problem solving session/ class test	0	1	0	1
		TOTAL	08	03	0	11
53	D+52	Interpretation of clinical laboratory tests:- blood chemistry, hematology and urinalysis	1	0	0	1
54	D+53	**Investigational uses of drugs:-** description, classification, principles involved, control and identification continue…	1	0	0	1
55	D+54	**Investigational uses of drugs:-** description, classification, principles involved, control and identification	1	0	0	1
56	D+55	Problem solving session/ class test	0	1	0	1
57	D+56	Role of hospital pharmacy and advisory committee	1	0	0	1
58	D+57	**Drug store management and inventory control:-** organization of drug store,	1	0	0	1
59	D+58	Types of materials stocks and storage conditions & methods use for the analysis of drug expenditure	1	0	0	1
60	D+59	Purchase and inventory control:- principles, purchase order	1	0	0	1
61	D+60	Procedure, procurement and stocking, economic order quantity, reorder quantity level	1	0	0	1
62	D+61	Problem Solving session / class test	0	1	0	1
		TOTAL	08	2	0	10

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Course Plan

Program- BACHELOR OF PHARMACY
Semester- VIIth
Course name- . Novel drug delivery system
Course Code- BP 704T
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	**Controlled drug delivery systems**: Introduction, terminology/definitions and rationale	1	0	0	1
3	D+2	advantages, disadvantages, selection of drug candidates	1	0	0	1
4	D+3	Approaches to design controlled release formulations based on diffusion,	1	0	0	1
5	D+4	Problem Solving Session/ class test	0	1	0	1
6	D+5	dissolution and ion exchange principles	1	0	0	1
7	D+6	Physicochemical and biological properties of drugs relevant to controlled release formulations continue..	1	0	0	1
8	D+7	Physicochemical and biological properties of drugs relevant to controlled release formulations	1	0	0	1

		continue..				
9	D+8	Problem Solving Session/ class test	0	1	0	1
10	D+9	**Polymers:** Introduction, classification	1	0	0	1
11	D+10	properties, advantages of polymers	1	0	0	1
12	D+11	Application of polymers in formulation of controlled release drug delivery systems continue...	1	0	0	1
13	D+12	Application of polymers in formulation of controlled release drug delivery systems.	1	0	0	1
14	D+13	Problem Solving Session/ class test	0	1	0	1
		TOTAL	10	3	0	13
15	D+14	**Microencapsulation:** Definition, advantages and disadvantages	1	0	0	1
16	D+15	microspheres /microcapsules, microparticles,	1	0	0	1
17	D+16	methods of microencapsulation, applications	1	0	0	1
18	D+17	Problem Solving Session/ class test	0	1	0	1
19	D+18	**Mucosal Drug Delivery system:** Introduction, Principles of bioadhesion / mucoadhesion,	1	0	0	1
20	D+19	concepts, advantages and disadvantages	1	0	0	1
21	D+20	transmucosal permeability and formulation considerations of buccal delivery systems continue...	1	0	0	1
22	D+21	Problem Solving Session/ class test	0	1	0	1
23	D+22	transmucosal permeability and formulation considerations of buccal delivery systems	1	0	0	1
24	D+23	**Implantable Drug Delivery Systems:**Introduction	1	0	0	1
25	D+24	advantages and disadvantages	1	0	0	1

26	D+25	concept of implantsand osmotic pump	1	0	0	1
27	D+26	Problem Solving Session/ class test	0	1	0	1
		TOTAL	10	3	0	13
28	D+27	**Transdermal Drug Delivery Systems:** Introduction, Permeation through skin, factors affecting permeation	1	0	0	1
29	D+28	permeation enhancers, basic components of TDDS	1	0	0	1
30	D+29	formulation approaches	1	0	0	1
31	D+30	Problem Solving Session/ class test	0	1	0	1
32	D+31	**Gastroretentive drug delivery systems:** Introduction, advantages, disadvantages	1	0	0	1
33	D+32	approaches for GRDDS – Floating, high density systems continue..	1	0	0	1
34	D+33	approaches for GRDDS – Floating, high density systems, inflatable	1	0	0	1
35	D+34	Problem solving session/ class test	0	1	0	1
36	D+35	gastroadhesive systems and their applications	1	0	0	1
37	D+36	**Nasopulmonary drug delivery system:** Introduction to Nasal and Pulmonary routes of drug delivery,	1	0	0	1
38	D+37	Formulation of Inhalers (dry powder and metered dose),	1	0	0	1
39	D+38	nasal sprays, nebulizers	1	0	0	1
40	D+39	Problem solving session/ class test	0	1	0	1
		TOTAL	10	3	0	13
41	D+40	**Targeted drug Delivery:** Concepts and approaches	1	0	0	1
42	D+41	advantages and disadvantages continue..	1	0	0	1

43	D+42	advantages and disadvantages	1	0	0	1
44	D+43	Problem Solving session / class test	0	1	0	1
45	D+44	introduction to liposomes	1	0	0	1
46	D+45	niosomes	1	0	0	1
47	D+46	nanoparticles,	1	0	0	1
48	D+47	Problem Solving session / class test	0	1	0	1
49	D+48	monoclonal antibodies and their applications continue..	1	0	0	1
50	D+49	monoclonal antibodies and their applications	1	0	0	1
		TOTAL	08	2	0	10
51	D+50	**Ocular Drug Delivery Systems:** Introduction	1	0	0	1
52	D+51	intra ocular barriers and methods to overcome	1	0	0	1
53	D+52	Preliminary study, ocular formulations and ocuserts continue..	1	0	0	1
54	D+53	Preliminary study, ocular formulations and ocuserts	1	0	0	1
55	D+54	Problem Solving session / class test	0	1	0	1
56	D+55	**Intrauterine Drug Delivery Systems:** Introduction	1	0	0	1
57	D+56	advantages and disadvantages	1	0	0	1
58	D+57	development of intra uterine devices (IUDs) and applicatio	1	0	0	1
59	D+58	Problem Solving session / class test	0	1	0	1
		TOTAL	07	02	0	09

Signature of faculty

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Lesson Plan

Program: Master of Pharmacy **Semester: I Semester**
Course: Modern Pharmaceutical Analytical Technology **Course Code: MPL-101 T**
Session: 2020-2021

S no.	Day	Subject	Lecture	Tutorial	Total
1.	D+1	UV-Visible spectroscopy: Introduction, Theory, Laws	1	0	1
2.	D+2	Instrumentation associated with UV-Visible spectroscopy	1	0	1
3.	D+3	Choice of solvents and solvent	1	0	1
4.	D+4	effect and Applications of UV-Visible spectroscopy	1	0	1
5.	D+5	Difference/ Derivative spectroscopy.	1	0	1
6.	D+6	IR spectroscopy: Theory	1	0	1
7.	D+7	Modes of Molecular vibrations, Sample handling	1	0	1
8.	D+8	Instrumentation of Dispersive and Fourier - Transform IR Spectrometer,	1	0	1
9.	D+9	Factors affecting vibrational frequencies	1	0	1
10.	D+10	Applications of IR spectroscopy, Data Interpretation.	1	0	1
11.	D+11	Spectroflourimetry: Theory of Fluorescence,	1	0	1
12.	D+12	Factors affecting fluorescence (Characterestics of drugs that can be analysed by flourimetry)	1	0	1
13.	D+13	Quenchers, Instrumentation and Applications of fluorescence spectrophotometer.	1	0	1
14.	D+14	Flame emission spectroscopy and Atomic absorption	1	0	1

		spectroscopy:			
15.	D+15	Principle, Instrumentation,	1	0	1
16.	D+16	Interferences and Applications.	1	0	1
17.	D+17	Discussion Session/ Revision/Class Test	0	1	1
18.		Total	16	1	17
19.	D+18	NMR spectroscopy: Quantum numbers	1	0	1
20.	D+19	their role in NMR,	1	0	1
21.	D+20	Principle,Instrumentation,	1	0	1
22.	D+21	Solvent requirement in NMR	1	0	1
23.	D+22	Relaxation process, NMR signals in various compounds,	1	0	1
24.	D+23	NMR signals in various compounds,	1	0	1
25.	D+24	,Chemical shift, Factors influencing chemical shift	1	0	1
26.	D+25	Spin-Spin coupling, Coupling constant Nuclear magnetic double resonance	1	0	1
27.	D+26	Brief outline of principles of FT-NMR .	1	0	1
28.	D+27	and 13C NMR. Applications of NMR spectroscopy	1	0	1
29.	D+28	Discussion Session/ Revision/Class Test	0	1	1
30.		Total	10	1	11
31.	D+29	Mass Spectroscopy: Principle,	1	0	1
32.	D+30	Theory of Mass Spectroscopy,	1	0	1
33.	D+31	Different types of ionization like electron impact,	1	0	1
34.	D+32	chemical, field,	1	0	1
35.	D+33	FAB and MALDI,	1	0	1
36.	D+34	APCI, ESI, APPI Analyzers of Quadrupole	1	0	1
37.	D+35	and Time of Flight,	1	0	1
38.	D+36	Mass fragmentation and its rules,	1	0	1
39.	D+37	Meta stable ions,	1	0	1
40.	D+38	Isotopic peaks	1	0	1
41.	D+39	Applications of Mass spectroscopy.	1	0	1

42.	D+40	Discussion Session/ Revision/Class Test	0	1	1
43.		Total	11	1	12
44.	D+41	Chromatography: Principle	1	0	1
45.	D+42	apparatus, instrumentation,	1	0	1
46.	D+43	chromatographic parameters	1	0	1
47.	D+44	factors affecting resolution,	1	0	1
48.	D+45	isolation of drug from excipients	1	0	1
49.	D+46	data interpretation and applications of the following: Thin Layer chromatography	1	0	1
50.	D+47	High Performance Thin Layer Chromatography	1	0	1
51.	D+48	Advantages and applications	1	0	1
52.	D+49	Ion exchange chromatography	1	0	1
53.	D+50	Column chromatography	1	0	1
54.	D+51	Gas chromatography	1	0	1
55.	D+52	High Performance Liquid chromatography	1	0	1
56.	D+53	Ultra High Performance Liquid chromatography	1	0	1
57.	D+54	Affinity chromatography	1	0	1
58.	D+55	Gel Chromatography	1	0	1
59.	D+56	Discussion Session/ Revision/Class Test	0	1	1
60.		Total	15	1	16
61.	D+57	Electrophoresis: Principle,	1	0	1
62.	D+58	Instrumentation, Working	1	0	1
63.	D+59	conditions, factors affecting separation	1	0	1
64.	D+60	applications of the following: Paper electrophoresis	1	0	1
65.	D+61	Gel electrophoresis	1	0	1
66.	D+62	Capillary electrophoresis	1	0	1
67.	D+63	Zone electrophoresis	1	0	1
68.	D+64	Moving boundary electrophoresis	1	0	1
69.	D+65	Iso electric focusing	1	0	1
70	D+66	X ray Crystallography: Production of X rays,	1	0	1
71	D+67	Different X ray methods, Bragg‘s law,	1	0	1
72	D+68	Rotating crystal technique, X ray powder Technique	1	0	1

73	D+69	Types of crystals and applications of X-ray diffraction	1	0	1
74	D+70	Discussion Session/ Revision/Class Test	0	1	1
75		Total	13	1	14
76	D+71	Potentiometry: Principle,	1	0	1
77	D+72	working,Ion selective Electrodes	1	0	1
78	D+73	Application of potentiometry.	1	0	1
79	D+74	Thermal Techniques: Principle,	1	0	1
80	D+75	thermal transitions Instrumentation (Heat flux and power-compensation and designs)	1	0	1
81.	D+76	Modulated DSC, Hyper DSCexperimental parameters (sample preparation,	1	0	1
82.	D+77	experimental conditionscalibration,	1	0	1
83.	D+78	heating and cooling rates, resolutionadvantage and disadvantages	1	0	1
84.	D+79	source of errors) and their influence,	1	0	1
85.	D+80	pharmaceutical applications. Differential Thermal Analysis (DTA): Principle, instrumentation	1	0	1
86.	D+81	and advantage and disadvantages, pharmaceutical applications,	1	0	1
87.	D+82	derivative differential thermal analysis (DDTA). TGA: Principle,	1	0	1
88.	D+83	instrumentation, factors affecting results,	1	0	1
89.	D+84	advantage and disadvantages, pharmaceutical applications	1	0	1
90.	D+85	Discussion Session/ Revision/Class Test	0	1	1
		Total	13	1	14

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Course Plan

Program- MASTER OF PHARMACY
Semester- Ist
Course name- Advance Pharmacology
Course Code- MPL 102T
Session- 2020-2021

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	1. General Pharmacology a. Pharmacokinetics: The dynamics of drug absorption, distribution continue..	1	0	0	1
3	D+2	1. General Pharmacology a. Pharmacokinetics: The dynamics of drug absorption, distribution	1	0	0	1
4	D+3	biotransformation and elimination	1	0	0	1
5	D+4	Concepts of linear and non-linear compartment models continue…	1	0	0	1
6	D+5	Concepts of linear and non-linear compartment models	1	1	0	1
7	D+6	Significance of protein binding	1	0	0	1
8	D+7	b. Pharmacodynamics: Mechanism of drug action	1	0	0	1
9	D+8	And the relationship between drug concentration and effect continue…	1	0	0	1
10	D+9	And the relationship between drug concentration and effect.	1	0	0	1

11	D+10	Receptors	1	0	0	1
12	D+11	structural and functional families of receptors continue..	1	0	0	1
13	D+12	structural and functional families of receptors	1	0	0	1
14	D+13	quantitation of drug receptors interaction	1	0	0	1
15	D+14	quantitation of drug receptors interaction and elicite deffects	1	0	0	1
16	D+15	Problem Solving Session/ class test	0	1	0	1
17	D+16	2. Neurotransmission a. General aspects and steps involved in neurotransmission	1	0	0	1
18	D+17	b. Neurohumoral transmission in autonomic nervous system (Detailed study about neurotransmitters- Adrenaline and Acetyl choline) continue..	1	0	0	1
19	D+18	b. Neurohumoral transmission in autonomic nervous system (Detailed study about neurotransmitters- Adrenaline and Acetyl choline)	1	0	0	1
20	D+19	c. Neurohumoral transmission in central nervous system(Detailed study about neurotransmitters	1	0	0	1
21	D+20	histamine, serotonin, dopamine	1	0	0	1
21	D+20	GABA, glutamate and glycine	1	0	0	1
22	D+21	Non adrenergic non cholinergic transmission (NANC).	1	0	0	1
23	D+22	Co- transmission	1	0	0	1
24	D+23	Systemic Pharmacology:- A detailed study on pathophysiology of diseases	1	0	0	1
25	D+24	mechanism of action and pharmacology of existing as well as novel drugs	1	0	0	1
26	D+25	And toxicology of existing as well as novel drugs used in the following systems	1	0	0	1
27	D+26	Autonomic Pharmacology:- Parasympathomimetics and lytics	1	0	0	1
28	D+27	sympathomimetics and lytics	1	0	0	1
29	D+28	Agents affecting neuromuscular junction continue..	1	0	0	1
30	D+29		1	0	0	1

		Agents affecting neuromuscular junction				
31	D+30	Problem Solving Session/ class test	0	1	0	1
32	D+31	Central nervous system:- Pharmacology	1	0	0	1
33	D+32	General and local anesthetics continue..	1	0	0	1
34	D+33	General and local anesthetics	1	0	0	1
35	D+34	Sedatives and hypnotics continue..	1	0	0	1
36	D+35	Sedatives and hypnotics	1	0	0	1
37	D+36	drugs used to treat anxiety	1	0	0	1
38	D+37	Depression	1	0	0	1
39	D+38	Psychosis	1	0	0	1
40	D+39	Mania	1	0	0	1
41	D+40	Epilepsy	1	0	0	1
42	D+41	Neurodegenerative diseases continue..	1	0	0	1
43	D+42	Neurodegenerative diseases	1	0	0	1
44	D+43	Narcotic and non-narcotic analgesics continue..	1	0	0	1
45	D+44	Narcotic and non-narcotic analgesics	1	0	0	1
46	D+45	Problem Solving session / class test	0	1	0	1
47	D+46	Cardiovascular Pharmacology:- Diuretics	1	0	0	1
48	D+47	Antihypertensives continue..	1	0	0	1
49	D+48	Antihypertensives	1	0	0	1
50	D+49	antiischemics	1	0	0	1
51	D+50	anti- arrhythmics	1	0	0	1
52	D+51	Drugs for heart failure	1	0	0	1
53	D+52	Drugs for hyperlipidaemia	1	0	0	1
53	D+52	Haematinics continue..	1	0	0	1
54	D+53	Haematinics	1	0	0	1

55	D+54	coagulants	1	0	0	1
56	D+55	anticoagulants	1	0	0	1
57	D+56	fibrinolytics	1	0	0	1
58	D+57	anti- platelet drugs continue..	1	0	0	1
59	D+58	anti- platelet drugs	1	0	0	1
60	D+59	Problem Solving session / class test	0	1	0	1
61	D+60	Autocoid Pharmacology:- The physiological role of histamine	1	0	0	1
62	D+61	And pathological role of Histamine continue..	1	0	0	1
63	D+62	pathological role of Histamine	1	0	0	1
64	D+63	Serotonin continue...	1	0	0	1
65	D+64	Serotonin	1	0	0	1
66	D+65	Kinins	1	0	0	1
67	D+66	Kinins	1	0	0	1
68	D+67	Prostaglandins continue..	1	0	0	1
69	D+68	Prostaglandins	1	0	0	1
70	D+69	Opioid autocoids continue..	1	0	0	1
71	D+70	Opioid autocoids.	1	0	0	1
72	D+71	Pharmacologyofantihistamines,	1	0	0	1
73	D+72	Pharmacologyofantihistamines,	1	0	0	1
74	D+73	Pharmacology of 5HTantagonists	1	0	0	1
75	D+74	Pharmacology of 5HTantagonists	1	0	0	1
76	D+75	Problem Solving session / class test	0	1	0	1
		TOTAL	72	05	0	77

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Lesson Plan

Program- M. Pharm

Semester- 1st

Course code- MPL-103T

Course name- PHARMACOLOGICAL AND TOXICOLOGICAL SCREENING METHODS - I

Session - 2020-2021

S. No.	Day	Subject	L	T	P	Total
1	D Day					
2	D+1	Laboratory Animals	1	0	0	1
3	D+2	Description,	1	0	0	1
4	D+3	handling and applications of different species and strains of animals.	1	0	0	1
5	D+4	handling and applications of different species and strains of animals.	1	0	0	1
6	D+5	Transgenic animals	1	0	0	1
7	D+6	Tutorial	0	1	0	1
8	D+7	Transgenic animals introduction, production	1	0		1
9	D+8	maintenance and applications	1	0	0	1
10	D+9	maintenance and applications	1	0	0	1
11	D+10	Tutorial	0	1	0	1
12	D+11	Anaesthesia and euthanasia of experimental animals.	1	0	0	1
13	D+12	Anaesthesia and euthanasia of experimental animals.	1	0	0	1
14	D+13	Tutorial	0	1	0	1

15	D+14	Maintenance and breeding of laboratory animals	1	0	0	1
16	D+15	Maintenance and breeding of laboratory animals	1	0	0	1
17	D+16	CPCSEA guidelines to conduct experiments on animals	1	0	0	1
18	D+17	CPCSEA guidelines to conduct experiments on animals	1	0	0	1
19	D+18	Goodlaboratory practice. Bioassay-Principle, scope and limitations and methods	1	0	0	1
20	D+19	Tutorial	0	1	0	1
21	D+20	Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models.	1	0	0	1
22	D+21	Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models.	1	0	0	1
23	D+22	Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models.	1	0	0	0
24	D+23	Tutorial	0	1	0	0
25	D+24	General principles of preclinical screening	1	0	0	0
26	D+25	General principles of preclinical screening	1	0	0	1
27	D+26	CNS Pharmacology: behavioral and muscle co ordination, CNS stimulants	1	0	0	1
28	D+27	Class test	1	0	0	1
29	D+28	**Tutorial**	0	1	0	1
30	D+29	CNSPharmacology: behavioral and muscle co ordination, CNS stimulants	1	0	0	1
31	D+30	epressants, anxiolytics, anti-psychotics, anti epileptics and nootropics.	1	0	0	1
32	D+31	epressants, anxiolytics, anti-psychotics, anti epileptics and nootropics.	1	0	0	1
33	D+32	Drugs for neurodegenerative diseases like Parkinsonism	1	0	0	1
34	D+33	Tutorial	0	1	0	1
35	D+34	Drugs for neurodegenerative diseases like Parkinsonism	1	0	0	1
36	D+35	Alzheimers and multiple sclerosis. Drugs acting on Autonomic Nervous System	1	0	0	1
37	D+36	Alzheimers and multiple sclerosis. Drugs acting on Autonomic Nervous System	1	0	0	1
38	D+37	Alzheimers and multiple sclerosis. Drugs acting on Autonomic Nervous System	1	0	0	1
39	D+38	Tutorial	0	1	0	1

40	D+39	Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models.	1	0	0	1
41	D+40	Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models.	1	0	0	1
42	D+41	Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models.	1	0	0	1
43	D+42	Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models.	0	1	0	1
44	D+43	Respiratory Pharmacology: anti-asthmatics, drugs for COPD and anti allergics	1	0	0	1
45	D+44	Reproductive Pharmacology: Aphrodisiacs and antifertility agents	1	0	0	1
46	D+45	Tutorial	0	1	0	1
47	D+46	Analgesics, antiinflammatory and antipyretic agents. Gastrointestinal drugs:	1	0	0	1
48	D+47	anti ulcer, anti -emetic, antidiarrheal and laxatives.	1	0	0	1
49	D+48	anti ulcer, anti -emetic, antidiarrheal and laxatives.	1	0	0	1
50	D+49	Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models.	1	0	0	1
51	D+50	**Tutorial**	0	1	0	1
52	D+51	Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models.	1	0	0	1
53	D+52	Cardiovascular Pharmacology: antihypertensives, antiarrythmics, antianginal, antiatherosclerotic agents	1	0	0	1
54	D+53	Cardiovascular Pharmacology: antihypertensives, antiarrythmics, antianginal, antiatherosclerotic agents	1	0	0	1
55	D+54	diuretics. Drugs for metabolic disorders like anti-diabetic, antidyslipidemic agents. Anti cancer agents. Hepatoprotective screening methods.	1	0	0	1
56	D+55	**Tutorial**	0	1	0	1
57	D+56	diuretics. Drugs for metabolic disorders like anti-diabetic, antidyslipidemic agents. Anti cancer agents. Hepatoprotective screening methods.	1	0	0	1
58	D+57	diuretics. Drugs for metabolic disorders like anti-diabetic, antidyslipidemic agents. Anti cancer agents. Hepatoprotective screening methods.	1	0	0	1
59	D+58	diuretics. Drugs for metabolic disorders like anti-diabetic, antidyslipidemic agents. Anti cancer agents. Hepatoprotective screening methods.	1	0	0	1
60	D+59	Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models.	1	0	0	1
61	D+60	**Tutorial**	0	1	0	1

62	D+61	Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models.	1	0	0	1
63	D+62	Preclinical screening of new substances for the pharmacological activity using in vivo, in vitro, and other possible animal alternative models.	1	0	0	1
64	D+63	Iimmunomodulators, Immunosuppressants and immunostimulants	1	0	0	1
65	D+64	Iimmunomodulators, Immunosuppressants and immunostimulants	1	0	0	1
66	D+65	Tutorial	0	1	0	1
67	D+66	General principles of immunoassay: theoretical basis and optimization of immunoassay, heterogeneous and homogenous immunoassay systems	1	0	0	1
68	D+67	General principles of immunoassay: theoretical basis and optimization of immunoassay, heterogeneous and homogenous immunoassay systems	1	0	0	1
69	D+68	General principles of immunoassay: theoretical basis and optimization of immunoassay, heterogeneous and homogenous immunoassay systems	1	0	0	1
70	D+69	Tutorial	0	1	0	1
71	D+70	Immunoassay methods evaluation; protocol outline, objectives and preparation. Immunoassay for digoxin and insulin	1	0	0	1
72	D+71	Immunoassay methods evaluation; protocol outline, objectives and preparation. Immunoassay for digoxin and insulin	1	0	0	1
73	D+72	Immunoassay methods evaluation; protocol outline, objectives and preparation. Immunoassay for digoxin and insulin	1	0	0	1
74	D+73	Immunoassay methods evaluation; protocol outline, objectives and preparation. Immunoassay for digoxin and insulin	1	0	0	1
75	D+74	Immunoassay methods evaluation; protocol outline, objectives and preparation. Immunoassay for digoxin and insulin	1	0	0	1
76	D+75	Limitations of animal experimentation and alternate animal experiments.	1	0	0	1
77	D+76	Tutorial	0	1	0	1
78	D+77	Limitations of animal experimentation and alternate animal experiments.	1	0	0	1
79	D+78	Extrapolation of in vitro data to preclinical and preclinical to humans	1	0	0	1
80	D+79	Extrapolation of in vitro data to preclinical and preclinical to humans	1	0	0	1
81	D+80	Tutorial	0	1	0	1
82		Total	65	15	0	80

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Lesson Plan

Program: Masterof Pharmacy **Semester: 1 Semester**
Course:cellecular and molecular pharmacology **Course Code: MPL-104 T**
Session: 2020-2021

S no.	Day	Subject	Lecture	Tutorial	Total
1.	D+1	Cell biology Structure	1	0	1
2.	D+2	Functions of cell	1	0	1
3.	D+3	Organelles Genome organization	1	0	1
4.	D+4	Gene expression	1	0	1
5.	D+5	Generegulation	1	0	1
6.	D+6	importance of siRNA	1	0	1
7.	D+7	Micro-RNA,	1	0	1
8.	D+8	Gene mapping	1	0	1
9.	D+9	Gene sequencing	1	0	1
10.	D+10	Cell cycles and its regulation	1	0	1
11.	D+11	Cell death– events, regulators	1	0	1
12.	D+12	Intrinsic and extrinsic pathways of apoptosis	1	0	1
13.	D+13	Necrosis and autophagy	1	0	1
14.	D+14	intrinsic and extrinsic pathways of apoptosis	1	0	1
15.	D+15	Discussion Session/ Revision/Class Test,	0	1	1
16.	D+16	Cell signaling Intercellular	1	0	1
17.	D+17	intracellular signaling pathways	1	0	1
18.	D+18	Classification of receptor family	1	0	1
19.	D+19	Molecular structure ligand gated ion channels	1	0	1
20.	D+20	G-protein coupled receptors	1	0	1
21.	D+21	Tyrosine kinase receptors and nuclear receptors.	1	0	1
22.	D+22	Secondary messengers: cyclic AMP, cyclic GMP,	1	0	1

23.	D+23	Calcium ion, inositol 1,4,5-trisphosphate (IP3)	1	0	1
24.	D+24	NO, and diacylglycerol	1	0	1
25.	D+25	mitogen-activated protein kinase (MAPK) signaling	1	0	1
26.	D+26	Janus kinase (JAK)/signal transducer and activator of transcription (STAT) signaling pathway	1	0	1
27.	D+27	Discussion Session/ Revision/Class Test,	0	1	1
28.	D+28	Principles and applications of genomic	1	0	1
29.	D+29	proteomic tools DNA electrophoresis,	1	0	1
30.	D+30	Gene sequencing, micro array technique,	1	0	1
31.	D+31	SDS page, ELISA and western blotting	1	0	1
32.	D+32	combinant DNA technology and gene therapy	1	0	1
33.	D+33	Basic principles of recombinant DNA technology	1	0	1
34.	D+34	Restriction enzymes, various types of vectors	1	0	1
35.	D+35	Applications of recombinant DNA technology	1	0	1
36.	D+36	Gene therapy- Various types of gene transfer techniques	1	0	1
37.	D+37	clinical applications and recent advances in gene therapy	1	0	1
38.	D+38	Discussion Session/ Revision/Class Test,	0	1	1
39.	D+39	Pharmacogenomics Gene mapping	1	0	1
40.	D+40	cloning of disease gene	1	0	1
41.	D+41	Genetic variation and its role in health/ pharmacology	1	0	1
42.	D+42	Polymorphisms affecting drug metabolism	1	0	1
43.	D+43	Genetic variation in drug transporters	1	0	1
44.	D+44	Genetic variation in G protein coupled receptors Applications of proteomics science	1	0	1
45.	D+45	Genomics, proteomics	1	0	1
46.	D+46	metabolomics, functionomics	1	0	1
47.	D+47	nutrigenomics andImmunotherapeutics	1	0	1
48.	D+48	Types of immunotherapeutics, humanisation antibody, therapy	1	0	1
49.	D+49	immunotherapeutics in clinical practice	1	0	1
50.	D+50	Discussion Session/ Revision/Class Test	0	1	1
51.	D+51	Cell culture techniques	1	0	1
52.	D+52	Basic equipments used in cell culture lab	1	0	1
53.	D+53	Cell culture media	1	0	1
54.	D+54	various types of cell culture	1	0	1
55.	D+55	general procedure for cell cultures	1	0	1
56.	D+56	isolation of cells, subculture,	1	0	1
57.	D+57	Cryopreservation	1	0	1
58.	D+58	Characterisation of cells and their application.	1	0	1
59.	D+59	Principles and applications of cell viability assays	1	0	1
60.	D+60	glucose uptake assay,	1	0	1
61.	D+61	Calcium influx assays Principles	0	0	1

62.	D+62	applications of flow cytometry	1	0	1
63.	D+63	Biosimilars	1	0	1
64.	D+64	Mechanism of ion exchange process	1	0	1
65.	D+65	Discussion Session/ Revision/Class Test	0	1	1
66.	D+66	Factors affecting ion exchange	1	0	1
67.	D+67	Methodology and applications	1	0	1
68.	D+68	**Gel chromatography:** Introduction	1	0	1
69.	D+69	Theory	1	0	1
70.	D+70	Instrumentation	1	0	1
71.	D+71	Applications	1	0	1
72.	D+72	**Affinity chromatography:** Introduction and theory	1	0	1
73.	D+73	Instrumentation	1	0	1
74.	D+74	Applications	1	0	1
75.	D+75	Discussion Session/ Revision/Class Test	0	1	1
76.		Total	69	6	75

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Lesson Plan

Program: Master of Pharmacy **Semester: I Semester**
Course: Modern Pharmaceutical Analytical Technology **Course Code: MPC-101 T**
Session: 2020-2021

S no.	Day	Subject	Lecture	Tutorial	Total
1.	D+1	UV-Visible spectroscopy: Introduction, Theory, Laws	1	0	1
2.	D+2	Instrumentation associated with UV-Visible spectroscopy	1	0	1
3.	D+3	Choice of solvents and solvent	1	0	1
4.	D+4	effect and Applications of UV-Visible spectroscopy	1	0	1
5.	D+5	Difference/ Derivative spectroscopy.	1	0	1
6.	D+6	IR spectroscopy: Theory	1	0	1
7.	D+7	Modes of Molecular vibrations, Sample handling	1	0	1
8.	D+8	Instrumentation of Dispersive and Fourier - Transform IR Spectrometer,	1	0	1
9.	D+9	Factors affecting vibrational frequencies	1	0	1
10.	D+10	Applications of IR spectroscopy, Data Interpretation.	1	0	1
11.	D+11	Spectroflourimetry: Theory of Fluorescence,	1	0	1
12.	D+12	Factors affecting fluorescence (Characterestics of drugs that can be analysed by flourimetry)	1	0	1
13.	D+13	Quenchers, Instrumentation and Applications of fluorescence spectrophotometer.	1	0	1
14.	D+14	Flame emission spectroscopy and Atomic absorption	1	0	1

		spectroscopy:			
15.	D+15	Principle, Instrumentation,	1	0	1
16.	D+16	Interferences and Applications.	1	0	1
17.	D+17	Discussion Session/ Revision/Class Test	0	1	1
18.		Total	16	1	17
19.	D+18	NMR spectroscopy: Quantum numbers	1	0	1
20.	D+19	their role in NMR,	1	0	1
21.	D+20	Principle,Instrumentation,	1	0	1
22.	D+21	Solvent requirement in NMR	1	0	1
23.	D+22	Relaxation process, NMR signals in various compounds,	1	0	1
24.	D+23	NMR signals in various compounds,	1	0	1
25.	D+24	,Chemical shift, Factors influencing chemical shift	1	0	1
26.	D+25	Spin-Spin coupling, Coupling constant Nuclear magnetic double resonance	1	0	1
27.	D+26	Brief outline of principles of FT-NMR .	1	0	1
28.	D+27	and 13C NMR. Applications of NMR spectroscopy	1	0	1
29.	D+28	Discussion Session/ Revision/Class Test	0	1	1
30.		Total	10	1	11
31.	D+29	Mass Spectroscopy: Principle,	1	0	1
32.	D+30	Theory of Mass Spectroscopy,	1	0	1
33.	D+31	Different types of ionization like electron impact,	1	0	1
34.	D+32	chemical, field,	1	0	1
35.	D+33	FAB and MALDI,	1	0	1
36.	D+34	APCI, ESI, APPI Analyzers of Quadrupole	1	0	1
37.	D+35	and Time of Flight,	1	0	1
38.	D+36	Mass fragmentation and its rules,	1	0	1
39.	D+37	Meta stable ions,	1	0	1
40.	D+38	Isotopic peaks	1	0	1
41.	D+39	Applications of Mass spectroscopy.	1	0	1

42.	D+40	Discussion Session/ Revision/Class Test	0	1	1
43.		Total	11	1	12
44.	D+41	Chromatography: Principle	1	0	1
45.	D+42	apparatus, instrumentation,	1	0	1
46.	D+43	chromatographic parameters	1	0	1
47.	D+44	factors affecting resolution,	1	0	1
48.	D+45	isolation of drug from excipients	1	0	1
49.	D+46	data interpretation and applications of the following: Thin Layer chromatography	1	0	1
50.	D+47	High Performance Thin Layer Chromatography	1	0	1
51.	D+48	Advantages and applications	1	0	1
52.	D+49	Ion exchange chromatography	1	0	1
53.	D+50	Column chromatography	1	0	1
54.	D+51	Gas chromatography	1	0	1
55.	D+52	High Performance Liquid chromatography	1	0	1
56.	D+53	Ultra High Performance Liquid chromatography	1	0	1
57.	D+54	Affinity chromatography	1	0	1
58.	D+55	Gel Chromatography	1	0	1
59.	D+56	Discussion Session/ Revision/Class Test	0	1	1
60.		Total	15	1	16
61.	D+57	Electrophoresis: Principle,	1	0	1
62.	D+58	Instrumentation, Working	1	0	1
63.	D+59	conditions, factors affecting separation	1	0	1
64.	D+60	applications of the following: Paper electrophoresis	1	0	1
65.	D+61	Gel electrophoresis	1	0	1
66.	D+62	Capillary electrophoresis	1	0	1
67.	D+63	Zone electrophoresis	1	0	1
68.	D+64	Moving boundary electrophoresis	1	0	1
69.	D+65	Iso electric focusing	1	0	1
70	D+66	X ray Crystallography: Production of X rays,	1	0	1
71	D+67	Different X ray methods, Bragg‘s law,	1	0	1
72	D+68	Rotating crystal technique, X ray powder Technique	1	0	1

73	D+69	Types of crystals and applications of X-ray diffraction	1	0	1
74	D+70	Discussion Session/ Revision/Class Test	0	1	1
75		Total	13	1	14
76	D+71	Potentiometry: Principle,	1	0	1
77	D+72	working,Ion selective Electrodes	1	0	1
78	D+73	Application of potentiometry.	1	0	1
79	D+74	Thermal Techniques: Principle,	1	0	1
80	D+75	thermal transitions Instrumentation (Heat flux and power-compensation and designs)	1	0	1
81.	D+76	Modulated DSC, Hyper DSCexperimental parameters (sample preparation,	1	0	1
82.	D+77	experimental conditionscalibration,	1	0	1
83.	D+78	heating and cooling rates, resolutionadvantage and disadvantages	1	0	1
84.	D+79	source of errors) and their influence,	1	0	1
85.	D+80	pharmaceutical applications. Differential Thermal Analysis (DTA): Principle, instrumentation	1	0	1
86.	D+81	and advantage and disadvantages, pharmaceutical applications,	1	0	1
87.	D+82	derivative differential thermal analysis (DDTA). TGA: Principle,	1	0	1
88.	D+83	instrumentation, factors affecting results,	1	0	1
89.	D+84	advantage and disadvantages, pharmaceutical applications	1	0	1
90.	D+85	Discussion Session/ Revision/Class Test	0	1	1
		Total	13	1	14

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Lesson Plan

Program: Master of Pharmacy **Semester: I Semester**
Course: Advanced Organic Chemistry - I **Course Code: MPC 102T**
Session: 2020-2021

S no.	Day	Subject	Lecture	Tutorial	Total
1.	D+1	Basic Aspects of Organic Chemistry: Organic intermediates: method of formation, stability and synthetic applications Carbocations & carbanions	1	0	1
2.	D+2	Method of formation, stability and synthetic applications Free radicals	1	0	1
3.	D+3	Method of formation, stability and synthetic applications Carbenes and nitrenes.	1	0	1
4.	D+4	Types of reaction mechanisms and methods of determining them	1	0	1
5.	D+5	Types of reaction mechanisms and methods of determining them	1	0	1
6.	D+6	Types of reaction mechanisms and methods of determining them	1	0	1
7.	D+7	Types of reaction mechanisms and methods of determining them	1	0	1
8.	D+8	Detailed knowledge regarding the reactions, mechanisms and their relative reactivity and orientations	1	0	1
9.	D+9	Detailed knowledge regarding the reactions, mechanisms and their relative reactivity and orientations	1	0	1
10.	D+10	Detailed knowledge regarding the reactions, mechanisms and their relative reactivity and orientations	1	0	1
11.	D+11	Detailed knowledge regarding the reactions, mechanisms and their relative reactivity and orientations	1	0	1

12.	D+12	Addition reactions : Nucleophilic uni-molecular reactions (SN1)	1	0	1
13.	D+13	Bimolecular reactions (SN2)	1	0	1
14.	D+14	Elimination reactions (E1 & E2; Hoffman & Saytzeff's rule)	1	0	1
15.	D+15	Elimination reactions (E1 & E2; Hoffman & Saytzeff's rule)	1	0	1
16.	D+16	Rearrangement reaction	1	0	1
17.	D+17	Discussion Session/ Revision/Class Test	0	1	1
18.		Total	16	1	17
19.	D+18	Study of mechanism and synthetic applications of Ugi reaction	1	0	1
20.	D+19	Study of mechanism and synthetic applications of Brook rearrangement	1	0	1
21.	D+20	Study of mechanism and synthetic applications of Ullmann coupling reactions	1	0	1
22.	D+21	Study of mechanism and synthetic applications of Dieckmann Reaction	1	0	1
23.	D+22	Study of mechanism and synthetic applications of Doebner-Miller Reaction	1	0	1
24.	D+23	Study of mechanism and synthetic applications of Sandmeyer Reaction	1	0	1
25.	D+24	Study of mechanism and synthetic applications of Mitsunobu reaction	1	0	1
26.	D+25	Study of mechanism and synthetic applications of Mannich reaction	1	0	1
27.	D+26	Study of mechanism and synthetic applications of Vilsmeyer-Haack Reaction	1	0	1
28.	D+27	Study of mechanism and synthetic applications of Sharpless asymmetric epoxidation	1	0	1
29.	D+28	Study of mechanism and synthetic applications of Baeyer-Villiger oxidation	1	0	1
30.	D+29	Study of mechanism and synthetic applications of Shapiro reaction	1	0	1
31.	D+30	Study of mechanism and synthetic applications of Suzuki reaction	1	0	1
32.	D+31	Study of mechanism and synthetic applications of Ozonolysis	1	0	1
33.	D+32	Study of mechanism and synthetic applications of Michael addition reaction	1	0	1
34.	D+33	Discussion Session/ Revision/Class Test	0	1	1
35.		Total	15	1	16
36.	D+34	Synthetic Reagents & Applications: Aluminiumisopropoxide	1	0	1

37.	D+35	N-bromosuccinamide	1	0	1
38.	D+36	diazomethane	1	0	1
39.	D+37	Dicyclohexylcarbodimide	1	0	1
40.	D+38	Wilkinson reagent	1	0	1
41.	D+39	Witting reagent	1	0	1
42.	D+40	Osmium tetroxide	1	0	1
43.	D+41	titanium chloride	1	0	1
44.	D+42	Diazopropane	1	0	1
45.	D+43	Diethyl azodicarboxylate	1	0	1
46.	D+44	Triphenylphosphine	1	0	1
47.	D+45	(Benzotriazol-1-yloxy) tris (dimethylamino) phosphonium hexafluoro-phosphate (BOP)	1	0	1
48.	D+46	Role of protection in organic synthesis	1	0	1
49.	D+47	Protection for the hydroxyl group, including 1,2-and1,3-diols: ethers	1	0	1
50.	D+48	Esters, carbonates	1	0	1
51.	D+49	Cyclic acetals & ketals	1	0	1
52.	D+50	Protection for the Carbonyl Group: Acetals and Ketals	1	0	1
53.	D+51	Protection for the Carboxyl Group: amides and hydrazides, esters	1	0	1
54.	D+52	Protection for the Amino Group and Amino acids: carbamates and amides	1	0	1
55.	D+53	Discussion Session/ Revision/Class Test	0	1	1
56.		Total	19	1	20
57.	D+54	Organic Name reactions with their respective mechanism and application involved in synthesis of drugs containing five, six membered and fused hetrocyclics such as Debus-Radziszewski imidazole synthesis	1	0	1
58.	D+55	Knorr Pyrazole Synthesis	1	0	1
59.	D+56	Pinner Pyrimidine Synthesis	1	0	1
60.	D+57	Combes Quinoline Synthesis	1	0	1
61.	D+58	Bernthsen Acridine Synthesis	1	0	1
62.	D+59	Smiles rearrangement	1	0	1
63.	D+60	Traube purine synthesis	1	0	1
64.	D+61	Synthesis of few representative drugs containing these hetrocyclic nucleus such as Ketoconazole, Metronidazole	1	0	1
65.	D+62	Miconazole, celecoxib & antipyrin	1	0	1
66.	D+63	Metamizole sodium, Terconazole & Alprazolam,	1	0	1
67.	D+64	Triamterene, Sulfamerazine & Trimethoprim	1	0	1

68.	D+65	Hydroxychloroquine, Quinine & Chloroquine	1	0	1
69.	D+66	Quinacrine, Amsacrine & Prochlorpherazine	1	0	1
70.	D+67	Promazine, Chlorpromazine & Theophylline	1	0	1
71.	D+68	Mercaptopurine and Thioguanine	1	0	1
72.	D+69	Discussion Session/ Revision/Class Test	0	1	1
73.		Total	15	1	16
74.	D+70	Synthon approach and retrosynthesis applications i. Basic principles, terminologies and advantages of retrosynthesis	1	0	1
75.	D+71	Synthon approach and retrosynthesis applications i. Basic principles, terminologies and advantages of retrosynthesis	1	0	1
76.	D+72	Synthon approach and retrosynthesis applications i. Basic principles, terminologies and advantages of retrosynthesis	1	0	1
77.	D+73	Guidelines for dissection of molecules	1	0	1
78.	D+74	Functional group interconvertion	1	0	1
79.	D+75	Functional group addition	1	0	1
80.	D+76	C-X disconnections	1	0	1
81.	D+77	C-C disconnections – alcohols	1	0	1
82.	D+78	C-C disconnections carbonyl compounds	1	0	1
83.	D+79	1,2-, 1,3-,1,4-, 1,5-, 1,6-difunctionalized compounds	1	0	1
84.	D+80	1,2-, 1,3-,1,4-, 1,5-, 1,6-difunctionalized compounds	1	0	1
85.	D+81	Strategies for synthesis of three, four, five and six-membered ring.	1	0	1
86.	D+82	Strategies for synthesis of three, four, five and six-membered ring.	1	0	1
87.	D+83	Discussion Session/ Revision/Class Test	0	1	1
88.		Total	13	1	14

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Lesson Plan

Program: Master of Pharmacy **Semester: I Semester**
Course: Advance Medicinal Chemistry **Course Code: MPC-103T**
Session: 2020-2021

S no.	Day	Subject	Lecture	Tutorial	Total
1.	D+1	Drug discovery: Stages of drug discovery	1	0	1
2.	D+2	lead discovery	1	0	1
3.	D+3	Identification of lead	1	0	1
4.	D+4	Validation	1	0	1
5.	D+5	Diversity of drug targets.	1	0	1
6.	D+6	Biological drug targets: Receptors Description about the receptors	1	0	1
7.	D+7	Types of Receptors	1	0	1
8.	D+8	Binding and activation	1	0	1
9.	D+9	Theories of drug receptor interaction	1	0	1
10.	D+10	Theories of drug receptor interaction	1	0	1
11.	D+11	Drug receptor interactions	1	0	1
12.	D+12	Drug receptor interactions	1	0	1
13.	D+13	Agonists vs Antagonists	1	0	1
14.	D+14	Artificial enzymes	1	0	1
15.	D+15	Artificial enzymes Applications	1	0	1
16.	D+16	Problem Solving Session\ Class Test	0	1	1
17.		TOTAL	15	01	16
18.	D+17	Prodrug design: Basic concept	1	0	1
19.	D+18	Carrier linked prodrugs	1	0	1
20.	D+19	Bioprecursors & Prodrugs of functional group	1	0	1
21.	D+20	Prodrug to improve patient acceptability & Drug solubility	1	0	1
22.	D+21	Drug absorption and distribution, site specific drug delivery and sustained drug action	1	0	1

23.	D+22	Rationale of prodrug design practical consideration of prodrug design	1	0	1
24.	D+23	Combating drug resistance: Causes for drug resistance	1	0	1
25.	D+24	Strategies to combat drug resistance in antibiotics	1	0	1
26.	D+25	Anticancer therapy, Genetic principles of drug resistance.	1	0	1
27.	D+26	Combating drug resistance: Causes for drug resistance	1	0	1
28.	D+27	Strategies to combat drug resistance in antibiotics	1	0	1
29.	D+28	Anticancer therapy, Genetic principles of drug resistance.	1	0	1
30.	D+29	Analog Design: Introduction, Classical & Non classical	1	0	1
31.	D+30	Bioisosteric replacement strategies	1	0	1
32.	D+31	Rigid analogs & alteration of chain branching	1	0	1
33.	D+32	Design of stereo isomers and	1	0	1
34.	D+33	Fragments of a lead molecule	1	0	1
35.	D+34	Geometric isomers	1	0	1
36.	D+35	Variation in inter-atomic distance	1	0	1
37.	D+36	Problem Solving Session\ Class Test	0	1	1
38.		TOTAL	19	01	20
39.	D+37	Anti-hypertensive drugs & Psychoactive drugs,	1	0	1
40.	D+38	Anticonvulsant drugs H1&H2receptor antagonist	1	0	1
41.	D+39	COX1 & COX2 inhibitors	1	0	1
42.	D+40	Problem Solving Session\ Class Test	0	1	1
43.	D+41	Adrenergic & Cholinergic agents	1	0	1
44.	D+42	Anti neoplastic and Antiviral agents.	1	0	1
45.	D+43	Stereochemistry and Drug action: Realization that stereo selectivity is a pre-requisite for evolution	1	0	1
46.	D+44	Role of chirality in selective and specific therapeutic agents & Case studies	1	0	1
47.	D+45	Enantio selectivity in drug adsorption	1	0	1
48.	D+46	Enantio selectivity in drug metabolism	1	0	1
49.	D+47	Enantio selectivity in drug distribution	1	0	1
50.	D+48	Enantio selectivity in drug elimination	1	0	1
51.	D+49	Role of chirality in selective and specific therapeutic agents & Case studies	1	0	1
52.	D+50	Problem Solving Session\ Class Test	0	1	1
53.		TOTAL	12	02	14

54.	D+51	Rational Design of Enzyme Inhibitors	1	0	1
55.	D+52	Enzyme kinetics	1	0	1
56.	D+53	Principles of Enzyme inhibitors,	1	0	1
57.	D+54	Principles of Enzyme inhibitors,	1	0	1
58.	D+55	Enzyme inhibitors in medicine	1	0	1
59.	D+56	Enzyme inhibitors in medicine	1	0	1
60.	D+57	Enzyme inhibitors in basic research	1	0	
61.	D+58	Enzyme inhibitors in basic research	1	0	1
62.	D+59	Rational design of non-covalently binding enzyme inhibitors	1	0	1
63.	D+60	Rational design of non- covalently binding enzyme inhibitors	1	0	1
64.	D+61	Rational design of covalently binding enzyme inhibitors	1	0	1
65.	D+62	Rational design of covalently binding enzyme inhibitors	1	0	1
66.	D+63	Problem Solving Session\ Class Test	0	1	1
67.		TOTAL	12	01	13
68.	D+64	Peptidomimetics:-Therapeutic values of Peptidomimetics	1	0	1
69.	D+65	Peptidomimetics:- Therapeutic values of Peptidomimetics	1	0	1
70.	D+67	Design of peptidomimetics bymanipulation of the amino acids	1	0	1
71.	D+68	Design of peptidomimetics bymanipulation of the amino acids	1	0	1
72.	D+69	Modification of the peptide backbone, incorporating conformational constraints locally	1	0	1
73.	D+70	Modification of the peptide backbone, incorporating conformational constraints globally	1	0	1
74.	D+71	Chemistry of prostaglandins	1	0	
75.	D+72	Chemistry of prostaglandins	1	0	1
76.	D+73	Chemistry of leukotrienes	1	0	1
77.	D+74	Chemistry of leukotrienes	1	0	1
78.	D+75	Chemistry of thromboxones	1	0	1
79.	D+76	Chemistry of thromboxones	1	0	1
80.	D+77	Problem Solving Session\ Class Test	0	1	1
81.		TOTAL	12	01	13

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Lesson Plan

Program: Master of Pharmacy **Semester: I Semester**
Course: Chemistry of Natural Products **Course Code: MPC-104T**
Session: 2020-2021

S no.	Day	Subject	Lecture	Tutorial	Total
1.	D+1	Drugs Affecting the Central Nervous System: Morphine	1	0	1
2.	D+2	Neuromuscular Blocking Drugs: Curare alkaloids	1	0	1
3.	D+3	Anticancer Drugs: Paclitaxel	1	0	1
4.	D+4	Anticancer Drugs: Docetaxe	1	0	1
5.	D+5	Anticancer Drugs: Etoposide	1	0	1
6.	D+6	Anticancer Drugs: Teniposide	1	0	1
7.	D+7	Cardiovascular Drugs: Lovastatin	1	0	1
8.	D+8	Cardiovascular Drugs: Teprotidean	1	0	1
9.	D+9	Cardiovascular Drugs: Dicoumarol	1	0	1
10.	D+10	Anti-malarial drugs and Analogues	1	0	1
11.	D+11	Chemistry of macrolid antibiotics (Erythromycin, Azithromycin)	1	0	1
12.	D+12	Chemistry of macrolid antibiotics (Clarithromycin)	1	0	1
13.	D+13	β - Lactam antibiotics (Cephalosporin)	1	0	1
14.	D+14	β - Lactam antibiotics (Carbapenem)	1	0	1
15.	D+15	Chemistry of macrolid antibiotics (Roxithromycin)	1	0	1
16.	D+16	Problem Solving Session\ Class Test	0	1	1
17.		TOTAL	15	1	16
18.	D+17	Alkaloids General introduction	1	0	1
19.	D+18	Classification, isolation, purification of Alkaloids	1	0	1

20.	D+19	Molecular modification and biological activity of alkaloids	1	0	1
21.	D+20	General methods of structural determination of alkaloids	1	0	1
22.	D+21	Structural elucidation and stereochemistry of ephedrine, morphine,	1	0	1
23.	D+22	Structural elucidation and stereochemistry of ergot, emetine and reserpine	1	0	1
24.	D+23	Flavonoids:- Introduction	1	0	1
25.	D+24	Isolation and purification of flavonoids	1	0	1
26.	D+25	General methods of structural determination of flavonoids	1	0	1
27.	D+26	Structural elucidation of quercetin	1	0	1
28.	D+27	Steroids:- General introduction,	1	0	1
29.	D+28	Chemistry of sterols, sapogenin and cardiac glycosides	1	0	1
30.	D+29	Stereochemistry and nomenclature of steroids, chemistry of contraceptive agents male sex hormones (Testosterone)	1	0	1
31.	D+30	Stereochemistry and nomenclature of steroids, chemistry of contraceptive agents female sex hormones (Estradiol)	1	0	1
32.	D+31	Stereochemistry and nomenclature of steroids, chemistry of contraceptive agents female sex hormones (Progesterone)	1	0	1
33.	D+32	Adrenocorticoids (Cortisone),	1	0	1
34.	D+33	Contraceptive agents and steroids (Vit– D).	1	0	1
35.	D+34	Chemistry of sapogenin	1	0	1
36.	D+35	Chemistry of cardiac glycosides	1	0	1
37.	D+36	Problem Solving Session\ Class Test	0	1	1
38.		TOTAL	19	01	20
39.	D+37	Terpenoids Introduction & Classification,	1	0	1
40.	D+38	Isolation, isoprene rule General methods of structural elucidation of Terpenoids	1	0	1
41.	D+39	Structural elucidation of drugs belonging to Mono(citral, menthol, camphor)	1	0	1
42.	D+40	Di (retinol, Phytol, taxol)	1	0	1
43.	D+41	Tri terpenoids (Squalene, Ginsenoside)	1	0	1
44.	D+42	Carotinoids (βcarotene)	1	0	1
45.	D+43	Vitamins Introduction & functions	1	0	1

46.	D+44	Chemistry and Physiological significance of Vitamin A	1	0	1
47.	D+45	Chemistry and Physiological significance of Vitamin B1	1	0	1
48.	D+46	Chemistry and Physiological significance of Vitamin B2	1	0	1
49.	D+47	Chemistry and Physiological significance of Vitamin B12	1	0	1
50.	D+48	Chemistry and Physiological significance of Vitamin C&E	1	0	1
51.	D+49	Chemistry and Physiological significance of Folic acid and Niacin.	1	0	1
52.	D+50	Problem Solving Session\ Class Test	0	1	1
53.		TOTAL	13	01	14
54.	D+51	Recombinant DNA technology and drug discovery rDNA technology Active constituent of certain crude drugs used in Indigenous system Diabetic therapy –,	1	0	1
55.	D+52	Hybridoma technology & New pharmaceuticals derived from biotechnology	1	0	1
56.	D+53	Gene therapy: Introduction, Clinical application and recent advances in gene therapy	1	0	1
57.	D+54	Principles of RNA & DNA estimation	1	0	1
58.	D+55	Active constituent of certain crude drugs used in Indigenous system Diabetic therapy – Gymnema sylvestre	1	0	1
59.	D+56	Salacia reticulate	1	0	1
60.	D+57	Swertia chirata	1	0	
61.	D+58	Trigonella foenum graccum	1	0	1
62.	D+59	Pterocarpus marsupiam	1	0	1
63.	D+60	Antitumor– Curcuma longalinn	1	0	1
64.	D+61	Oligonucleotide therapy	1	0	1
65.	D+62	Liver dysfunction – Phyllanthusniruri	1	0	1
66.	D+63	Problem Solving Session\ Class Test	0	1	1
67.		TOTAL	12	01	13
68.	D+64	Structural Characterization of natural Compounds Structural characterization of natural compounds using IR	1	0	1
69.	D+65	Compounds Structural characterization of natural compounds using 1HNMR	1	0	1
70.	D+67	Compounds Structural characterization of natural compounds using 1HNMR	1	0	1
71.	D+68	Compounds Structural characterization of natural compounds using 13CNMR	1	0	1

72.	D+69	MS Spectroscopy of specific drugs e.g. Camphor	1	0	1
73.	D+70	MS Spectroscopy of specific drugs e.g. Vit.D	1	0	1
74.	D+71	MS Spectroscopy of specific drugs e.g. Quercetin	1	0	1
75.	D+72	MS Spectroscopy of specific drugs e.g. Digitalis glycosides	1	0	1
76.	D+73	MS Spectroscopy of specific drugs e.g. Morphine	1	0	1
77.	D+74	MS Spectroscopy of specific drugs e.g. Morphine	1	0	1
78.	D+75	MS Spectroscopy of specific drugs e.g. Penicillin	1	0	1
79.	D+76	MS Spectroscopy of specific drugs e.g. Penicillin	1	0	1
80.	D+77	Problem Solving Session\ Class Test	0	1	1
81.		TOTAL	12	01	13

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Lab Practical Lesson Plan

Program: Master of Pharmacy **Semester: I Semester**
Course: Pharmaceutical Chemistry Practical - I **Course Code: MPC 105 P**
Session: 2020-2021

S no.	Day	Objective	Practical	Total
1.	D+1	Analysis of Pharmacopoeial compounds and their formulations by UV Vis spectrophotometer, RNA & DNA estimation	1	1
2.	D+2	Simultaneous estimation of multi component containing formulations by UV spectrophotometry	1	1
3.	D+3	Experiments based on Column chromatography	1	1
4.	D+4	Experiments based on HPLC	1	1
5.	D+5	Experiments based on Gas Chromatography	1	1
6.	D+6	Estimation of riboflavin/quinine sulphate by fluorimetry	1	1
7.	D+7	Estimation of sodium/potassium by flame photometry	1	1
8.	D+8	Estimation of sodium/potassium by flame photometry	1	1
9.	D+9	Purification of organic solvents by column chromatography	1	1
10.	D+10	To perform the Claisen-schimidt reaction.	1	1
11.	D+11	To perform the Benzyllic acid rearrangement	1	1
12.	D+12	To perform the Beckmann rearrangement	1	1
13.	D+13	To perform the Hoffmann rearrangement	1	1
14.	D+14	To perform the Mannich reaction	1	1
15.	D+15, 16, & 17	Synthesis of medicinally important compounds involving more than one step along with purification and Characterization using TLC, melting point and IR spectroscopy(1)	1	1
16.	D+18, 19, & 20	Synthesis of medicinally important compounds involving more than one step along with purification and Characterization using TLC, melting point and IR spectroscopy(2)	1	1
17.	D+ 21, 22, & 23	Synthesis of medicinally important compounds involving more than one step along with purification and Characterization using TLC, melting point and IR spectroscopy(3)	1	1
18.	D+ 24,	Synthesis of medicinally important compounds involving	1	1

	25 & 26	more than one step along with purification and Characterization using TLC, melting point and IR spectroscopy(4)		
19.	D+27	Estimation of elements and functional groups in organic natural compounds	1	1
20.	D+28	To perform isolation, characterization like melting point, mixed melting point, molecular weight determination, functional group analysis of organic compounds	1	1
21.	D+29	To perform isolation, characterization like melting point, mixed melting point, molecular weight determination, functional group analysis of organic compounds	1	1
22.	D+30	To perform isolation, characterization like co-chromatographic technique for identification of isolated compounds and interpretation of UV and IR data	1	1
23.	D+31	To perform isolation, characterization like co-chromatographic technique for identification of isolated compounds and interpretation of UV and IR data	1	1
24.	D+32	Some typical degradation reactions to be carried on selected plant constituents	1	1
25.	D+33	Some typical degradation reactions to be carried on selected plant constituents	1	1
26.		Total	25	25

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Lesson Plan

Program: Master of Pharmacy **Semester: III Semester**
Course: Research Methodology & Biostatistics **Course Code: MRM-301T**
Session: 2020-2021

S no.	Day	Subject	Lecture	Tutorial	Total
1.	D+1	General Research Methodology: Introduction	1	0	1
2.	D+2	Research, objective, requirements, practical difficulties	1	0	1
3.	D+3	Review of literature, study design, types of studies	1	0	1
4.	D+4	Strategies to eliminate errors/bias, controls	1	0	1
5.	D+5	Randomization, crossover design	1	0	1
6.	D+6	Blinding techniques	1	0	1
7.	D+7	Placebo	1	0	1
8.	D+8	Biostatistics: Definition, application, sample size, importance of sample size, factors influencing sample size, dropouts, , parametric tests(students “t” test)	1	0	1
9.	D+9	Sample size, importance of sample size, factors influencing sample size, dropouts	1	0	1
10.	D+10	Statistical tests of significance, type of significance tests	1	0	1
11.	D+11	Parametric tests(students “t” test)	1	0	1
12.	D+12	ANOVA, Correlation coefficient & regression	1	0	1
13.	D+13	Non-parametric tests (wilcoxan rank tests, analysis of variance, correlation, chi square test)	1	0	1
14.	D+14	Null hypothesis, P values	1	0	1
15.	D+15	Degree of freedom, interpretation of P values	1	0	1
16.	D+16	Problem Solving Session\ Class Test	0	1	1
17.	D+17	Medical Research: History, values in medical ethics, autonomy conflicts between autonomy	1	0	1

18.	D+18	Beneficence, non-maleficence, double effect	1	0	1
19.	D+19	Euthanasia, informed consent, confidentiality, criticisms of orthodox medical ethics,	1	0	1
20.	D+20	Importance of communication & control resolution and Guidelines	1	0	1
21.	D+21	Ethics committees	1	0	1
22.	D+22	Cultural concerns, truth telling	1	0	1
23.	D+23	Online business practices	1	0	1
24.	D+24	Conflicts of interest, referral & vendor relationships	1	0	1
25.	D+25	Treatment of family members, sexual relationships, fatality	1	0	1
26.	D+26	CPCSEA guidelines for laboratory animal facility: Goals,	1	0	1
27.	D+27	Diagnosis, treatment and control of disease	1	0	1
28.	D+28	Personal hygiene, location of animal facilities to laboratories	1	0	1
29.	D+29	Anesthesia & Euthanasia,	1	0	1
30.	D+30	Physical facilities, environment,	1	0	1
31.	D+31	Animal husbandry, Record keeping	1	0	1
32.	D+32	SOPs	1	0	1
33.	D+33	Personnel and training	1	0	1
34.	D+34	Veterinary care	1	0	1
35.	D+35	Quarantine, surveillance	1	0	1
36.	D+36	Problem Solving Session\ Class Test	0	1	1
37.	D+37	Transport of lab animals	1	0	1
38.	D+38	Declaration of Helsinki: Introduction, , and	1	0	1
39.	D+39	Declaration of Helsinki: History	1	0	1
40.	D+40	Basic principles for all medical research	1	0	1
41.	D+41	Additional principles for medical research	1	0	1
42.	D+42	Additional principles for medical research combined with medical care	1	0	1
43.	D+43	Problem Solving Session\ Class Test	0	1	1
44.		TOTAL	40	03	43