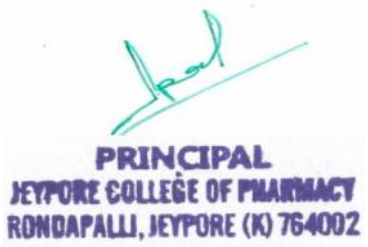
CROSS CUTTING		Professional ethics	gender	human value	Environment & sustainability
ISSUE					
Course code	**Name of the course**				
BP101T	Human Anatomy and Physiology I– Theory	X	X	√	X
BP107P	Human Anatomy and Physiology I–Practical	X	X	√	X
BP201T	Human Anatomy and Physiology II– Theory	X	√	√	X
BP207 P	Human Anatomy and Physiology II– Practical	X	√	√	X
BP204T	Pathophysiology-Theory	X	X	√	X
BP203T	Biochemistry-Theory	X	X	√	X
BP209P	Biochemistry-Practical	x	x	√	x
BP106RBT	Remedial biology–Theory	X	X	X	√
BP 112RBP	Remedial biology–Practical	X	X	X	√
BP206T	Environmental science	X	X	X	√
BP405T	Pharmacognosy &Phytochemistry	X	X	X	√
BP 404T	Pharmacology	X	X	X	√
BP408P	Pharmacology Practical	X	X	√	X
BP505T	Pharmaceutical jurisprudence	√	X	X	X
BP507P	Pharmacology-II Practical	X	X	√	X
BP 508P	Pharmacognosy &Phytochemistry-II Practical	X	X	X	√
BP503T	Pharmacology-II	X	X	√	X
BP504T	Pharmacognosy &Phytochemistry	X	X	X	√
BP602T	Pharmacology-III	X	X	√	X
BP608P	Pharmacology-III Practical	X	X	√	X
BP603T	Herbal drug technology	X	X	X	√
BP609P	Herbal drug technology	X	X	X	√
BP703T	Pharmacy practice	√	X	X	X
BP802T	Social Preventive pharmacy	√	X	X	X
MPL104T	Cellular &Molecular pharmacology	√	X	X	X

MQA201	Hazards &safety management	√	X	X	X
MPG102T	Advanced pharmacognosy	X	X	X	√
MPG103T	Phytochemistry	X	X	X	√
MPG202T	Advanced pharmacognosy -II	X	X	X	√
MPG203T	Indian systems of medicines	X	X	X	√
MPG204T	Herbal cosmetics	X	X	X	√



Jeypore College of Pharmacy

(Approved DMET, AICTE, PCI NEW DELHI, AFFILIATED TO BPUT)

RONDAPALLI, JEYPORE, KORAPUT DIST. ODISHA-764002

HUMAN VALUE

WORLD POPULATION DAY
11TH JULY 2022

Jeypore College of Pharmacy celebrated “World Population Day 2022” with the theme “A world of 8 billion: Towards a resilient future for all- Harnessing opportunities and ensuring rights and choice for all”. For this celebration we the staffs of Jeypore College of Pharmacy visited Rondapali village with some of our students. We meet 23 no. of people of Rondapali and create an awareness to increase all the detrimental effects population growth has had on the steady advancement of nature.

PIC-1 SANKAUDI VILLAGERS GATHERING

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

JEYPORE COLLEGE OF PHARMACY, RONDAPALLI

EVENT NAME: WORLD POPULATION DAY DATE: 11.07.2022.

THEME: A world of 8 billion: Towards a resilient future for all- Harnessing opportunities and ensuring rights & choice for all

SL NO	NAME OF THE PERSON	SIGNATURE / FINGER IMPRESSION
	V Meena patnaik	V Meena patnaik
	J. Shm	J. Shm
	Jitu maharana	Jitu maharana
	SRIDHARA.M	SRIDHARA.M
	Keshba Kamar	Keshba Kamar
	PAPU BISWAL	PAPU BISWAL
	Subham Biswal	Subham Biswal
	Kamalkoth Pujari	Kamalkoth Pujari
	Samir Maharana	Samir Maharana
	Reena oraghi	Reena oraghi
	Dambaru Kachim	Dambaru Kachim
	Sourada Mahananda	Sourada Mahananda
	Swarup nayak	Swarup nayak
	DILIP Ray	DILIP Ray
	Bhagaban panaja	Bhagaban panaja

PRINCIPAL 07/2022

JEYPORE COLLEGE OF PHARMACY, RONDAPALI

EVENT NAME: DATE:

THEME:

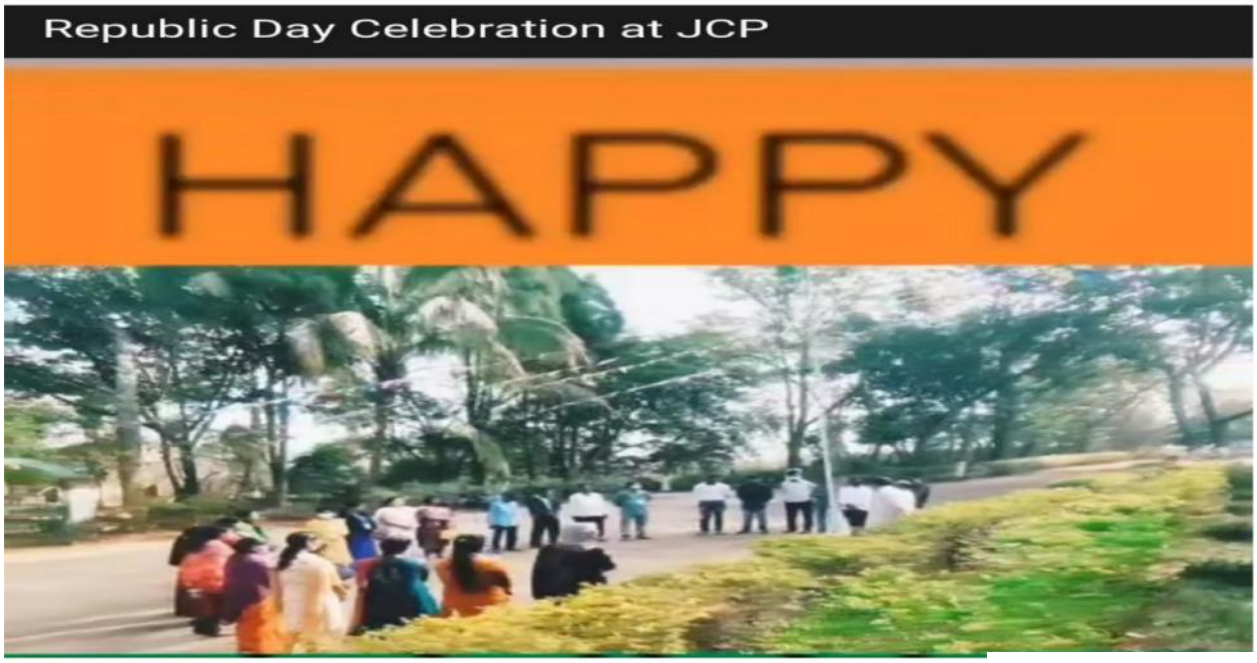
SL NO	NAME OF THE PERSON	SIGNATURE / FINGER IMPRESSION
	Dhanraik	Dhanraik
	Manjulata Sethi	
	partha panigrahi	
	Brunda pradhani	
	Bhima majhi	
	Subanna panda	
	Namita pradhani	
	Lakhi ch Bagdhara	

11/07/2022
PRINCIPAL
PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
, RONDAPALLI, JEYPORE (K) 764002

HUMAN VALUE

REPUBLIC DAY
26TH JANUARY 2022

In continual form of celebrating "Republic Day" this year also Jeypore college of Pharmacy along with all the students, faculty members, management members had celebrated 73 rd Republic Day on 26th January 2022. From January 26 1950 the constitution of India came in to force and our India Designated as a republic. The Programme was scheduled from 8.00 am at our college premises. The Principal Dr. Sangram Keshari Panda hoisted the national flag and the programme is continued by singing "National Anthem" and Motivational speech from Principal Sir and patriotic other students, staffs. A beautiful Rangoli is arted by Mrs Pratit Kanchan Sahu on republic day. In the end, the programme was concluded by Distributing sweets boxes to all students. The celebration creates awareness on the constitution of our country among all students foe their nation's pride.



PIC-1:CELEBRATION OF REPUBLIC DAY

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

HUMAN VALUE

YOUTH DAY
12TH JANUARY 2022

Jeypore college of Pharmacy celebrated the National Youth Day on 12th January 2022 to commemorate the birth day of Swami Vivekananda. Dr.S.K Panda Principal , Jeypore College of Pharmacy was the chief guest on the occasion. He has spoken on a number of salient points regarding the life of Swami Vivekananda and his contribution towards the education field. Mr Vikram Viswajit Vinod Ku. Mishra, Associate Professor of Jeypore College of pharmacy presided over the function. In his address, he insisted the importance of conducting National Youth Day. Various members of Jeypore college of pharmacy , HODs of UG and Diploma staff of every departments were present on the occasion. 30 no of students were taken part in this occasion. The programme was compeered by Mrs Mazma Begum.

PIC 1 CELEBRATION OF NATIONAL YOUTH DAY.

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

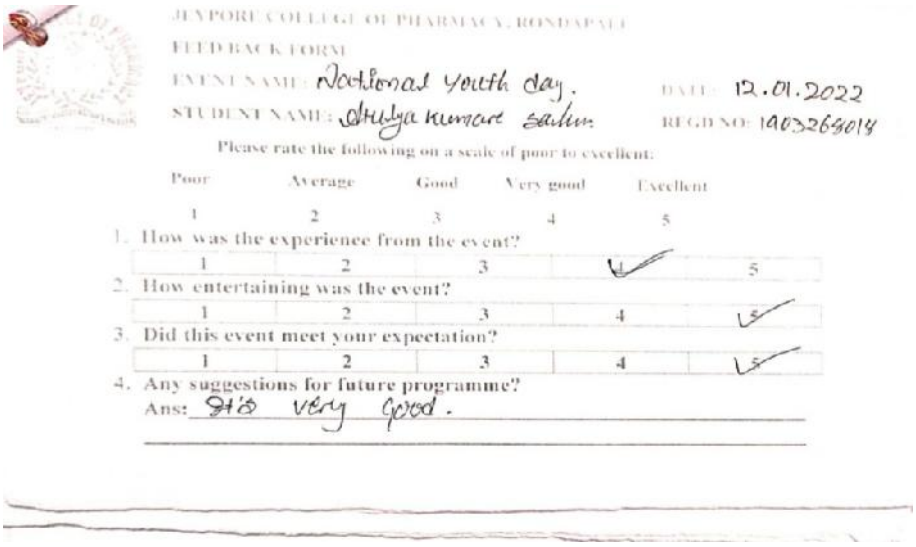
EVENT NAME: National Youth Day DATE: 12.01.2022

THEME: Intergenerational Solidarity: Creating a world for all ages.

SL NO	STUDENT NAME	REG NO	STUDENT SIGNATURE
01	Deeptisikha Nayak	1903268034	Deeptisikha Nayak
02	Anjali Rath	1903268014	Anjali Rath
03	Barsha mohanty	1903268022	Barsha mohanty
04	Albert Bagh	1903268008	Albert Bagh
05	Bapuji Parida	1903268030	Bapuji Parida
06	Abishek Murgo	1903268004	Abishek Murgo
07	Adit Giri	1903268005	Adit Giri
08	Atulya kumar sahu	1903268018	Atulya kumar sahu
09	Abhishek Panigrahi	1903268002	Abhishek Panigrahi
10	Alem Johnson Nayak	1903268009	Alem Johnson Nayak
11	Arabinda Pradhan	1903268016	Arabinda Pradhan
12	Abhijeet Mishra	1903268001	Abhijeet Mishra
13	Ankit Kumar panda	1903268015	Ankit Kumar panda
14	Debabrata Kabir	1903268030	Debabrata Kabir
15	Deriprasad Mahanty	1903268035	Deriprasad mahanty.
16	Abinash Singh	1903268003	Abinash Singh
17	Ajay Kumar Maranta	1903268006	Ajay Kumar Maranta
18	S. Lopa Patra	2123268015	S. Lopa patra
19	Etishree Mohapatra	2123268009	Etishree Mohapatra
20	Jyotirmayee Mishra	2003268074	Jyotirmayee Mishra.
21	Simran Rizal	2003268089	Simran Rizal
22	Bagmi Badhuli	2123268005	Bagmi Badhuli
23	Jyotirmayi Sadangi	2003268075	Jyotirmayi Sadangi
24	Bibhu bibhuti Panigrahi	2123268006	Bibhu bibhuti Panigrahi
25	Sudhanshu Sekhar Mishra	2003268092	Sudhanshu Sekhar.
26	Ramchandra Meher	2003268078	Ramchandra Meher
27	Jaydeep Mandal	2003268073	Jaydeep Mandal
29	Jyotirnanda pattanaik	2003268095	Jyotirnanda pattanaik
30	Rasmi Kanta Samal.	2003268081	Rasmi kanta Samal.
31	Santosh Kumar Pati	2003268086	Santosh kumar Pati
32	S. Hariprasad	2003268084	S. Hariprasad

12/01/2022
Principal

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002



JEYPORE COLLEGE OF PHARMACY, RONDAPALLI

FEED BACK FORM

EVENT NAME: National Youth day. DATE: 12.01.2022

STUDENT NAME: Shilya kumar sahu REG.D NO: 1903264014

Please rate the following on a scale of poor to excellent:

Poor	Average	Good	Very good	Excellent
1	2	3	4	5

1. How was the experience from the event?

1	2	3	4	5
			✓	

2. How entertaining was the event?

1	2	3	4	5
				✓

3. Did this event meet your expectation?

1	2	3	4	5
				✓

4. Any suggestions for future programme?

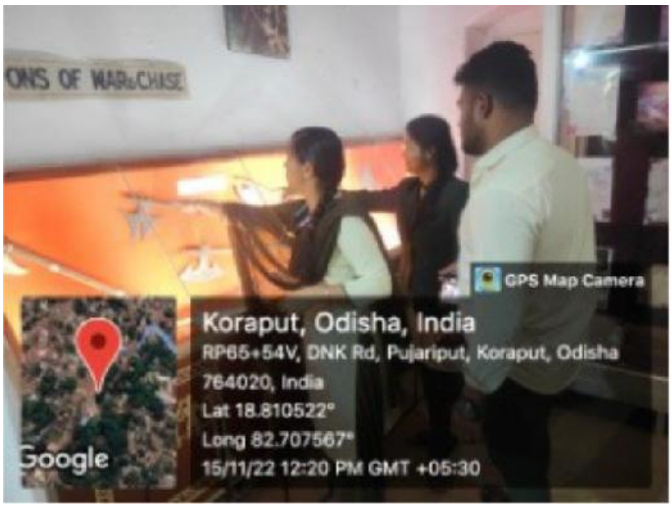
Ans: Its very good.

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

JANJATIYA GAURAV DIWAS

15TH NOVEMBER 2022

By giving tributes to “Birsha Munda” Jeypore college of pharmacy is observed “Janjatiya Gourav Divas” on November 15 2022. For celebrating this day students of UG and PG are allowed to have a knowledge ride to the “Tribal Museum” at Koraput. During their visit students came across different daily ware clothes patterns of tribal day to day used utensil’s , house old equipments, straw hats made by hand to give them protection during rain, different types of currency used by tribals and their rituals they have performed in their cultural functions. This visit makes them riches to know about different tribal society and their culture also.



PIC-1 Students Visiting Tribal museum

PIC-2 Students Observing weapons of Tribal’s.

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

HUMAN VALUE

INDEPENDENT DAY
15.08.2022

Like every year, this year also our college Jeypore College of Pharmacy celebrated Independence Day on 15 Aug 2022 with great joy and pomp. On that day the sense of happiness and pride could be clearly seen on the faces of all the people as India was celebrating 76th Independence Day. The programme started at 8.00 am. The Principal, vice principal along with all faculty and students are present at the field. Principal of Jcp unfurled the flag at around 8.45 am. As soon as the flag was hosted, everyone sang the national anthem. One B.ph Student Mr. Dinesh Ku Penta gave an in-depth speech on how we got freedom. His Speech was followed by the speech of our Principal Sir. Then Prize distribution programme was started in which the students who got first, second and third position in fancy dress competition are rewarded by the Principal. In the end the programme ended by giving a sweet box to all students.

PIC-1:FLAG HOSTING

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

PIC-2:SPEECH BY PRINCIPAL

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

PIC-3: SPEECH BY STUDENTS

PIC-4: SLOGANS DELIVERD BY STUDENTS

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

The staff and students of Jeypore College of Pharmacy are hereby informed that our college will be observe the "Independence Day" on 15.08.2022 at our college campus at 08.15 A.M. For this purpose bus will ply as per the below mentioned schedule.

Place	Starting Point	Time
Kotpad	Kotpad Bus stands	7.15 A.M.
Nabarangpur	bhandaragharani chowke	7.15 A.M.
Jeypore	Girl's Hostel	7.35 A.M.
	SKT Hall	7.45 A.M.

13/08/2022

Principal
PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

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PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

JEYPORE COLLEGE OF PHARMACY, RONDAPALLI

EVENT NAME: Independence Day DATE: 15/Aug/2022.

THEME:

SL. NO	STUDENT NAME	REGD. NO	STUDENT SIGNATURE
01	Tanmaya Kumar Sahu	1903268095	Tanmaya Kumar Sahu
02	Sohan kumar Sahu	1903268044	Sohan kumar Sahu
03	Sangram Keshari Bag	1903268073	Sangram Keshari Bag
04	Subham Tripathy	1903268083	Subham Tripathy
05	Tusar Ranjan Mohapatra	1903268090	Tusar Ranjan Mohapatra
06	Sangram kumar Singha	1903268084	Sangram kumar Singha
07	Subhasmita Gyan	1903268085	Subhasmita Gyan
08	Santosh kumar Sethi	1903268075	Santosh kumar Sethi
09	V. Gowri sai sekhar	1903268091	V. Gowri sai sekhar
10	Haresh Pujari	2103268038	Haresh Pujari
11	Pratik Rajan Sodi	2103268062	Pratik Rajan Sodi
12	Hemanta KUMAR SAHU	2103268039	Hemanta kumar Sahu
13	Manoj kumar pattanayak	2103268052	Manoj ku. pattanayak
14	Lakhmeshwar Patro	2103268049	Lakhmeshwar Patro
15	Rakesh kumar Mishra	2103268069	Rakesh kumar Mishra
16	Manoj kumar Sahu	2103268052	Manoj kumar Sahu
17	Kiran chandra meher	2103268047	Kiran chandra meher
18	Parameshwar Naik	2103268058	Parameshwar Naik
19	Nimai Charan Meher	2103268056	Nimai Ch. Meher
20	Ganesh Maharana	2103268036	Ganesh maharana
21	Kanhu Swain	2103268046	Kanhu Swain
22	Jagit Prakash Sahu	2103268041	Jagit prakash Sahu
23	Rameshwar prasad Mishra	2103268040	Rameshwar prasad Mishra
24	Gunjan Patnaik	2103268037	Gunjan Patnaik
25	Priyanshu Saha	2103268066	Priyanshu saha
26	Pooja Jana	2103268060	Pooja Jana
27	Payal Priyadarshini Behera	2103268059	Payal P. Behera
28	Lipsima Khilla	2103268050	Lipsima Khilla
29	Preetimayee Parida	2103268063	Preetimayee Parida
30	Ojaswini Sunani	2103268057	Ojaswini Sunani

15/08/2022

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

JEYPORE COLLEGE OF PHARMACY, RONDAPALI

FEED BACK FORM

EVENT NAME: INDEPENDENCE DAY DATE: 15.08.2022

STUDENT NAME: Pratik Ranjan Sodi REGD NO: 2103268062

Please rate the following on a scale of poor to excellent:

Poor	Average	Good	Very good	Excellent
1	2	3	4	5

1. How was the experience from the event?

1	2	3	4	5
			✓	

2. How entertaining was the event?

1	2	3	4	5
				✓

3. Did this event meet your expectation?

1	2	3	4	5
			✓	

4. Any suggestions for future programme?

Ans: Nice

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

HUMAN VALUE

WORLD PHARMACIST DAY
25TH September 2022

On 25th September 2022 Jeypore college of Pharmacy celebrated "World Pharmacist Day" having the theme "Pharmacy united the Nation for a healthcare world". At the beginning of the function Principal Dr Sangram Keshari Panda presented his speech enriched with the theme provided this year. Our Chief Guest Senior Pharmacist Mr. Sanjeeb Ku Subudhi and Chief Speaker Mr.S. Satish Rao Senior Pharmacist DHH.Jeypore are being present with us. Mr Sanjeeb Ku. Subudhi spoke about the student focusing on facets of Pharmacy and pharmacy profession with their challenges, opportunities for future pharmacy profession. On the eve of world pharmacist day by having collaboration with HDFC bank one blood donation camp is held at our JCP campus on 24.09.2022. During this blood donation camp forty-one units of bloods are collected. This Programme was conducted by Programme co-ordinator Mrs Manasi Khadanga and hosted by Mrs Mazma Begum.

PIC-1 CELEBRATION OF WORLD PHARMACIST DAY

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

PIC-2 BLOOD DONATION CAMP ORGANISED HAVING COLLABORATION WITH HDFC BANK

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

61st National Pharmacy week
Dt: 20th November to 26 th November

61st National Pharmacy week (NPW) was celebrated at Jeypore college of Pharmacy from 20th November to 26 th November with having the theme “Pharmacy of the world- India”. This celebration was started by organising a Free Medicine Distribution Camp at Keraput village of Rondapalli on 24th November 2022. Where 66 no of Patients are gathered and in Prsence of Dr. Bibuti Ku. Rath (BHMS) of Rabanaguda CHSC screened themselves and received the medicines as per the prescription of the Doctor. With the constitution one quiz is also organised on the eve of National pharmacy week where the students re participated in huge no and from them Mr. Dinesh Ku Paricha B.ph 2nd sem , Mr Ankit Panda B.ph 7th sem secured the winning positions. On 26th November the closing ceremony was arranged at our JCP campus. Where Mr Bibhuti Ku. Rath (BHMS) CHSC Rabanaguda invited as chief guest and Mr Sarada Prasad mall (Senior Pharmacist) Rabanaguda placed as chief speaker. The audience listened the lines from our guest on the dice effectively. This Programme is concluded by giving the prize and certificate to the the winning students to encourage their potentiality. At last Mr Sujit ku. Martha wind up the meeting by giving the vote of thanks to the audience.

PIC-1 GUEST FOR NATIONAL PHARMACY WEEK CELEBRATION.

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

PIC-2 PRIZE DISTRIBUTION TO STUDENTS FOR QUIZ COMPETATION.

PIC-3 AUDIENCE FOR CELEBRATING NPW.

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RONDAPALLI, JEYPORE (K) 764002

PIC-4 DOCTOR SCREENING THE PEOPLES OF KERAPUT.

PIC-5 STUDENTS DISTRIBUTING MEDICINES TO PATIENTS.

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

JEYPORE COLLEGE OF PHARMACY, RONDAPALI

EVENT NAME: National Phasmacy Week DATE: 20 to 26th Nov 2022

THEME: Phasmacy of the world — India

SL.NO	STUDENT NAME	REGD.NO	STUDENT SIGNATURE
01	Aditya kumar sahu.	1903268019	Aditya kumar sahu.
02	V. Chouri sai sekhar	1903268091	V. Chouri sai sekhar
03	Sumit Biswas	1903268086	Sumit Biswas
04	Priyanshu srivastava	1903268662	Priyanshu srivastava
05	Ajay ku. Mohanta	1903268006	Ajay ku. Mohanta
06	Barsha Nayak	1903268022	Barsha Nayak
07	Bivola Nashi	1903268015	Bivola Nashi
08	Sweta Jena	1903268044	Sweta Jena
09	Arijit mohakam	1903268017	Arijit mohakam
10	Goutami Jani	1903268041	Goutami Jani
11	Pkalikshya Pujari	1903268061	Pkalikshya Pujari
12	Nisha Sahu	1903268056	Nisha Sahu
13	Smruti B. Patnaik	1903268042	Smruti B. Patnaik
14	Gulsan Ku. Sahoo	1903268042	Gulsan Ku. Sahoo
15	Chinmaya Ku. Sahu	1903268028	Chinmaya Ku. Sahu
16	Gupteswar Panigrahi	1903268043	Gupteswar Panigrahi
17	Saloni Dash	2003268031	Saloni Dash
18	Meghanad Rout	2003268031	Meghanad Rout
19	Ahaya ku. Sandeya	2003268032	Ahaya ku. Sandeya
20	Aditya Ku Nayak.	2003268001	Aditya Ku. Nayak.
22	Sarat kumar madki	2003268035	Sarat ku. Madki
23	Nikhil kum. Bhoi	2003268023	Nikhil kumar Bhoi
24	Jaydeep Mondal	2003268043	Jaydeep mondal
25	Shibananda Panda	2003268037	Shibananda Panda
26	Debasish pradhan	2003268060	Debasish Padh
27	Anjana Nayak	2003268006	Anjana Nayak
28	Nibedita chakrabarti	2003268022	Nibedita chakrabarti
29	Sarita Maharana	2003268036	Sarita Maharana

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JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

OFFICE OF THE PRINCIPAL
JEYPORE COLLEGE OF PHARMACY

N O T I C E

Ref. No: -Jcp/2211/162N **Date: - 19.11.2022**

The staff and students of Jeypore College of Pharmacy are here by informed that our college will be observe the **"National Pharmacy Week"** on 20.11.2022 to 26.11.2022 at our college campus at 11.00 A.M.

19/11/2022
Principal
PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

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OFFICE OF THE PRINCIPAL
JEYPORE COLLEGE OF PHARMACY

N O T I C E

Ref. No: -Jcp/2211/162N **Date: - 19.11.2022**

The staff and students of Jeypore College of Pharmacy are here by informed that our college will be observe the **"National Pharmacy Week"** on 20.11.2022 to 26.11.2022 at our college campus at 11.00 A.M.

19/11/2022
Principal
PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

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JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

JEYPORE COLLEGE OF PHARMACY

(Under the patronage of Banagiri Development Trust)
Approved by Government of Odisha & All India Council for Technical Education, New Delhi
Affiliated to Biju Pattnaik University of Technology & Pharmacy Council of India, New Delhi

Ref. No. : Jcp/2211/8020 Date : 24/11/2022

To
The Medical Officer
CHC, Rabanaguda
Dist:Koraput

Sub: Deputation of Dr.Bibhuti Kumar Rath, BHMS for Free Medicine Distribution camp at Keraput.

Respected Sir / Madam,

With reference to the subject cited above, I am to bring to your kind knowledge that the **"National Pharmacy Week"** is being celebrated during the third week of November each year by each pharmacy institution / organization. Accordingly, we have proposed to celebrate the **National Pharmacy Week from 21.11.2022 to 27.11.2022**, during the celebrated week, we proposed to make free drug distribution to 100 patients on 24.11.2022 and the students and staffs will be disbursed the drugs from provided place at Keraput. So it is our sincere request to you kindly depute Dr.Bibhuti Kumar Rath, BHMS for the above said programme for prescribed the drug to the patient.

Thanking you.
Yours faithfully

24/11/2022
Principal
PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

Rondapalli, Jeypore, Dist. Koraput-764 002, Odisha
Ph. : (06854) 246956, 246602, Fax : (06854) 246955,
Visit us : www.pharmajeypore.org, E-mail : pharmajeypore@yahoo.co.in, principal@pharma

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Affiliated to Biju Pattnaik University of Technology & Pharmacy Council of India, New Delhi

Ref. No. : Jcp/2211/7980 Date : 23/11/2022

To
The Sarapanch
Rondapalli
Dist:Koraput

Sub: Celebration of 'National Pharmacy Week"2022.

Respected Sir / Madam,

With reference to the subject cited above, I am to bring to your kind knowledge that the **"National Pharmacy Week"** is being celebrated during the third week of November each year by each pharmacy institution / organization. Accordingly, we have proposed to celebrate the **National Pharmacy Week from 21.11.2022 to** 27.11.2022, during the celebrated week, we proposed to make free drug diatribution to 100 patients on 24.11.2022 and the students and staffs will be disturbed the drugs from provided place at your village with our own arrangements.

I would therefore request you to kindly grant necessary permission to organize the Free drugs distribution camp at your village.

Thanking you.
Yours faithfully

Principal
PRINCIPAL
JEYPORE COLLEGE OF PHARMACY

RECD
Arunod Mallick
23/11/22

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

JEYPORE COLLEGE OF PHARMACY, RONDAPALI

FEED BACK FORM

EVENT NAME: National pharmacy **DATE:** 26/11/2022

STUDENT NAME: Akhaya Ku. Randasena **REGD NO:** 2003268052

Please rate the following on a scale of poor to excellent:

Poor	Average	Good	Very good	Excellent
1	2	3	4	5

1. **How was the experience from the event?**

1	2	3	4	5

2. **How entertaining was the event?**

1	2	3	4	5

3. **Did this event meet your expectation?**

1	2	3	4	5

4. **Any suggestions for future programme?**

Ans: Good

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INTERNATIONAL WOMEN'S DAY
March 8th 2022

The international Women's Day was celebrated at Jeypore College of Pharmacy on 8th March 2022 on the theme "Gender equality for today for a sustainable tomorrow". The aim of this celebration is to create a sensitization about women on society. The programme is be ginned by the inaugural speech by Mrs Manasi Khadanga(Assistant Professor) to inspire and encourage the women to keep consistently moving in life and continued with the speech of Principal Dr Sangram Keshari Panda, Mrs P.K Sahu (Associate Professor), Mazma Begum (Assistant Professor) . A Discussion was carried out by the chair person and audience for the enhancement of study cases in professional field. The meeting is concluded with cake cutting and distributing sweet and snacks to the audience.

PIC -1 CELEBRATION INTERNATIONAL WOMENS DAY

PIC-2 SPEECH BY OUR LADY STAFF.

PIC-3 CAKE CUTTING

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GENDER

EVENT NAME: International Women's Day DATE: 8.03.2022

THEME: Gender equality today for a sustainable tomorrow.

SL NO	STUDENT NAME	REG NO	STUDENT SIGNATURE
1.	Aneesia Maria	2003268053	Aneesia Maria
2.	Eshwari Behera	2003268069	Eshwari Behera
3.	Geetanjali Nayak	2003268070	Geetanjali Nayak
4.	Subhashree Padhi	2003268044	Subhashree Padhi
5.	Tanushree Ghosh	2003268047	Tanushree Ghosh
6.	Manali Ghadai	1903268093	Manali Ghadai
7.	Smruti B. Patnaik	1903268083	Smruti B. Patnaik
8.	Anjali Rath	1903268014	Anjali Rath
9.	Sonali Satapathy	1903268079	Sonali Satapathy
10.	Nisha Saha	1903268056	Nisha Saha
11.	Barsha Mohanty	1903268042	Barsha Mohanty
12.	Trupti Rani Mohanty	1903268089	Trupti Rani Mohanty
13	Sweta Jena	1903268087	Sweta Jena
14.	Deeptiskha Nayak	1903268034	Deeptiskha Nayak
15.	Madhulika Singh	1903268049	Madhulika Singh
16	Goutami Jani	1903268041	Goutami Jani
17.	Pratikshya Pujari	1903268061	Pratikshya Pujari

08/03/2022

Principal

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (KO) 764002

OFFICE OF THE PRINCIPAL
JEYPORE COLLEGE OF PHARMACY

NOTICE

Ref. No: - JCP/2203/021N Date: - 07.03.2022

All the students & Staff (Ladies Only) are hereby informed that the Womens Day Celebration will be held on 08.03.2022 at 3.00 P.M. to 4.00 P.M in the B1 class room .

07/03/2022

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RONDAPALLI, JEYPORE (K) 764002

GENDER

Women's Equality Day
26.08.2022

Jeypore College of Pharmacy has celebrated Women's Equality Day on the dated 26.08.2022. Gender equality and women's rights are key to addressing the society to be developed. For this year theme of Women's Equality day is "thanks the women in your life". For this event from the office of District Social welfare Mrs Gayatri Bahinipati CDPO of Borigumma is joined with us. She is working as CDPO of Borigumma block. Our programme was started with the inaugural speech of Mrs Mazma and then the meeting was progressed with the speech of our Principal sir & Gayatri madam. In her speech she addressed our students with laws and orders how to eradicate the women's violence from society and the methods to strength the emotional state of women to PICht with any difficulty. In this Programme thirty five no of girls students are participated. This programme gives a light to our girls students.

PIC-1 FELICITATION TO CDPO MRS GAYATRI BAHINIPATI.

PIC-2 SPEECH BY MRS GAYATRI ON WOMEN'S EQUALITY DAY

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

GENDER

EVENT NAME: International Women's Day DATE: 8.03.2022

THEME: Gender equality today for a sustainable tomorrow.

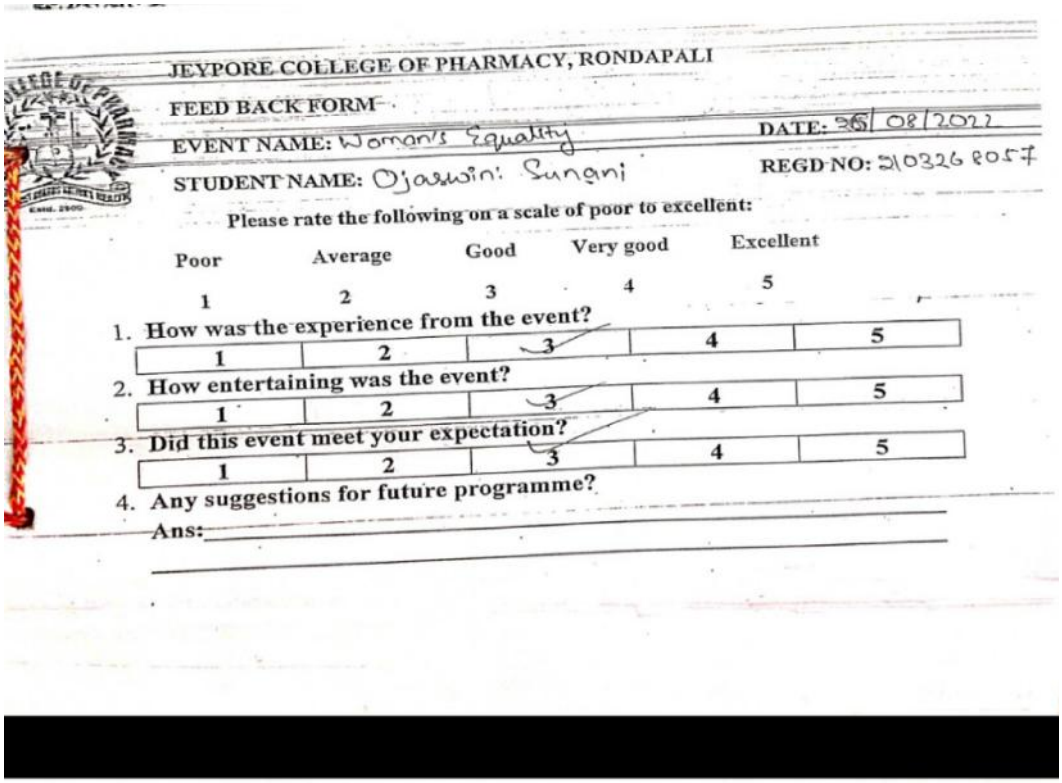
SL NO	STUDENT NAME	REG.NO	STUDENT SIGNATURE
1.	Aneesa Maria	2003268053	Aneesa Maria
2.	Eshwari Behera	2003268059	Eshwari Behera
3.	Geetanjali Nayak	2003268070	Geetanjali Nayak
4.	Subhashree Ghadai	2003268041	Subhashree Ghadai
5.	Tanushree Ghosh	2003268047	Tanushree Ghosh
6.	Namali Ghadai	1903268093	Namali Ghadai
7.	Sruti B. Patnaik	1903268083	Sruti B. Patnaik
8.	Anjali Rath	1903268014	Anjali Rath
9.	Sonali Satapathy	1903268079	Sonali Satapathy
10.	Nisha Saha	1903268056	Nisha Saha
11.	Barsha Nayak	1903268032	Barsha Nayak
12.	Trupti Rani Mohanty	1903268089	Trupti Rani Mohanty
13	Sweta Jena	1903268087	Sweta Jena
14.	Deeptiskha Nayak	1903268034	Deeptiskha Nayak
15.	Madhulika Singh	1903268049	Madhulika Singh
16	Gautami Jani	1903268041	Gautami Jani
17.	Pratikshya Pujari	1903268061	Pratikshya Pujari

08/03/2022

Principal

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (ODISHA)-764002

GENDER



JEYPORE COLLEGE OF PHARMACY, RONDAPALI

FEED BACK FORM

EVENT NAME: Woman's Equality DATE: 26/08/2022

STUDENT NAME: Ojaswini Sungani REGD NO: 2103268057

Please rate the following on a scale of poor to excellent:

Poor	Average	Good	Very good	Excellent
1	2	3	4	5

1. How was the experience from the event?

1	2	3	4	5

2. How entertaining was the event?

1	2	3	4	5

3. Did this event meet your expectation?

1	2	3	4	5

4. Any suggestions for future programme?

Ans:

OFFICE OF THE PRINCIPAL
JEYPORE COLLEGE OF PHARMACY

NOTICE

Ref. No: - JCP/2208/101N Date: - 25.08.2022

All the students& Staff (Ladies Only) are hereby informed that the Women's Equality day will be held on 26.08.2022 at 3.00 P.M. to 4.00 P.M in the B1 class room on the theme: "Women's Equality".

25/08/2022
Principal
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INTERNATIONAL DAY OF ELIMINATION OF VIOLENCE AGAINST WOMEN.
DT: 25.11.2022

Jeypore college of Pharmacy observed “International day of elimination of violence against women” at Rondapali. Where twenty eight no of women’s are gathered to celebrate this day. Mrs Manasi Khadanga Asst professor of Jcp and Mrs Pratit kanchan Sahu Associate professor of JCP delivered a speech on this programme by focusing the articles and laws of our Govt to provide protection to the women’s against domestic and social violence. With the women’s of Rondapalli a dissuction was held to aware them how to take stand against violence.

PIC-1 MRS MANASI KHADANGA ADDRESSING THE GATHERING.

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PIC-2 GATHERING AUDIENCE AT RONDAPALLI.

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PIC-3 (I) JCP LADIES STAFF WITH VILLAGE WOMEN OF RONDAPALLI.

PIC-3 (II) JCP LADIES STAFF WITH VILLAGE WOMEN OF RONDAPALLI.

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OFFICE OF THE PRINCIPAL
JEYPORE COLLEGE OF PHARMACY

NOTICE

Ref. No: Jcp/2211/167N **Date: - 24.11.2022**

The staff and students of Jeypore College of Pharmacy are here by informed that our college will be observe the **"International Day For Elimination of Violence Against Women"** on 25.11.2022 at Rondapalli at 2.00 P.M. to 3.00 P.M.

24/11/2022

Principal

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GENDER

JEYPORE COLLEGE OF PHARMACY, RONDAPALLI

EVENT NAME: International day against violence. DATE: 25/11/2022.

1	Laxmi Pathaik	Laxmi Pathaik
2	Kausalya Pooja	
3	Dalimba Pooja	
4	Kamala Khadi	
5	Sanjukta Dangu	
6	Santi Pangi	
7	Mitula Bhumia	
8	Udayapadi Pangi	
9	Ganaye Padani	
10	Laxmi harijan	
11	Basanda pradhan	
12	Tulasi pujari	
13	Subasna Pujari	
14	Damana pradhan	
15	Dasuni Pujari	

25/11/2022

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RONDAPALLI, JEYPORE (K) 764002

GENDER

JEYPORE COLLEGE OF PHARMACY, RONDAPALI

EVENT NAME: DATE:

THEME:

SL NO.	NAME OF THE PERSON	SIGNATURE / FINGER IMPRESSION
16	Subhadra Pujari	
17)	Gouri pujari	Gouri pujari
18)	Sunita Pujari	Sunita Pujari
19)	Gouri Pando	Gouri Panda
20)	Rasmi Kadli	Rashmi Khati
21)	Kousalya pujari	Kaushalya Pujari
22)	Runi Pangi	
23)	Bubbana pando	
24)	Kanakedaye kendu	
25)	Damei Hari Jan	
26)	Tuni Hansa	
27)	Supriya Dasa.	
28)	Bismita Sabar	

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5/11/2022

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ENVIRONMENT

WORLD ENVIRONMENT DAY
5TH JUNE 2022

On this occasion 5th June 2022, Jeypore college of Pharmacy organised an awareness programme on the occasion of World Environment Day. All the students and faculty members have participated with full energy. Principal Dr Sangram Keshari Panda Present at the Programme. The Programme was started with plantation. The students started planting their saplings in our medicinal garden. Pla cards also prepared by our students to create awareness for the safety of our environment. After this 23 no of students are participated in art competition , where Mr Srikant of B.Ph 7th and Mr Albert Bagh of B.Ph 5th sem secured first and second prize . The Prize and Certificates are distributed to the students . After this our principal sir gave a well researched speech how our environment is today and why we should be aware to keep it in good condition. At the end he took a promise from all students that they never pollute environment and took at the step for its betterment.

PIC-1 DIGNITARIES ON DICE ON WORLD ENVIRONMENT DAY CELEBRATION.

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PIC-2(I) PRIZE DISTRIBUTION TO STUDENTS.

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

ENVIRONMENT

EVENT NAME: World Environment Day DATE: 5.06.2022

THEME: Only one Earth

SL NO	STUDENT NAME	REG.NO	STUDENT SIGNATURE
01	Ashutosh Panda	2003268058	Ashutosh Panda
02	Situ Sahu	2003268039	Situ Sahu
03	Bikash Sardar	2003268062	Bikash Sardar.
04	Debasish padhan	2003268066	Debasish padhan
05	Siba Mandal	2003261038	Siba Mandal
06	B. Shyam Kumar	2003248059	B. Shyam Kumar,
07	Abhijeet Tuidip	2003268050	Abhijeet Tuidip
08	Subhashree Padhi	2003268044	Subhashree Padhi
09	Geetanjali Nayak	2003268070	Geetanjali Nayak
10	Aneesha Mahua	2003268053	Aneesha Mahua
11	Eshwari Behera	2003268069	Eshwari Behera
12	Tanushree Ghosh	2003268047	Tanushree Ghosh
13	Bibhu bibhuti Panigrahi	2123268006	Bibhu bibhuti Panigrahi
14	Syamananda pattanaik	2003268095	Syamananda pattanaik
15	Rasmi kanta Samal	2003268081	Rasmi kanta Samal
16	T. VIVEK RAJU	2003268092	T. VIVEK RAJU
17	Ramachandra Meher	2003268079	Ramachandra Meher
18	S. Liza Patra	2123268016	S. Liza Patra
19	Etishree mohapatra	2123268009	Etishree mohapatra
20	Jyoti Sadangi	2003268076	Jyoti Sadangi

08/06/2022
Principal

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JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

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OFFICE OF THE PRINCIPAL
JEYPORE COLLEGE OF PHARMACY

N O T I C E

Ref. No: - Jcp/2206/048N **Date: - 01.06.2022**

The staff and students of Jeypore College of Pharmacy are here by informed that our college will be observe the "World Environment Day" on 05.06.2022 at our college campus at 11.00 A.M. Theme: "Living Sustainably in Harmony With Nature". On that day drawing competition will be held at 12.00 noon at B1 class room.

01/06/2022

Principal

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ENVIRONMENT

JEYPORE COLLEGE OF PHARMACY, JEYPORE

FEEDBACK FORM

EVENT NAME: World Environment Day DATE: 05/06/2022

STUDENT NAME: Name Siba Mandal. REG NO: 2003268038

Please rate the following on a scale of poor to excellent:

Poor	Average	Good	Very good	Excellent
1	2	3	4	5

1. How was the experience from the event?

1	2	3	4	5
				✓

2. How entertaining was the event?

1	2	3	4	5
				✓

3. Did this event meet your expectation?

1	2	3	4	5
				✓

4. Any suggestions for future programme?

Ans: Excellent

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ENVIRONMENT

PIC-2(II) PRIZE DISTRIBUTION TO STUDENTS.

PRINCIPAL
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VAN MAHOTSAV
6TH JULY 2022

The students of Jeypore college of Pharmacy celebrated "73rd Van Mahostav" day on 6th July 2022 in the college premises. A "Go Green" initiative was introduction in the college to promote afforestation programme and the growth of trees. 22 no of saplings which included bela plant, mango plant, amla plant, Jack fruit plant and many varieties of plants are planted by the students. Total twenty (20) no. of students are participated in this Mahotsav.

PIC-1(I): PLANTATION BY STUDENTS

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PIC-1(II): PLANTATION BY STUDENTS

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WORLD NATURE CONSERVATION DAY

28TH JULY 2022

On 28th July 2022, on the occasion of world nature conservation day, Jeypore college of Pharmacy organised a seminar talk on the theme" Forests and livelihood: Sustaining people and planet". The main objective is to increase awareness about the conservation of our natural resources and encourage sustainability. On this day 34 no of B. Phram and M.Pharm students are participated in the seminar talk, from the students Rajesh ku. Nayak and B.Shyam Kumar got 1st and 2nd prize and certificates are distributed to the by our Principal and vice principal sir. At last Mrs Manasi Khadanga delivered a speech by laying stress on creating healthy environment and its sustainability.

PIC-1: STUDENTS DELIVERING SPEECH

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PIC-2: PRIZE DISTRIBUTION

PRINCIPAL
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WORLD AIDS DAY
1.12.2022

Jeypore college of pharmacy Celebrated “World Aids Day” on First December 2022 with having the theme “Equalize”. This observation indicates the inequalities which are holding the ways back progress in ending AIDS. This opportunity combines us to PICht against HIV AIDS. To give more support to the theme students of JCP performed a rally in nearest Rondapalli Village. Where 23 students are participated. They go point to point contact with villagers of Rondapalli to aware them about HIV AIDS.

PIC-1 STUDENTS ON WORLD AIDS DAY.

PIC-2 STUDENTS DOING RALLY IN RONDAPALI.

PRINCIPAL
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CONSTITUTION DAY
DT: 26.11.2022

On 26th November 2022 Jeypore College of Pharmacy observed " Constitution Day" . To celebrate this day Principal and all staff and students of Jcp are gathered at the seminar hall of JCP. The Programme was started by the welcoming speech of Dr, Prithwiraj Mohapatra Sir IQAC head of JCP, then the flow is continued by the speech of principal sir and Programme Coordinator Mrs Manasi Khadanga. The main aim is to celebrate this day is to uphold the importance 0f our constitution and providing knowledge to the students in regarding the articles of our Indian Constitution. Mrs Manasi Khadanga Programme Co-ordinator read the pledge for our students. Mr Albert Bagh of B.Ph 7 th sem delivered a speech on the history of our Constitution. All the staffs and students of JCP admire our Constitution. This programme is anchored by Mrs Mazma Begum.

PIC-1 CELEBRATING CONSTITUTION DAY.

PRINCIPAL
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JEYPORE COLLEGE OF PHARMACY, RONDAPALI

EVENT NAME: Indian Constitution Day. DATE: 26.11.2022.

THEME: -

SL.NO	STUDENT NAME	REGD.NO	STUDENT SIGNATURE
01	Shilpa kumar Sahu.	1903268016	Shilpa kumar Sahu.
02	Sumit Biswas	1903268008	Sumit Biswas
03	V. Gouri Sai Sekhar	1903268041	V. Gouri Sai Sekhar
04	Karfakira Garg	1903268004	Karfakira Garg
05	Abishek Mungo	1905268004	Abishek Mungo
06	Priyanshu Shrivastava	1903268062	Priyanshu Shrivastava
07	Chinmaya kumar Sahu	1903268008	Chinmaya kumar Sahu
08	Gupteswar Panigrahi	1902868042	Gupteswar Panigrahi
09	G. Uttej	1903268029	G. Uttej
10	Rudra Prasad Mishra	1903268067	Rudra Prasad Mishra
11	Mohit Shukla	1903268052	Mohit Shukla
12	Sonali Satapathy	1903268079	Sonali Satapathy
13	Rahul Roy	1903268065	Rahul Roy
14	Mahamad Kasim	1903268050	Mahamad Kasim
15	Debabrata Kabir	1903268030	Debabrata Kabir
16	Albert Bash	1903268008	Albert Bash
17	Nirupama Acharya.	1903268055	Nirupama Acharya.
18	Barsha Mohanty	1903268022	Barsha Mohanty
19	Sonali Satapathy	1903268044	Sonali Satapathy
20	Pratikshya Pujari	1903268061	Pratikshya Pujari
21	Goutami Jani	1903268041	Goutami Jani
22	Nisha Saha	1903268056	Nisha Saha
23	Sruti B. Patnaik.	1903268082	Sruti B. Patnaik
24	Deepsikha Nayak	1903268034	Deepsikha Nayak
25	Sweta Jena	1903268083	Sweta Jena.

26/11/2022

PRINCIPAL
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JEYPORE COLLEGE OF PHARMACY, RONDAPALI

FEED BACK FORM

EVENT NAME: Indian Constitution Day **DATE:** 26th. 11. 2022

STUDENT NAME: Abhishek Murgo **REGD NO:** 1903268004

Please rate the following on a scale of poor to excellent:

Poor	Average	Good	Very good	Excellent
1	2	3	4	5

1. **How was the experience from the event?**

1	2	3	4	5 ✓

2. **How entertaining was the event?**

1	2	3	4	✓5

3. **Did this event meet your expectation?**

1	2	3	4	✓5

4. **Any suggestions for future programme?**

Ans: Best one.

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RONDAPALLI, JEYPORE (K) 764002

OFFICE OF THE PRINCIPAL
JEYPORE COLLEGE OF PHARMACY

N O T I C E

Ref. No: - Jcp/2211/189N **Date: - 25.11.2022**

The staff and students of Jeypore College of Pharmacy are here by informed that our college will be observe the **"Constitution Day"** on 26.11.2022 at our college campus at 11.00 A.M.

25/11/2022
Principal
PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

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OFFICE OF THE PRINCIPAL
JEYPORE COLLEGE OF PHARMACY

N O T I C E

Ref. No: - Jcp/2211/189N **Date: - 25.11.2022**

The staff and students of Jeypore College of Pharmacy are here by informed that our college will be observe the **"Constitution Day"** on 26.11.2022 at our college campus at 11.00 A.M.

25/11/2022
Principal
PRINCIPAL
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LEPROSY DAY
30TH JANUARY 2022

World Leprosy Day is celebrated on the last Sunday of January in 2022 at Jeypore college of Pharmacy with the theme" United for Dignity". This is the day to raise awareness about the disease and take a stand for an end to leprosy- related stigma and discrimination. For this awareness programme Sankaudi villagers are welcomed to the college premises. Dr. S.K Panda Principal delivered a speech on the theme.Along with principal sir staffs creates an awareness on how to take precautionary measures to eradicate leprosy from society. Arround 23 no of Sankaudi villagers are gathered in this programme. The meeting was concluded by Mr. K .Mutyallu rao by offering votes of thanks. This celebration creates a awareness among the staffs and peoples of Sankaudi village.

PIC-1 ADDRESSING TO VILLAGE PEOPLE FOR ERADICATION OF LEPROSY BY OUR STAFF

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

JEYPORE COLLEGE OF PHARMACY, RONDAPALI

EVENT NAME: LEPROSY DAY DATE: 30. 01. 2022

THEME: United for Dignity.

SL NO	NAME OF THE PERSON	SIGNATURE / FINGER IMPRESSION
	V Munna patnaik	V Munna patnaik
	J. Shim	J. Shim
	Jitu maharana	Jitu maharana
	SRIDHARA m	SRIDHARA m
	Keshba Kamar	Keshba Kamar
	~~Papu~~ PAPU BISWAL	PAPU BISWAL
	Kamalocan Pujari	Kamalcan Pujari
	Subham Biswal	Sabham Biswal
	Samir Maharana	Samir Maharana
	Ramu majhi	Ramu majhi
	Dambaru Kachim	Dambaru Kachim
	Dilip Ray	Dilip Ray
	Surdip nayak	Surdip nayak
	Surendra Mahanandia	Surendra Mahanandia
	Bhagaban panajo	Bhagaban panajo

30/01/2022
PRINCIPAL.

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

JEYPORE COLLEGE OF PHARMACY, RONDAPALI

EVENT NAME: DATE:

THEME:

SL NO	NAME OF THE PERSON	SIGNATURE / FINGER IMPRESSION
	Lakhi Bagdaria	
	Namita Pradhani	
	Bhagabati Gadba.	
	chandrama pujari	
	Manjulata Sahu	
	Subranga Panda	
	Tuni Behera	
	Partha Panigrahi	
	Bhima Majhi	
	Brunda Pradhani	

PRINCIPAL 01/2022

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WORLD IODINE DEFICIENCY DAY
21.10.22

World iodine deficiency day is celebrated in Jeypore College of Pharmacy on 21.10.22 by having the theme" Thyroid and communication". Moto of this celebration is to spread awareness of iodine and its importance in our daily diet. This celebration is begins by the welcome speech given by Associate Professor of JCP Mrs Pratit Kanchan Sahu.In her speech she delivered about the deficiency disease occurring due to lack of iodine in our body. Then this programme was continued by the speech of our Principal Sir Dr Sangram Keshari Panda. In his Speech he gave focusing to the significance of iodine in our daily diet, and irradiation of thyroidism and goitre disease which are mainly occurred due to the deficiency of iodine in our body. By giving raise to this programme our students also delivered talk on the awareness of iodine deficiency. Mr Deepak Polei of B.ph 4th sem , Mr Amitanshu Sahu of B.ph 2nd sem presented their ideas in a very effective way. At last Mrs Manasi Khadanga Asst.Professor of JCP concluded the meeting with vote of thanks.

PIC-1 DR SRILATA SAHU DELIVERING SPEECH ON WORLD IODINE DEFICIENCY DAY.

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WORLD PHARMACIST DAY
25TH September 2022

On 25th September 2022 Jeypore college of Pharmacy celebrated “World Pharmacist Day” having the theme “Pharmacy united the Nation for a healthcare world”. At the beginning of the function Principal Dr Sangram Kesharii Panda presented his speech enriched with the theme provided this year. Our Chief Guest Senior Pharmacist Mr. Sanjeeb Ku Subudhi and Chief Speaker Mr.S. Satish Rao Senior Pharmacist DHH.Jeypore are being present with us. Mr Sanjeeb Ku. Subudhi spoke about the student focusing on facets of Pharmacy and pharmacy profession with their challenges, opportunities for future pharmacy profession. On the eve of world pharmacist day by having collaboration with HDFC bank one blood donation camp is held at our JCP campus on 24.09.2022. During this blood donation camp forty-one units of bloods are collected. This Programme was conducted by Programme co-ordinator Mrs Manasi Khadanga and hosted by Mrs Mazma Begum.

PIC-1 CELEBRATION OF WORLD PHARMACIST DAY

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PIC-2 BLOOD DONATION CAMP ORGANISED HAVING COLLABORATION WITH HDFC BANK

PRINCIPAL
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WORLD HEART DAY
29TH September 2022

Jeypore college of Pharmacy celebrated world heart day on 29th September 2022, with the theme "Use Heart for Every Heart" for creating awareness about cardiovascular diseases and their way for precaution and prevention. By continuing this celebration Miss Rasmita Das Asst.Prof of jeypore college of Pharmacy welcomed to the audience by her welcoming speech. Mr Subham Sourajit Asst prof of Jeypore college of Pharmacy explained briefly about the cardiovascular disease and the etiology to control the spreading of this disease . He also spoke about exercise , maintain diet, stress free life are the major ways to keep our heart healthy. Human heart model making competition is organised on this day. Where eleven no of models of human heart are demonstrated by our UG students. From them Miss Bagmi Baduli and Miss Anesha Maria occupied the first and second position respectively. Prize and certificates are distributed to all the participants. At the closing ceremony Mrs Manasi Khadanga Asst Prof cum Programme co-ordinator delivered the vote of thanks.

PIC-1 DIGNITARIES ON THE DICE ON WORLD HEART DAY

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PIC-2 AUDIENCE OF THE CELEBRATION.

PIC-3 STUDENTS RECIVING CERTIFICATE FOR HUMAN HEART MAKING MODEL COMPETITION.

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61st National Pharmacy week

Dt: 20th November to 26 th November

61st National Pharmacy week (NPW) was celebrated at Jeypore college of Pharmacy from 20th November to 26 th November with having the theme "Pharmacy of the world- India". This celebration was started by organising a Free Medicine Distribution Camp at Keraput village of Rondapalli on 24th November 2022. Where 66 no of Patients are gathered and in Prsence of Dr. Bibuti Ku. Rath (BHMS) of Rabanaguda CHSC screened themselves and received the medicines as per the prescription of the Doctor. With the constitution one quiz is also organised on the eve of National pharmacy week where the students re participated in huge no and from them Mr. Dinesh Ku Paricha B.ph 2nd sem , Mr Ankit Panda B.ph 7th sem secured the winning positions. On 26th November the closing ceremony was arranged at our JCP campus. Where Mr Bibhuti Ku. Rath (BHMS) CHSC Rabanaguda invited as chief guest and Mr Sarada Prasad mall (Senior Pharmacist) Rabanaguda placed as chief speaker. The audience listened the lines from our guest on the dice effectively. This Programme is concluded by giving the prize and certificate to the the winning students to encourage their potentiality. At last Mr Sujit ku. Martha wind up the meeting by giving the vote of thanks to the audience.

PIC-1 GUEST FOR NATIONAL PHARMACY WEEK CELEBRATION.

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PIC-2 PRIZE DISTRIBUTION TO STUDENTS FOR QUIZ COMPETATION.

PIC-3 AUDIENCE FOR CELEBRATING NPW.

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PIC-4 DOCTOR SCREENING THE PEOPLES OF KERAPUT.

PIC-5 STUDENTS DISTRIBUTING MEDICINES TO PATIENTS.

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

JEYPORE COLLEGE OF PHARMACY, RONDAPALI

EVENT NAME: National Pharmacy Week DATE: 20 to 20th Nov 2022

THEME: Pharmacy of the world — India

SL.NO	STUDENT NAME	REGD.NO	STUDENT SIGNATURE
01	Akshya kumar Sahu	1903268018	Akshya kumar sahu
02	V. Gouri sai Sekhar	1903268091	V. Gouri sai sekhar
03	Sumit Biswas	1903268086	Sumit Biswas
04	Priyanshu Srivastava	1903268062	Priyanshu Srivastava
05	Ajay Ku. Mohanta	1903268006	Ajay Ku. Mohanta
06	Barsha Nobomy	1903268022	Barsha Nobomy
07	Bivika Nadhi	1903268028	Bivika Nadhi
08	Sweta Jena	1903268034	Sweta Jena
09	Arijit mohakam	1903268017	Arijit mohakam
10	Gautanji Jani	1903268041	Gautanji Jani
11	Prakrishya Pujari	1903268061	Prakrishya Pujari
12	Nisha Sahu	1903268056	Nisha Sahu
13	Smruti B. Pataaik	1903268052	Smruti B. Pataaik
14	Gulsan Ku. Sahoo	1903268042	Gulsan Ku. Sahoo
15	Chinmaya Ku. Sahu	1903268028	Chinmaya Ku. Sahu
16	Gopeshwar Panigrahi	1903268043	Gopeshwar Panigrahi
17	Saloni Dash	2003268031	Saloni Dash
18	Meghanad Rout	2003268071	Meghanad Rout
19	Ahaya ku. Bandaya	2003268032	Ahaya ku. Bandaya
20	Aditya Ku Nayak.	2003268001	Aditya Ku. Nayak.
22	Sarat kumar madki	2003268055	Sarat ku. madki
23	Nikhil kum. Bhoi	2003268023	Nikhil kumar Bhoi
24	Jaydeep Mondal	2003268013	Jaydeep mondal
25	Shibananda Panda	2003268037	Shibananda Panda
26	Debasish Paahan	2003268060	Debasish Paah
27	Anjana Nayak	2003268006	Anjana Nayak
28	Nibedita chakrabarti	2003268022	Nibedita chakrabarti
29	Sarita Mahakana	2003268036	Sarita Mahakana

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OFFICE OF THE PRINCIPAL
JEYPORE COLLEGE OF PHARMACY

N O T I C E

Ref. No: -Jcp/2211/162N **Date: - 19.11.2022**

The staff and students of Jeypore College of Pharmacy are here by informed that our college will be observe the **"National Pharmacy Week"** on 20.11.2022 to 26.11.2022 at our college campus at 11.00 A.M.

19/11/2022

Principal

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

Copy to Buses / Notice boards.

OFFICE OF THE PRINCIPAL
JEYPORE COLLEGE OF PHARMACY

N O T I C E

Ref. No: -Jcp/2211/162N **Date: - 19.11.2022**

The staff and students of Jeypore College of Pharmacy are here by informed that our college will be observe the **"National Pharmacy Week"** on 20.11.2022 to 26.11.2022 at our college campus at 11.00 A.M.

19/11/2022

Principal

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

Copy to Buses / Notice boards.

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JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

JEYPORE COLLEGE OF PHARMACY

(Under the patronage of Banagiri Development Trust)
Approved by Government of Odisha & All India Council for Technical Education, New Delhi
Affiliated to Biju Pattnaik University of Technology & Pharmacy Council of India, New Delhi

Ref. No. : Jcp/2211/8020 Date : 24/11/2022

To
The Medical Officer
CHC, Rabanaguda
Dist:Koraput

Sub: Deputation of Dr.Bibhuti Kumar Rath, BHMS for Free Medicine Distribution camp at Keraput.

Respected Sir / Madam,

With reference to the subject cited above, I am to bring to your kind knowledge that the **"National Pharmacy Week"** is being celebrated during the third week of November each year by each pharmacy institution / organization. Accordingly, we have proposed to celebrate the **National Pharmacy Week from 21.11.2022 to 27.11.2022**, during the celebrated week, we proposed to make free drug distribution to 100 patients on 24.11.2022 and the students and staffs will be disbursed the drugs from provided place at Keraput. So it is our sincere request to you kindly depute Dr.Bibhuti Kumar Rath, BHMS for the above said programme for prescribed the drug to the patient.

Thanking you.
Yours faithfully

24/11/2022
Principal
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RONDAPALLI, JEYPORE (K) 764002

Rondapalli, Jeypore, Dist. Koraput-764 002, Odisha
Ph. : (06854) 246966, 246602, Fax : (06854) 246955,
Visit us : www.pharmajeypore.org. E-mail : pharmajeypore@yahoo.co.in, principal@pharmajeypore.org

JEYPORE COLLEGE OF PHARMACY

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Approved by Government of Odisha & All India Council for Technical Education, New Delhi
Affiliated to Biju Pattnaik University of Technology & Pharmacy Council of India, New Delhi

Ref. No. : JCP/2211/7980 Date : 23/11/2022

To
The Sarapanch
Rondapalli
Dist:Koraput

Sub: Celebration of 'National Pharmacy Week"2022.

Respected Sir / Madam,

With reference to the subject cited above, I am to bring to your kind knowledge that the **"National Pharmacy Week"** is being celebrated during the third week of November each year by each pharmacy institution / organization. Accordingly, we have proposed to celebrate the **National Pharmacy Week from 21.11.2022** to 27.11.2022, during the celebrated week, we proposed to make free drug distribution to 100 patients on 24.11.2022 and the students and staffs will be disbursed the drugs from provided place at your village with our own arrangements.

I would therefore request you to kindly grant necessary permission to organize the Free drugs distribution camp at your village.

Thanking you.
Yours faithfully

Principal
PRINCIPAL
JEYPORE COLLEGE OF PHARMACY

RECD
Anand Halba
23/11/22

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JEYPORE COLLEGE OF PHARMACY, RONDAPALI

FEED BACK FORM

EVENT NAME: National pharmacy **DATE:** 26/11/2022

STUDENT NAME: Akshaya kumar Nandasena **REGD NO:** 2003268052

Please rate the following on a scale of poor to excellent:

Poor	Average	Good	Very good	Excellent
1	2	3	4	5

1. **How was the experience from the event?**

1	2	3	4	5

2. **How entertaining was the event?**

1	2	3	4	5

3. **Did this event meet your expectation?**

1	2	3	4	5

4. **Any suggestions for future programme?**

Ans: Good

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BP101T. HUMAN ANATOMY AND PHYSIOLOGY-I (Theory)

45 Hours

Scope: This subject is designed to impart fundamental knowledge on the structure and functions of the various systems of the human body. It also helps in understanding both homeostatic mechanisms. The subject provides the basic knowledge required to understand the various disciplines of pharmacy.

Objectives: Upon completion of this course the student should be able to

1. Explain the gross morphology, structure and functions of various organs of the human body.
2. Describe the various homeostatic mechanisms and their imbalances.
3. Identify the various tissues and organs of different systems of human body.
4. Perform the various experiments related to special senses and nervous system.
5. Appreciate coordinated working pattern of different organs of each system

Course Content:

Unit I **10 hours**

- **Introduction to human body**
  Definition and scope of anatomy and physiology, levels of structural organization and body systems, basic life processes, homeostasis, basic anatomical terminology.
- **Cellular level of organization**
  Structure and functions of cell, transport across cell membrane, cell division, cell junctions. General principles of cell communication, intracellular signaling pathway activation by extracellular signal molecule, Forms of intracellular signaling: a) Contact-dependent b) Paracrine c) Synaptic d) Endocrine
- **Tissue level of organization**
  Classification of tissues, structure, location and functions of epithelial, muscular and nervous and connective tissues.

Unit II **10 hours**

- **Integumentary system**
  Structure and functions of skin
- **Skeletal system**
  Divisions of skeletal system, types of bone, salient features and functions of bones of axial and appendicular skeletal system
  Organization of skeletal muscle, physiology of muscle contraction, neuromuscular junction

- **Joints**
  Structural and functional classification, types of joints movements and its articulation

Unit III **10 hours**

- **Body fluids and blood**
- Body fluids, composition and functions of blood, hemopoeisis, formation of hemoglobin, anemia, mechanisms of coagulation, blood grouping, Rh factors, transfusion, its significance and disorders of blood, Reticulo endothelial system.
- **Lymphatic system**

  Lymphatic organs and tissues, lymphatic vessels, lymph circulation and functions of lymphatic system

Unit IV **08 hours**

Peripheral nervous system:
Classification of peripheral nervous system: Structure and functions of sympathetic and parasympathetic nervous system.
Origin and functions of spinal and cranial nerves.

- **Special senses**
  Structure and functions of eye, ear, nose and tongue and their disorders.

Unit V **07 hours**

- **Cardiovascular system**
  Heart – anatomy of heart, blood circulation, blood vessels, structure and functions of artery, vein and capillaries, elements of conduction system of heart and heart beat, its regulation by autonomic nervous system, cardiac output, cardiac cycle. Regulation of blood pressure, pulse, electrocardiogram and disorders of heart.

BP107P. HUMAN ANATOMY AND PHYSIOLOGY (Practical)

4 Hours/week

Practical physiology is complimentary to the theoretical discussions in physiology. Practicals allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. This is helpful for developing an insight on the subject.

1. Study of compound microscope.
2. Microscopic study of epithelial and connective tissue
3. Microscopic study of muscular and nervous tissue
4. Identification of axial bones
5. Identification of appendicular bones
6. Introduction to hemocytometry.
7. Enumeration of white blood cell (WBC) count
8. Enumeration of total red blood corpuscles (RBC) count
9. Determination of bleeding time
10. Determination of clotting time
11. Estimation of hemoglobin content
12. Determination of blood group.
13. Determination of erythrocyte sedimentation rate (ESR).
14. Determination of heart rate and pulse rate.
15. Recording of blood pressure.

Recommended Books (Latest Editions)

1. Essentials of Medical Physiology by K. Sembulingam and P. Sembulingam. Jaypee brothers medical publishers, New Delhi.
2. Anatomy and Physiology in Health and Illness by Kathleen J.W. Wilson, Churchill Livingstone, New York
3. Physiological basis of Medical Practice-Best and Tailor. Williams & Wilkins Co,Riverview,MI USA
4. Text book of Medical Physiology- Arthur C,Guyton andJohn.E. Hall. Miamisburg, OH, U.S.A.
5. Principles of Anatomy and Physiology by Tortora Grabowski. Palmetto, GA, U.S.A.

6. Textbook of Human Histology by Inderbir Singh, Jaypee brother's medical publishers, New Delhi.
7. Textbook of Practical Physiology by C.L. Ghai, Jaypee brother's medical publishers, New Delhi.
8. Practical workbook of Human Physiology by K. Srinageswari and Rajeev Sharma, Jaypee brother's medical publishers, New Delhi.

Reference Books (Latest Editions)

1. Physiological basis of Medical Practice-Best and Tailor. Williams & Wilkins Co, Riverview, MI USA
2. Text book of Medical Physiology- Arthur C, Guyton and John. E. Hall. Miamisburg, OH, U.S.A.
3. Human Physiology (vol 1 and 2) by Dr. C.C. Chatterrje ,Academic Publishers Kolkata

BP 201T. HUMAN ANATOMY AND PHYSIOLOGY-II (Theory)

45 Hours

Scope: This subject is designed to impart fundamental knowledge on the structure and functions of the various systems of the human body. It also helps in understanding both homeostatic mechanisms. The subject provides the basic knowledge required to understand the various disciplines of pharmacy.

Objectives: Upon completion of this course the student should be able to:

1. Explain the gross morphology, structure and functions of various organs of the human body.
2. Describe the various homeostatic mechanisms and their imbalances.
3. Identify the various tissues and organs of different systems of human body.
4. Perform the hematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume.
5. Appreciate coordinated working pattern of different organs of each system
6. Appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.

Course Content:

Unit I **10 hours**

- **Nervous system**

Organization of nervous system, neuron, neuroglia, classification and properties of nerve fibre, electrophysiology, action potential, nerve impulse, receptors, synapse, neurotransmitters.

Central nervous system: Meninges, ventricles of brain and cerebrospinal fluid.structure and functions of brain (cerebrum, brain stem, cerebellum), spinal cord (gross structure, functions of afferent and efferent nerve tracts,reflex activity)

Unit II **06 hours**

- **Digestive system**

Anatomy of GI Tract with special reference to anatomy and functions of stomach, (Acid production in the stomach, regulation of acid production through parasympathetic nervous system, pepsin role in protein digestion) small intestine

and large intestine, anatomy and functions of salivary glands, pancreas and liver, movements of GIT, digestion and absorption of nutrients and disorders of GIT.

- **Energetics**

Formation and role of ATP, Creatinine Phosphate and BMR.

Unit III

- **Respiratory system** **10 hours**

Anatomy of respiratory system with special reference to anatomy of lungs, mechanism of respiration, regulation of respiration

Lung Volumes and capacities transport of respiratory gases, artificial respiration, and resuscitation methods.

- **Urinary system**

Anatomy of urinary tract with special reference to anatomy of kidney and nephrons, functions of kidney and urinary tract, physiology of urine formation, micturition reflex and role of kidneys in acid base balance, role of RAS in kidney and disorders of kidney.

Unit IV **10 hours**

- **Endocrine system**

Classification of hormones, mechanism of hormone action, structure and functions of pituitary gland, thyroid gland, parathyroid gland, adrenal gland, pancreas, pineal gland, thymus and their disorders.

Unit V **09 hours**

- **Reproductive system**

Anatomy of male and female reproductive system, Functions of male and female reproductive system, sex hormones, physiology of menstruation, fertilization, spermatogenesis, oogenesis, pregnancy and parturition

- **Introduction to genetics**

Chromosomes, genes and DNA, protein synthesis, genetic pattern of inheritance

BP 207 P. HUMAN ANATOMY AND PHYSIOLOGY (Practical)

4 Hours/week

Practical physiology is complimentary to the theoretical discussions in physiology. Practicals allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. This is helpful for developing an insight on the subject.

1. To study the integumentary and special senses using specimen, models, etc.,
2. To study the nervous system using specimen, models, etc.,
3. To study the endocrine system using specimen, models, etc
4. To demonstrate the general neurological examination
5. To demonstrate the function of olfactory nerve
6. To examine the different types of taste.
7. To demonstrate the visual acuity
8. To demonstrate the reflex activity
9. Recording of body temperature
10. To demonstrate positive and negative feedback mechanism.
11. Determination of tidal volume and vital capacity.
12. Study of digestive, respiratory, cardiovascular systems, urinary and reproductive systems with the help of models, charts and specimens.
13. Recording of basal mass index
14. Study of family planning devices and pregnancy diagnosis test.
15. Demonstration of total blood count by cell analyser
16. Permanent slides of vital organs and gonads.

Recommended Books (Latest Editions)

1. Essentials of Medical Physiology by K. Sembulingam and P. Sembulingam. Jaypee brothers medical publishers, New Delhi.
2. Anatomy and Physiology in Health and Illness by Kathleen J.W. Wilson, Churchill Livingstone, New York
3. Physiological basis of Medical Practice-Best and Tailor. Williams & Wilkins Co,Riverview,MI USA

4. Text book of Medical Physiology- Arthur C,Guyton andJohn.E. Hall. Miamisburg, OH, U.S.A.
5. Principles of Anatomy and Physiology by Tortora Grabowski. Palmetto, GA, U.S.A.
6. Textbook of Human Histology by Inderbir Singh, Jaypee brothers medical publishers, New Delhi.
7. Textbook of Practical Physiology by C.L. Ghai, Jaypee brothers medical publishers, New Delhi.
8. Practical workbook of Human Physiology by K. Srinageswari and Rajeev Sharma, Jaypee brother's medical publishers, New Delhi.

Reference Books:

1. Physiological basis of Medical Practice-Best and Tailor. Williams & Wilkins Co, Riverview, MI USA
2. Text book of Medical Physiology- Arthur C, Guyton and John. E. Hall. Miamisburg, OH, U.S.A.
3. Human Physiology (vol 1 and 2) by Dr. C.C. Chatterrje ,Academic Publishers Kolkata

BP203 T. BIOCHEMISTRY (Theory)

45 Hours

Scope: Biochemistry deals with complete understanding of the molecular levels of the chemical process associated with living cells. The scope of the subject is providing biochemical facts and the principles to understand metabolism of nutrient molecules in physiological and pathological conditions. It is also emphasizing on genetic organization of mammalian genome and hetero & autocatalytic functions of DNA.

Objectives: Upon completion of course student shell able to

1. Understand the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes.
2. Understand the metabolism of nutrient molecules in physiological and pathological conditions.
3. Understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.

Course Content:

UNIT I **08 Hours**

- **Biomolecules**

  Introduction, classification, chemical nature and biological role of carbohydrate, lipids, nucleic acids, amino acids and proteins.

- **Bioenergetics**

  Concept of free energy, endergonic and exergonic reaction, Relationship between free energy, enthalpy and entropy; Redox potential.

  Energy rich compounds; classification; biological significances of ATP and cyclic AMP

UNIT II **10 Hours**

- **Carbohydrate metabolism**

  Glycolysis – Pathway, energetics and significance

  Citric acid cycle- Pathway, energetics and significance

  HMP shunt and its significance; Glucose-6-Phosphate dehydrogenase (G6PD) deficiency

  Glycogen metabolism Pathways and glycogen storage diseases (GSD)

  Gluconeogenesis- Pathway and its significance

  Hormonal regulation of blood glucose level and Diabetes mellitus

- **Biological oxidation**

  Electron transport chain (ETC) and its mechanism.

Oxidative phosphorylation & its mechanism and substrate level phosphorylation

Inhibitors ETC and oxidative phosphorylation/Uncouplers

UNIT III **10 Hours**

- **Lipid metabolism**

  β-Oxidation of saturated fatty acid (Palmitic acid)

Formation and utilization of ketone bodies; ketoacidosis

De novo synthesis of fatty acids (Palmitic acid)

Biological significance of cholesterol and conversion of cholesterol into bile acids, steroid hormone and vitamin D

Disorders of lipid metabolism: Hypercholesterolemia, atherosclerosis, fatty liver and obesity.

- **Amino acid metabolism**

General reactions of amino acid metabolism: Transamination, deamination & decarboxylation, urea cycle and its disorders

Catabolism of phenylalanine and tyrosine and their metabolic disorders (Phenyketonuria, Albinism, alkeptonuria, tyrosinemia)

Synthesis and significance of biological substances; 5-HT, melatonin, dopamine, noradrenaline, adrenaline

Catabolism of heme; hyperbilirubinemia and jaundice

UNIT IV **10 Hours**

- **Nucleic acid metabolism and genetic information transfer**

Biosynthesis of purine and pyrimidine nucleotides

Catabolism of purine nucleotides and Hyperuricemia and Gout disease

Organization of mammalian genome

Structure of DNA and RNA and their functions

DNA replication (semi conservative model)

Transcription or RNA synthesis

Genetic code, Translation or Protein synthesis and inhibitors

UNIT V

07 Hours

- **Enzymes**

Introduction, properties, nomenclature and IUB classification of enzymes

Enzyme kinetics (Michaelis plot, Line Weaver Burke plot)

Enzyme inhibitors with examples

Regulation of enzymes: enzyme induction and repression, allosteric enzymes regulation

Therapeutic and diagnostic applications of enzymes and isoenzymes

Coenzymes –Structure and biochemical functions

BP 209 P. BIOCHEMISTRY (Practical)

4 Hours / Week

1. Qualitative analysis of carbohydrates (Glucose, Fructose, Lactose, Maltose, Sucrose and starch)
2. Identification tests for Proteins (albumin and Casein)
3. Quantitative analysis of reducing sugars (DNSA method) and Proteins (Biuret method)
4. Qualitative analysis of urine for abnormal constituents
5. Determination of blood creatinine
6. Determination of blood sugar
7. Determination of serum total cholesterol
8. Preparation of buffer solution and measurement of pH
9. Study of enzymatic hydrolysis of starch
10. Determination of Salivary amylase activity
11. Study the effect of Temperature on Salivary amylase activity.
12. Study the effect of substrate concentration on salivary amylase activity.

Recommended Books (Latest Editions)

1. Principles of Biochemistry by Lehninger.
2. Harper's Biochemistry by Robert K. Murry, Daryl K. Granner and Victor W. Rodwell.
3. Biochemistry by Stryer.
4. Biochemistry by D. Satyanarayan and U.Chakrapani
5. Textbook of Biochemistry by Rama Rao.
6. Textbook of Biochemistry by Deb.
7. Outlines of Biochemistry by Conn and Stumpf
8. Practical Biochemistry by R.C. Gupta and S. Bhargavan.
9. Introduction of Practical Biochemistry by David T. Plummer. (3rd Edition)
10. Practical Biochemistry for Medical students by Rajagopal and Ramakrishna.
11. Practical Biochemistry by Harold Varley.

BP 204T.PATHOPHYSIOLOGY (THEORY)

45Hours

Scope: Pathophysiology is the study of causes of diseases and reactions of the body to such disease producing causes.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 required to practice medicine safely, confidently, rationally and effectively.

Objectives: Upon completion of the subject student shall be able to –

1. Describe the etiology and pathogenesis of the selected disease states;
2. Name the signs and symptoms of the diseases; and
3. Mention the complications of the diseases.

Course content:

Unit I **10Hours**

- **Basic principles of Cell injury and Adaptation:**
  Introduction, definitions, Homeostasis, Components and Types of Feedback systems, Causes of cellular injury,Pathogenesis (Cell membrane damage, Mitochondrial damage, Ribosome damage, Nuclear damage),Morphology of cell injury – Adaptive changes (Atrophy, Hypertrophy, hyperplasia, Metaplasia, Dysplasia),Cell swelling, Intra cellular accumulation, Calcification, Enzyme leakage and Cell Death Acidosis &Alkalosis,Electrolyte imbalance

- **Basic mechanism involved in the process of inflammation and repair:** Introduction, Clinical signs of inflammation, Different types of Inflammation,Mechanism of Inflammation – Alteration in vascular permeability and blood flow, migration of WBC's,Mediators of inflammation,Basic principles of wound healing in the skin,Pathophysiology of Atherosclerosis

Unit II **10Hours**

- **Cardiovascular System:** Hypertension, congestive heart failure, ischemic heart disease (angina,myocardial infarction, atherosclerosis and arteriosclerosis)
- **Respiratory system:** Asthma, Chronic obstructive airways diseases.
- **Renal system:** Acute and chronic renal failure .

Unit II **10Hours**

- **Haematological Diseases:** Iron deficiency, megaloblastic anemia (Vit B12 and folic acid), sickle cell anemia, thalasemia, hereditary acquired anemia, hemophilia
- **Endocrine system:** Diabetes, thyroid diseases, disorders of sex hormones
- **Nervous system:** Epilepsy, Parkinson's disease, stroke, psychiatric disorders: depression, schizophrenia and Alzheimer's disease.
- **Gastrointestinal system:** Peptic Ulcer
-

Unit IV **8 Hours**

- Inflammatory bowel diseases, jaundice, hepatitis (A,B,C,D,E,F) alcoholic liver disease.
- **Disease of bones and joints:** Rheumatoid arthritis, osteoporosis and gout
- **Principles of cancer:** classification, etiology and pathogenesis of cancer
- **Diseases of bones and joints:** Rheumatoid Arthritis, Osteoporosis,Gout

- **Principles of Cancer:** Classification, etiology and pathogenesis of Cancer

Unit V **7 Hours**

- **Infectious diseases:** Meningitis,Typhoid, Leprosy, Tuberculosis

Urinary tract infections

- **Sexually transmitted diseases:** AIDS, Syphilis, Gonorrhea

Recommended Books (Latest Editions)

BP 404 T. PHARMACOLOGY-I (Theory)

45 Hrs

Scope: The main purpose of the subject is to understand what drugs do to the living organisms and how their effects can be applied to therapeutics. The subject covers the information about the drugs like, 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.

Objectives: Upon completion of this course the student should be able to

1. Understand the pharmacological actions of different categories of drugs
2. Explain the mechanism of drug action at organ system/sub cellular/ macromolecular levels.
3. Apply the basic pharmacological knowledge in the prevention and treatment of various diseases.
4. Observe the effect of drugs on animals by simulated experiments
5. Appreciate correlation of pharmacology with other bio medical sciences

Course Content:

08 hours

UNIT-I

1. General Pharmacology

a. Introduction to Pharmacology- Definition, historical landmarks and scope of pharmacology, nature and source of drugs, essential drugs concept and routes of drug administration, Agonists, antagonists(competitive and non competitive), spare receptors, addiction, tolerance, dependence, tachyphylaxis, idiosyncrasy, allergy.

b. Pharmacokinetics- Membrane transport, absorption, distribution, metabolism and excretion of drugs .Enzyme induction, enzyme inhibition, kinetics of elimination

12 Hours

UNIT-II

General Pharmacology

a. Pharmacodynamics- Principles and mechanisms of drug action. Receptor theories and classification of receptors, regulation of receptors. drug receptors interactions signal transduction mechanisms, G-protein–coupled receptors, ion channel receptor, transmembrane enzyme linked receptors, transmembrane JAK-STAT binding receptor and receptors that regulate transcription factors, dose response relationship, therapeutic index, combined effects of drugs and factors modifying drug action.

b. Adverse drug reactions.

c. Drug interactions (pharmacokinetic and pharmacodynamic)

d. Drug discovery and clinical evaluation of new drugs -Drug discovery phase, preclinical evaluation phase, clinical trial phase, phases of clinical trials and pharmacovigilance.

UNIT-III **10 Hours**

2. Pharmacology of drugs acting on peripheral nervous system

a. Organization and function of ANS.

b.Neurohumoral transmission,co-transmission and classification of neurotransmitters.

c. Parasympathomimetics, Parasympatholytics, Sympathomimetics, sympatholytics.

d. Neuromuscular blocking agents and skeletal muscle relaxants (peripheral).

e. Local anesthetic agents.

f. Drugs used in myasthenia gravis and glaucoma

UNIT-IV **08 Hours**

3. Pharmacology of drugs acting on central nervous system

a. Neurohumoral transmission in the C.N.S.special emphasis on importance of various neurotransmitters like with GABA, Glutamate, Glycine, serotonin, dopamine.

b. General anesthetics and pre-anesthetics.

c. Sedatives, hypnotics and centrally acting muscle relaxants.

d. Anti-epileptics

e. Alcohols and disulfiram

UNIT-V **07 Hours**

3. Pharmacology of drugs acting on central nervous system

a. Psychopharmacological agents: Antipsychotics, antidepressants, anti-anxiety agents, anti-manics and hallucinogens.

b. Drugs used in Parkinsons disease and Alzheimer's disease.

c. CNS stimulants and nootropics.

d. Opioid analgesics and antagonists

e. Drug addiction, drug abuse, tolerance and dependence.

BP 408 P.PHARMACOLOGY-I (Practical)

4Hrs/Week

1. Introduction to experimental pharmacology.
2. Commonly used instruments in experimental pharmacology.
3. Study of common laboratory animals.
4. Maintenance of laboratory animals as per CPCSEA guidelines.
5. Common laboratory techniques. Blood withdrawal, serum and plasma separation, anesthetics and euthanasia used for animal studies.
6. Study of different routes of drugs administration in mice/rats.
7. Study of effect of hepatic microsomal enzyme inducers on the phenobarbitone sleeping time in mice.
8. Effect of drugs on ciliary motility of frog oesophagus
9. Effect of drugs on rabbit eye.
10. Effects of skeletal muscle relaxants using rota-rod apparatus.
11. Effect of drugs on locomotor activity using actophotometer.
12. Anticonvulsant effect of drugs by MES and PTZ method.
13. Study of stereotype and anti-catatonic activity of drugs on rats/mice.
14. Study of anxiolytic activity of drugs using rats/mice.
15. Study of local anesthetics by different methods

Note: All laboratory techniques and animal experiments are demonstrated by simulated experiments by softwares and videos

Recommended Books (Latest Editions)

1. Rang H. P., Dale M. M., Ritter J. M., Flower R. J., Rang and Dale's Pharmacology,.Churchil Livingstone Elsevier
2. Katzung B. G., Masters S. B., Trevor A. J., Basic and clinical pharmacology, Tata Mc Graw-Hill
3. Goodman and Gilman's, The Pharmacological Basis of Therapeutics
4. Marry Anne K. K., Lloyd Yee Y., Brian K. A., Robbin L.C., Joseph G. B., Wayne A. K., Bradley R.W., Applied Therapeutics, The Clinical use of Drugs, The Point Lippincott Williams & Wilkins
5. Mycek M.J, Gelnet S.B and Perper M.M. Lippincott's Illustrated Reviews-Pharmacology

6. K.D.Tripathi. Essentials of Medical Pharmacology, JAYPEE Brothers Medical Publishers (P) Ltd. New Delhi.

7. Sharma H. L., Sharma K. K., Principles of Pharmacology, Paras medical publisher

8. Modern Pharmacology with clinical Applications, by Charles R.Craig& Robert,

9. Ghosh MN. Fundamentals of Experimental Pharmacology. Hilton & Company, Kolkata.

10. Kulkarni SK. Handbook of experimental pharmacology. VallabhPrakashan,

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BP503.T. PHARMACOLOGY-II (Theory)

45 Hours

Scope: This subject is intended to impart the fundamental knowledge on various aspects (classification, mechanism of action, therapeutic effects, clinical uses, side effects and contraindications) of drugs acting on different systems of body and in addition,emphasis on the basic concepts of bioassay.

Objectives: Upon completion of this course the student should be able to

1. Understand the mechanism of drug action and its relevance in the treatment of different diseases
2. Demonstrate isolation of different organs/tissues from the laboratory animals by simulated experiments
3. Demonstrate the various receptor actions using isolated tissue preparation
4. Appreciate correlation of pharmacology with related medical sciences

Course Content:

UNIT-I **10hours**

1. Pharmacology of drugs acting on cardio vascular system

a. Introduction to hemodynamic and electrophysiology of heart.
b. Drugs used in congestive heart failure
c. Anti-hypertensive drugs.
d. Anti-anginal drugs.
e. Anti-arrhythmic drugs.
f. Anti-hyperlipidemic drugs.

UNIT-II **10hours**

1. Pharmacology of drugs acting on cardio vascular system

a. Drug used in the therapy of shock.
b. Hematinics, coagulants and anticoagulants.
c. Fibrinolytics and anti-platelet drugs
d. Plasma volume expanders

2. Pharmacology of drugs acting on urinary system

a. Diuretics
b. Anti-diuretics.

UNIT-III **10hours**

3. Autocoids and related drugs

a. Introduction to autacoids and classification
b. Histamine, 5-HT and their antagonists.
c. Prostaglandins, Thromboxanes and Leukotrienes.
d. Angiotensin, Bradykinin and Substance P.
e. Non-steroidal anti-inflammatory agents
f. Anti-gout drugs
g. Antirheumatic drugs

UNIT-IV **08hours**

5. Pharmacology of drugs acting on endocrine system

a. Basic concepts in endocrine pharmacology.
b. Anterior Pituitary hormones- analogues and their inhibitors.
c. Thyroid hormones- analogues and their inhibitors.
d. Hormones regulating plasma calcium level- Parathormone, Calcitonin and Vitamin-D.
d. Insulin, Oral Hypoglycemic agents and glucagon.
e. ACTH and corticosteroids.

UNIT-V **07hours**

5. Pharmacology of drugs acting on endocrine system

a. Androgens and Anabolic steroids.
b. Estrogens, progesterone and oral contraceptives.
c. Drugs acting on the uterus.

6. Bioassay

a. Principles and applications of bioassay.
b.Types of bioassay
c. Bioassay of insulin, oxytocin, vasopressin, ACTH,d-tubocurarine,digitalis, histamine and 5-HT

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BP 507 P. PHARMACOLOGY-II (Practical)

4Hrs/Week

1. Introduction to *in-vitro* pharmacology and physiological salt solutions.
2. Effect of drugs on isolated frog heart.
3. Effect of drugs on blood pressure and heart rate of dog.
4. Study of diuretic activity of drugs using rats/mice.
5. DRC of acetylcholine using frog rectus abdominis muscle.
6. Effect of physostigmine and atropine on DRC of acetylcholine using frog rectus abdominis muscle and rat ileum respectively.
7. Bioassay of histamine using guinea pig ileum by matching method.
8. Bioassay of oxytocin using rat uterine horn by interpolation method.
9. Bioassay of serotonin using rat fundus strip by three point bioassay.
10. Bioassay of acetylcholine using rat ileum/colon by four point bioassay.
11. Determination of PA_2 value of prazosin using rat anococcygeus muscle (by Schilds plot method).
12. Determination of PD_2 value using guinea pig ileum.
13. Effect of spasmogens and spasmolytics using rabbit jejunum.
14. Anti-inflammatory activity of drugs using carrageenan induced paw-edema model.
15. Analgesic activity of drug using central and peripheral methods

Note: All laboratory techniques and animal experiments are demonstrated by simulated experiments by softwares and videos

Recommended Books (Latest Editions)

1. Rang H. P., Dale M. M., Ritter J. M., Flower R. J., Rang and Dale's Pharmacology, Churchil Livingstone Elsevier
2. Katzung B. G., Masters S. B., Trevor A. J., Basic and clinical pharmacology, Tata Mc Graw-Hill.
3. Goodman and Gilman's, The Pharmacological Basis of Therapeutics
4. Marry Anne K. K., Lloyd Yee Y., Brian K. A., Robbin L.C., Joseph G. B., Wayne A. K., Bradley R.W., Applied Therapeutics, The Clinical use of Drugs, The Point Lippincott Williams & Wilkins.
5. Mycek M.J, Gelnet S.B and Perper M.M. Lippincott's Illustrated Reviews-Pharmacology.
6. K.D.Tripathi. Essentials of Medical Pharmacology, , JAYPEE Brothers Medical Publishers (P) Ltd, New Delhi.
7. Sharma H. L., Sharma K. K., Principles of Pharmacology, Paras medical publisher
8. Modern Pharmacology with clinical Applications, by Charles R.Craig& Robert.
9. Ghosh MN. Fundamentals of Experimental Pharmacology. Hilton & Company, Kolkata.
10. Kulkarni SK. Handbook of experimental pharmacology. Vallabh Prakashan.

45 Hours

Scope: This subject is intended to impart the fundamental knowledge on various aspects (classification, mechanism of action, therapeutic effects, clinical uses, side effects and contraindications) of drugs acting on respiratory and gastrointestinal system, infectious diseases, immuno-pharmacology and in addition,emphasis on the principles of toxicology and chronopharmacology.

Objectives: Upon completion of this course the student should be able to:

1. understand the mechanism of drug action and its relevance in the treatment of different infectious diseases
2. comprehend the principles of toxicology and treatment of various poisoningsand
3. appreciate correlation of pharmacology with related medical sciences.

Course Content:

UNIT-I **10hours**

1. Pharmacology of drugs acting on Respiratory system

a. Anti -asthmatic drugs
b. Drugs used in the management of COPD
c. Expectorants and antitussives
d. Nasal decongestants
e. Respiratory stimulants

2. Pharmacology of drugs acting on the Gastrointestinal Tract

a. Antiulcer agents.
b. Drugs for constipation and diarrhoea.
c. Appetite stimulants and suppressants.
d. Digestants and carminatives.
e. Emetics and anti-emetics.

UNIT-II **10hours**

3. Chemotherapy

a. General principles of chemotherapy.
b. Sulfonamides and cotrimoxazole.
c. Antibiotics- Penicillins, cephalosporins, chloramphenicol, macrolides, quinolones and fluoroquinolins, tetracycline and aminoglycosides

UNIT-III **10hours**

3. Chemotherapy

a. Antitubercular agents
b. Antileprotic agents

c. Antifungal agents

d. Antiviral drugs

e.Anthelmintics

f. Antimalarial drugs

g. Antiamoebic agents

UNIT-IV *08hours*

3. Chemotherapy

l. Urinary tract infections and sexually transmitted diseases.

m. Chemotherapy of malignancy.

4. Immunopharmacology

a. Immunostimulants

b. Immunosuppressant

Protein drugs, monoclonal antibodies, target drugs to antigen, biosimilars

UNIT-V *07hours*

5. Principles of toxicology

a. Definition and basic knowledge of acute, subacute and chronic toxicity.

b. Definition and basic knowledge of genotoxicity, carcinogenicity, teratogenicity and mutagenicity

c. General principles of treatment of poisoning

d. Clinical symptoms and management of barbiturates, morphine, organophosphosphorus compound and lead, mercury and arsenic poisoning.

6. Chronopharmacology

a. Definition of rhythm and cycles.

b. Biological clock and their significance leading to chronotherapy.

BP 608 P. PHARMACOLOGY-III (Practical)

4Hrs/Week

1. Dose calculation in pharmacological experiments
2. Antiallergic activity by mast cell stabilization assay
3. Study of anti-ulcer activity of a drug using pylorus ligand (SHAY) rat model and NSAIDS induced ulcer model.
4. Study of effect of drugs on gastrointestinal motility
5. Effect of agonist and antagonists on guinea pig ileum
6. Estimation of serum biochemical parameters by using semi- autoanalyser
7. Effect of saline purgative on frog intestine
8. Insulin hypoglycemic effect in rabbit
9. Test for pyrogens (rabbit method)
10. Determination of acute oral toxicity (LD50) of a drug from a given data
11. Determination of acute skin irritation / corrosion of a test substance
12. Determination of acute eye irritation / corrosion of a test substance
13. Calculation of pharmacokinetic parameters from a given data
14. Biostatistics methods in experimental pharmacology(student's t test, ANOVA)
15. Biostatistics methods in experimental pharmacology (Chi square test, Wilcoxon Signed Rank test)

**Experiments are demonstrated by simulated experiments/videos*

Recommended Books (Latest Editions)

1. Rang H. P., Dale M. M., Ritter J. M., Flower R. J., Rang and Dale's Pharmacology, Churchil Livingstone Elsevier
2. Katzung B. G., Masters S. B., Trevor A. J., Basic and clinical pharmacology, Tata Mc Graw-Hill
3. Goodman and Gilman's, The Pharmacological Basis of Therapeutics
4. Marry Anne K. K., Lloyd Yee Y., Brian K. A., Robbin L.C., Joseph G. B., Wayne A. K., Bradley R.W., Applied Therapeutics, The Clinical use of Drugs. The Point Lippincott Williams & Wilkins
5. Mycek M.J, Gelnet S.B and Perper M.M. Lippincott's Illustrated Reviews-Pharmacology
6. K.D.Tripathi. Essentials of Medical Pharmacology, , JAYPEE Brothers Medical Publishers (P) Ltd, New Delhi.
7. Sharma H. L., Sharma K. K., Principles of Pharmacology, Paras medical publisher Modern Pharmacology with clinical Applications, by Charles R.Craig& Robert,
8. Ghosh MN. Fundamentals of Experimental Pharmacology. Hilton & Company, Kolkata,
9. Kulkarni SK. Handbook of experimental pharmacology. VallabhPrakashan,
10. N.Udupa and P.D. Gupta, Concepts in Chronopharmacology.

BP 201T. HUMAN ANATOMY AND PHYSIOLOGY-II (Theory)

45 Hours

Scope: This subject is designed to impart fundamental knowledge on the structure and functions of the various systems of the human body. It also helps in understanding both homeostatic mechanisms. The subject provides the basic knowledge required to understand the various disciplines of pharmacy.

Objectives: Upon completion of this course the student should be able to:

1. Explain the gross morphology, structure and functions of various organs of the human body.
2. Describe the various homeostatic mechanisms and their imbalances.
3. Identify the various tissues and organs of different systems of human body.
4. Perform the hematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume.
5. Appreciate coordinated working pattern of different organs of each system
6. Appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.

Course Content:

Unit I — **10 hours**

- **Nervous system**

Organization of nervous system, neuron, neuroglia, classification and properties of nerve fibre, electrophysiology, action potential, nerve impulse, receptors, synapse, neurotransmitters.

Central nervous system: Meninges, ventricles of brain and cerebrospinal fluid.structure and functions of brain (cerebrum, brain stem, cerebellum), spinal cord (gross structure, functions of afferent and efferent nerve tracts,reflex activity)

Unit II — **06 hours**

- **Digestive system**

Anatomy of GI Tract with special reference to anatomy and functions of stomach, (Acid production in the stomach, regulation of acid production through parasympathetic nervous system, pepsin role in protein digestion) small intestine

and large intestine, anatomy and functions of salivary glands, pancreas and liver, movements of GIT, digestion and absorption of nutrients and disorders of GIT.

- **Energetics**

Formation and role of ATP, Creatinine Phosphate and BMR.

Unit III

- **Respiratory system** **10 hours**

Anatomy of respiratory system with special reference to anatomy of lungs, mechanism of respiration, regulation of respiration

Lung Volumes and capacities transport of respiratory gases, artificial respiration, and resuscitation methods.

- **Urinary system**

Anatomy of urinary tract with special reference to anatomy of kidney and nephrons, functions of kidney and urinary tract, physiology of urine formation, micturition reflex and role of kidneys in acid base balance, role of RAS in kidney and disorders of kidney.

Unit IV **10 hours**

- **Endocrine system**

Classification of hormones, mechanism of hormone action, structure and functions of pituitary gland, thyroid gland, parathyroid gland, adrenal gland, pancreas, pineal gland, thymus and their disorders.

Unit V **09 hours**

- **Reproductive system**

Anatomy of male and female reproductive system, Functions of male and female reproductive system, sex hormones, physiology of menstruation, fertilization, spermatogenesis, oogenesis, pregnancy and parturition

- **Introduction to genetics**

Chromosomes, genes and DNA, protein synthesis, genetic pattern of inheritance

BP 207 P. HUMAN ANATOMY AND PHYSIOLOGY (Practical)

4 Hours/week

Practical physiology is complimentary to the theoretical discussions in physiology. Practicals allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. This is helpful for developing an insight on the subject.

1. To study the integumentary and special senses using specimen, models, etc.,
2. To study the nervous system using specimen, models, etc.,
3. To study the endocrine system using specimen, models, etc
4. To demonstrate the general neurological examination
5. To demonstrate the function of olfactory nerve
6. To examine the different types of taste.
7. To demonstrate the visual acuity
8. To demonstrate the reflex activity
9. Recording of body temperature
10. To demonstrate positive and negative feedback mechanism.
11. Determination of tidal volume and vital capacity.
12. Study of digestive, respiratory, cardiovascular systems, urinary and reproductive systems with the help of models, charts and specimens.
13. Recording of basal mass index
14. Study of family planning devices and pregnancy diagnosis test.
15. Demonstration of total blood count by cell analyser
16. Permanent slides of vital organs and gonads.

Recommended Books (Latest Editions)

1. Essentials of Medical Physiology by K. Sembulingam and P. Sembulingam. Jaypee brothers medical publishers, New Delhi.
2. Anatomy and Physiology in Health and Illness by Kathleen J.W. Wilson, Churchill Livingstone, New York
3. Physiological basis of Medical Practice-Best and Tailor. Williams & Wilkins Co,Riverview,MI USA

BP 703T. PHARMACY PRACTICE (Theory)

45 Hours

Scope: In the changing scenario of pharmacy practice in India, for successful practice of Hospital Pharmacy, the students are required to learn various skills like drug distribution, drug information, and therapeutic drug monitoring for improved patient care. In community pharmacy, students will be learning various skills such as dispensing of drugs, responding to minor ailments by providing suitable safe medication, patient counselling for improved patient care in the community set up.

Objectives: Upon completion of the course, the student shall be able to

1. know various drug distribution methods in a hospital
2. appreciate the pharmacy stores management and inventory control
3. monitor drug therapy of patient through medication chart review and clinical review
4. obtain medication history interview and counsel the patients
5. identify drug related problems
6. detect and assess adverse drug reactions
7. interpret selected laboratory results (as monitoring parameters in therapeutics) of specific disease states
8. know pharmaceutical care services
9. do patient counseling in community pharmacy;
10. appreciate the concept of Rational drug therapy.

Unit I: **10 Hours**

a) Hospital and it's organization

Definition, Classification of hospital- Primary, Secondary and Tertiary hospitals, Classification based on clinical and non- clinical basis, Organization Structure of a Hospital, and Medical staffs involved in the hospital and their functions.

b) Hospital pharmacy and its organization

Definition, functions of hospital pharmacy, Organization structure, Location, Layout and staff requirements, and Responsibilities and functions of hospital pharmacists.

c) Adverse drug reaction

Classifications - Excessive pharmacological effects, secondary pharmacological effects, idiosyncrasy, allergic drug reactions, genetically determined toxicity, toxicity following sudden withdrawal of drugs, Drug interaction- beneficial interactions, adverse interactions, and pharmacokinetic drug interactions, Methods for detecting

drug interactions, spontaneous case reports and record linkage studies and Adverse drug reaction reporting and management.

d) Community Pharmacy

Organization and structure of retail and wholesale drug store, types and design, Legal requirements for establishment and maintenance of a drug store, Dispensing of proprietary products, maintenance of records of retail and wholesale drug store.

Unit II: **10 Hours**

a) Drug distribution system in a hospital

Dispensing of drugs to inpatients, types of drug distribution systems, charging policy and labelling, Dispensing of drugs to ambulatory patients, and Dispensing of controlled drugs.

b) Hospital formulary

Definition, contents of hospital formulary, Differentiation of hospital formulary and Drug list, preparation and revision, and addition and deletion of drug from hospital formulary.

c) Therapeutic drug monitoring

Need for Therapeutic Drug Monitoring, Factors to be considered during the Therapeutic Drug Monitoring, and Indian scenario for Therapeutic Drug Monitoring.

d) Medication adherence

Causes of medication non-adherence, pharmacist role in the medication adherence, and monitoring of patient medication adherence.

e) Patient medication history interview

Need for the patient medication history interview, medication interview forms.

f) Community pharmacy management

Financial, materials, staff, and infrastructure requirements.

10 Hours

Unit III:

a) Pharmacy and therapeutic committee

Organization, functions, Policies of the pharmacy and therapeutic committee in including drugs into formulary, inpatient and outpatient prescription, automatic stop order, and emergency drug list preparation.

Drug

b)

information services

Drug and Poison Information Centre, Sources of Drug Information, Computerised services, and storage and retrieval of information.

c)

counseling **Patient**

Definition of patient counseling; steps involved in patient counseling, and Special cases that require the pharmacist

d) Education and training program in the hospital

Role of pharmacist in the education and training program, Internal and external training program, Services to the nursing homes/clinics, Code of ethics for community pharmacy, and Role of pharmacist in the interdepartmental communication and community health education.

e) Prescribed medication order and communication skills

Prescribed medication order- interpretation and legal requirements, and Communication skills- communication with prescribers and patients.

Unit IV **8 Hours**

a)

preparation and implementation **Budget**

Budget preparation and implementation

b) Clinical Pharmacy

Introduction to Clinical Pharmacy, Concept of clinical pharmacy, functions and responsibilities of clinical pharmacist, Drug therapy monitoring - medication chart review, clinical review, pharmacist intervention, Ward round participation, Medication history and Pharmaceutical care.

Dosing pattern and drug therapy based on Pharmacokinetic & disease pattern.

c) Over the counter (OTC) sales

Introduction and sale of over the counter, and Rational use of common over the counter medications.

Unit V **7 Hours**

a) Drug store management and inventory control

Organisation of drug store, types of materials stocked and storage conditions, Purchase and inventory control: principles, purchase procedure, purchase order, procurement and stocking, Economic order quantity, Reorder quantity level, and Methods used for the analysis of the drug expenditure

b) Investigational use of drugs

Description, principles involved, classification, control, identification, role of hospital pharmacist, advisory committee.

c) Interpretation of Clinical Laboratory Tests

Blood chemistry, hematology, and urinalysis

Recommended Books (Latest Edition):

1. Merchant S.H. and Dr. J.S.Quadry. *A textbook of hospital pharmacy*, 4th ed. Ahmadabad: B.S. Shah Prakakshan; 2001.
2. Parthasarathi G, Karin Nyfort-Hansen, Milap C Nahata. *A textbook of Clinical Pharmacy Practice- essential concepts and skills*, 1st ed. Chennai: Orient Longman Private Limited; 2004.
3. William E. Hassan. *Hospital pharmacy*, 5th ed. Philadelphia: Lea & Febiger; 1986.
4. Tipnis Bajaj. *Hospital Pharmacy*, 1st ed. Maharashtra: Career Publications; 2008.
5. Scott LT. *Basic skills in interpreting laboratory data*, 4thed. American Society of Health System Pharmacists Inc; 2009.
6. Parmar N.S. *Health Education and Community Pharmacy*, 18th ed. India: CBS Publishers & Distributers; 2008.

Journals:

1. Therapeutic drug monitoring. ISSN: 0163-4356
2. Journal of pharmacy practice. ISSN : 0974-8326
3. American journal of health system pharmacy. ISSN: 1535-2900 (online)
4. Pharmacy times (Monthly magazine)

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BP 802T SOCIAL AND PREVENTIVE PHARMACY

Hours: 45

Scope:
The purpose of this course is to introduce to students a number of health issues and their challenges. This course also introduced a number of national health programmes. The roles of the pharmacist in these contexts are also discussed.

Objectives:
After the successful completion of this course, the student shall be able to:

- Acquire high consciousness/realization of current issuesrelated to health and pharmaceutical problems within the country and worldwide.
- Have a critical way of thinking based on current healthcare development.
- Evaluate alternative ways of solving problems related tohealth and pharmaceutical issues

Course content:

10 Hours

Unit I:
Concept of health and disease: Definition, concepts and evaluation of public health. Understanding the concept of prevention and control of disease, social causes of diseases and social problems of the sick.

Social and health education: Food in relation to nutrition and health, Balanced diet, Nutritional deficiencies, Vitamin deficiencies, Malnutrition and its prevention.

Sociology and health: Socio cultural factors related to health and disease, Impact of urbanization on health and disease, Poverty and health

Hygiene and health: personal hygiene and health care; avoidable habits

10 Hours

Unit II:
Preventive medicine: General principles of prevention and control of diseases such as cholera, SARS, Ebola virus, influenza, acute respiratory infections, malaria, chicken guinea, dengue, lymphatic filariasis, pneumonia, hypertension, diabetes mellitus, cancer, drug addiction-drug substance abuse

10 Hours

Unit III:
National health programs, its objectives, functioning and outcome of the following: HIV AND AIDS control programme, TB, Integrated disease surveillance program (IDSP), National leprosy control programme, National mental health program, National

programme for prevention and control of deafness, Universal immunization programme, National programme for control of blindness, Pulse polio programme.

Unit IV: **08 Hours**

National health intervention programme for mother and child, National family welfare programme, National tobacco control programme, National Malaria Prevention Program, National programme for the health care for the elderly, Social health programme; role of WHO in Indian national program

Unit V: **07 Hours**

Community services in rural, urban and school health: Functions of PHC, Improvement in rural sanitation, national urban health mission, Health promotion and education in school.

Recommended Books (Latest edition):

1. Short Textbook of Preventive and Social Medicine, Prabhakara GN, 2nd Edition, 2010, ISBN: 9789380704104, JAYPEE Publications
2. Textbook of Preventive and Social Medicine (Mahajan and Gupta), Edited by Roy Rabindra Nath, Saha Indranil, 4th Edition, 2013, ISBN: 9789350901878, JAYPEE Publications
3. Review of Preventive and Social Medicine (Including Biostatistics), Jain Vivek, 6th Edition, 2014, ISBN: 9789351522331, JAYPEE Publications
4. Essentials of Community Medicine—A Practical Approach, Hiremath Lalita D, Hiremath Dhananjaya A, 2nd Edition, 2012, ISBN: 9789350250440, JAYPEE Publications
5. Park Textbook of Preventive and Social Medicine, K Park, 21st Edition, 2011, ISBN-14: 9788190128285, BANARSIDAS BHANOT PUBLISHERS.
6. Community Pharmacy Practice, Ramesh Adepu, BSP publishers, Hyderabad

Recommended Journals:

1. Research in Social and Administrative Pharmacy, Elsevier, Ireland

PRINCIPAL
JEYPORE COLLEGE OF PHARMACY
RONDAPALLI, JEYPORE (K) 764002

BP 505 T. PHARMACEUTICAL JURISPRUDENCE (Theory)

45 Hours

Scope: This course is designed to impart basic knowledge on important legislations related to the profession of pharmacy in India.

Objectives: Upon completion of the course, the student shall be able to understand:

1. The Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals.
2. Various Indian pharmaceutical Acts and Laws
3. The regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
4. The code of ethics during the pharmaceutical practice

Course Content:

UNIT-I **10 Hours**

Drugs and Cosmetics Act, 1940 and its rules 1945:

Objectives, Definitions, Legal definitions of schedules to the Act and Rules

Import of drugs – Classes of drugs and cosmetics prohibited from import, Import under license or permit. Offences and penalties.

Manufacture of drugs – Prohibition of manufacture and sale of certain drugs,

Conditions for grant of license and conditions of license for manufacture of drugs, Manufacture of drugs for test, examination and analysis, manufacture of new drug, loan license and repacking license.

UNIT-II **10 Hours**

Drugs and Cosmetics Act, 1940 and its rules 1945.

Detailed study of Schedule G, H, M, N, P,T,U, V, X, Y, Part XII B, Sch F & DMR (OA)

Sale of Drugs – Wholesale, Retail sale and Restricted license. Offences and penalties

Labeling & Packing of drugs- General labeling requirements and specimen labels for drugs and cosmetics, List of permitted colors. Offences and penalties.

Administration of the Act and Rules – Drugs Technical Advisory Board, Central drugs Laboratory, Drugs Consultative Committee, Government drug analysts, Licensing authorities, controlling authorities, Drugs Inspectors

UNIT-III **10 Hours**

- **Pharmacy Act –1948**: Objectives, Definitions, Pharmacy Council of India; its constitution and functions, Education Regulations, State and Joint state pharmacy councils; constitution and functions, Registration of Pharmacists, Offences and

Penalties

- **Medicinal and Toilet Preparation Act –1955**: Objectives, Definitions, Licensing, Manufacture In bond and Outside bond, Export of alcoholic preparations, Manufacture of Ayurvedic, Homeopathic, Patent & Proprietary Preparations. Offences and Penalties.
- **Narcotic Drugs and Psychotropic substances Act-1985 and Rules**: Objectives, Definitions, Authorities and Officers, Constitution and Functions of narcotic & Psychotropic Consultative Committee, National Fund for Controlling the Drug Abuse, Prohibition, Control and Regulation, opium poppy cultivation and production of poppy straw, manufacture, sale and export of opium, Offences and Penalties

UNIT-IV **08 Hours**

- **Study of Salient Features of Drugs and Magic Remedies Act and its rules:** Objectives, Definitions, Prohibition of certain advertisements, Classes of Exempted advertisements, Offences and Penalties
- **Prevention of Cruelty to animals Act-1960:** Objectives, Definitions, Institutional Animal Ethics Committee, CPCSEA guidelines for Breeding and Stocking of Animals, Performance of Experiments, Transfer and acquisition of animals for experiment, Records, Power to suspend or revoke registration, Offences and Penalties
- **National Pharmaceutical Pricing Authority:** Drugs Price Control Order (DPCO)-2013. Objectives, Definitions, Sale prices of bulk drugs, Retail price of formulations, Retail price and ceiling price of scheduled formulations, National List of Essential Medicines (NLEM)

UNIT-V **07 Hours**

- **Pharmaceutical Legislations** – A brief review, Introduction, Study of drugs enquiry committee, Health survey and development committee, Hathi committee and Mudaliar committee
- **Code of Pharmaceutical ethics** D efinition, Pharmacist in relation to his job, trade, medical profession and his profession, Pharmacist's oath
- **Medical Termination of Pregnancy Act**
- **Right to Information Act**
- **Introduction to Intellectual Property Rights (IPR)**

Recommended books: (Latest Edition)

1. Forensic Pharmacy by B. Suresh

2. Text book of Forensic Pharmacy by B.M. Mithal

3. Hand book of drug law-by M.L. Mehra

4. A text book of Forensic Pharmacy by N.K. Jain

5. Drugs and Cosmetics Act/Rules by Govt. of India publications.

6. Medicinal and Toilet preparations act 1955 by Govt. of India publications.

7. Narcotic drugs and psychotropic substances act by Govt. of India publications

8. Drugs and Magic Remedies act by Govt. of India publication

9.Bare Acts of the said laws published by Government. Reference books (Theory)

HAZARDS AND SAFETY MANAGEMENT
(MQA 201T)

Scope

This course is designed to convey the knowledge necessary to understand issues related to different kinds of hazard and their management. Basic theoretical and practical discussions integrate the proficiency to handle the emergency situation in the pharmaceutical product development process and provides the principle based approach to solve the complex tribulations.

Objectives

At completion of this course it is expected that students will be able to

- Understand about environmental problems among learners.
- Impart basic knowledge about the environment and its allied problems.
- Develop an attitude of concern for the industry environment.
- Ensure safety standards in pharmaceutical industry
- Provide comprehensive knowledge on the safety management
- Empower an ideas to clear mechanism and management in different kinds of hazard management system
- Teach the method of Hazard assessment, procedure, methodology for provide safe industrial atmosphere.

THEORY

60Hrs

1. Multidisciplinary nature of environmental studies: Natural Resources, Renewable and non-renewable resources, Natural resources and associated problems, — 12 Hrs

   a) Forest resources; b) Water resources; c) Mineral resources; d) Energy resources; e) Land resources

   Ecosystems: Concept of an ecosystem and Structure and function of an ecosystem. Environmental hazards: Hazards based on Air, Water, Soil and Radioisotopes.

2. Air based hazards: Sources, Types of Hazards, Air circulation maintenance industry for sterile area and non sterile area, Preliminary Hazard Analysis (PHA) Fire protection system: Fire prevention, types of fire extinguishers and critical Hazard management system. — 12 Hrs

3. Chemical based hazards: Sources of chemical hazards, Hazards of Organic synthesis, sulphonating hazard, Organic solvent hazard, Control measures for chemical hazards, — 12 Hrs

Management of combustible gases, Toxic gases and Oxygen displacing gases management, Regulations for chemical hazard, Management of over-Exposure to chemicals and TLV concept.

4	Fire and Explosion: Introduction, Industrial processes and hazards potential, mechanical electrical, thermal and process hazards. Safety and hazards regulations, Fire protection system: Fire prevention, types of fire extinguishers and critical Hazard management system mechanical and chemical explosion, multiphase reactions, transport effects and global rates. Preventive and protective management from fires and explosion-electricity passivation, ventilation, and sprinkling, proofing, relief systems -relief valves, flares, scrubbers.	12 Hrs
5	Hazard and risk management: Self-protective measures against workplace hazards. Critical training for risk management, Process of hazard management, ICH guidelines on risk assessment and Risk management methods and Tools Factory act and rules, fundamentals of accident prevention, elements of safety programme and safety management, Physicochemical measurements of effluents, BOD, COD, Determination of some contaminants, Effluent treatment procedure, Role of emergency services.	12 Hrs

REFERENCES

1. Y.K. Sing, Environmental Science, New Age International Pvt, Publishers, Bangalore
2. "Quantitative Risk Assessment in Chemical Process Industries" American Institute of Chemical Industries, Centre for Chemical Process safety.
3. Bharucha Erach, The Biodiversity of India, Mapin Pu blishing Pvt. Ltd., Ahmedabad – 380 013, India,
4. Hazardous Chemicals: Safety Management and Global Regulations, T.S.S. Dikshith, CRC press

CELLULAR AND MOLECULAR PHARMACOLOGY
(MPL 104T)

Scope:

The subject imparts a fundamental knowledge on the structure and functions of cellular components and help to understand the interaction of these components with drugs. This information will further help the student to apply the knowledge in drug discovery process.

Objectives:

Upon completion of the course, the student shall be able to,

- Explain the receptor signal transduction processes.
- Explain the molecular pathways affected by drugs.
- Appreciate the applicability of molecular pharmacology and biomarkers in drug discovery process.
- Demonstrate molecular biology techniques as applicable for pharmacology

THEORY

1. Cell biology — 60 Hrs

Structure and functions of cell and its organelles — 12 Hrs

Genome organization. Gene expression and its regulation, importance of siRNA and micro RNA, gene mapping and gene sequencing

Cell cycles and its regulation.

Cell death– events, regulators, intrinsic and extrinsic pathways of apoptosis.

Necrosis and autophagy.

2 Cell signaling

Intercellular and intracellular signaling pathways. — 12 Hrs

Classification of receptor family and molecular structure ligand gated ion channels; G-protein coupled receptors, tyrosine kinase receptors and nuclear receptors.

Secondary messengers: cyclic AMP, cyclic GMP, calcium ion, inositol 1,4,5-trisphosphate, (IP3), NO, and diacylglycerol.

Detailed study of following intracellular signaling pathways: cyclic AMP signaling pathway, mitogen-activated protein kinase (MAPK) signaling, Janus kinase (JAK)/signal transducer and activator of transcription (STAT) signaling pathway.

3	Principles and applications of genomic and proteomic tools DNA electrophoresis, PCR (reverse transcription and real time), Gene sequencing, micro array technique, SDS page, ELISA and western blotting, Recombinant DNA technology and gene therapy Basic principles of recombinant DNA technology-Restriction enzymes, various types of vectors. Applications of recombinant DNA technology. Gene therapy- Various types of gene transfer techniques, clinical applications and recent advances in gene therapy.	12 Hrs
4	Pharmacogenomics Gene mapping and cloning of disease gene. Genetic variation and its role in health/ pharmacology Polymorphisms affecting drug metabolism Genetic variation in drug transporters Genetic variation in G protein coupled receptors Applications of proteomics science: Genomics, proteomics, metabolomics, functionomics, nutrigenomics Immunotherapeutics Types of immunotherapeutics, humanisation antibody therapy, Immunotherapeutics in clinical practice	12 Hrs
5	a. Cell culture techniques Basic equipments used in cell culture lab. Cell culture media, various types of cell culture, general procedure for cell cultures; isolation of cells, subculture, cryopreservation, characterization of cells and their application. Principles and applications of cell viability assays, glucose uptake assay, Calcium influx assays Principles and applications of flow cytometry b. Biosimilars	12 Hrs

REFERENCES:

1. The Cell, A Molecular Approach. Geoffrey M Cooper.
2. Pharmacogenomics: The Search for Individualized Therapies. Edited by J. Licinio and M -L. Wong
3. Handbook of Cell Signaling (Second Edition) Edited by Ralph A. et.al
4. Molecular Pharmacology: From DNA to Drug Discovery. John Dickenson et.al
5. Basic Cell Culture protocols by Cheril D.Helgason and Cindy L.Miller
6. Basic Cell Culture (Practical Approach) by J. M. Davis (Editor)
7. Animal Cell Culture: A Practical Approach by John R. Masters (Editor)
8. Current porotocols in molecular biology vol I to VI edited by Frederick M.Ausuvel et la.

PRINCIPAL

ADVANCED PHARMACOGNOSY - I
(MPG 102T)

SCOPE

To learn and understand the advances in the field of cultivation and isolation of drugs of natural origin, various phytopharmaceuticals, nutraceuticals and their medicinal use and health benefits.

OBJECTIVES

Upon completion of the course, the student shall be able to know the,

- advances in the cultivation and production of drugs
- various phyto-pharmaceuticals and their source, its utilization and medicinal value.
- various nutraceuticals/herbs and their health benefits
- Drugs of marine origin
- Pharmacovigilance of drugs of natural origin

THEORY 60 Hrs

1. Plant drug cultivation: General introduction to the importance of Pharmacognosy in herbal drug industry, Indian Council of Agricultural Research, Current Good Agricultural Practices, Current Good Cultivation Practices, Current Good Collection Practices, Conservation of medicinal plants- Ex-situ and In-situ conservation of medicinal plants. — 12 Hrs

2 Marine natural products: General methods of isolation and purification, Study of Marine toxins, Recent advances in research in marine drugs, Problems faced in research on marine drugs such as taxonomical identification, chemical screening and their solution. — 12 Hrs

3 Nutraceuticals: Current trends and future scope, Inorganic mineral supplements, Vitamin supplements, Digestive enzymes, Dietary fibres, Cereals and grains, Health drinks of natural origin, Antioxidants, Polyunsaturated fatty acids, Herbs as functional foods, Formulation and standardization of neutraceuticals, Regulatory aspects, FSSAI guidelines, Sources, name of marker compounds and their chemical nature, medicinal uses and health benefits of following — 12 Hrs

i) Spirulina ii) Soya bean iii) Ginseng iv) Garlic v) Broccoli vi) Green and Herbal Tea vii) Flax seeds viii) Black cohosh ix) Turmeric.

4 Phytopharmaceuticals: Occurrence, isolation and characteristic features (Chemical nature, uses in pharmacy, medicinal and health benefits) of following. 12 Hrs

a) Carotenoids - i) α and β - Carotene ii) Xanthophyll (Lutein)
b) Limonoids - i) d-Limonene ii) α - Terpineol
c) Saponins - i) Shatavarins
d) Flavonoids - i) Resveratrol ii) Rutin iii) Hesperidin iv) Naringin v) Quercetin
e) Phenolic acids- Ellagic acid
f) Vitamins
g) Tocotrienols and Tocopherols
h) Andrographolide, Glycolipids, Gugulipids, Withanolides, Vascine, Taxol
i) Miscellaneous

5 Pharmacovigilance of drugs of natural origin: WHO and AYUSH guidelines for safety monitoring of natural medicine, Spontaneous reporting schemes for biodrug adverse reactions, bio drug-drug and bio drug-food interactions with suitable examples. 12 Hrs

REFERENCES (Latest Editions of)

1. Pharmacognosy - G. E. Trease and W.C. Evans. Saunders Edinburgh, New York.
2. Pharmacognosy-Tyler, Brady, Robbers
3. Modem Methods of Plant Analysis- Peach & M.V. Tracey, Vol. I&II
4. Text Book of Pharmacognosy by T.E. Wallis
5. Marine Natural Products-Vol.I to IV.
6. Natural products: A lab guide by Raphael Ikan , Academic Press 1991.
7. Glimpses of Indian Ethano Pharmacology, P. Pushpangadam. Ulf Nyman. V.George Tropical Botanic Garden & Research Institute, 1995.
8. Medicinal natural products (a biosynthetic approach), Paul M. Dewick, John Wiley & Sons Ltd., England, 1998.
9. Chemistry of Marine Natural Products- Paul J. Schewer 1973.
10. Herbal Drug Industry by RD. Choudhary, Eastern Publisher, New Delhi, 1996.
11. Cultivation of Medicinal Plants by C.K. Atal & B.M. Kapoor.
12. Cultivation and Utilization of Aromatic Plants, C.K. Atal & B.M. Kapoor
13. Cultivation of medicinal and aromatic crops, AA Farooqui and B.S. Sreeramu. University Press, 2001.

14. Natural Products from Plants, 1st edition, by Peter B. Kaufman, CRC Press, New York, 1998
15. Recent Advances in Phytochemistry- Vol. 1&4: Scikel Runeckles- Appleton Century crofts.
16. Text book of Pharmacognosy, C.K.Kokate, Purohit, Ghokhale, Nirali Prakasshan, 1996.
17. Pharmacognosy and Pharmacobiotechnology, Ashutoshkar, New Age Publications, New Delhi.

PHYTOCHEMISTRY
(MPG 103T)

SCOPE

Students shall be equipped with the knowledge of natural product drug discovery and will be able to isolate, identify and extract and the phyto-constituents

OBJECTIVES

Upon completion of the course, the student shall be able to know the,

- different classes of phytoconstituents, their biosynthetic pathways, their properties, extraction and general process of natural product drug discovery
- phytochemical fingerprinting and structure elucidation of phytoconstituents.

THEORY — 60 Hrs

1. Biosynthetic pathways and Radio tracing techniques: Constituents & their Biosynthesis, Isolation, Characterization and purification with a special reference to their importance in herbal industries of following phyto-pharmaceuticals containing drugs: — 12 Hrs
   a) Alkaloids: Ephedrine, Quinine, Strychynine, Piperine, Berberine, Taxol, Vinca alkoloids.
   b) Glycosides: Digitoxin, Glycyrrhizin, Sennosides, Bacosides, Quercitin.
   c) Steroids: Hecogenin, guggulosterone and withanolides
   d) Coumarin: Umbelliferone.
   e) Terpenoids: Cucurbitacins

2 Drug discovery and development: History of herbs as source of drugs and drug discovery, the lead structure selection process, structure development, product discovery process and drug registration, Selection and optimization of lead compounds with suitable examples from the following source : artemesin, andrographolides. Clinical studies emphasising on phases of clinical trials, protocol design for lead molecules. — 12 Hrs

3 Extraction and Phytochemical studies: Recent advances in extractions with emphasis on selection of method and choice of solvent for extraction, successive and exhaustive extraction and other methods of extraction commonly used like microwave — 12 Hrs

assisted extraction, Methods of fractionation. Separation of phytoconstituents by latest CCCET, SCFE techniques including preparative HPLC and Flash column chromatography.

4 Phytochemical finger printing: HPTLC and LCMS/GCMS applications in the characterization of herbal extracts. Structure elucidation of phytoconstituents. 12 Hrs

5 Structure elucidation of the following compounds by spectroscopic techniques like UV, IR, MS, NMR (1H, 13C) 12 Hrs

a. Carvone, Citral, Menthol
b. Luteolin, Kaempferol
c. Nicotine, Caffeine iv) Glycyrrhizin.

REFERENCES (Latest Editions of)

1. Organic chemistry by I.L. Finar Vol.II
2. Pharmacognosy by Trease and Evans, ELBS.
3. Pharmacognosy by Tylor and Brady.
4. Text book of Pharmacognosy by Wallis.
5. Clark's isolation and Identification of drugs by A.C. Mottal.
6. Plant Drug Analysis by Wagner & Bladt.
7. Wilson and Gisvolds text book of Organic Medicinnal and Pharmaceutical Chemistry by Deorge. R.F.
8. The Chemistry of Natural Products, Edited by R.H. Thomson, Springer International Edn. 1994.
9. Natural Products Chemistry Practical Manual by Anees A Siddiqui and SeemiSiddiqui
10. Organic Chemistry of Natural Products, Vol. 1&2. Gurdeep R Chatwal.
11. Chemistry of Natural Products- Vol. 1 onwards IWPAC.
12. Modem Methods of Plant Analysis- Peach & M.V. Tracey, Vol. I&II
13. Medicinal Natural products – a biosynthetic approach, Dewick PM, John Wiley & Sons, Toronto, 1998.
14. Chemistry of Natural Products, Bhat SV, Nagasampagi BA, Meenakshi S, Narosa Publishing House, New Delhi.
15. Pharmacognosy & Phytochemistry of Medicinal Plants, 2nd edition, Bruneton J, Interceptt Ltd., New York, 1999.

ADVANCED PHARMACOGNOSY - I
(MPG 102T)

SCOPE

To learn and understand the advances in the field of cultivation and isolation of drugs of natural origin, various phytopharmaceuticals, nutraceuticals and their medicinal use and health benefits.

OBJECTIVES

Upon completion of the course, the student shall be able to know the,

- advances in the cultivation and production of drugs
- various phyto-pharmaceuticals and their source, its utilization and medicinal value.
- various nutraceuticals/herbs and their health benefits
- Drugs of marine origin
- Pharmacovigilance of drugs of natural origin

THEORY 60 Hrs

1. Plant drug cultivation: General introduction to the importance of Pharmacognosy in herbal drug industry, Indian Council of Agricultural Research, Current Good Agricultural Practices, Current Good Cultivation Practices, Current Good Collection Practices, Conservation of medicinal plants- Ex-situ and In-situ conservation of medicinal plants. — 12 Hrs

2 Marine natural products: General methods of isolation and purification, Study of Marine toxins, Recent advances in research in marine drugs, Problems faced in research on marine drugs such as taxonomical identification, chemical screening and their solution. — 12 Hrs

3 Nutraceuticals: Current trends and future scope, Inorganic mineral supplements, Vitamin supplements, Digestive enzymes, Dietary fibres, Cereals and grains, Health drinks of natural origin, Antioxidants, Polyunsaturated fatty acids, Herbs as functional foods, Formulation and standardization of neutraceuticals, Regulatory aspects, FSSAI guidelines, Sources, name of marker compounds and their chemical nature, medicinal uses and health benefits of following — 12 Hrs

i) Spirulina ii) Soya bean iii) Ginseng iv) Garlic v) Broccoli vi) Green and Herbal Tea vii) Flax seeds viii) Black cohosh ix) Turmeric.

4	Phytopharmaceuticals: Occurrence, isolation and characteristic features (Chemical nature, uses in pharmacy, medicinal and health benefits) of following. a) Carotenoids – i) α and β - Carotene ii) Xanthophyll (Lutein) b) Limonoids – i) d-Limonene ii) α – Terpineol c) Saponins – i) Shatavarins d) Flavonoids – i) Resveratrol ii) Rutin iii) Hesperidin iv) Naringin v) Quercetin e) Phenolic acids- Ellagic acid f) Vitamins g) Tocotrienols and Tocopherols h) Andrographolide, Glycolipids, Gugulipids, Withanolides, Vascine, Taxol i) Miscellaneous	12 Hrs
5	Pharmacovigilance of drugs of natural origin: WHO and AYUSH guidelines for safety monitoring of natural medicine, Spontaneous reporting schemes for biodrug adverse reactions, bio drug-drug and bio drug-food interactions with suitable examples.	12 Hrs

REFERENCES (Latest Editions of)

1. Pharmacognosy - G. E. Trease and W.C. Evans. Saunders Edinburgh, New York.
2. Pharmacognosy-Tyler, Brady, Robbers
3. Modem Methods of Plant Analysis- Peach & M.V. Tracey, Vol. I&II
4. Text Book of Pharmacognosy by T.E. Wallis
5. Marine Natural Products-Vol.I to IV.
6. Natural products: A lab guide by Raphael Ikan , Academic Press 1991.
7. Glimpses of Indian Ethano Pharmacology, P. Pushpangadam. Ulf Nyman. V.George Tropical Botanic Garden & Research Institute, 1995.
8. Medicinal natural products (a biosynthetic approach), Paul M. Dewick, John Wiley & Sons Ltd., England, 1998.
9. Chemistry of Marine Natural Products- Paul J. Schewer 1973.
10. Herbal Drug Industry by RD. Choudhary, Eastern Publisher, New Delhi, 1996.
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12. Cultivation and Utilization of Aromatic Plants, C.K. Atal & B.M. Kapoor
13. Cultivation of medicinal and aromatic crops, AA Farooqui and B.S. Sreeramu. University Press, 2001.

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14. Natural Products from Plants, 1st edition, by Peter B. Kaufman, CRC Press, New York, 1998
15. Recent Advances in Phytochemistry- Vol. 1&4: Scikel Runeckles- Appleton Century crofts.
16. Text book of Pharmacognosy, C.K.Kokate, Purohit, Ghokhale, Nirali Prakasshan, 1996.
17. Pharmacognosy and Pharmacobiotechnology, Ashutoshkar, New Age Publications, New Delhi.

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PHYTOCHEMISTRY
(MPG 103T)

SCOPE

Students shall be equipped with the knowledge of natural product drug discovery and will be able to isolate, identify and extract and the phyto-constituents

OBJECTIVES

Upon completion of the course, the student shall be able to know the,

- different classes of phytoconstituents, their biosynthetic pathways, their properties, extraction and general process of natural product drug discovery
- phytochemical fingerprinting and structure elucidation of phytoconstituents.

THEORY — 60 Hrs

1. Biosynthetic pathways and Radio tracing techniques: Constituents & their Biosynthesis, Isolation, Characterization and purification with a special reference to their importance in herbal industries of following phyto-pharmaceuticals containing drugs: — 12 Hrs
   a) Alkaloids: Ephedrine, Quinine, Strychynine, Piperine, Berberine, Taxol, Vinca alkoloids.
   b) Glycosides: Digitoxin, Glycyrrhizin, Sennosides, Bacosides, Quercitin.
   c) Steroids: Hecogenin, guggulosterone and withanolides
   d) Coumarin: Umbelliferone.
   e) Terpenoids: Cucurbitacins

2. Drug discovery and development: History of herbs as source of drugs and drug discovery, the lead structure selection process, structure development, product discovery process and drug registration, Selection and optimization of lead compounds with suitable examples from the following source : artemesin, andrographolides. Clinical studies emphasising on phases of clinical trials, protocol design for lead molecules. — 12 Hrs

3. Extraction and Phytochemical studies: Recent advances in extractions with emphasis on selection of method and choice of solvent for extraction, successive and exhaustive extraction and other methods of extraction commonly used like microwave — 12 Hrs

assisted extraction, Methods of fractionation. Separation of phytoconstituents by latest CCCET, SCFE techniques including preparative HPLC and Flash column chromatography.

4 Phytochemical finger printing: HPTLC and LCMS/GCMS applications in the characterization of herbal extracts. Structure elucidation of phytoconstituents. — 12 Hrs

5 Structure elucidation of the following compounds by spectroscopic techniques like UV, IR, MS, NMR (1H, 13C) — 12 Hrs

a. Carvone, Citral, Menthol
b. Luteolin, Kaempferol
c. Nicotine, Caffeine iv) Glycyrrhizin.

REFERENCES (Latest Editions of)

1. Organic chemistry by I.L. Finar Vol.II
2. Pharmacognosy by Trease and Evans, ELBS.
3. Pharmacognosy by Tylor and Brady.
4. Text book of Pharmacognosy by Wallis.
5. Clark's isolation and Identification of drugs by A.C. Mottal.
6. Plant Drug Analysis by Wagner & Bladt.
7. Wilson and Gisvolds text book of Organic Medicinnal and Pharmaceutical Chemistry by Deorge. R.F.
8. The Chemistry of Natural Products, Edited by R.H. Thomson, Springer International Edn. 1994.
9. Natural Products Chemistry Practical Manual by Anees A Siddiqui and SeemiSiddiqui
10. Organic Chemistry of Natural Products, Vol. 1&2. Gurdeep R Chatwal.
11. Chemistry of Natural Products- Vol. 1 onwards IWPAC.
12. Modem Methods of Plant Analysis- Peach & M.V. Tracey, Vol. I&II
13. Medicinal Natural products – a biosynthetic approach, Dewick PM, John Wiley & Sons, Toronto, 1998.
14. Chemistry of Natural Products, Bhat SV, Nagasampagi BA, Meenakshi S, Narosa Publishing House, New Delhi.
15. Pharmacognosy & Phytochemistry of Medicinal Plants, 2nd edition, Bruneton J, Interceptt Ltd., New York, 1999.

1.3.1 QLM ENVIRONMENTAL SUSTAINABILITY

INDUSTRIAL PHARMACOGNOSTICAL TECHNOLOGY
(MPG 104T)

SCOPE

To understand the Industrial and commercial potential of drugs of natural origin, integrate traditional Indian systems of medicine with modern medicine and also to know regulatory and quality policy for the trade of herbals and drugs of natural origin.

OBJECTIVES

By the end of the course the student shall be able to know,

- the requirements for setting up the herbal/natural drug industry.
- the guidelines for quality of herbal/natural medicines and regulatory issues.
- the patenting/IPR of herbals/natural drugs and trade of raw and finished materials.

THEORY — 60 Hrs

1. Herbal drug industry: Infrastructure of herbal drug industry involved in production of standardized extracts and various dosage forms. Current challenges in upgrading and modernization of herbal formulations. Entrepreneurship Development, Project selection, project report, technical knowledge, Capital venture, plant design, layout and construction. Pilot plant scale -up techniques, case studies of herbal extracts. Formulation and production management of herbals. — 12 Hrs

2. Regulatory requirements for setting herbal drug industry: Global marketing management. Indian and International patent law as applicable herbal drugs and natural products. Export - Import (EXIM) policy, TRIPS.
   Quality assurance in herbal/natural drug products.
   Concepts of TQM, GMP, GLP, ISO-9000. — 12 Hrs

3. Monographs of herbal drugs: General parameters of monographs of herbal drugs and comparative study in IP, USP, Ayurvedic Pharmacopoeia, Siddha and Unani Pharmacopoeia, American herbal pharmacopoeia, British herbal pharmacopoeia, WHO guidelines in quality assessment of herbal drugs.

4	Testing of natural products and drugs: Herbal medicines - clinical laboratory testing. Stability testing of natural products, protocols.	12 Hrs
5	Patents: Indian and international patent laws, proposed amendments as applicable to herbal/natural products and process. Geographical indication, Copyright, Patentable subject maters, novelty, non obviousness, utility, enablement and best mode, procedure for Indian patent filing, patent processing, grant of patents, rights of patents, cases of patents, opposition and revocation of patents, patent search and literature, Controllers of patents.	12 Hrs

REFERENCES (Latest Editions of)

1. Herbal drug industry by R.D. Choudhary (1996), Eastern Publisher, New Delhi.
2. GMP for Botanicals - Regulatory and Quality issues on Phytomedicine by Pulok K Mukharjee (2003), Ist Edition, Business horizons Robert Verpoorte, New Delhi.
3. Quality control of herbal drugs by Pulok K Mukarjee (2002), Business Horizons Pharmaceutical Publisher, New Delhi.
4. PDR for Herbal Medicines (2000), Medicinal Economic Company, New Jersey.
5. Indian Herbal Pharmacopoeia (2002), IDMA, Mumbai.
6. Text book of Pharmacognosy by C.K. Kokate, Purohit, Gokhlae (1996), Nirali Prakashan, New Delhi.
7. Text book of Pharmacognosy and Phytochemistry by Vinod D. Rangari (2002), Part I & II, Career Publication, Nasik, India.
8. Plant drug analysis by H.Wagner and S.Bladt, Springer, Berlin.
9. Standardization of Botanicals. Testing and extraction methods of medicinal herbs by V. Rajpal (2004), Vol.I, Eastern Publisher, New Delhi.
10. Phytochemical Dictionary. Handbook of Bioactive Compounds from Plants by J.B.Harborne, (1999), IInd Edition, Taylor and Francis Ltd, UK.
11. Herbal Medicine. Expanded Commission E Monographs by M.Blumenthal, (2004), IST Edition,
12. Drug Formulation Manual by D.P.S.Kohli and D.H.Shah (1998), Eastern Publisher, New Delhi.

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1.3.1 QLM ENVIRONMENTAL SUSTAINABILITY

PHARMACOGNOSY PRACTICAL - I

(MPG 105P)

1. Analysis of Pharmacopoeial compounds of natural origin and their formulations by UV Vis spectrophotometer
2. Analysis of recorded spectra of simple phytoconstituents
3. Experiments based on Gas Chromatography
4. Estimation of sodium/potassium by flame photometry
5. Development of fingerprint of selected medicinal plant extracts commonly used in herbal drug industry viz. Ashwagandha, Tulsi, Bael, Amla, Ginger, Aloe, Vidang, Senna, Lawsonia by TLC/HPTLC method.
6. Methods of extraction
7. Phytochemical screening
8. Demonstration of HPLC- estimation of glycerrhizin
9. Monograph analysis of clove oil
10. Monograph analysis of castor oil.
11. Identification of bioactive constituents from plant extracts
12. Formulation of different dosage forms and their standardisation.

PRINCIPAL

MEDICINAL PLANT BIOTECHNOLOGY
(MPG 201T)

SCOPE

To explore the knowledge of Biotechnology and its application in the improvement of quality of medicinal plants

OBJECTIVES

Upon completion of the course, the student shall be able to,

- Know the process like genetic engineering in medicinal plants for higher yield of Phytopharmaceuticals.
- Use the biotechnological techniques for obtaining and improving the quality of natural products/medicinal plants

THEORY 60 Hrs

1. Introduction to Plant biotechnology: Historical perspectives, prospects for development of plant biotechnology as a source of medicinal agents. Applications in pharmacy and allied fields. Genetic and molecular biology as applied to pharmacognosy, study of DNA, RNA and protein replication, genetic code, regulation of gene expression, structure and complicity of genome, cell signaling, DNA recombinant technology. — 12 Hrs

2 Different tissue culture techniques: Organogenesis and embryogenesis, synthetic seed and monoclonal variation, Protoplast fusion, Hairy root multiple shoot cultures and their applications. Micro propagation of medicinal and aromatic plants. Sterilization methods involved in tissue culture, gene transfer in plants and their applications. — 15 Hrs

3 Immobilisation techniques & Secondary Metabolite Production: Immobilization techniques of plant cell and its application on secondary metabolite Production. Cloning of plant cell: Different methods of cloning and its applications. Advantages and disadvantages of plant cell cloning. Secondary metabolism in tissue cultures with emphasis on production of medicinal agents. Precursors and elicitors on production of secondary metabolites. — 15 Hrs

4 Biotransformation and Transgenesis: Biotransformation, bioreactors for pilot and large scale cultures of plant cells and retention of biosynthetic potential in cell culture. Transgenic — 13 Hrs

1.3.1 QLM ENVIRONMENTAL SUSTAINABILITY

plants, methods used in gene identification, localization and sequencing of genes. Application of PCR in plant genome analysis.

5 Fermentation technology: Application of Fermentation technology, Production of ergot alkaloids, single cell proteins, enzymes of pharmaceutical interest. 05 Hrs

REFERENCES (Latest Editions of)

1. Plant tissue culture, Bhagwani, vol 5, Elsevier Publishers.
2. Plant cell and Tissue Culture (Lab. Manual), JRMM. Yeoman.
3. Elements in biotechnology by PK. Gupta, Rastogi Publications, New Delhi.
4. An introduction to plant tissue culture by MK. Razdan, Science Publishers.
5. Experiments in plant tissue culture by John HD and Lorin WR., Cambridge University Press.
6. Pharmaceutical biotechnology by SP. Vyas and VK. Dixit, CBS Publishers.
7. Plant cell and tissue culture by Jeffrey W. Pollard and John M Walker, Humana press.
8. Plant tissue culture by Dixon, Oxford Press, Washington DC, 1985
9. Plant tissue culture by Street.
10. Pharmacognosy by G. E. Trease and WC. Evans, Elsevier.
11. Biotechnology by Purohit and Mathur, Agro-Bio, 3rd revised edition.
12. Biotechnological applications to tissue culture by Shargool, Peter D. Shargoal, CKC Press.
13. Pharmacognosy by Varo E. Tyler, Lynn R. Brady and James E. Robbert, That Tjen, NGO.
14. Plant Biotechnology, Ciddi Veerasham.

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ADVANCED PHARMACOGNOSY - II
(MPG 202T)

SCOPE

To know and understand the Adulteration and Deterioration that occurs in herbal/natural drugs and methods of detection of the same. Study of herbal remedies and their validations, including methods of screening

OBJECTIVES

Upon completion of the course, the student shall be able to know the,

- validation of herbal remedies
- methods of detection of adulteration and evaluation techniques for the herbal drugs
- methods of screening of herbals for various biological properties

THEORY

60 Hrs

1. Herbal remedies – Toxicity and Regulations: Herbals vs Conventional drugs, Efficacy of Herbal medicine products, Validation of herbal therapies, Pharmacodynamic and Pharmacokinetic issues. — 12 Hrs

2 Adulteration and Deterioration: Introduction, Types of Adulteration/ Substitution of Herbal drugs, Causes and Measures of Adulteration, Sampling Procedures, Determination of Foreign Matter, DNA Finger printing techniques in identification of drugs of natural origin, detection of heavy metals, pesticide residues, phytotoxin, microbial contamination in herbs and their formulations. — 12 Hrs

3 Ethnobotany and Ethnopharmacology: Ethnobotany in herbal drug evaluation, Impact of Ethnobotany in traditional medicine, New development in herbals, Bio-prospecting tools for drug discovery, Role of Ethnopharmacology in drug evaluation, Reverse Pharmacology. — 12 Hrs

4 Analytical Profiles of herbal drugs: Andrographis paniculata, Boswellia serata, Coleus forskholii, Curcuma longa, Embelica officinalis, Psoralea corylifolia. — 12 Hrs

5 Biological screening of herbal drugs: Introduction and Need for Phyto-Pharmacological Screening, New Strategies for evaluating — 12 Hrs

Natural Products, In vitro evaluation techniques for Antioxidants, Antimicrobial and Anticancer drugs. In vivo evaluation techniques for Anti-inflammatory, Antiulcer, Anticancer, Wound healing, Antidiabetic, Hepatoprotective, Cardio protective, Diuretics and Antifertility, Toxicity studies as per OECD guidelines.

REFERENCES (Latest Editions of)

1. Glimpses of Indian Ethano Pharmacology by P. Pushpangadam. Ulf Nyman. V.George Tropical Botanic Garden & Research Institute.
2. Natural products: A lab guide by Raphael Ikan, Academic Press.
3. Pharmacognosy - G. E. Trease and W.C. Evans. WB. Saunders Edinburgh, New York.
4. Pharmacognosy-Tyler, Brady, Robbers, Lee & Fetiger.
5. Modem Methods of Plant Analysis- Peach & M.V. Tracey, Vol. I & II, Springer Publishers.
6. Herbal Drug Industry by RD. Choudhary, Eastern Publishers, New Delhi.
7. Text book of Pharmacognosy by C.K.Kokate, Purohit, Ghokhale, Nirali Prakashan.
8. Text Book of Pharmacognosy by T.E. Wallis, J & A Churchill Ltd., London.
9. Quality control of herbal drugs by Pulok K Mukherjee, Business Horizons Pharmaceutical Publishers, New Delhi.
10. Indian Herbal Pharmacopoeia, IDMA, Mumbai.
11. Text book of Pharmacognosy and Phytochemistry by Vinod D. Rangarl, Part I & II, Career Publication, Nasik, India.
12. Plant drug analysis by H.Wagner and S.Bladt, 2nd edition, Springer, Berlin.
13. Standardization of Botanicals. Testing and extraction methods of medicinal herbs by V. Rajpal (2004), Vol.I, Eastern PublisherS, New Delhi.
14. Herbal Medicine. Expanded Commission E Monographs, M.Blumenthal.

INDIAN SYSTEMS OF MEDICINE
(MPG 203T)

SCOPE

To make the students understand thoroughly the principles, preparations of medicines of various Indian systems of medicine like Ayurveda, Siddha, Homeopathy and Unani. Also focusing on clinical research of traditional medicines, quality assurance and challenges in monitoring the safety of herbal medicines.

OBJECTIVES

After completion of the course, student is able to

- To understand the basic principles of various Indian systems of medicine
- To know the clinical research of traditional medicines, Current Good Manufacturing Practice of Indian systems of medicine and their formulations.

THEORY 60 Hrs

1. Fundamental concepts of Ayurveda, Siddha, Unani and Homoeopathy systems of medicine — 12 Hrs

   Different dosage forms of the ISM.

   Ayurveda: Ayurvedic Pharmacopoeia, Analysis of formulations and bio crude drugs with references to: Identity, purity and quality.

   Siddha: Gunapadam (Siddha Pharmacology), raw drugs/Dhatu/Jeevam in Siddha system of medicine, Purification process (Suddhi).

2 Naturopathy, Yoga and Aromatherapy practices — 12 Hrs

   a) Naturopathy - Introduction, basic principles and treatment modalities.

   b) Yoga - Introduction and Streams of Yoga. Asanas, Pranayama, Meditations and Relaxation techniques.

   c) Aromatherapy – Introduction, aroma oils for common problems, carrier oils.

3 Formulation development of various systems of medicine — 12 Hrs

   Salient features of the techniques of preparation of some of the important class of Formulations as per Ayurveda, Siddha, Homeopathy and Unani Pharmacopoeia and texts. Standardization,

   Shelf life and Stability studies of ISM formulations.

4	Schedule T - Good Manufacturing Practice of Indian systems of medicine Components of GMP (Schedule - T) and its objectives, Infrastructural requirements, working space, storage area, machinery and equipments, standard operating procedures, health and hygiene, documentation and records. Quality assurance in ISM formulation industry - GAP, GMP and GLP. Preparation of documents for new drug application and export registration. Challenges in monitoring the safety of herbal medicines: Regulation, quality assurance and control, National/Regional Pharmacopoeias.	12 Hrs
5	TKDL, Geographical indication Bill, Government bills in AYUSH, ISM, CCRAS, CCRS, CCRH, CCRU	12 Hrs

REFERENCES (Latest Editions of)

1. Ayurvedic Pharmacopoeia, The Controller of Publications, Civil Lines, Govt. of India, New Delhi.
2. Hand Book on Ayurvedic Medicines, H. Panda, National Institute of Industrial Research, New Delhi.
3. Ayurvedic System of Medicine, Kaviraj Nagendranath Sengupata, Sri Satguru Publications, New Delhi.
4. Ayurvedic Pharmacopoeia. Formulary of Ayurvedic Medicines, IMCOPS, Chennai.
5. Homeopathic Pharmacopoeia. Formulary of Homeopathic Medicines, IMCOPS, Chennai.
6. Homeopathic Pharmacy : An introduction & Hand book, Steven B. Kayne, Churchill Livingstone, New York.
7. Indian Herbal Pharmacopoeia, IDMA, Mumbai.
8. British Herbal Pharmacopoeia, bRITISH Herbal Medicine Association, UK.
9. GMP for Botanicals - Regulatory and Quality issues on Phytomedicine, Pulok K Mukharjee, Business Horizons, New Delhi.
10. Indian System of Medicine and Homeopathy in India, Planning and Evaluation Cell, Govt. of India, New Delhi.
11. Essential of Food and Nutrition, Swaminathan, Bappco, Bangalore.
12. Clinical Dietitics and Nutrition, F.P. Antia, Oxford University Press, Delhi.
13. Yoga - The Science of Holistic Living by V.K.Yoga, Vivekananda Yoga Prakashna Publishing, Bangalore.

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1.3.1 QLM ENVIRONMENTAL SUSTAINABILITY

HERBAL COSMETICS
(MPG 204T)

SCOPE

This subject deals with the study of preparation and standardization of herbal/natural cosmetics. This subject gives emphasis to various national and international standards prescribed regarding herbal cosmeceuticals.

OBJECTIVES

After completion of the course, student shall be able to,

- understand the basic principles of various herbal/natural cosmetic preparations
- current Good Manufacturing Practices of herbal/natural cosmetics as per the regulatory authorities

THEORY

60 Hrs

1. Introduction: Herbal/natural cosmetics, Classification & Economic aspects. — 12 Hrs

   Regulatory Provisions relation to manufacture of cosmetics: - License, GMP, offences & Penalties, Import & Export of Herbal/natural cosmetics, Industries involved in the production of Herbal/natural cosmetics.

2 Commonly used herbal cosmetics, raw materials, preservatives, surfactants, humectants, oils, colors, and some functional herbs, preformulation studies, compatibility studies, possible interactions between chemicals and herbs, design of herbal cosmetic formulation. — 12 Hrs

3 Herbal Cosmetics : Physiology and chemistry of skin and pigmentation, hairs, scalp, lips and nail, Cleansing cream, Lotions, Face powders, Face packs, Lipsticks, Bath products, soaps and baby product, Preparation and standardisation of the following :
Tonic, Bleaches, Dentifrices and Mouth washes & Tooth Pastes, Cosmetics for Nails. — 12 Hrs

4 Cosmeceuticals of herbal and natural origin: Hair growth formulations, Shampoos, Conditioners, Colorants & hair oils, Fairness formulations, vanishing & foundation creams, anti-sun burn preparations, moisturizing creams, deodorants. — 12 Hrs

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5	Analysis of Cosmetics, Toxicity screening and test methods: Quality control and toxicity studies as per Drug and Cosmetics Act.	12 Hrs

REFERENCES (Latest Editions of)

1. Panda H. Herbal Cosmetics (Hand book), Asia Pacific Business Press Inc. New Delhi.
2. Thomson EG. Modern Cosmetics, Universal Publishing Corporation, Mumbai.
3. P.P.Sharma. Cosmetics - Formulation, Manufacturing & Quality Control, Vandana Publications, New Delhi.
4. Supriya K B. Handbook of Aromatic Plants, Pointer Publishers, Jaipur.
5. Skaria P. Aromatic Plants (Horticulture Science Series), New India Publishing Agency, New Delhi.
6. Kathi Keville and Mindy Green. Aromatheraphy (A Complete Guide to the Healing Art), Sri Satguru Publications, New Delhi.
7. Chattopadhyay PK. Herbal Cosmetics & Ayurvedic Medicines (EOU), National Institute of Industrial Research, Delhi.
8. Balsam MS & Edward Sagarin. Cosmetics Science and Technology, Wiley Interscience, New York.

BP 106RBT.REMEDIAL BIOLOGY (Theory)

30 Hours

Scope: To learn and understand the components of living world, structure and functional system of plant and animal kingdom.

Objectives: Upon completion of the course, the student shall be able to

- know the classification and salient features of five kingdoms of life
- understand the basic components of anatomy & physiology of plant
- know understand the basic components of anatomy & physiology animal with special reference to human

UNIT I — 07 Hours

Living world:

- Definition and characters of living organisms
- Diversity in the living world
- Binomial nomenclature
- Five kingdoms of life and basis of classification. Salient features of Monera, Potista, Fungi, Animalia and Plantae, Virus,

Morphology of Flowering plants

- Morphology of different parts of flowering plants – Root, stem, inflorescence, flower, leaf, fruit, seed.
- General Anatomy of Root, stem, leaf of monocotyledons & Dicotylidones.

UNIT II — 07 Hours

Body fluids and circulation

- Composition of blood, blood groups, coagulation of blood
- Composition and functions of lymph
- Human circulatory system
- Structure of human heart and blood vessels
- Cardiac cycle, cardiac output and ECG

Digestion and Absorption

- Human alimentary canal and digestive glands
- Role of digestive enzymes
- Digestion, absorption and assimilation of digested food

Breathing and respiration

- Human respiratory system
- Mechanism of breathing and its regulation
- Exchange of gases, transport of gases and regulation of respiration
- Respiratory volumes

07 Hours

UNIT III

Excretory products and their elimination

- Modes of excretion
- Human excretory system- structure and function
- Urine formation
- Rennin angiotensin system

Neural control and coordination

- Definition and classification of nervous system
- Structure of a neuron
- Generation and conduction of nerve impulse
- Structure of brain and spinal cord
- Functions of cerebrum, cerebellum, hypothalamus and medulla oblongata

Chemical coordination and regulation

- Endocrine glands and their secretions
- Functions of hormones secreted by endocrine glands

Human reproduction

- Parts of female reproductive system
- Parts of male reproductive system
- Spermatogenesis and Oogenesis
- Menstrual cycle

05 Hours

UNIT IV

Plants and mineral nutrition:

- Essential mineral, macro and micronutrients
- Nitrogen metabolism, Nitrogen cycle, biological nitrogen fixation

Photosynthesis

- Autotrophic nutrition, photosynthesis, Photosynthetic pigments, Factors affecting photosynthesis.

04 Hours

UNIT V

Plant respiration: Respiration, glycolysis, fermentation (anaerobic).

Plant growth and development

- Phases and rate of plant growth, Condition of growth,Introduction to plant growth regulators

Cell - The unit of life

- Structure and functions of cell and cell organelles.Cell division

Tissues

- Definition, types of tissues, location and functions.

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Text Books

a. Text book of Biology by S. B. Gokhale
b. A Text book of Biology by Dr. Thulajappa and Dr. Seetaram.

Reference Books

a. A Text book of Biology by B.V. Sreenivasa Naidu
b. A Text book of Biology by Naidu and Murthy
c. Botany for Degree students By A.C.Dutta.
d.Outlines of Zoology by M. Ekambaranatha ayyer and T. N. Ananthakrishnan.
e. A manual for pharmaceutical biology practical by S.B. Gokhale and C. K. Kokate

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BP112RBP.REMEDIAL BIOLOGY (Practical)

30 Hours

1. Introduction to experiments in biology
   a) Study of Microscope
   b) Section cutting techniques
   c) Mounting and staining
   d) Permanent slide preparation
2. Study of cell and its inclusions
3. Study of Stem, Root, Leaf, seed, fruit, flower and their modifications
4. Detailed study of frog by using computer models
5. Microscopic study and identification of tissues pertinent to Stem, Root Leaf, seed, fruit and flower
6. Identification of bones
7. Determination of blood group
8. Determination of blood pressure
9. Determination of tidal volume

Reference Books

1. Practical human anatomy and physiology. by S.R.Kale and R.R.Kale.
2. A Manual of pharmaceutical biology practical by S.B.Gokhale, C.K.Kokate and S.P.Shriwastava.
3. Biology practical manual according to National core curriculum .Biology forum of Karnataka. Prof .M.J.H.Shafi

BP 206 T. ENVIRONMENTAL SCIENCES (Theory)

30 hours

Scope: Environmental Sciences is the scientific study of the environmental system and the status of its inherent or induced changes on organisms. It includes not only the study of physical and biological characters of the environment but also the social and cultural factors and the impact of man on environment.

Objectives: Upon completion of the course the student shall be able to:

1. Create the awareness about environmental problems among learners.
2. Impart basic knowledge about the environment and its allied problems.
3. Develop an attitude of concern for the environment.
4. Motivate learner to participate in environment protection and environment improvement.
5. Acquire skills to help the concerned individuals in identifying and solving environmental problems.
6. Strive to attain harmony with Nature.

Course content:

Unit-I **10hours**

The Multidisciplinary nature of environmental studies

Natural Resources

Renewable and non-renewable resources:

Natural resources and associated problems

a) Forest resources; b) Water resources; c) Mineral resources; d) Food resources; e) Energy resources; f) Land resources: Role of an individual in conservation of natural resources.

Unit-II **10hours**

Ecosystems

- Concept of an ecosystem.
- Structure and function of an ecosystem.
- Introduction, types, characteristic features, structure and function of the ecosystems: Forest ecosystem; Grassland ecosystem; Desert ecosystem; Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit- III **10hours**

Environmental Pollution: Air pollution; Water pollution; Soil pollution

Recommended Books (Latest edition):

1. Y.K. Sing, Environmental Science, New Age International Pvt, Publishers, Bangalore
2. Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
3. Bharucha Erach, The Biodiversity of India, Mapin Pu blishing Pvt. Ltd., Ahmedabad – 380 013, India.
4. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p
5. Clark R.S., Marine Pollution, Clanderson Press Oxford
6. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p
7. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
8. Down of Earth, Centre for Science and Environment

BP 405 T.PHARMACOGNOSY AND PHYTOCHEMISTRY I (Theory)

45 Hours

Scope: The subject involves the fundamentals of Pharmacognosy like scope, classification of crude drugs, their identification and evaluation, phytochemicals present in them and their medicinal properties.

Objectives: Upon completion of the course, the student shall be able

1. to know the techniques in the cultivation and production of crude drugs
2. to know the crude drugs, their uses and chemical nature
3. know the evaluation techniques for the herbal drugs
4. to carry out the microscopic and morphological evaluation of crude drugs

Course Content:

10 Hours

UNIT-I

Introduction to Pharmacognosy:

(a) Definition, history, scope and development of Pharmacognosy

(b) Sources of Drugs – Plants, Animals, Marine & Tissue culture

(c) Organized drugs, unorganized drugs (dried latex, dried juices, dried extracts, gums and mucilages, oleoresins and oleo- gum -resins).

Classification of drugs:

Alphabetical, morphological, taxonomical, chemical, pharmacological, chemo and sero taxonomical classification of drugs

Quality control of Drugs of Natural Origin:

Adulteration of drugs of natural origin. Evaluation by organoleptic, microscopic, physical, chemical and biological methods and properties.

Quantitative microscopy of crude drugs including lycopodium spore method, leafconstants, camera lucida and diagrams of microscopic objects to scale with camera lucida.

10 Hours

UNIT-II

Cultivation, Collection, Processing and storage of drugs of natural origin:

Cultivation and Collection of drugs of natural origin

Factors influencing cultivation of medicinal plants.

Plant hormones and their applications.

Polyploidy, mutation and hybridization with reference to medicinal plants

Conservation of medicinal plants

07 Hours

UNIT-III

Plant tissue culture:

Historical development of plant tissue culture, types of cultures, Nutritional requirements, growth and their maintenance.

Applications of plant tissue culture in pharmacognosy.

Edible vaccines

UNIT IV **10 Hours**

Pharmacognosy in various systems of medicine:

Role of Pharmacognosy in allopathy and traditional systems of medicine namely, Ayurveda, Unani, Siddha, Homeopathy and Chinese systems of medicine.

Introduction to secondary metabolites:

Definition, classification, properties and test for identification of Alkaloids, Glycosides, Flavonoids, Tannins, Volatile oil and Resins

UNIT V **08 Hours**

Study of biological source, chemical nature and uses of drugs of natural origin containing following drugs

Plant Products:

Fibers - Cotton, Jute, Hemp

Hallucinogens, Teratogens, Natural allergens

Primary metabolites:

General introduction, detailed study with respect to chemistry, sources, preparation, evaluation, preservation, storage, therapeutic used and commercial utility as Pharmaceutical Aids and/or Medicines for the following Primary metabolites:

Carbohydrates: Acacia, Agar, Tragacanth, Honey

Proteins and Enzymes : Gelatin, casein, proteolytic enzymes (Papain, bromelain, serratiopeptidase, urokinase, streptokinase, pepsin).

Lipids(Waxes, fats, fixed oils) : Castor oil, Chaulmoogra oil, Wool Fat, Bees Wax

Marine Drugs:

Novel medicinal agents from marine sources

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BP408 P. PHARMACOGNOSY AND PHYTOCHEMISTRY I (Practical)

4 Hours/Week

1. Analysis of crude drugs by chemical tests: (i)Tragacanth (ii) Acacia (iii)Agar (iv) Gelatin (v) starch (vi) Honey (vii) Castor oil
2. Determination of stomatal number and index
3. Determination of vein islet number, vein islet termination and paliside ratio.
4. Determination of size of starch grains, calcium oxalate crystals by eye piece micrometer
5. Determination of Fiber length and width
6. Determination of number of starch grains by Lycopodium spore method
7. Determination of Ash value
8. Determination of Extractive values of crude drugs
9. Determination of moisture content of crude drugs
10. Determination of swelling index and foaming

Recommended Books: (Latest Editions)

1. W.C.Evans, Trease and Evans Pharmacognosy, 16th edition, W.B. Sounders & Co., London, 2009.
2. Tyler, V.E., Brady, L.R. and Robbers, J.E., Pharmacognosy, 9th Edn., Lea and Febiger, Philadelphia, 1988.
3. Text Book of Pharmacognosy by T.E. Wallis
4. Mohammad Ali. Pharmacognosy and Phytochemistry, CBS Publishers & Distribution, New Delhi.
5. Text book of Pharmacognosy by C.K. Kokate, Purohit, Gokhlae (2007), 37th Edition, Nirali Prakashan, New Delhi.
6. Herbal drug industry by R.D. Choudhary (1996), Ist Edn, Eastern Publisher, New Delhi.
7. Essentials of Pharmacognosy, Dr.SH.Ansari, IInd edition, Birla publications, New Delhi, 2007
8. Practical Pharmacognosy: C.K. Kokate, Purohit, Gokhlae
9. Anatomy of Crude Drugs by M.A. Iyengar

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BP504 T. PHARMACOGNOSY AND PHYTOCHEMISTRY II (Theory)

45Hours

Scope: The main purpose of subject is to impart the students the knowledge of how the secondary metabolites are produced in the crude drugs, how to isolate and identify and produce them industrially. Also this subject involves the study of producing the plants and phytochemicals through plant tissue culture, drug interactions and basic principles of traditional system of medicine

Objectives: Upon completion of the course, the student shall be able

1. to know the modern extraction techniques, characterization and identification of the herbal drugs and phytoconstituents
2. to understand the preparation and development of herbal formulation.
3. to understand the herbal drug interactions
4. to carryout isolation and identification of phytoconstituents

Course Content:

UNIT-I **7 Hours**

Metabolic pathways in higher plants and their determination

a) Brief study of basic metabolic pathways and formation of different secondary metabolites through these pathways- Shikimic acid pathway, Acetate pathways and Amino acid pathway.
b) Study of utilization of radioactive isotopes in the investigation of Biogenetic studies.

UNIT-II **14 Hours**

General introduction, composition, chemistry & chemical classes, biosources, therapeutic uses and commercial applications of following secondary metabolites:

Alkaloids: Vinca, Rauwolfia, Belladonna, Opium,
Phenylpropanoids and Flavonoids: Lignans, Tea, Ruta
Steroids, Cardiac Glycosides & Triterpenoids: Liquorice, Dioscorea, Digitalis
Volatile oils: Mentha, Clove, Cinnamon, Fennel, Coriander,
Tannins: Catechu, Pterocarpus
Resins: Benzoin, Guggul, Ginger, Asafoetida, Myrrh, Colophony
Glycosides: Senna, Aloes, Bitter Almond
Iridoids, Other terpenoids & Naphthaquinones: Gentian, Artemisia, taxus, carotenoids

UNIT-III **06 Hours**

Isolation, Identification and Analysis of Phytoconstituents

a) Terpenoids: Menthol, Citral, Artemisin
b) Glycosides: Glycyrhetinic acid & Rutin
c) Alkaloids: Atropine,Quinine,Reserpine,Caffeine
d) Resins: Podophyllotoxin, Curcumin

UNIT-IV **10 Hours**

Industrial production, estimation and utilization of the following phytoconstituents: Forskolin, Sennoside, Artemisinin, Diosgenin, Digoxin, Atropine, Podophyllotoxin, Caffeine, Taxol, Vincristine and Vinblastine

UNIT V **8 Hours**

Basics of Phytochemistry

Modern methods of extraction, application of latest techniques like Spectroscopy, chromatography and electrophoresis in the isolation, purification and identification of crude drugs.

BP 508 P. PHARMACOGNOSY AND PHYTOCHEMISTRY II (Practical)

4 Hours/Week

1. Morphology, histology and powder characteristics & extraction & detection of: Cinchona, Cinnamon, Senna, Clove, Ephedra, Fennel and Coriander
2. Exercise involving isolation & detection of active principles
   a. Caffeine - from tea dust.
   b. Diosgenin from Dioscorea
   c. Atropine from Belladonna
   d. Sennosides from Senna
3. Separation of sugars by Paper chromatography
4. TLC of herbal extract
5. Distillation of volatile oils and detection of phytoconstitutents by TLC
6. Analysis of crude drugs by chemical tests: (i) Asafoetida (ii) Benzoin (iii) Colophony (iv) Aloes (v) Myrrh

Recommended Books: (Latest Editions)

1. W.C.Evans, Trease and Evans Pharmacognosy, 16th edition, W.B. Sounders & Co., London, 2009.
2. Mohammad Ali. Pharmacognosy and Phytochemistry, CBS Publishers & Distribution, New Delhi.
3. Text book of Pharmacognosy by C.K. Kokate, Purohit, Gokhlae (2007), 37th Edition, Nirali Prakashan, New Delhi.
4. Herbal drug industry by R.D. Choudhary (1996), Ist Edn, Eastern Publisher, New Delhi.
5. Essentials of Pharmacognosy, Dr.SH.Ansari, IInd edition, Birla publications, New Delhi, 2007
6. Herbal Cosmetics by H.Pande, Asia Pacific Business press, Inc, New Delhi.
7. A.N. Kalia, Textbook of Industrial Pharmacognosy, CBS Publishers, New Delhi, 2005.
8. R Endress, Plant cell Biotechnology, Springer-Verlag, Berlin, 1994.
9. Pharmacognosy & Pharmacobiotechnology. James Bobbers, Marilyn KS, VE Tylor.
10. The formulation and preparation of cosmetic, fragrances and flavours.
11. Remington's Pharmaceutical sciences.
12. Text Book of Biotechnology by Vyas and Dixit.
13. Text Book of Biotechnology by R.C. Dubey.

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45 hours

Scope: This subject gives the student the knowledge of basic understanding of herbal drug industry, the quality of raw material, guidelines for quality of herbal drugs, herbal cosmetics, natural sweeteners, nutraceutical etc. The subject also emphasizes on Good Manufacturing Practices (GMP), patenting and regulatory issues of herbal drugs

Objectives: Upon completion of this course the student should be able to:

1. understand raw material as source of herbal drugs from cultivation to herbal drug product
2. know the WHO and ICH guidelines for evaluation of herbal drugs
3. know the herbal cosmetics, natural sweeteners, nutraceuticals
4. appreciate patenting of herbal drugs, GMP .

Course content:

UNIT-I **11 Hours**

Herbs as raw materials

Definition of herb, herbal medicine, herbal medicinal product, herbal drug preparation
Source of Herbs
Selection, identification and authentication of herbal materials
Processing of herbal raw material

Biodynamic Agriculture

Good agricultural practices in cultivation of medicinal plants including Organic farming.
Pest and Pest management in medicinal plants: Biopesticides/Bioinsecticides.

Indian Systems of Medicine

a) Basic principles involved in Ayurveda, Siddha, Unani and Homeopathy
b) Preparation and standardization of Ayurvedic formulations viz Aristas and Asawas, Ghutika,Churna, Lehya and Bhasma.

UNIT-II **7 Hours**

Nutraceuticals

General aspects, Market, growth, scope and types of products available in the market. Health benefits and role of Nutraceuticals in ailments like Diabetes, CVS diseases, Cancer, Irritable bowel syndrome and various Gastro intestinal diseases.
Study of following herbs as health food: Alfaalfa, Chicory, Ginger, Fenugreek, Garlic, Honey, Amla, Ginseng, Ashwagandha, Spirulina

Herbal-Drug and Herb-Food Interactions: General introduction to interaction and classification. Study of following drugs and their possible side effects and interactions: Hypercium, kava-kava, Ginkobiloba, Ginseng, Garlic, Pepper & Ephedra.

UNIT-III **10 Hours**

Herbal Cosmetics

Sources and description of raw materials of herbal origin used via, fixed oils, waxes, gums colours, perfumes, protective agents, bleaching agents, antioxidants in products such as skin care, hair care and oral hygiene products.

Herbal excipients:
Herbal Excipients – Significance of substances of natural origin as excipients – colorants, sweeteners, binders, diluents, viscosity builders, disintegrants, flavors & perfumes.

Herbal formulations :
Conventional herbal formulations like syrups, mixtures and tablets and Novel dosage forms like phytosomes

UNIT- IV **10 Hours**

Evaluation of Drugs WHO & ICH guidelines for the assessment of herbal drugs
Stability testing of herbal drugs.

Patenting and Regulatory requirements of natural products:
a) Definition of the terms: Patent, IPR, Farmers right, Breeder's right, Bioprospecting and Biopiracy
b) Patenting aspects of Traditional Knowledge and Natural Products. Case study of Curcuma & Neem.

Regulatory Issues - Regulations in India (ASU DTAB, ASU DCC), Regulation of manufacture of ASU drugs - Schedule Z of Drugs & Cosmetics Act for ASU drugs.

UNIT-V **07 Hours**

General Introduction to Herbal Industry
Herbal drugs industry: Present scope and future prospects.
A brief account of plant based industries and institutions involved in work on medicinal and aromatic plants in India.

Schedule T – Good Manufacturing Practice of Indian systems of medicine
Components of GMP (Schedule – T) and its objectives
Infrastructural requirements, working space, storage area, machinery and equipments, standard operating procedures, health and hygiene, documentation and records.

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BP 609 P. HERBAL DRUG TECHNOLOGY (Practical)

4 hours/ week

1. To perform preliminary phytochemical screening of crude drugs.
2. Determination of the alcohol content of Asava and Arista
3. Evaluation of excipients of natural origin
4. Incorporation of prepared and standardized extract in cosmetic formulations like creams, lotions and shampoos and their evaluation.
5. Incorporation of prepared and standardized extract in formulations like syrups, mixtures and tablets and their evaluation as per Pharmacopoeial requirements.
6. Monograph analysis of herbal drugs from recent Pharmacopoeias
7. Determination of Aldehyde content
8. Determination of Phenol content
9. Determination of total alkaloids

Recommended Books: (Latest Editions)

1. Textbook of Pharmacognosy by Trease & Evans.
2. Textbook of Pharmacognosy by Tyler, Brady & Robber.
3. Pharmacognosy by Kokate, Purohit and Gokhale
4. Essential of Pharmacognosy by Dr.S.H.Ansari
5. Pharmacognosy & Phytochemistry by V.D.Rangari
6. Pharmacopoeal standards for Ayurvedic Formulation (Council of Research in Indian Medicine & Homeopathy)
7. Mukherjee, P.W. Quality Control of Herbal Drugs: An Approach to Evaluation of Botanicals. Business Horizons Publishers, New Delhi, India, 2002.

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