

JSS Academy of Higher Education and Research

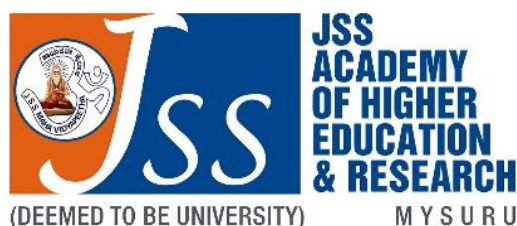
## JSS College of Pharmacy

Sri Shivarathreshwara Nagara, Mysuru-570015

Ph: 0821-2548353, Fax: 0821-2548359, Email: [jsscpsy@jssuni.edu.in](mailto:jsscpsy@jssuni.edu.in)

Website: [www.jssuni.edu.in](http://www.jssuni.edu.in)

*An ISO 9001:2015 Certified Institution*



### II<sup>nd</sup> Pharm.D. Course Handout 2023-24

 <b>A+</b>	 <b>34<sup>th</sup></b> University Category	 <b>351-400</b> 2 <sup>nd</sup> in INDIA Subject Ranking - Clinical & Health 126-150	 <b>301-350</b> QS ASIA RANKING Southern Asia 65	 <b>101-150</b> Pharmacy & Pharmacology Medicine 651-680	 <b>301-400</b> SDG - 3 16 <sup>th</sup> Globally 1 <sup>st</sup> in INDIA	 <b>1<sup>st</sup></b> in the Asia Pacific ACPE certified Pharm.D Program	
 2023   JSS Medical College - 37 <sup>th</sup> ★ JSS Dental College & Hospital - 11 <sup>th</sup> ★ JSS College of Pharmacy, Mysuru - 7 <sup>th</sup> ★ JSS College of Pharmacy, Ooty - 4 <sup>th</sup>							

## Academic Calendar 2023-24

### Tentative Dates of Examinations

I Sessional Examinations for II to V Pharm D & I Pharm D	6 <sup>th</sup> September 2023 & 23 <sup>rd</sup> September 2023
II Sessional Examinations for I to V Pharm D	18 <sup>th</sup> Dec 2023
III Sessional Examinations for I to V Pharm D	18 <sup>th</sup> March 2024
University Examination	1 <sup>st</sup> April 2024

### Teacher's Incharge

Class	Class Teacher	Batch No.	Batch Teacher
II Pharm.D.	Dr. Sriharsha Chalasani	I	Dr. Sriharsha Chalasani (CSH)
		II	Dr Haripriya (HP)

### CURRICULAR & CO-CURRICULAR ACTIVITIES & COORDINATORS FOR THE ACADEMIC YEAR 2023-24

Sl. No	Activities	Coordinator/s	Tentative schedule of meeting/activity
1.	Induction, learning skills, and personality development programs for freshers' day	Coordinator: AKT Members: BRJ, DT	July/August 2023
2.	Anti-ragging cell	Coordinators: JS, KSN, & Committee members	July/August 2023
3.	Grievance and redressal cell	Coordinator: GVP & Committee members	Meetings - twice/year
4.	Gender Sensitization Committee	Coordinator: SNM & Committee members	Meetings - twice/year
5.	Industrial Visits, Training, and placements	Coordinator: ABP Members: MGS, SM, SD, LR, UM	September 2023- June 2024
6.	Internal Quality Assurance Cell (IQAC) Team	Chairman- GVP Coordinator- HVG Member Secretary: SP Members: RSC, MPV, KSN, CIA, HP	4 meetings/year

7.	Guest lecture & Seminar/ Conference/ Training / Workshop/Webinar organized at college / delivered/ attended by staff- Validation of college data.	IQAC Team	Throughout the academic year
8.	Governing council meeting	GVP + IQAC Team AAO & Asha B	July 2023 and Feb 2024
9.	Preparation of documents and submission for NIRF, NAAC, NBA, PCI or any other agency	Team IQAC	<ul style="list-style-type: none"> <li>Throughout the academic year</li> </ul>
10.	Internal Assessment Committee (IAC)	Coordinator: GVP Members: All program Coordinators (M Pharm, B. Pharm, D Pharm, Pharm D)	Meetings - twice/year Schedule as per the academic calendar
11.	ACPE committee- Interim report and others	Coordinator: MR /RSS Member: SP & UM	<ul style="list-style-type: none"> <li>As required</li> </ul>
12.	Academic Council Board (ACB) <ul style="list-style-type: none"> <li>Student Progression (Advanced/ Medium/ Slow learners)</li> <li>Mentors Diary- Student profile</li> </ul>	Class teachers and Program Coordinators	<ul style="list-style-type: none"> <li>After each sessional exam</li> <li>Regular monitoring of Mentee</li> </ul>

13.	Ethics committee	<ul style="list-style-type: none"> <li>IAEC-SBC</li> <li>IEC-CSH</li> </ul>	<ul style="list-style-type: none"> <li>Twice a year</li> </ul>
14.	Class Timetable committee	Coordinator: VJ Member: BRP, NPK, URR, DT	<ul style="list-style-type: none"> <li>Twice a year (June &amp; Nov 2023)</li> </ul>
15.	Women's cell/Prevention of Sexual Harassment Cell/Internal Complaints committee (ICC)	SNM & committee members	<ul style="list-style-type: none"> <li>Meetings twice a year (June &amp; Nov 2023)</li> </ul>
16.	Scholarship Bureau	Coordinator: RSC Member: SRD	Soon after the announcement of the Scholarships
17.	Compilation of publications (Research papers/ books/chapters)	Coordinator: SRD	1st of Every month
18.	Research Coordination & Consultancy Committee Compilation of Ph.D. details and funded projects Review of publications Collaboration with Industries/organizations Interdepartmental/ Interdisciplinary research	Chairman-SBC Members-All HoDs	At least 3 meetings/year
19.	Department Academic Integrity Panel (DAIP) - Plagiarism Check for PhD & M Pharm thesis	Chairman-TMP Member Secretary: BRP Member-VJ	During the submission of thesis by the students
20.	Pharmacy Education Unit – for CCLPE activities	MSS	At least 5 activities/ year
21.	Annual result analysis and List of merit students	Class teachers and M Pharm Course Coordinators	Soon after the exam results
22.	GPAT and other competitive exams (TOEFL, GRE etc.)	Coordinator: SNM Members: RAO, RJ	Planning of coaching Throughout the academic year
23.	Library orientation	Librarian	July/August 2023
24.	Library staff coordinator	Coordinator: HYK Members: PP, AAR, RG, DT, and AAP	Two meetings/year Yearly textbook requirements
25.	Soft Skills Training	Coordinator: ABP Member: MGS	At least 3 activities/year
26.	International Student Rotation	CSH	As and when
27.	Hackathon	RAO	At least two events/ year

28.	Golden Jubilee-Souvenir, press and publicity	Chairman- TMP/ GVP Members-BS, KSN, RJ, RG, CIA	August 2022- August 2023
29.	SDG- Activities and Compendium	CIA, PP	<ul style="list-style-type: none"> <li>• Compendium- August 23</li> <li>• Regular activity under each SDG</li> </ul>
30.	Course handouts/ Teachers' diary/ Student Handbook/Faculty Handbook.	NPK & HYK	<ul style="list-style-type: none"> <li>• July/ August 2023</li> </ul>
31.	National Pharmacy Week (NPW) & Pharmacists Day	Coordinator: UM & IPA office bearers	<ul style="list-style-type: none"> <li>• Nov-Dec 2023</li> </ul>
32.	Alumni association	Coordinator: HVG Member: SM	<ul style="list-style-type: none"> <li>• August/September 2023</li> </ul>
33.	Herbal and College Garden	NPK	<ul style="list-style-type: none"> <li>• Regular monitoring</li> </ul>
34.	ISO 9001:2015	Coordinator: SNM Member: SM	<ul style="list-style-type: none"> <li>• 2 Internal audits (July and December)</li> <li>• Surveillance/ Recertification audit</li> </ul>
35.	Press and publicity	Coordinator: BRP Member: TS	During the Conferences/ workshop organized
36.	Foreign students' cell	MPV	At least 2 meetings
37.	Monthly/Annual report of college and JSSU Newsletter & Annual report of JSS AHER and other agencies	Coordinator: KM Members: PP, HP, AAP, DT, AAR	Monthly report
38.	College website updating	Coordinator: HKS Members: AKT, DT, RG, URR, MGS	Throughout the year
39.	JSSUonline.com Student promotion, Timetable, teacher allotment, and others	Coordinator - SRD	Throughout the year
40.	Annual group photo session	HP, RG	Feb 2024
41.	Lab coat and Blazers	JS and Ningaraju	August/Sep 2023
42.	Notice Board (SNB, LNB, and IIPC), Departmental staff list	Shadakshari	Throughout the year
43.	Stock verification	Ningaraju	April/May 2024
44.	Student Liaison	Coordinator: AAO Member: TS	Throughout the year
45.	Student ID Cards /Attendance entry	Shivanna & Kumar	Aug/Sep 2023
46.	Retreat for Pharmacy Students	AKT	Nov/Dec 2023
47.	Retreat for Teachers	JS	November 2023/May 2024

48.	Feedback	VJ & SA	April/May 2023
49.	Institute Innovation Cell	Coordinator: RAO Member: DT	Throughout the year
50.	Practice School	Coordinator: ST Member: KSN, PS, MSS, PP	Throughout the year
51.	MOUs-Collate College initiation activities	HP	June 2023 & Jan 2024
<b>Extracurricular activities</b>			
Sl. No.	Activities	Coordinator/s	Tentative schedule of meeting/activity
52.	Selection of Class Representatives, Pharmaceutical society members Annual planning and execution of Student-centered and professional activities including the inauguration of IPS	Coordinator: MPV Member: MSS	July 2023
53.	JASPHARM- College magazine	Coordinator: BS Member: AAP	July 2024
54.	STUMAG- College wall magazine	TSK, LR	At least 3 issues/year
55.	Sports coordinators	HYK, SND	Feb 2024
56.	NSS coordinators	Program Officer- URR Assistant PO - SND	Regular activities and special camp
57.	Cultural & Literary coordinators	PS, MGS, LR	Nov 2023
58.	Annual Day Celebration & Graduation Day	CIA, ASP	March 2024, July 2024
59.	Foreign languages	CIA, PP	Throughout the year
60.	College Calendar & Events	RSC, MPV	June / July 2023

<b>Program Committee</b>			
<b>Sl. No.</b>	<b>Program committees</b>	<b>Chairperson</b>	<b>Member Secretary</b>
61.	D. Pharm	GVP	MSS
62.	B. Pharm	GVP	MPV
63.	Pharm. D	TMP	CSH
64.	M. Pharm	TMP	RSC
65.	Diploma programs	GVP	RJ
<b>Sl. No.</b>	<b>M. Pharm Program</b>		<b>Coordinator</b>
66.	Pharmaceutics		RAO
67.	Industrial Pharmacy		ASP
68.	Pharmaceutical Regulatory Affairs		MPV
69.	Pharmaceutical Quality Assurance		HKS
70.	Pharmaceutical Chemistry		HYK
71.	Pharmaceutical Analysis		AKT
72.	Pharmacology		SM
73.	Pharmacognosy		NPK
74.	Pharmacy Practice		UM
75.	Pharmaceutical Biotechnology		RG
<b>Sl. No.</b>	<b>PG Diploma Program</b>		<b>Coordinator</b>
76.	Pharmacovigilance		CSH
77.	Medicine & Poison Information		UM
78.	Clinical Research		SP
79.	Pharmaceutical Quality Assurance		TS
80.	Pharmaceutical Regulatory Affairs		MPV
81.	Medical Devices		MGS
82.	Intellectual Property Rights		ARR/ HYK
83.	Computer-Aided Drug Design		SD
84.	Food and Drug Analysis		RJ
85.	Regulatory Toxicology		SBC
86.	Phytopharmaceutical and Industrial Applications		NPK
87.	Quality control		AKT
<b>Sl. No.</b>	<b>Certificate Course</b>		<b>Coordinator</b>
88.	Pharmaceutical Quality Assurance		HKS
89.	Herbal Drug Standardization		HP

90.	Medicine Information	BRJ
91.	Clinical Research	SP
92.	Global Regulatory Affairs	MPV
93.	Food & Nutraceuticals	RJ
94.	Telemedicine	BRJ

Sl. No	NAME	QUALIFICATION	DESIGNATION	DEPARTMENT
1.	Dr. T.M. Pramod Kumar (TMP)	M.Pharm., Ph.D.	Professor & Principal	Pharmaceutics
2.	Dr. Gurubasavaraj V Pujar (GVP)	M.Pharm., Ph.D.	Professor & Vice Principal	Pharma. Chemistry
3.	Dr. Balamuralidhara V. (BMV)	M.Pharm., Ph.D.	Assoc. Professor & Head	Pharmaceutics
4.	Dr.K. Bangarurajan (KBR)	M.Pharm., Ph.D.	Professor	Pharmaceutics
5.	Dr. Gangadharappa H.V. (HVG)	M.Pharm., Ph.D.	Assoc. Professor	Pharmaceutics
6.	Dr. M.P. Venkatesh (MPV)	M.Pharm., Ph.D.	Assoc. Professor	Pharmaceutics
7.	Dr. Vikas Jain (VJ)	M.Pharm., Ph.D.	Assoc. Professor	Pharmaceutics
8.	Dr. Amit B Patil (ABP)	M.Pharm., Ph.D.	Assoc. Professor	Pharmaceutics
9.	Dr. Hemanth Kumar S (HKS)	M.Pharm., Ph.D.	Asst. Professor	Pharmaceutics
10.	Dr. Osmani Mir Riyaz Ali MahafezAli (RAO)	M.Pharm., Ph.D.	Asst. Professor	Pharmaceutics
11.	Dr. Asha Spandana K M (ASP)	M.Pharm., Ph.D.	Lecturer	Pharmaceutics
12.	Dr. Shailesh T(TS)	M.Pharm., Ph.D.	Lecturer	Pharmaceutics
13.	Ms. Preethi S (PS)	M.Pharm	Lecturer	Pharmaceutics
14.	Ms. Akhila AR (AAR)	M.Pharm	Lecturer	Pharmaceutics
15.	Mr. Trideva Sastri K (TSK)	M.Pharm	Lecturer	Pharmaceutics
16.	Dr.Meghana G S(MGS)	M.Pharm., Ph.D.	Lecturer	Pharmaceutics
17.	Dr. Savitha R S (RSS)	M.Pharm.	Assoc. Professor & Head	Pharmacy Practice
18.	Dr. M. Ramesh (MR)	M.Pharm., Ph.D.	Professor	Pharmacy Practice
19.	Ms. Shilpa Palaksha (SP)	M.Pharm.	Assoc. Professor	Pharmacy Practice
20.	Mr. D.H. P. Gowda (DHP)	M.Sc., PGDCA.	Asst. Professor	Pharmacy Practice
21.	Dr. M Umesh (UM)	Pharm D.	Asst. Professor	Pharmacy Practice
22.	Dr. Sri Harsha Chalasani (CSH)	M.Pharm., Ph.D.	Asst. Professor	Pharmacy Practice
23.	Dr. Jaidev Kumar B R (BRJ)	M.Pharm.	Lecturer	Pharmacy Practice
24.	Dr. Srikanth M S (MSS)	M.Pharm., Ph.D.	Lecturer	Pharmacy Practice
25.	Mr Balaji S (BS)	M.Pharm	Lecturer	Pharmacy Practice
26.	Dr. U R Rakshith (URR)	Pharm D	Lecturer	Pharmacy Practice
27.	Dr. Acsah Annie Paul (AAP)	Pharm D	Lecturer	Pharmacy Practice
28.	Dr Siddartha N Durappanavar (SND)	Pharm D	Resident	Pharmacy Practice
29.	Dr. B.M. Gurupadayya (BMG)	M.Pharm., Ph.D.	Professor & Head	Pharma. Chemistry
30.	Dr. R. S. Chandan (RSC)	M.Pharm., Ph.D.	Assoc. Professor	Pharma. Chemistry



31.	Dr. Prashantha Kumar B R (BRP)	M.Pharm., Ph.D.	Assoc. Professor	Pharma. Chemistry
32.	Dr. Anand Kumar Tengli (AKT)	M.Pharm., Ph.D.	Assoc. Professor	Pharma. Chemistry
33.	Dr. H. Yogish Kumar (HYK)	M.Pharm., Ph.D.	Lecturer	Pharma. Chemistry
34.	Dr. Sheshagiri Dixit (SD)	M.Pharm., Ph.D.	Lecturer	Pharma. Chemistry
35.	Dr Rupshee Jain (RJ)	M.Pharm., Ph.D.	Lecturer	Pharma. Chemistry
36.	Mr. Chetan.IA(CIA)	M.Pharm	Lecturer	Pharma. Chemistry
37.	Dr. Prabitha P (PP)	M.Pharm., Ph.D.	Lecturer	Pharma. Chemistry
38.	Dr. J. Suresh (JS)	M.Pharm., Ph.D.	Professor & Head	Pharmacognosy
39.	Dr. K Mruthunjaya (KM)	M.Pharm., Ph.D.	Professor	Pharmacognosy
40.	Dr. N Paramakrishnan (NPK)	M.Pharm., Ph.D.	Asst. Professor	Pharmacognosy
41.	Ms. Haripriya G (HG)	M Pharm	Lecturer	Pharmacognosy
42.	Dr. Logesh R (LR)	M.Pharm., Ph.D.	Lecturer	Pharmacognosy
43.	Mr. Rajaguru A (RG)	M.Pharm	Lecturer	Pharmaceutical Biotechnology
44.	Mr. Siva Armugam (SA)	M.Pharm	Lecturer	Pharmaceutical Biotechnology
45.	Dr. K L Krishna (KLK)	M.Pharm., Ph.D.	Assoc. Professor & Head	Pharmacology
46.	Dr. S. N. Manjula (SNM)	M.Pharm., Ph.D.	Professor	Pharmacology
47.	Dr. Saravana Babu C (SB)	M.Pharm., Ph.D.	Professor	Pharmacology
48.	Dr. Seema Mehdi (SM)	M.Pharm., Ph.D.	Lecturer	Pharmacology
49.	Dr. Nagashree K S (KSN)	M.Pharm., Ph.D	Lecturer	Pharmacology
50.	Dr. Dithu Thekkekkara (DT)	M.Pharm., Ph.D	Lecturer	Pharmacology

## **PHARM.D**

### **Course outcomes:**

Outcome 1 - Development of patient centered knowledge and skills: The student should understand and possess the knowledge and skills required to demonstrate the ability to provide patient centered pharmaceutical care services.

Outcome 2 - Development of pharmaceutical care plan: The student should be able to formulate a pharmaceutical care plan by working in close relation with healthcare professionals, and patient/care taker in order to ensure the enhanced therapeutic outcome in the patient. Also, the pharmaceutical care plan includes maximization of therapeutic benefit by detecting, preventing and resolving drug related problems. The student should be able to recommend pharmaceutical care plan based on evidence, and follow-up and document the outcomes of the pharmaceutical care service.

Outcome 3 – Hospital and community pharmacy management: The student should be able to accurately interpret prescriptions, dispense medications and manage drug distribution system adhering to patient needs, in compliance with policies and guidelines of the hospital pharmacy, good community pharmacy practice and the recommendations of regulatory agencies. Also able to prepare inventory, procure, and use appropriate methods of drug storage and adopt appropriate techniques of drug distribution to ensure correct dispensing of medicines.

Outcome 4 – Promote public healthcare program: The student should be able to participate in various public health care programs of the nation including disease prevention initiatives to improve public health. Contribute to the development and promotion of national health policies including rational drug use program and essential drug policy.

Outcome 5 – Ethics and professional integrity: The student should deliver the duties in accordance with legal, ethical, social, economic, and professional guidelines with integrity. Able to provide patient care services by making rational and ethical decisions that represent the best interest of the patient and the society, and respect the patient, healthcare professionals, and the privacy and confidentiality of health information.

Outcome 6 - Analytical, critical and decision making skills: The student should be able to retrieve, understand, interpret, apply, analyze, synthesize, and evaluate information. Able to apply critical thinking and interpretational skills to identify, manage, and prevent problems and make appropriate decisions.

Outcome 7 - Communication skills: The student should be able to communicate effectively with patients/caretakers, healthcare professionals. Able to effectively counsel, provide medicines information, and educate patients, caretakers & healthcare professionals about

medication therapy and other health related issues. Effective communication includes use of both oral and written communications skills and various communication techniques.

Outcome 8 - Leadership and entrepreneurship skills: The student should be able to achieve leadership skills through team work and by involving in organizing various community outreach programs with sound decision making skills. Also the student should enhance the entrepreneurial skills by finding or creating new prospects in challenging professional environments.

Outcome 9 - Interprofessional collaborative practice: Student should be able to identify unique opportunities for professional collaboration towards patient-centered pharmaceutical care services and demonstrate the ability to interact and work with multidisciplinary healthcare teams.

Outcome 10 - Design and conduct of need based research: The student should be able to understand the research needs of the region/nation, and design and conduct the research that would add value to the healthcare requirements of the patients and community/society.

Outcome 11 - Digital literacy: Students should be able to use computers and gadgets to search, retrieve, analyze, store, create, present and exchange information, and interact and participate in interactive networks through the Internet or through any other digital platform to enrich pharmaceutical care services.

Outcome 12 - Life-long learning: The student should be able to recognize knowledge and skill deficits that exist in the effective delivery of health care needs of the patient/society. As a life-long learner, student should be able to identify and analyze issues emerging in the advancing healthcare delivery, and set learning goals, locate, interpret appropriate resources, and assess progress toward meeting learning goals.

**I .Course Details**

S.No	Name of Subject	No. of hours of Theory	No. of hours of Practical	No. of hours of Tutorial
2.1	Pathophysiology	3	-	1
2.2	Pharmaceutical Microbiology	3	3	1
2.3	Pharmacognosy & Phytopharmaceuticals	3	3	1
2.4	Pharmacology-I	3	-	1
2.5	Community Pharmacy	2	-	1
2.6	Pharmacotherapeutics-I	3	3	1
	<b>Total hours</b>	<b>17</b>	<b>9</b>	<b>6</b>
	<b>Grand Total</b>	<b>32 hrs/ week</b>		

**2. Evaluations:**

**Theory:** Internal assessment Marks: 30. Three periodic theory sessional examinations will be conducted in theory for 30 marks (*duration 1.5 Hour*) and average of best two will be considered for evaluation.

**Practical:** Internal assessment Marks: 30. Three periodic practical sessional examinations will be conducted for 20 marks and average of best two will be considered for evaluation, plus 10 marks are awarded for regularity, promptness, viva-voce and record maintenance. JSS University will conduct annual examination for 70 marks in theory & practical at end of the academic session.

Classes will be awarded on the basis of total (sessional and annual examination) marks secured.

Class	Marks
Distinction	75% and above
First class	60% and above and less than 75%
Second class	50% and above and less than 60%
Pass class	Passed examination in more than one attempt.

**3 Sessional Examination schedule:** I, II and III sessional dates will be announced separately.

**4 Attendance:** Minimum of 80% attendance is necessary to appear for both Sessional and Annual examination.

**5 Chamber consultation hours:** Any time during College hours.

**6 Tutorial Class**

Objective of the tutorial is to enhance the learning ability and help students in better understanding of the subject. This provides a best opportunity for the students to clarify their subject doubts. This involves discussions, presentations on specified topics, assignments and evaluation.

## **2.1 PATHOPHYSIOLOGY (THEORY)**

**Theory: 3 Hrs. /Week**

**Responsible Member/s of the academic staff: Dr. Acsah Annie Paul (AAP)**

**Scope and Objectives:** This course is designed to impart a thorough knowledge of the relevant aspects of pathology of various conditions with reference to its pharmacological applications, and understanding of basic pathophysiological mechanisms. Hence it will not only help to study the syllabus of pathology, but also to get baseline knowledge of its application in other subject of pharmacy.

### **Course Outcomes:**

1. Describe the etiology and pathogenesis of the selected disease states.
2. Demonstrate a basic understanding of the concepts and elements of disease.
3. Name the signs and symptoms of the diseases.
4. Mention the complications of the diseases.
5. Distinguish environmental factors and physical, psychosocial, and cognitive characteristics of various diseases and conditions.
6. Discuss common laboratory and diagnostic tests.

### **Teaching/learning methodologies used:**

1. Lecture
2. Discussion
3. Video

### **Course Materials**

#### **TEXT BOOKS**

- a. Pathologic basis of disease by- Cotran, Kumar, Robbins
- b. Text Book of Pathology – Harsh Mohan
- c. Text book of Pathology – Y M. Bhide
- d. <https://www.khanacademy.org.Pathology>

#### **REFERENCE BOOKS**

- a. Clinical Pharmacy and Therapeutics; Second edition; Roger Walker; Churchill Livingstone publication
- b. Pathology and Therapeutics for Pharmacists. A basis for clinical pharmacy practice; Third edition; Russell J Greene and Norman D Harris

## Lecture wise Programme:

Topic	Hrs
<b>1 Basic principles of cell injury and Adaptation</b>	<b>05</b>
a) Causes, Pathogenesis and morphology of cell injury	
b) Abnormalities in lipoproteinaemia, glycogen infiltration and glycogen infiltration and glycogen storage diseases	
<b>2 Inflammation</b>	<b>05</b>
a) Pathogenesis of acute inflammation, Chemical mediators in inflammation, Types of chronic inflammation	
b) Repairs of wounds in the skin, factors influencing healing of wounds	
<b>3 Diseases of Immunity</b>	<b>02</b>
a) Introduction to T and B cells	
b) MHC proteins or transplantation antigens	
c) Immune tolerance	
d) <b>Hypersensitivity</b>	<b>03</b>
Hypersensitivity type I, II, III, IV, Biological significance, Allergy due to food, chemicals and drugs	
e) <b>Autoimmunity</b>	<b>03</b>
Criteria for autoimmunity, Classifications of autoimmune diseases in man, mechanism of autoimmunity, Transplantation and immunologic tolerance, allograft rejections, transplantation antigens, mechanism of rejection of allograft.	
f) Acquired immune deficiency syndrome (AIDS)	<b>01</b>
g) Amyloidosis	<b>01</b>
<b>4 Cancer</b>	<b>05</b>
Differences between benign and malignant tumors, Histological diagnosis of malignancy, invasions and metastasis, patterns of spread, disturbances of growth of cells, classification of tumors, general biology of tumors, spread of malignant tumors, etiology and pathogenesis of cancer.	
<b>5 Shock</b>	<b>03</b>
Types of shock, mechanisms, stages and management	
<b>6 Biological effects of radiation</b>	<b>02</b>
<b>7 Environmental and nutritional diseases</b>	<b>04</b>
i) Air pollution and smoking- SO <sub>2</sub> ,NO, NO <sub>2</sub> , and CO	
ii) Protein calorie malnutrition, vitamins, obesity, pathogenesis of starvation.	
<b>8 Pathophysiology of common diseases</b>	
Parkinsonism	<b>01</b>
Schizophrenia	<b>01</b>
Depression and mania	<b>02</b>
Hypertension	<b>02</b>
Stroke (ischemic and hemorrhage)	<b>02</b>
Angina, CCF, Atherosclerosis, Myocardial infarction	<b>08</b>
Diabetes Mellitus	<b>02</b>
Peptic ulcer and inflammatory bowel diseases	<b>04</b>
Cirrhosis and Alcoholic liver diseases	<b>04</b>
Acute and chronic renal failure	<b>02</b>

Asthma and chronic obstructive airway diseases **02**

**9 Infectious diseases : 11**

Sexually transmitted diseases (HIV, Syphilis, Gonorrhoea), Urinary tract infections, Pneumonia, Typhoid, Tuberculosis, Leprosy, Malaria, Dysentery (bacterial and amoebic), Hepatitis- infective hepatitis.

**Sample Assignment Titles:**

1. Chemical Mediators of inflammation
2. Drug Hypersensitivity
3. Cigarette smoking & its ill effects
4. Biological Effects of Radiation
5. Etiology and hazards of obesity
6. Complications of diabetes
7. Diagnosis of cancer
8. Disorders of vitamins
9. Methods in Pathology-Laboratory values of clinical significance
10. Pathophysiology of Dengue Hemorrhagic Fever (DHF)

**Format of the assignment**

1. Minimum of 6 & Maximum of 12 number of pages.
2. Reference(s) shall be included at the end.
3. Assignment can be a combined presentation at the end of the academic year
4. It shall be a computer draft copy.
5. The covering page must contain the title of assignment, name and signature of the student and the name of subject teacher
6. Time allocated for presentation may be 8+2 Min.

**Theory Sessional Examination Syllabus**

<b>Sessional No.</b>	<b>Syllabus</b>
I	Topics 1, 2, 3, & 4
II	Topics 5, 6, 7 & 8 - a, b, c, d, e, & f
III	Topics 8- g, h, i, j, & k and 9

## **2.2 PHARMACEUTICAL MICROBIOLOGY (THEORY)**

**Theory: 3 Hrs. /Week**

**Responsible member of the academic staff: Ms Haripriya G (HG)**

**Scope & Objectives:** Microbiology has always been an essential component of pharmacy curriculum. This is because of the relevance of microbiology to pharmaceutical sciences and more specifically to pharmaceutical industry. Pharmaceutical biotechnology is the logical extension of pharmaceutical microbiology, which is expected to change the complete drug product scenario in the future. This course deals with the various aspects of microorganisms, its classification, morphology, laboratory cultivation identification and maintenance. It's also discusses with sterilization of pharmaceutical products, equipment, media etc. The course further discusses the immunological preparations, diseases its transmission, diagnosis, control and immunological tests.

### **Course Outcomes:**

1. Demonstrate comprehension of microbe anatomy by identifying the constituents, functions, and growth factors of microbial cells.
2. Analyze disease-causing microbe transmission methods, the illnesses they cause, and available treatments.
3. Apply laboratory techniques, such as isolation, staining, and biochemical testing, to cultivate and identify microorganisms
4. Evaluate diagnostic methods, including culture-based and molecular techniques, for detecting various microbe-caused illnesses.
5. Create opportunities for students to develop critical thinking skills and apply microbiological principles to real-world issues concerning microorganisms and their impact on human health.
6. Build a strong foundation in microbe composition, identification, and disease transmission to prepare students for further education or careers in the pharmaceutical field.

### **Teaching/learning methodologies used:**

1. Lecture
2. Practical /Lab
3. Discussion

### **Course Materials:**

#### **TEXT BOOKS**

- a) Vanitha Kale and Kishor Bhusari "Applied Microbiology" Himalaya Publishing



- house Mumbai.
- b) Mary Louis Turgeon “Immunology and Serology in Laboratory Medicines” 2<sup>nd</sup> edition, 1996 Mosby- Year book inc St. Louis Missouri.
  - c) Harsh Mohan, “Text book of Pathology” 3<sup>rd</sup> edition, 1998, B-3 Ansari road Daryaganj N. Delhi.

## REFERENCE BOOKS

- a) Prescott L.M., Jarley G.P Klein D.A “Microbiology” 2<sup>nd</sup>- edition Mc Graw Hill Company Inc.
- b) Rawlins E.A. “Bentley’s Text Book of Pharmaceutics” Bailliere Tindals 24-28, London 1988.
- c) Forbisher “Fundamentals of Microbiology” Philadelphia W.B. Saunders.
- d) Prescott L.M. Jarley G.P., Klein D.A. “Microbiology.” 2<sup>nd</sup> edition WMC Brown Publishers, Oxford. 1993.
- e) War Roitt, Jonathan Brostoff, David male, “Immunology”3<sup>rd</sup> edition 1996, Mosby-year book Europe Ltd, London.
- f) Pharmacopoeia of India, Govt. of India, 1996.

## Lecture wise Programme:

<b>Topic</b>	<b>Hrs</b>
<b>1 Introduction to the science of microbiology.</b> Major divisions of microbial world and Relationship among them.	<b>03</b>
<b>Morphology &amp; Physiology of Microorganisms</b>	
<b>2</b> Different methods of classification of microbes and study of Bacteria, Fungi, Virus, Rickettsiae, Spirochetes. Growth & Nutrition. Nutritional requirements. Growth and cultivation of bacteria and virus. Culture Media for aerobic and anaerobic bacteria & fungi.	<b>07</b>
<b>3 Maintenance of lab cultures.</b> Isolation and Identification of Bacteria Different methods-Staining reactions. Biochemical reactions.	<b>08</b>
<b>4 Counting of bacteria</b> -Total and Viable counting techniques. <b>Sterilization</b>	<b>08</b>
<b>5</b> Detailed study of different methods of sterilization with merits and demerits. Sterilization methods for all pharmaceutical products Detailed study of sterility testing of different pharmaceutical preparations. Validation of various sterilization techniques.	<b>08</b>
<b>6 Disinfectants</b> Study of disinfectants, antiseptics, fungicidal and Factors affecting their action and mechanism of action. Evaluation of bactericidal, bacteriostatic, virucidal and preservatives in pharmaceutical preparations.	<b>07</b>

	<b>Immunology</b>	
7	Definition, Classification, General principles of natural immunity, Phagocytosis, acquired immunity (active and passive). Antigens, chemical nature of antigens structure and formation of Antibodies, Antigen-Antibody reactions. Bacterial exotoxins and endotoxins. Significance of toxoids in active immunity, Immunization programme, and importance of booster dose.	12
8	<b>Diagnostic tests</b> Schick's Test, Elisa test, Western Blot test, Southern Blot PCR, Widal, QBC, Mantoux Peripheral smear. Study of malarial parasite.	07
9	<b>Microbiological Assays</b> Microbial culture sensitivity Testing: Interpretation of results Principles and methods of different microbiological assays. Microbiological assay of Penicillin, Streptomycin and vitamin B <sub>2</sub> and B <sub>12</sub> . Standardization of vaccines and sera.	05
10	<b>Study of infectious diseases</b> Typhoid, Tuberculosis, Malaria, Cholera, Hepatitis, Meningitis, Syphilis & Gonorrhoea and HIV	10

#### Theory Sessional examination syllabus

Sessional No.	Syllabus
	Chapters no.
I	1-4
II	5, 6 & 10
III	7-9

## 2.2 PHARMACEUTICAL MICROBIOLOGY (PRACTICALS)

**Practical: 75 Hours (3 Hrs/Week)**

**Responsible member of the academic staff: Ms Haripriya G (HG)**

**Course Outcomes:**

1. Comprehend the significance of microbiology in the pharmaceutical sciences and industry.
2. Create laboratory experiments to cultivate, identify, and maintain microorganisms for pharmaceutical purposes.
3. Develop and manage immunological preparations for preventing and treating infectious diseases.
4. Classify and describe the morphology of microorganisms and their relevance to the pharmaceutical industry.
5. Combine microbiological principles in the design and development of drug products.
6. Generate innovative solutions for controlling and preventing infectious diseases.
7. Evaluate the transmission, diagnosis, and control of diseases, as well as the importance of immunological tests.

**Title of the Experiment:**

- 1 Study of apparatus used in experimental microbiology\*.
- 2 Sterilisation of glass ware's. Preparation and sterilisation of media\*
- 3 Staining techniques – Simple staining; Gram's staining; Negative staining\*\*
- 4 Study of motility characters\*.
- 5 Enumeration of micro-organisms (Total and Viable)\*
- 6 Study of the methods of isolation of pure culture.\*
- 7 Bio chemical testing for the identification of micro\*-organisms.
- 8 Cultural sensitivity testing for some micro-organisms.\*
- 9 Sterility testing for powders and liquids.\*
- 10 Determination of minimum inhibitory concentration.\*
- 11 Microbiological assay of antibiotics by cup plate method.\*
- 12 Microbiological assay of vitamins by Turbidometric method\*\*
- 13 Determination of RWC.\*\*

\* Indicate minor experiment & \*\* indicate major experiment

**Assignments:**

- 1 Visit to some pathological laboratories & study the activities and equipment/instruments used and reporting the same.
2. Visit to milk dairies (Pasteurization) and microbial laboratories (other sterilization methods) & study the activities and equipment/instruments used and reporting the same.
3. Library assignments
  - a. Report of recent microbial techniques developed in diagnosing some common diseases.
  - b. Latest advancement developed in identifying, cultivating & handling of microorganisms.

**Format of the assignment:**

1. Minimum & Maximum number of pages.
2. It shall be computer draft copy.
3. Reference(s) shall be included at the end.
4. Name and signature of the student.
5. Assignment can be a combined presentation at the end of the academic year.
6. Time allocated for presentation may be 8+2 Min.

**Scheme of Practical Examination:**

	<b>Sessionals</b>	<b>Annual</b>
Synopsis	05	15
Major Experiment	10	25
Minor Experiment	03	15
Viva	02	15
<b>Max Marks</b>	<b>20</b>	<b>70</b>
<b>Duration</b>	<b>03 hrs</b>	<b>04 hrs</b>

*Note: Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).*

### **2.3 PHARMACOGNOSY & PHYTOPHARMACEUTICALS (THEORY)**

**Theory: 3 Hrs. /Week**

**Responsible member/s of the academic staff: Dr. K Mruthunjaya (KM)**

**Scope and Objectives:** This subject has been introduced for the pharmacy course in order to make the student aware of medicinal uses of various naturally occurring drugs their history, sources, distribution, method of cultivation, active constituents, medicinal uses, identification tests, preservation methods, substitutes and adulterants.

**Course Outcomes:**

1. Know about the ancient civilization and contributors involved in natural medicine.
2. Learn about various methods of cultivation, propagation and harvesting techniques involved in economically important crude drugs.
3. Understand various types of adulteration in medicinal herbs and its identification techniques
4. Learn about the phyto-constituents, its identification and isolation techniques
5. Understand the pharmacokinetic and pharmacodynamic interactions of various herbs
6. Familiarize about the crude drugs obtained from marine sources, its classification and therapeutic importance
7. Gain knowledge about the techniques involved in preparation of pharmaceutical aids and surgical dressings

**Teaching/learning methodologies used**

1. Lecture
2. Practical/Lab
3. Discussion

**Course materials**

**TEXT BOOKS**

- a. Pharmacognosy by G.E. Trease & W.C. Evans.
- b. Pharmacognosy by C.K. Kokate, S.B. Gokhale & A.C. Purohit.

**REFERENCE BOOKS**

- a. Pharmacognosy by R. Brady & V.E. Tyler.
- b. Pharmacognosy by T.E. Wallis.
- c. Pharmacognosy by C.S. Shah & J.S. Quadry.
- d. Pharmacognosy by M.A. Iyengar.

**Lecture wise programme:**

No.	Topic	Hrs
1.	Introduction.	01
2.	Definition, history and scope of Pharmacognosy.	02
3.	Classification of crude drugs viz. alphabetical, morphological, chemical, pharmacological, taxonomical methods. General methods of chemotaxonomy.	05

4.	Cultivation, collection, processing and storage of crude drugs. Conservation of medicinal plants.	05
5.	Detailed method of cultivation of crude drugs. a) Senna b) Cinchona c) Cardamom d) Opium e) Isapgol f) Ergot h) Ginger	06
6.	Study of cell wall constituents and cell inclusions.	04
7.	<b>Study of morphology and microscopy of different plants parts.</b> i. Leaf: Datura, Senna ii. Bark: Cinnamon (Cassia), Cinchaona iii. Wood: Quassia iv. Stem: Ephedra v. Root: Rauwolfia, Liquorice vi. Rhizome: Ginger, Podophyllum. vii. Flower buds: Clove. viii. Fruits: Coriander, Fennel ix . Seeds: Isapgol, Nux Vomica.	10
8.	<b>Study of natural pesticides.</b> Pyrethrum, Neem, Tobacco	03
9.	<b>Detailed study of various plant constituents.</b> a) Detailed study of Carbohydrates and related products. b) Biological source, method of production, chemical constituents, tests, uses and adulterants of i) Honey ii) Acacia iii) Agar iv) Sterculia v) Tragacanth vi) Cellulose and its products vii) Pectin viii) Guar gum ix) Sodium alginate.	10
10.	Definition, sources, method extraction, chemistry and method of analysis of Lipids. Study of method of production, chemical constituents, tests, uses and adulterants of the following drugs. i) Castor oil ii) Shark liver oil iii) Chaulmoogra oil iv) Wool fat v) Bees wax vi) Spermaceti vii) Cocoa butter viii) Olive oil	07
11.	Therapeutic application of herbal drugs, poisonous plants, herbal-drug interaction, edible vaccines, marine Pharmacognosy.	04
12.	Introduction, definition, classification, general properties, chemical tests and general method of isolation of Alkaloids, Glycosides, Essential Oils, Flavonoids, Resins and Tannins.	12
13.	Study of plants fibers used in surgical dressings and related products.	04
14.	Different methods of adulteration of crude drugs and general methods of detection of adulterants.	02

### Theory Sessional examination syllabus

Sessional No.	Syllabus
	Chapters no.
I	1-7
II	8, 9, 10,11
III	11,12,13,14

## 2.3 PHARMACOGNOSY & PHYTOPHARMACEUTICALS (PRACTICALS)

**Practical: 75 Hours (3 Hrs./Week)**

**Responsible member/s of the academic staff: Dr. K Mruthunjaya (KM)**

### **Course Outcomes:**

1. Identify the difference between organized and unorganized drugs and their tissue characters.
2. Identify the types of adulterations such as exhausted drugs, vegetative matters, Foreign organic and inorganic materials admixed with crude drugs.
3. Perform necessary phytochemical studies to identify the secondary metabolites such as glycosides, alkaloids, tannins and volatile oils present in crude drug.
4. Identify crude drugs of therapeutic potential through morphological analysis.
5. Perform Physical evaluation for crude drugs to determine the adulteration quantitatively.
6. Perform various chemical test for Pharmaceutical aids obtained from natural sources.
7. Deliver information about various herbal dosage forms and their formulations
8. Identify various indigenous herbs through knowledge gained through field visit.

**General Requirements:** Laboratory Napkin, Observation Book (150 pages), Zero brush, Needle, Blade, Match box.

### **List of experiments:**

1. Introduction.
2. Tissue and tissue system
3. Macro, powder and microscopic study of Datura.
4. Macro, powder and microscopic study of Senna.
5. Macro, powder and microscopic study of Cassia Cinnamon.
6. Macro, powder and microscopic study of Cinchona
7. Macro, powder and microscopic study of Ephedra.
8. Macro, powder and microscopic study of Quassia.
9. Macro, powder and microscopic study of Clove
10. Macro, powder and microscopic study of Fennel.
11. Macro, powder and microscopic study of Coriander.
12. Macro, powder and microscopic study of Isapgol.
13. Macro, powder and microscopic study of Nux vomica.
14. Macro, powder and microscopic study of Ginger
15. Macro, powder and microscopic study of Podophyllum.
16. Determination of acid value.
17. Determination of Saponification value
18. Chemical tests for Acacia and Tragacanth
19. Chemical tests for Agar and Starch
20. Chemical tests for Gelatin & Castor Oil
21. Determination of moisture content of crude drug.
22. Isolation of Volatile oil.

### **Scheme of Practical Examination**

	<b>Sessionals</b>	<b>Annual</b>
Synopsis	04	10
Identification	04	10
Major Experiment	07	20
Minor Experiment	03	15
Viva	02	15
<b>Max Marks</b>	<b>20</b>	<b>70</b>
<b>Duration</b>	<b>03 hrs</b>	<b>04 hrs</b>

Note: Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).



## 2.4 PHARMACOLOGY –I (THEORY)

**Theory: 3 Hrs. /Week**

**Responsible member/s of the academic staff: Dr Nagashree K S (KNS)**

**Scope and Objectives:** The main purpose of the subject is to understand what drugs do to living organism and how their effects can be applied to therapeutics and thus to improve the outcome of therapeutic intervention by the doctors. The subject covers the complete information about the drugs like, sources, physico-chemical properties, mechanism of action, physiological and biochemical effects (Pharmacodynamics) as well as absorption, distribution, metabolism and excretion (Pharmacokinetics) along with the adverse effects, clinical uses, interactions, doses, contraindications and routes of administration of different classes of drugs.

### **Course Outcomes:**

1. Explain the basic pharmacological terms, various routes of drug administration and factors modifying drug actions
2. Elaborate the principles of pharmacokinetics, pharmacodynamics, toxicity studies, preclinical evaluation and drug interactions
3. Describe the pharmacology of drugs acting on autonomic and central nervous system
4. Explain the pharmacology of drugs acting on cardiovascular and respiratory systems
5. Elaborate the pharmacology of drugs used in local anesthesia
6. Describe the pharmacology of hormones, autacoids and its antagonists

### **Teaching/learning methodologies used:**

1. Lecture

### **Course materials**

#### **TEXT BOOKS**

- a. Tripathi, K. D. Essentials of medical pharmacology. 6<sup>th</sup> edition, 2008. Publisher: Jaypee, Delhi.
- b. Satoskar, R.S. and Bhadarkar, S.D. Pharmacology and pharmacotherapeutics. 20<sup>th</sup> edition, 2008. Publisher: Popular, Mumbai.
- c. Rang, H.P. & Dale, M.M. Pharmacology. 5<sup>th</sup> edition, 2003. Publisher: Churchill Living stone.

#### **REFERENCE BOOKS**

- a. Goodman Gilman, A., Rall, T.W., Nies, A.I.S. and Taylor, P. Goodman and Gilman's The pharmacological basis of therapeutics. 11<sup>th</sup> edition, 2006. Publisher McGraw Hill, Pergamon Press.
- b. Craig, C.R. & Stitzel, R.E. Modern Pharmacology. 5<sup>th</sup> edition, 1997. Publisher: Little Brown Co.
- c. Katzung, B.G. Basic and clinical pharmacology. 9<sup>th</sup> edition, 2004. Publisher: Prentice Hall, Int.
- d. Shargel and Leon. Applied Biopharmaceutics and Pharmacokinetics. Latest edition 2002. Publisher: Prentice Hall, London.

## Lecture wise Programme:

Topics	Hrs
<b>1. General Pharmacology</b>	<b>16</b>
Introduction, definitions and scope of pharmacology	
Routes of administration of drugs	
Pharmacokinetics (absorption, distribution, metabolism and excretion)	
Pharmacodynamics	
Factors modifying drug effects	
Drug toxicity – Basic concepts, acute, sub-acute and chronic toxicity	
Pre-clinical evaluation	
Drug interactions	
<i>Note:</i> The term Pharmacology used here refers to the classification, mechanism of action, pharmacokinetics, pharmacodynamics, adverse effects, contraindications, therapeutic uses, interactions and dose and route of administration.	
<b>2. Pharmacology of drugs acting on ANS</b>	<b>09</b>
Introduction to neurotransmission	
Adrenergic and antiadrenergic drugs	
Cholinergic and anticholinergic drugs	
Mydriatics and miotics	
Drugs used in myasthenia gravis	
Neuromuscular blockers	
<b>3. Pharmacology of drugs acting on cardiovascular system</b>	<b>09</b>
Antihypertensives	
Anti-anginal drugs	
Anti-arrhythmic drugs	
Drugs used for therapy of Congestive Heart Failure	
Drugs used for hyperlipidaemias	
<b>4. Pharmacology of drugs acting on Central Nervous System</b>	<b>20</b>
a) Excitatory and inhibitory neurotransmitters of CNS	
b) General anesthetics	
c) Sedatives and hypnotics	
d) Anticonvulsants	
e) Analgesic and anti-inflammatory agents	
f) Psychotropic drugs	
g) Antiparkinsonism drugs	
h) Alcohol and methyl alcohol	
i) CNS stimulants and cognition enhancers	
j) Centrally acting skeletal muscle relaxants	
k) Drug dependence, abuse and tolerance. List of drugs causing such problems	
<b>5. Pharmacology of Local anaesthetics</b>	<b>02</b>
<b>6. Pharmacology of Drugs acting on Respiratory tract</b>	
Bronchodilators	<b>05</b>
Mucolytics	

Expectorants

Antitussives

Nasal Decongestants

**7. Pharmacology of Hormones and Hormone antagonists**

**08**

Thyroid and Antithyroid drugs

Insulin, Insulin analogues and oral hypoglycemic agents

Sex hormones and oral contraceptives

Oxytocin and other stimulants and relaxants

**8. Pharmacology of autocooids and their antagonists**

**06**

Histamines and Antihistaminics

5-Hydroxytryptamine and its antagonists

Lipid derived autocooids and platelet activating factor

**Theory Sessional examination syllabus**

Sessional No.	Syllabus
	Chapters no.
I	1 – 2
II	3 – 4f
III	4g - 8

## 2.5 COMMUNITY PHARMACY (THEORY)

**Theory: 2 Hrs. /Week**

**Responsible member/s of the academic staff: Dr Srikanth M S (MSS)**

**Scope and Objectives:** This course is designed to ensure that students are skilled and knowledgeable to provide various pharmaceutical care services to patients and general practitioners in the community setup.

### **Course Outcomes:**

- 1) Describe the various pharmaceutical care services.
- 2) Demonstrate knowledge of entrepreneurial and management skills in community pharmacies.
- 3) Demonstrate skills of patient counselling and health screening services in serving the public.
- 4) Identify symptoms of minor ailments and suggest appropriate medication.
- 5) Apply the concept of rational use of drugs in practice.
- 6) Participate in the disease prevention programs at community pharmacy

### **Teaching/learning methodologies used:**

1. Lecture
2. Discussion

### **Course Materials:**

#### **TEXT BOOKS:**

- a. Health Education and Community Pharmacy by N.S.Parmar.
- b. WHO consultative group report.
- c. Drug store & Business management by Mohammed Ali & Jyoti.

#### **REFERENCE BOOKS:**

- a. Handbook of pharmacy – health care. Edt. Robin J Harman. The Pharmaceutical Press.
- b. Comprehensive Pharmacy Review – Edt. Leon Shargel. Lippincott Williams & Wilkins.

### **Special requirements:**

The college is having model community pharmacy (meeting the schedule N requirement) which helps for training the students on dispensing and counseling activities. Special equipments like Sphygmomanometer, Glucometer is used for health screening services like HTN and DM.

### **Lecture wise programme :**

	<b>Topic</b>	<b>Hrs</b>
<b>1.</b>	<b>Definition and scope of community pharmacy</b>	<b>2</b>
	<b>Roles and responsibilities of Community pharmacist</b>	
<b>2.</b>	<b>Community Pharmacy Management</b>	<b>4</b>
	a) Selection of site, Space layout, and design	
	b) Staff, Materials- coding, stocking	
	c) Legal requirements	
	d) Maintenance of various registers	
	e) Use of Computers: Business and health care soft wares	

<b>3. Prescriptions</b> – parts of prescription, legality & identification of medication related problems like drug interactions.	<b>2</b>
<b>4. Inventory control in community pharmacy</b> Definition, various methods of Inventory Control ABC, VED, EOQ, Lead time and safety stock	<b>3</b>
<b>5. Pharmaceutical care</b> Definition and Principles of Pharmaceutical care.	<b>2</b>
<b>6. Patient counseling</b> Definition, outcomes, various stages, barriers, strategies to overcome barriers Patient information leaflets- content, design, layouts & advisory labels	<b>4</b>
<b>7. Patient medication adherence</b> Definition, Factors affecting medication adherence and role of pharmacist in improving the adherence	<b>2</b>
<b>8. Health screening services</b> Definition, importance, methods for screening blood pressure/ blood sugar/ lung function and Cholesterol testing	<b>3</b>
<b>9. OTC Medication - Definition, OTC medication list &amp; Counselling</b>	<b>3</b>
<b>10. Health Education</b> WHO Definition of health and health promotion, care for children, pregnant & breast feeding women and geriatric patients.	<b>2</b>
<b>11. Commonly occurring communicable diseases, causative agents, Clinical presentations and prevention of communicable diseases – Tuberculosis, Hepatitis, Typhoid, Amoebiasis, Malaria, Leprosy, Syphilis, Gonorrhoea and AIDS</b>	<b>9</b>
<b>12. Balance diet, treatment &amp; prevention of deficiency disorders</b>	<b>2</b>
<b>13. Family planning – role of pharmacist</b>	<b>1</b>
<b>14. Responding to symptoms of minor ailments</b> Relevant pathophysiology and common drug therapy to Pain, GI disturbances (Nausea, Vomiting, Dyspepsia, diarrhea, constipation), Pyrexia, Ophthalmic symptoms and worms infestations.	<b>8</b>
<b>15. Essential Drugs concept and Rational Drug Therapy</b> Role of community pharmacist	<b>2</b>
<b>16. Code of ethics for community pharmacists</b>	<b>1</b>

### Theory Sessional examination syllabus

Sessional	Chapter No
I	1, 5, 9, 10, 11
II	2, 3, 4, 6, 8, 16
III	7, 12, 13, 14, 15

## 2.6 PHARMACOTHERAPEUTICS-I (THEORY)

**Theory: 3 Hrs. /Week**

**Responsible member/s of the academic staff: Dr. Sri Harsha Chalasani (CSH)**

**Scope and Objectives:** Imparts knowledge and skills necessary for contribution to quality use of medicines and management of various disease conditions.

### **Course Outcomes:**

- 1) Describe the etiopathogenesis of selected disease states
- 2) Discuss the various methods involved in the diagnosis of selected disease state
- 3) Interpret and analyze the selected laboratory results of specific disease states
- 4) Describe the therapeutic approach to manage the selected diseases
- 5) Discuss the rationale for drug therapy of the selected disease
- 6) Identify the controversies in drug therapy
- 7) Develop the individualized therapeutic plans based on diagnosis
- 8) Identify the patient-specific parameters relevant in initiating the drug therapy
- 9) Describe evidence-based medicine.

### **Teaching/learning methodologies used:**

1. Lecture
2. Practical/Lab
3. Discussion
4. Case Study

### **Course materials**

#### **TEXT BOOKS**

- a. Clinical Pharmacy and Therapeutics – Walker and Whittlesea, Churchill Livingstone
- b. publication
- c. Pharmacotherapy: A Pathophysiology approach - Joseph T. Dipiro et al. Appleton & Lange

#### **REFERENCE BOOKS**

- a. Pathologic basis of disease: Robbins SL, W.B. Saunders publication
- b. Pathology and therapeutics for Pharmacists: A Basis for Clinical Pharmacy Practice - Green and Harris, Chapman and Hall publication
- c. Clinical Pharmacy and Therapeutics - Eric T. Herfindal, Williams and Wilkins Publication
- d. Applied Therapeutics: The clinical Use of Drugs. Lloyd Young and Koda-Kimble MA, Williams and Wilkins Publication
- e. Avery's Drug Treatment, 4th Edn, 1997, Adis International Limited.
- f. Relevant review articles from recent medical and pharmaceutical literature.

## Lecture wise Programme

Etiopathogenesis and pharmacotherapy of diseases associated with following systems/ diseases.

Topic	Hrs
<b>1. Cardiovascular system</b>	<b>30</b>
a. Hypertension, Congestive cardiac failure, Angina Pectoris, Myocardial infarction, Hyperlipidemia	
b. Electrophysiology of heart and Arrhythmias.	
<b>2. Respiratory system</b>	<b>15</b>
Introduction to Pulmonary function test, Asthma, Chronic obstructive airways disease, Drug induced pulmonary diseases .	
<b>3. Endocrine system</b>	<b>19</b>
Diabetes, Thyroid diseases, Oral contraceptives, Hormone replacement therapy, Osteoporosis .	
<b>4. General prescribing guidelines for</b>	<b>04</b>
Paediatric patients	
Geriatric patients	
Pregnancy and breast feeding .	
<b>5. Ophthalmology</b>	<b>04</b>
Glaucoma, Conjunctivitis- viral & bacterial.	
<b>6. Introduction to rational drug use</b>	<b>03</b>
Definition, Role of pharmacist in promoting rational drug use and essential drug concept.	

### Theory Sessional examination syllabus

Sessional No.	Syllabus
	Chapters no.
I	4, 5 & 6
II	1a & 1b
III	2 & 3

## 2.6 PHARMACOTHERAPEUTICS-I (PRACTICALS)

**Practical: 75 Hours (3 Hrs /Week)**

**Responsible member/s of the academic staff: Dr. Sri Harsha Chalasani (CSH)**

Hospital postings in various departments designed to complement the lectures by providing practical clinical discussion; attending ward rounds; follow up the progress and changes made in drug therapy ,in allotted patients; case presentation upon discharge. Students are required to maintain a record of cases presented and the same should be submitted at the

end of the course for evaluation. A minimum of 15 cases should be presented and recorded covering most common diseases.

**Course Outcomes:**

1. Develop Patient case-based Assessment Skills
2. Establish the Pharmacist – Patient Relationship
3. Improve Drug Related-Problem Identification and Problem-Solving Skills
4. Develop Therapeutic Decision-Making Skills
5. Establish a Desired Pharmacotherapeutic outcome for Each Drug and disease Related Problem
6. Determine Rational Pharmacotherapeutic Alternatives
7. Select and Individualize the Therapeutic Regimen
8. Improve Patient Education skills
9. Design and Implement a Therapeutic Drug Monitoring Plan

**ASSIGNMENTS**

Students are required to submit written assignments on the topics given to them. Topics allotted should cover recent developments in drug therapy of various diseases. A minimum of THREE assignments [1500 – 2000 words] should be submitted for evaluation.

**Format of the assignment**

- Minimum & Maximum number of pages.
- Reference(s) shall be included at the end.
- Assignment can be a combined presentation at bethe end of the academic year
- It shall be computer draft copy
- Name and signature of the student
- Time allocated for presentation may 8+2 min

**Scheme of Practical Examination**

	<b>Sessionals</b>	<b>Annual</b>
Synopsis	05	15
Major experiment	10	25
Minor experiment	03	15
Viva	02	15
<b>Max. Marks</b>	<b>20</b>	<b>70</b>
<b>Duration</b>	<b>03 hours</b>	<b>04 hours</b>

\* Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance)



**JSS Academy of Higher Education & Research**  
**JSS College of Pharmacy**  
 Sri Shivarathreshwara Nagara, Mysore-570015  
**CLASS TIME TABLE- 2023-24**

**Class: PHARM. D –SECOND YEAR**  
**11.10 AM**

**2.00 PM**

**Lunch Break: 1.00 to**

**Tea Break: 10.40 to**

**3.50 PM to**

Time Day	9.00-9.50AM	9.50-10.40AM	11.10-12.05PM	12.05-1.00PM	2.00-2.55PM	2.55-3.50PM	4.05-5.00PM	5.00-5.55 PM
<b>Monday</b>	-----	←BI-----HP----- ←B II-----CSH	P.Cog & Phytopharm-----→ Pharmacotherapeutics-I-----→		Pharm microbio HP	Pharm microbio HP	Pharmacol-I KSN	-----
<b>Tuesday</b>	-----	←BII----- HP- ←B I-----CSH	-Pharmaceutical microbiology---→ Pharmacotherapeutics-I-----→		Pathophysio AAP	Pharm microbio HP	Pathophysio (Tu). AAP	-----
<b>Wednesday</b>	Pharm. microbio (Tu) HP	←B I----- RG ←BII --- HP----	Pharmaceutical Microbiology---→ P.Cog & Phytopharm -----→		<b>Communication sills</b>		<b>Communication sills</b>	----- -
<b>Thursday</b>	-----	P.Cog & Phytopharm (Tu) KM	P.Cog & Phytopharm KM	Pharmacol-I KSN	P.Cog & Phytopharm KM	Pathophysio AAP	Pathophysio AAP	
<b>Friday</b>	-----	P.Cog & Phytopharm KM	Pharmacol-I KSN	Pharmacol-I (Tu) KSN	Pharmacother-I CSH	Pharmacother-I CSH	Comm. Pharm. MSS	----- -
<b>Saturday</b>	Pharmacother-I CSH	Comm. Pharm. MSS	Pharmacother-I CSH	Comm. Pharm. (Tu) MSS				

\*Effective from: 19<sup>th</sup> June 2023  
 practicals

Note: 1. No tea break for

Time table Coordinator  
 Copy: SNB/LNB/SCF/e.copy – teachers/ Office in charge – time table / Time table coordinator

Principal