SRI VENKATESWARA COLLEGE OF ENGINEERING

COURSE DELIVERY PLAN - THEORY

DEPARTMENT OF CHEMICAL ENGINEERING	LP: CH16012 Rev. No: 00 Date: 21/06/2020
~~B.E~~/B.Tech/~~M.E/M.Tech~~ : CHEMICAL ENGINEERING Regulation: 2016 PG Specialisation : NA Sub. Code / Sub. Name : CH16012 / Drugs and Pharmaceutical Technology Unit: I – Introduction (9)	

Unit Syllabus: Development of drugs and pharmaceutical industry; organic therapeutic agents uses and economics.

Session No *	Topics to be covered	Ref	Teaching Aids
1	Development of Drugs and drug design strategies	T1- Part I 3-207, T2 – Chapter 2, 3-14	PPT/ ONLINE
2	Pharmaceutical Development	T1- Part I 3-207	PPT/ ONLINE
3	Preclinical Safety Testing	T1- Part I 3-207	PPT
4	Purpose design and conduct of clinical trials	T1- Part I 3-207	PPT
5	Pharmaceutical medicine in the emerging markets	T1- Part III 641-659	PPT
6	Metabolic changes of drugs and related organic compounds	T2 – Chapter 3, 43-104	PPT
7	Application of organic compounds as antimicrobial agents	T2 – Chapter 7,8,9	PPT
8	Application of organic compounds as therapeutics, steroid hormones and agents treating bone disorders	T2 – Chapter 21 & 25	PPT
9	Economics of healthcare	T1- Part IV 659-661	PPT/ ONLINE

Content beyond syllabus covered (if any): Biotechnology-Derived Pharmaceutical Products (T2-Chapter 27)

* Session duration: 50 minutes

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Sub. Code / Sub. Name: CH16012 / Drugs and Pharmaceutical Technology

Unit : II - Drug metabolism and pharmaco kinetics & microbiological and animal products (9)

Unit Syllabus: Drug metabolism; physico chemical principles; pharma kinetics-action of drugs on human bodies. Antibiotics- gram positive, gram negative and broad spectrum antibiotics; hormones.

Session No *	Topics to be covered	Ref	Teaching Aids
10	Drug metabolism and drug metabolising enzymes	T3 – Chapter 2 17-46	PPT
11	Physico chemical principles- Oral absorption and transporter of drugs	T3 – Chapter 3, 4 47-72	PPT
12	Metabolism based drug interactions	T3 – Chapter 5 73-96	PPT
13	Biotransformation and bioactivation	T3 – Chapter 6 97-126	PPT
14	Pharmacokinetics an prediction of human pharmacokinetics	T3 – Chapter 6 127 - 144	PPT
15	Antibiotics – spectrum of activity – Mechanism of action	T2 – Chapter – 8 258-326	PPT
16	Gram positive, gram negative and broad spectrum antibiotics - Classified and unclassified antibiotics	T2 – Chapter – 8 258-326	PPT/ ONLIN E
17	Hormones – Hormone related disorders	T2 – Chapter – 20 666-701	PPT/ ONLINE
18	Non-steroidal therapy for hormone disorders	T2 – Chapter – 20 666-701	PPT/ON LINE
Content beyond syllabus covered (if any): Nil			

* Session duration: 50 mins

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Sub. Code / Sub. Name: CH16012 / Drugs and Pharmaceutical

Technology Unit : III - Important unit processes and their applications (9)

Unit Syllabus: Chemical conversion processes; alkylation; carboxylation; condensation and cyclisation; dehydration, esterification, halogenations, oxidation, amination by reduction, sulfonation; complex chemical conversions fermentation

Session No *	Topics to be covered	Ref	Teaching Aids
18	Chemical conversion processes and chemical process kinetics	R1- Chapter 2 & 3 20-59	PPT/ ONLINE
20	Alkylation; carboxylation	R1 – Chapter 14 804-855	PPT/ ONLINE
21	Condensation and cyclisation	R1 – Chapter 15 856-943	PPT/ ONLINE
22	Dehydration, esterification	R1 – Chapter 12 694-749	PPT/ ONLINE
23	Halogenations	R1 – Chapter 6 204-302	PPT/ ONLINE
24	Oxidation	R1 – Chapter 9 486-554	PPT/ ONLINE
25	Amination by reduction	R1 – Chapter 5 129-203	PPT/ ONLINE
26	Sulfonation	R1 – Chapter 7 303-387	PPT/ ONLINE
27	Complex chemical conversions fermentation	R1 – Chapter 15 856-943	PPT

Content beyond syllabus covered (if any): Nil

* Session duration: 50 mins

Sub. Code / Sub. Name: CH16012 / Drugs and Pharmaceutical

Technology Unit : IV - Manufacturing principles & packing and quality

Unit Syllabus: Compressed tablets; wet granulation; dry granulation or slugging; advancement in granulation; direct compression, tablet presses formulation; coating pills; capsules sustained action dosage forms; parenteral solutions, oral liquids; injections; ointments; standard of hygiene and manufacturing practice. Packing; packing techniques; quality control.

Session No *	Topics to be covered	Ref	Teaching Aids
28	Making of compressed tablets	T4 – Section II, Chapter 21	PPT
29	Making of tablets by wet granulation technology	T4 – Section II, Chapter 21	PPT
30	Making of tablets by dry granulation technology or slugging	T4 – Section II, Chapter 21	PPT
31	Advancements in direct compression and granulation technology	T4 – Section II, Chapter 19, 20 & 21	PPT
32	Tablet press formulations, coating pills & capsules for sustained action dosage forms.	T4 – Section III, Chapter 26,27,28 & 29	PPT
33	Parenteral solutions, oral liquids; injections; ointments;	T4 – Section III, Chapter 30	PPT
34	Standard of hygiene and manufacturing practice	T4 – Section V, Chapter 34,35 &36	PPT
35	Packing; packing techniques;	T4 – Section VI, Chapter 41,42 &43	PPT/ON LINE
36	Advancements in packing techniques and quality control.	T4 – Section VI, Chapter 41,42 &43	PPT/ON LINE
Content beyond syllabus covered (if any): Nanoparticulate drug delivery systems			

* Session duration: 50 mins

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Sub. Code / Sub. Name: CH16012 / Drugs and Pharmaceutical

Technology Unit : V - Pharmaceutical products & pharmaceutical

Unit Syllabus: Vitamins; cold remedies; laxatives; analgesics; nonsteroidal contraceptives; external antiseptics; antacids and others. Analytical methods and tests for various drugs and pharmaceuticals – spectroscopy, chromatography, fluorimetry, polarimetry, refractometry, pHmetry.

Session No *	Topics to be covered	Ref	Teaching Aids
37	Vitamins & Cold remedies	T2 – Chapter 28 915-960	PPT
38	Analgesics & Nonsteroidal contraceptives	T2 – Chapter 24 776-818	PPT
39	External antiseptics	T2 – Chapter 6 179-241	PPT
40	Anaesthetics, Antacids and others	T2 – Chapter 22 711-732	PPT
41	Analytical Methods and tests of drugs and pharmaceutics using Spectroscopy	R4 – Chapter 4 & 5	PPT
42	Analytical Methods and tests of drugs and pharmaceutics using Chromatography	R4 – Chapter 3	PPT
43	Analytical Methods and tests of drugs and pharmaceutics using Fluorimetry	R4 – Chapter 9	PPT
44	Analytical Methods and tests of drugs and pharmaceutics using Polarimetry	R4 – Chapter 3 & 11	PPT
45	Analytical Methods and tests of drugs and pharmaceutics using Refractometry and pH metry	R4 – Chapter 1 & 2	PPT

Content beyond syllabus covered (if any): Nil

* Session duration: 50 mins

TEXTBOOKS:

1. John P. Griffin., "The textbook of Pharmaceutical medicine", 6th Edition, Blackwell Publishing Ltd., 2009.
2. John M. Beale and John H. Block, "Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry", 12th Edition, Lippinkot Williams and Wilkins, 2011.
3. Khojasteh, S.C., "Drug Metabolism and Pharmacokinetics Quick Guide", Springer., 2011.
4. Rawlines, E.A.; "Bentleys Text book of Pharmaceutics ", VIII Edition, Bailliere Tindall, London, 1995.

REFERENCES:

1. Groggins, P.H., "Unit Processes in Organic Synthesis", 5th Edition, McGraw Hill Ltd., 1995.
2. Yalkonsky, S.H.; Swarbick. J., "Drug and Pharamaceutical Sciences", Vol. I, II, III, IV, V, VI and VII, Marcel Dekkar Inc., New York, 1975.
3. Remingtons Pharmaceutical Sciences ", Mack Publishing Co., 1990.
4. Lena Ohanessian and Anthony J. Steeter, "Handbook of Pharmaceutical Analysis", Marcel and Dekker, 2002.

	Prepared by	Approved by
Signature		
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Designation	ASSISTANT PROFESSOR	PROFESSOR AND HEAD
Date	21/06/2020	21/06/2020
Remarks *:		
Remarks *:		

* If the same lesson plan is followed in the subsequent semester/year it should be mentioned and signed by the Faculty and the HOD