RAJAMPETA, ANNAMAYYA (DIST) – 516126

1.4.1 – STRUCTURED FEED BACK AND REVIEW

OF THE SYLLABUS (SEMESTER – WISE / YEAR – WISE) IS OBTAINED FROM 1) STUDENT

2) TEACHERS 3) EMPLOYERS AND 4) ALUMNI (AY 2023 - 2024)

1.4.2 – THE FEED BACK SYSTEM OF THE INSTITUTION COMPRISES THE FOLLOWING (AY 2023 - 2024)

### Andhra Pradesh - 516126

## STUDENTS FEEDBACK ON CURRICULUM

Name of the Student: C. Lakshmi Deckshiff Regulation: R19

Academic Year: 2023-2024

Reg. No: 21MTIROO18

Branch: B. pharmacy Year & Semester: 3rd, 2nd semester

Cood	Excellent
ry Good	Excellent
3	4
	3

This questionnaire is intended to collect information relating to students satisfactions towards the curriculum, learning and evaluation.

## Make a tick mark in the appropriate cell:

S. No	Parameters	1	2	3	4
1	Learning value (in terms of knowledge, concepts, manual skills, analytical abilities and broadening perspectives)	2			~
2	Applicability / relevance to real life situation				V
3	Depth of the course content				/
4	Extent of coverage of syllabus				/
5	The laboratory experiments correlate with the theory (Experimental earning)			V	
6	How do you rate the evaluation scheme designed for each of the course				1
7	Overall quality of the programme / course syllabi				V

Date: 22.06.0024

OLLEGE OF PHARMAC Signature of the Stu NEW BOYANAPALLI - 516 126

RAJAMPET, ANNAMAYYA Dist. A.P.

### Andhra Pradesh - 516126

## STUDENTS FEEDBACK ON CURRICULUM

Name of the Student: Dowe tha Regulation: R19

Academic Year: 2023 - 2024 Reg. No: 21M7120022

Branch: B. Pharmacy Year & Semester: III 1d & 2nd

	Feedb	ack Scale	
Average	Good	Very Good	Excellent
Average		3	4
1	2	3	

This questionnaire is intended to collect information relating to students satisfactions towards the curriculum, learning and evaluation.

## Make a tick mark in the appropriate cell:

S. No	Parameters	1	2	3	4
1	Learning value (in terms of knowledge, concepts, manual skills, analytical abilities and broadening perspectives)				~
2	Applicability / relevance to real life situation				-
3	Depth of the course content				~
4	Extent of coverage of syllabus				-
5	The laboratory experiments correlate with the theory (Experimental earning)				V
6	How do you rate the evaluation scheme designed for each of the course				V
7	Overall quality of the programme / course syllabi	17			

Date: 22 06.2027

ANNAMACHARYA COLLEGE OF PHARMACY NEW-BOYANAPALLI - 516 126 RAJAMPET, ANNAMAYYA Dist. A.P.

### Andhra Pradesh - 516126

### STUDENTS FEEDBACK ON CURRICULUM

Name of the Student: S. Apsona Regulation: R23

Reg. No: 23M71R0077 Academic Year: 2023 - 2024 Reg. No: 23M71R007

Branch: B. phanmacy Year & Semester: Ist & II nd

Very Good	Excellent
very dood	DACCHOIL
3	4
	3

This questionnaire is intended to collect information relating to students satisfactions towards the curriculum, learning and evaluation.

### Make a tick mark in the appropriate cell:

S. No	Parameters	1	2	3	4
1	Learning value (in terms of knowledge, concepts, manual skills, analytical abilities and broadening perspectives)			- 1	1
2	Applicability / relevance to real life situation				1
3	Depth of the course content				1
4	Extent of coverage of syllabus				~
5	The laboratory experiments correlate with the theory (Experimental earning)	17			5
6	How do you rate the evaluation scheme designed for each of the course				<b>\</b>
7	Overall quality of the programme / course syllabi				5

S.Aprana 3/9/24

S APSana Signature of the Student

ANNAMACHARYA COLLEGE OF PHARMACY NEW BOYANAPALLI - 516 126 RAJAMPET, ANNAMAYYA Dist. A.P.

#### Andhra Pradesh - 516126

### TEACHER FEEDBACK ON CURRICULUM

Name	of the	Faculty: S	M.	luneer
Name	or the	racuity.	-	imico

Designation: Assistant professor

Department: Pharacology Academic Year: 2023 - 2024

	Feedb	ack Scale	
Average	Good	Very Good	Excellent
1	2	3	4

#### Make a tick mark in the appropriate cell:

S. No	Parameters Parameters	1	2	3	4
1	How satisfactory is the syllabus to meet your teaching goals.			<b>/</b>	
2	What is the relation between syllabus and industry standards / current scenarios and academics?	7			~
3	What is the possibility to cover the syllabus timely in the mentioned number of hours?				<b>/</b>
4	What is the availability of reference material and books for the topics mentioned in the syllabus?				<b>/</b>
5	The existing methods mentioned in the syllabus are for providing proper assessment.			<b>/</b>	,
6	Does the syllabus have applicability / relevance to real life situations?				/
7	Course content present in syllabus				/
8	Overall rating				<b>/</b>

Give Suggestions for improvement	The state of the s
provider more industrial	visits to the Studients and
Call legiples apps.	visits to the Studients and
( Cookers like som leggis and	
***************************************	***************************************

Signature of the Faculty

NEW BOYANAPALLI - 516 126 RAJAMPET, ANNAMAYYA Dist. A.P.

### Andhra Pradesh - 516126

## TEACHER FEEDBACK ON CURRICULUM

Name of the Faculty: M. Madh

Designation: Asso professor

Department: Ph. Analysin Academic Year: 2023-24

	Feedb	ack Scale	
Αττοποσο	Good	Very Good	Excellent
Average		2	4
1	2	3	

## Make a tick mark in the appropriate cell:

S. No	Parameters	1	2	3	4
1	How satisfactory is the syllabus to meet your teaching goals.				
2	What is the relation between syllabus and industry standards / current scenarios and academics?				
3	What is the possibility to cover the syllabus timely in the mentioned number of hours?				~
4	What is the availability of reference material and books for the topics mentioned in the syllabus?				0
5	The existing methods mentioned in the syllabus are for providing proper assessment.				
6	Does the syllabus have applicability / relevance to real life situations?				
7	Course content present in syllabus				+-
8	Overall rating				

Give Suggestions for	improvement	po VI		
•	1.107 +0	Industry.		
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All factitie	aswanee.	As Stoff or	2995195	

Signature of the Faculty

ANNAMACHARYA COLLEGE OF PHARMACY NEW BOYANAPALLI - 516 126 RAJAMPET, ANNAMAYYA Dist. A.P.

#### Andhra Pradesh - 516126

#### ALUMNI FEEDBACK ON CURRICULUM

We are happy that you are an alumnus of our institution. You had spent a valuable time here and now that you are pursuing your chosen paths, we would like to know your opinion. Kindly spare your time to fill up this form and provide your valuable feedback and suggestions for further improvement of the college. Your inputs will help us to improve the quality of our academic programmers and enhance the credibility of our college.

Name: K. Nagalakshm?

Current Position: Asst. profesor

Mail id: laum: fillul/7 Agmail. Com

Phone: 8897/14659

Degree & Year of study: M. phannacy - 2018

	Feedb	ack Scale	
Average	Good	Very Good	Excellent
1	2	3	4

#### Make a tick mark in the appropriate cell:

S. No	Parameters	1	2	3	4
	Learning value (in terms of knowledge,				
1	concepts, manual skills, analytical abilities				V
	and broadening perspectives)				,
2	Applicability / relevance to real life situation.				V
3	Does the program inculcate theoretical concept				
3	of syllabus in practical's and theory.				V
4	Curricular & Extra Co-curricular activities.				V
5	Seminars / Workshops				V
6	Industrial Visits				V.
7	Training & Placements.				V
8	The curriculum has enriched content which			./	
0	fulfills required orientation.				V
9	Curriculum bridges gap between Industry &				1
9	Academic.				V

Signature of Alumni

ANNAMACHARYA COLLEGE OF PHARMACY NEW BOYANAPALLI - 516 126 RAJAMPET, ANNAMAYYA Dist. A.P.

#### Andhra Pradesh - 516126

#### ALUMNI FEEDBACK ON CURRICULUM

We are happy that you are an alumnus of our institution. You had spent a valuable time here and now that you are pursuing your chosen paths, we would like to know your opinion. Kindly spare your time to fill up this form and provide your valuable feedback and suggestions for further improvement of the college. Your inputs will help us to improve the quality of our academic programmers and enhance the credibility of our college.

Name: S. Pahamathi

Current Position: Asst Profess &

Mail id: Jahamathishaik 041 agmail.com

Phone: 7207863306

Degree & Year of study: 2018, Bphar macy

Feedback Scale					
Average	Good	Very Good	Excellent		
1	2	3	4		

#### Make a tick mark in the appropriate cell:

S. No	Parameters	1	2	3	4
1	Learning value (in terms of knowledge, concepts, manual skills, analytical abilities				
	and broadening perspectives)				V
2	Applicability / relevance to real life situation.				V
3	Does the program inculcate theoretical concept of syllabus in practical's and theory.				~
4	Curricular & Extra Co-curricular activities.				
5	Seminars / Workshops				1
6	Industrial Visits				/
7	Training & Placements.				1
8	The curriculum has enriched content which				,
	fulfills required orientation.		-		V
9	Curriculum bridges gap between Industry &				/
	Academic.				

Signature of Alumni

PRINCIPAL

ANNAMACHARYA COLLEGE OF PHARMACY

NEW BOYANAPALLI - 516 126

BALLAMPET ANNAMAYYA DIST. A.P.

### Andhra Pradesh - 516126

## EMPLOYER'S FEEDBACK ON CURRICULUM

Name: Gillenloita Ramara.

Designation: PGT.

Company / Organization: 2PH School, Nasireddy palli

Phone Number: 9492562744.

Tick the number that best describes your level of satisfaction of each question

	Feedb	ack Scale	
Average	Good	Very Good	Excellent
1	2	3	4

Make a tick mark in the appropriate cell:

S. No	Parameters	1	2	3	4
1	Learning value (in terms of knowledge, concepts, manual skills, analytical abilities and broadening perspectives)				<b>✓</b>
2	Quality and relevance of the curriculum and syllabus with chosen discipline.				V
3	Does the syllabus of Programme is satisfying the needs / requirements.				~
4	The curriculum ensures Professional ethics and attitude.			V	
5	The curriculum ensures problem solving mentality and ability to innovate.				~
6	Curriculum bridges the gap between industry & Academic.			1	
7	Does the Programme attributes to the overall personality.				

ANNAMACHARYA COLLEGE OF PHARMACY NEW BOYANAPALLI - 516 126 RAJAMPET, ANNAMAYYA Dist. A.P.

### Andhra Pradesh - 516126

## EMPLOYER'S FEEDBACK ON CURRICULUM

Name: Chikinankuman

Designation: MI-pharm, Founder & CEO
Company / Organization: Founder, Rise trainings 1908R Hellar

Phone Number: 8979572441

Tick the number that best describes your level of satisfaction of each question

	Feedb	ack Scale	
Average	Good	Very Good	Excellent
1	2.	3	4

Make a tick mark in the appropriate cell:

S. No	Parameters	1	2	3	4
1	Learning value (in terms of knowledge, concepts, manual skills, analytical abilities and broadening perspectives)				
2	Quality and relevance of the curriculum and syllabus with chosen discipline.				V
3	Does the syllabus of Programme is satisfying the needs / requirements.				<b>/</b>
4	The curriculum ensures Professional ethics and attitude.	_			/
5	The curriculum ensures problem solving mentality and ability to innovate.				<b>/</b>
6	Curriculum bridges the gap between industry & Academic.			V	
7	Does the Programme attributes to the overall personality.				V

CW: KEganburnal Signature of the Employer

PRINCIPAL ANNAMACHARYA COLLEGE OF PHARMACY NEW BOYANAPALLI - 516 126 RAJAMPET, ANNAMAYYA Dist. A P

#### (AUTONOMOUS)

#### Andhra Pradesh - 516126

#### PARENTS FEEDBACK FORM

Name of the Studen	t: Syed	Heena	couser	Name of the l	Parent:	s.pu	10
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Year & Semester: 1stycog 1stsem Academic Year: 2023-2024

Address: Obulav Dipelli Branch: B. Phogmacy

	Feedba	ack Scale	
Average	Good	Very Good	Excellent
1	2	3	4

#### Make a tick mark in the appropriate cell:

S. No	Parameters	1	2	3	4
1	Infrastructure Facilities namely Library, Laboratory, canteen and other campus facilities.				/
2	Programmes arranged by the department for achieving industry exposure.				/
3	Encouragement to students for participation in various co-curricular activities.				/
4	Quality of academic resources namely teachers, course material etc.				/
5	Placement activities				/
6	Efforts taken by department for overall grooming and personality development.			75	/
7	Student mentoring.				/

Give S	Suggestions for	r improve	ment			727	
	Satisfied	with	all	facilities	and	Pacalty	l <mark>i</mark>
						1	
•••••							
••••••							

Date: 13/3/24

S. Jasueen Signature of the Parent

ANNAMACHARYA COLLEGE OF PHARMACY NEW-BOYANAPALLI - 516 126 DA IAMBET AMMAMAYVA DIAS 1.5



New Boyanapalli, Rajampet, Annamayya Dist, A.P., India STAKEHOLDERS FEEDBACK ANALYSIS



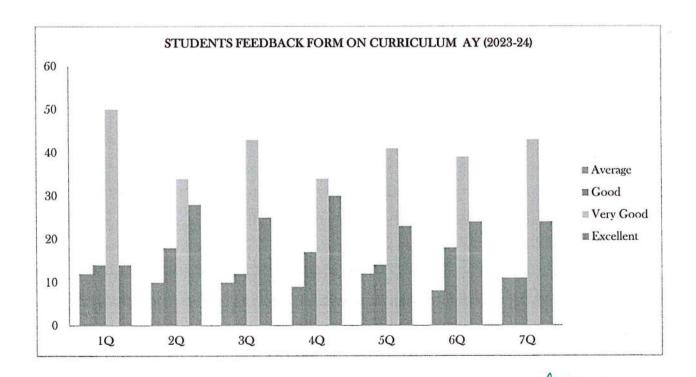
#### STUDENTS FEEDBACK

Course: B Pharmacy

AY (2023 - 2024)

Total Number of Participants - 90

S. No	Parameters	Average	Good	Very Good	Excellent
1	Learning value (in terms of knowledge, concepts, manual skills, analytical abilities and broadening perspectives)	12	14	50	14
2	Applicability / relevance to real life situation	10	18	34	28
3	Depth of the course content	10	12	43	25
4	Extent of coverage of syllabus	09	17	34	30
5	The laboratory experiments correlate with the theory (Experimental earning)	12	14	41	23
6	How do you rate the evaluation scheme designed for each of the course	08	18	39	24
7	Overall quality of the programme / course syllabi	11	11	43	24



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ANNAMACHARYA COLLEGE OF PHARMACY

NEW BOYANAPALLI - 516 126

RAJAMPET, ANNAMAYYA Dist. A.P.





New Boyanapalli, Rajampet, Annamayya Dist, A.P., India STAKEHOLDERS FEEDBACK ANALYSIS

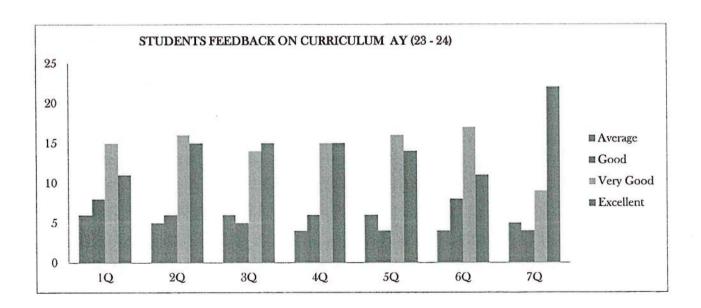
#### STUDENTS FEEDBACK

Course: Pharm D

AY (2023 - 2024)

#### Total Number of Participants - 40

S. No	Parameters	Average	Good	Very Good	Excellent
1	Learning value (in terms of knowledge, concepts, manual skills, analytical abilities and broadening perspectives)	06	08	15	17
2	Applicability / relevance to real life situation	0.5	06	16	20
3	Depth of the course content	06	05	14	15
4	Extent of coverage of syllabus	04	06	15	15
5	The laboratory experiments correlate with the theory (Experimental earning)	06	04	16	14
6	How do you rate the evaluation scheme designed for each of the course	04	08	17	11
7	Overall quality of the programme / course syllabi	05	04	09	22



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NEW BOYANAPALLI - 516 126

RAJAMPET, ANNAMAYYA DIST. A.P





New Boyanapalli, Rajampet, Annamayya Dist, A.P., India STAKEHOLDERS FEEDBACK ANALYSIS

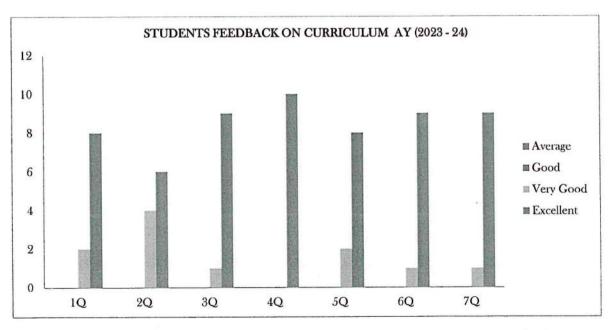
#### STUDENTS FEEDBACK

Course: M Pharmacy

AY (2023 - 2024)

Total Number of Participants - 10

S. No	Parameters	Average	Good	Very Good	Excellent
1	Learning value (in terms of knowledge, concepts, manual skills, analytical abilities and broadening perspectives)	00	00	02	08
2	Applicability / relevance to real life situation	00	00	04	06
3	Depth of the course content	00	00	01	09
4	Extent of coverage of syllabus	00	00	00	10
5	The laboratory experiments correlate with the theory (Experimental earning)	00	00	02	08
6	How do you rate the evaluation scheme designed for each of the course	00	00	01	09
7	Overall quality of the programme / course syllabi	00	00	01	09



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NEW BOYANAPALLI - 516 126
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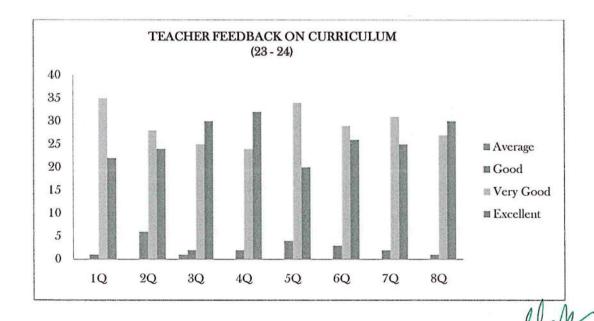
New Boyanapalli, Rajampet, Annamayya Dist, A.P., India STAKEHOLDERS FEEDBACK ANALYSIS

#### TEACHER FEEDBACK

Total Number of Participants - 58

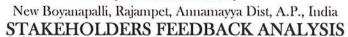
AY (2023 - 2024)

S. No	Parameters	Average	Good	Very Good	Excellent
1	How satisfactory is the syllabus to meet your teaching goals.	00	01	35	22
2	What is the relation between syllabus and industry standards / current scenarios and academics?	00	06	28	24
3	What is the possibility to cover the syllabus timely in the mentioned number of hours?	01	02	25	30
4	What is the availability of reference material and books for the topics mentioned in the syllabus?	00	02	24	32
5	The existing methods mentioned in the syllabus are for providing proper assessment.	00	04	34	20
6	Does the syllabus have applicability / relevance to real life situations?	00	03	29	26
7	Course content present in syllabus	00	02	31	25
8	Overall rating	00	01	27	30



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ANNAMACHARYA COLLEGE OF PHARMACY
NEW BOYANAPALLI - 516 126
RAJAMPET, ANNAMAYYA Dist





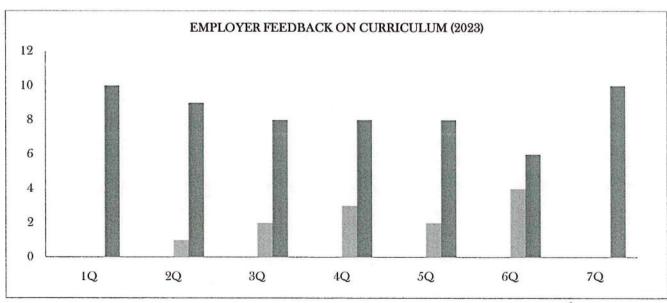


#### EMPLOYER'S FEEDBACK

Total Number of Participants - 10

Year (2023)

S. No	Parameters	Average	Good	Very good	Excellent
1	Learning value (in terms of knowledge, concepts, manual skills, analytical abilities and broadening perspectives)	00	00	00	10
2	Quality and relevance of the curriculum and syllabus with chosen discipline.	00	00	01	09
3	Does the syllabus of Programme is satisfying the needs / requirements.	00	00	02	08
4	The curriculum ensures Professional ethics and attitude.	00	00	03	08
5	The curriculum ensures problem solving mentality and ability to innovate.	00	00	02	08
6	Curriculum bridges the gap between industry & Academic.	00	00	04	06
7	Does the Programme attributes to the overall personality.	00	00	00	10



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NEW BOYANAPALLI - 516 126





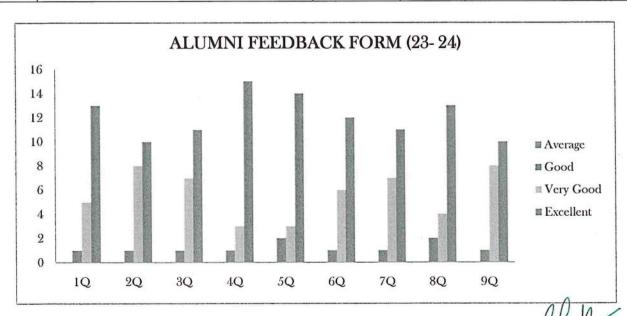
New Boyanapalli, Rajampet, Annamayya Dist, A.P., India STACK HOLDERS FEEDBACK ANALYSIS

#### ALUMNI FEEDBACK

Total Number of Participants - 19

AY (2023)

S. No	Parameters	Average	Good	Very Good	Excellent
1	Learning value (in terms of knowledge, concepts, manual skills, analytical abilities and broadening perspectives)	00	01	05	13
2	Applicability / relevance to real life situation.	00	01	08	10
3	Does the program inculcate theoretical concept of syllabus in practical's and theory.	00	01	07	11
4	Curricular & Extra Co-curricular activities.	00	01	03	15
5	Seminars / Workshops	00	02	03	14
6	Industrial Visits	00	01	06	12
7	Training & Placements.	00	01	07	11
8	The curriculum has enriched content which fulfills required orientation.	00	02	04	13
9	Curriculum bridges gap between Industry & Academic.	00	01	08	10



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NEW BOYANAPALLI - 516 126
RAJAMPET, ANNAMAYYA Dist A P





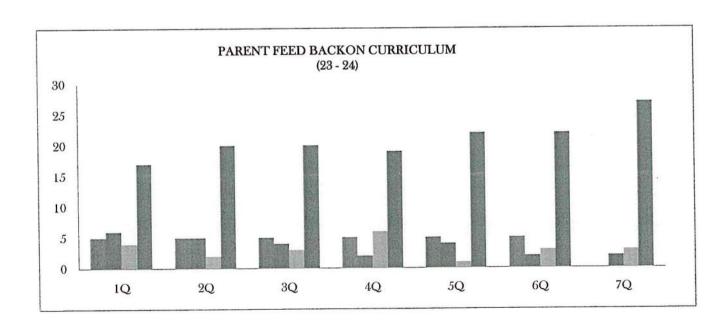
New Boyanapalli, Rajampet, Annamayya, A.P., India STAKEHOLDERS FEEDBACK ANALYSIS

#### PARENTS FEEDBACK

Total Number of Participants - 32

AY (2023 - 2024)

S. No	Parameters	Average	Good	Very Good	Excellent
1	Infrastructure Facilities namely Library, Laboratory, canteen and other campus facilities.	05	06	04	17
2	Programmes arranged by the department for achieving industry exposure.	05	05	02	20
3	Encouragement to students for participation in various co-curricular activities.	05	04	03	20
4	Quality of academic resources namely teachers, course material etc.	05	02	06	19
5	Placement activities	0.5	04	01	22
6	Efforts taken by department for overall grooming and personality development.		02	03	22
7	Student mentoring.	00	02	03	27



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NEW-BOYANAPALLI - 516 126

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NEW-BOYANAPALLI - 516 126



#### (AUTONOMOUS)

Sponsored by ANNAMACHARYA EDUCATIONAL TRUST (Regd. 135/IV/97)
Accredited by NAAC with 'A' Grade, Bangalore, Accredited by NBA (UG Programme), New Delhi
Recognized u/s 2(f) & 12(B) of the UGC Act, 1956, New Delhi, I S O - 9001; 2015, Recognised Research Center, JNTUA, Anantapuramu,
Recognized by Govt. of. A.P., Vijayawada, Affiliated to JNTUA, Anantapuramu, Approved by PCI New Delhi.-

### STAKE HOLDERS FEDBACK ACTION TAKEN REPORT FOR THE ACADEMIC YEAR 2023 – 24

(Students, Teachers, Employers, Parents and Alumni)

Feedback from various stake holders like students, teachers, employers, parents & alumni was collected every academic year on curriculum and facilities provided by the institution. For continuous improvement of the student and institute in all aspects, several measures were taken by the college based on the feedback provided by the stakeholders.

#### PARENT

#### Suggestions Received:

Suggested to Provide Industrial Visit to the students for their academic exposure.

#### **Action taken Report:**

- Industrial Visits are provided to the students during the academic year 2023 2024.
- a) Aurabindo Pharmaceuticals, Naidupet IV B Pharmacy Students.
- b) Giyaan Pharmaceuticals, Tirupati III B Pharmacy Students.
- c) IASER, Tirupati B Pharmacy and M Pharmacy Students.

#### **TEACHER**

#### Suggestions Received:

• Suggested to include the topics related to Industrial Requirements

#### **Action taken Report:**

 In B Pharmacy Curriculum II Year I Semester new topics are added in the Subjects like Pharmaceutical Organic Chemistry, Physical Pharmacy etc..

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ANNAMACHARYA COLLEGE OF PHARMACY

NEW BOYANAPALLI - 516 126

RAJAMPET, ANNAMAYYA Dist. A.P

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#### Training & Placement Cell

#### INDUSTRIAL VISIT REPORT

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INDUSTRIAL VISIT AT AUROBINDO PHARMA LIMITED, UNIT- 4, NAIDUPET.

\*\*\*\*\*\*\*

#### ORGANIZED BY ANNAMACHARYA COLLEGE OF PHARMACY

on

05-04-2023

Training and Placement Cell of Annamacharya College of Pharmacy, Rajampet, organized Industrial visit at Aurobindo Pharma Limited, Unit-4, palachur, Palepolam, Naidupet-524421, Andhra Pradesh, India.

#### ABOUT AUROBINDO PHARMA LIMITED

#### **Aurobindo Overview:**

Founded in 1986 by Mr. P. V. Ramprasad Reddy, Mr. K. Nityananda Reddy and a small group of highly committed professionals, Aurobindo Pharma was born of a vision. The company commenced operations in 1988-89 with a single unit manufacturing Semi-Synthetic Penicillin (SSP) at Pondicherry.

Aurobindo Pharma became a public company in 1992 and listed its shares on the Indian stock exchanges in 1995. In addition to being the market leader in Semi-Synthetic Penicillins, it has a presence in key therapeutic segments such as neurosciences, cardiovascular, anti-retrovirals, anti-diabetics, gastroenterology and anti-biotics, among others.

#### Achievements and Capabilities:

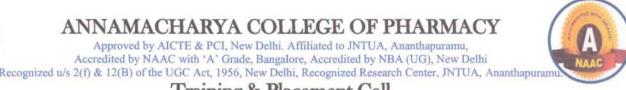
The Centre is capable of developing, scaling up and commercializing various dosage forms spread across tablets, capsules, soft gels, oral liquids, injectables (solutions, suspensions, lyophilized, etc.), and ophthalmic (three piece and BFS) and nasal delivery systems. The focus is to develop products for the US and EU followed by other international markets, including specialized markets like Japan. We can develop complex in-vitro analytical as well as bio- analytical methods for various molecules including extremely potent drug combinations to support the formulation development

New Boyanapalli

PRINCIPAL

ANNAMACHARYA COLLEGE OF PHARMACY

NEW BOYANAPALLI - 516 126



#### Training & Placement Cell

team. The R&D Centre has developed products and filed more than 200 ANDA's, around 124 EU Dossiers for products and hundreds of Dossiers in other countries including Brazil, South Africa, Australia and China. The product range covers various pharmacological categories with special focus on anti-retroviral, anti-biotic, CNS and CVS drugs.

During this visit Mr. T ANIL KUMAR, Dy. Manager- HR Dept and Mr. Y Gowreeparameswara Rao HR-Dept, well supported for the successful completion of industrial visit and 49 B-Pharmacy IV year students (Section A) participated in that industrial visit.

Dr. D. Swarnalatha, Principal, Annamacharya College of Pharmacy, takes a leading role for organizing this industrial visit with a team of faculty members Mr. V. Chinnikrishnaiah, Mr. Nagarjuna Reddy, Ms. G.V. Sowmya. This session gives information about current industry expectation regarding technical and non-technical skills from the fresh graduates, and will help candidates to be prepared and take a step ahead for their careers. This industrial visit to the young minds may upgrade their knowledge along with regular academics and build up our nation towards the greater achievement.





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ANNAMACHARYA COLLEGE OF PHARMACY

NEW BOYANAPALLI - 516 126

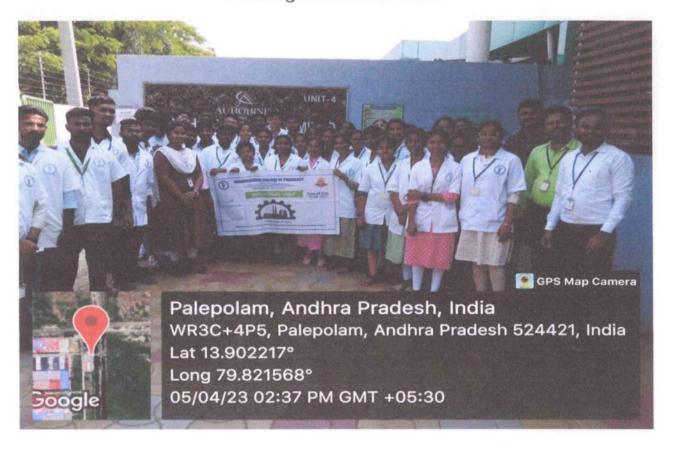
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#### Training & Placement Cell







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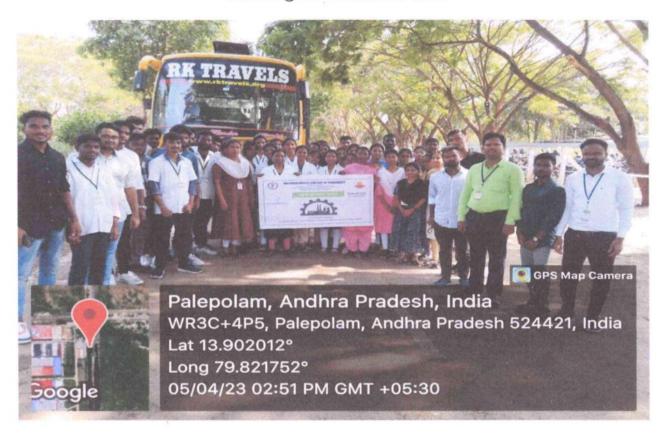
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#### Training & Placement Cell





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### Training & Placement Cell

#### INDUSTRIAL VISIT REPORT

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INDUSTRIAL VISIT AT GIYAAN PHARMA PRIVATE LTD. RENIGUNTA.

\*\*\*\*\*\*\*

#### ORGANIZED BY ANNAMACHARYA COLLEGE OF PHARMACY

on

#### 05-01-2023

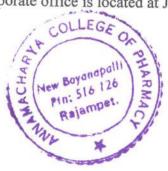
Training and Placement Cell of Annamacharya College of Pharmacy, Rajampet, organized Industrial visit at Giyaan Pharma Private Limited, Renigunta, Chittoor Dist – 517520, Andhra Pradesh, India.

### ABOUT GIYAAN PHARMA PRIVATE LTD.

Giyaan Pharma Private Limited is a fully integrated Pencillin based Beta Lactam Pharmaceutical Formulation Company. Located near Tirupati city, I.D.A, Renigunta, Andhra Pradesh, our manufacturing facility is fully equipped with the right infrastructure to provide a wide range of Pharmaceutical Formulations for Domestic and International Markets. Giyaan Pharma Private Limited aim is to provide quality and cost effective Oral Dosage formulations to established and emerging markets, worldwide.

Giyaan Pharma has the ability, infrastructure and expertise to develop and manufacture formulations in Dry Syrup, Tablets and Capsules. The technology and automation used in the manufacturing process results in a simplified supply chain, reducing associated risk and cost and ultimately faster production and delivery timelines. A prominent integrated facility, we have expert Pharma personnel, who work on complex processes, ideas and projects, to create high-value quality products that help mankind keep diseases at bay and be healthy.

Giyaan Pharma Private Limited has been exporting formulations to more than ten countries worldwide, with on-going submissions of Registration Dossiers in many Emerging Markets. Giyaan Pharma Private Limited Corporate office is located at Jubilee Enclave, Madhapur, Hyderabad.



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With a high degree of focus on research & development, quality adherence and product delivery, Giyaan Pharma Private Limited aim is to contribute significantly to export requirements, generate employment for our country's youth and help mankind in its fight against diseases.

#### **INFRASTRUCTURE:**

#### Manufacturing Facility

No compromise on quality - To ensure the manufacture of our drugs achieve the desired quality, Giyaan Pharma Private Limited have installed, validated and maintained equipment which is constantly under supervision of qualified personnel.

#### Warehousing Facility

Giyaan Pharma pays great attention to environmental and industrial safety, including employing advanced techniques in order to comply with all the quality and process efficiency norms.

Giyaan Pharma Private Limited storage facility,is built in a way which allows for maximum safety and storage of raw materials, intermediates, APIs and finished dosage forms in a segregated manner under appropriate storage conditions.

During this visit Mr. A Venkateswara Reddy, Asst. General Manager- Plant Head, Quality Assurance Dept, Giyaan Pharma Pvt. Ltd. well supported for the successful completion of industrial visit and 47 B-Pharmacy III year (B-Sec) students participated in that industrial visit.

Dr. D. Swarnalatha, Principal, Annamacharya College of Pharmacy, takes a leading role for organizing this industrial visit with a team of faculty members Mr. Y. Nagarjuna Reddy, Placement Incharge, Mr.Abdul Hafeez, Asst.professor, Mrs.B.Nirmala devi, Asso.professor. This session gives information about current industry expectation regarding technical and non-technical skills from the fresh graduates, and will help candidates to be prepared and take a step ahead for their careers. This industrial visit to the young minds may upgrade their knowledge along with regular academics and build up our nation towards the greater achievement.





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## ANNAMACHARYA COLLEGE OF PHARMACY

New Boyanapalli, Rajampet - 516126, A.P., India Affiliated to JNTUA, Ananthapuramu, Approved by AICTE, PCI, New Delhi, Recognized Research Centre by JNTUA, Ananthapuramu, Recognized u/s 2(f) & 12 (B) of the UGC Act, 1956 Accredited (UG Course) by NBA, New Delhi, Accredited with "A" Grade by NAAC, Bangalore

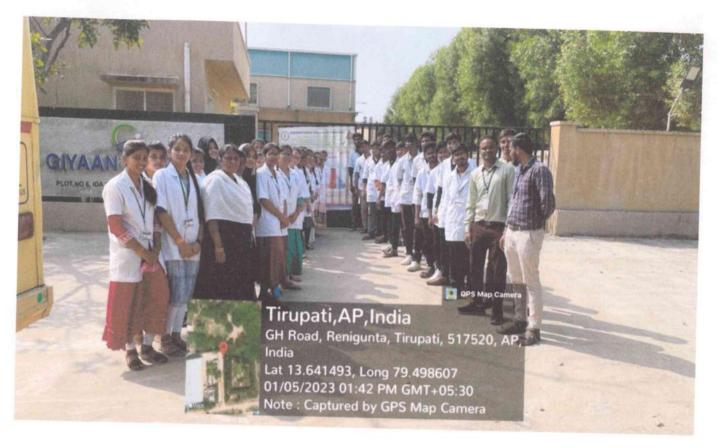


at Giyaan Pharma Pvt. Ltd., Renigunta



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## Training & Placement Cell







PRINCIPAL PRINCIPAL ANNAMACHARYA COLLEGE OF PHARMACY NEW BOYANAPALLI-516 126 RAJAMPET, Kadapa Dist. A. P.







Date: 05/01/2023

To,

The Principal,

Annamacharya College of Pharmacy,

Rajampet.

Respected Madam,

Sub: Industry -Institution Interaction - Industrial Visit - reg.

With reference to the subject cited above, the B. Pharmacy III Year I Semester (Section-B) Students of Annamacharya College of Pharmacy, Rajampet, visited our organization on 05-01-2023, Thursday and visited our facilities viz., Warehouse, Production, Engineering(AHU & PWS), Quality Control and Quality Assurance departments and respective areas and activities.

This is for your information.

Yours faithfully,

For Giyaan Pharma Private Limited

(Authorized Signatory)

#### B.Pharm.-II YEAR COURSE STRUCTURE & SYLLABUS

		SEMESTER- III				
S.No.	Course CourseName		Hours per week			Credits
	Code		L	T	P	
1.	23BP301T	Pharmaceutical Organic Chemistry II- Theory	3	1	-	4
2.	23BP302T	Physical Pharmaceutics I-Theory	3	1	-	4
3.	23BP303T	Pharmaceutical Microbiology-Theory	3	1	-	4
4.	23BP304T	Pharmaceutical Engineering-Theory	3	-	-	3
5.	23BP305T	Pathophysiology –Theory	3	-	-	3
6.	23BP301P	Pharmaceutical Organic Chemistry II -Practical	-	-	3	1.5
7.	23BP302P	Physical Pharmaceutics I-Practical	-	-	3	1.5
8.	23BP303P	Pharmaceutical Microbiology-Practical	-	-	3	1.5
9.	23BP304P	Pharmaceutical Engineering-Practical	-	-	3	1.5
10.	23BP305	Skill Oriented course-1 Preparation of cosmetics (any five)	1	-	2	2
11.	23BP306	Non-Credit Mandatory Course Universal Human values and Professional ethics	3	-	-	-
		Total	19	3	14	26

S.No.	Course Code	Course Name		lours p week		Credits
			L	T	P	
1.	23BP401T	Medicinal Chemistry I-Theory	3	1	-	4
2.	23BP402T	Physical Pharmaceutics II—Theory	3	1	-	4
3.	23BP403T	Pharmacology I-Theory	3	1	-	4
4.	23BP404T	Pharmacognosy and Phytochemistry I-Theory	3	-	-	3
5.	23BP405T	Pharmaceutical Jurisprudence-Theory	3	-	-	3
6.	23BP401P	Medicinal Chemistry I-Practical	-	-	3	1.5
7.	23BP402P	Physical Pharmaceutics II—Practical	-	-	3	1.5
8.	23BP403P	Pharmacology I-Practical	-	_	3	1.5
9.	23BP404P	Pharmacognosy and Phytochemistry I— Practical	-	-	3	1.5
10.	23BP405	Skill Oriented course-II Synthesis of API drugs (minimum five)	1	=	2	2
		Total	16	3	14	26

Mandatory community service internship for a minimum of six-week duration during summer vacation

1. Pharmacotherapeutics

2 credits

2. Hospital and clinical Pharmacy

2 credits

Or

Any course offered by MOOCs / NPTEL/ Swayam/ college/ Govt. agencies equivalent to the above four credits, approved by JNTUA

3. Hospital Training not less than

500 hrs mandatory

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RAJAMPET, ANNAMAYYA Dist A

<sup>\*</sup> For exit Diploma in pharmacy certificate candidate has to secure additional four credits from the following courses:

#### II Year B.Pharm. I Semester

#### (23BP301T) PHARMACEUTICAL ORGANIC CHEMISTRY - II (Theory)

L	T	P	C
3	1	0	4

#### 45 Hours

Scope: This subject deals with general methods of preparation and reactions of some organic compounds. Reactivity of organic compounds are also studied here. The syllabus emphasizes on mechanisms and orientation of reactions. Chemistry of fats and oils are also included in the syllabus.

#### Objectives:

Upon completion of the course the student shall be able to

- 1. Write the structure, name and the type of isomerism of the organic compound
- 2. Write the reaction, name the reaction and orientation of reactions
- 3. Account for reactivity/stability of compounds,
- 4. Prepare organic compounds

Course Content: General methods of preparation and reactions of compounds superscripted with asterisk (\*) to be explained, to emphasize on definition, types, classification, principles/mechanisms, applications, examples and differences

UNIT I 10 Hours

#### Benzene and its derivatives

- A. Synthetic and other evidences in the derivation of structure of benzene, Orbital picture, resonance in benzene, aromatic characters, Huckel's rule
- Reactions of benzene nitration, sulphonation, halogenation- reactivity, Friedel-Crafts alkylation- reactivity, limitations, Friedel-Crafts acylation.
- Substituents, effect of substituents on reactivity and orientation of mono substituted benzene compounds towards electrophilic substitution reaction
- D. Structure and uses of DDT, Saccharin, BHC and Chloramine

10 Hour

Synthesis, reactions and medicinal uses of following compounds/derivatives Pyrazole, Imidazole, Oxazole and Thiazole. Pyridine, Quinoline, Isoquinoline, Acridine and Indole. Basicity of pyridine Synthesis and medicinal uses of Pyrimidine, Purine, azepines and their derivatives

Reactions and synthetic importance:

Metal hydride reduction (NaBH4 and LiAlH4), Clemmensen reduction, Birch reduction, Wolff Kishner reduction, Oppenauer-oxidation and Dakin reaction. Beckmanns rearrangement and Schmidt rearrangement, Claisen-Schmidt condensation, Wagner-Meerwein rearrangement, Baeyer-Villiger Oxidation

#### UNIT III

08 Hours

#### Polynuclear hydrocarbons:

- A. Synthesis, reactions
- B. Structure and medicinal uses of Naphthalene, Phenanthrene, Anthracene, Diphenylmethane, Triphenylmethane and their derivatives

#### UNIT IV

07 Hours

#### Cyclo alkanes\*

Stabilities - Baeyer's strain theory, limitation of Baeyer's strain theory, Coulson and Moffitt's modification, Sachse Mohr's theory (Theory of strainless rings), reactions of cyclopropane and cyclobutane only

#### **UNIT-V**

07 Hours

#### Fats and Oils

- A. Fatty acids reactions.
- B. Hydrolysis, Hydrogenation, Saponification and Rancidity of oils, Drying oils.
- Analytical constants Acid value, Saponification value, Ester value, Iodine value, Acetyl value, Reichert Meissl (RM) value - significance and principle involved in their determination.

#### Recommended Books (Latest Editions)

- 1. Organic Chemistry by Morrison and Boyd
- 2. Organic Chemistry by I.L. Finar, Volume-I
- 3. Textbook of Organic Chemistry by B.S. Bahl & Arun Bahl.
- Organic Chemistry by P.L.Soni
- Practical Organic Chemistry by Mann and Saunders.
- Vogel's text book of Practical Organic Chemistry
- 7. Advanced Practical organic chemistry by N.K.Vishnoi.
- Introduction to Organic Laboratory techniques by Pavia, Lampman and Kriz.
- Heterocyclic Chemistry by T.L. Gilchrist
- 10. Heterocyclic Chemistry by Raj K. Bansal

#### Reference Books:

- 1. Louden M., Organic Chemistry, 5 th edition, Roberts and Company Publishers, 2009. 2. Carey F., Organic Chemistry, 9 th edition, McGraw-Hill Education, 2013.
- Corey E.J., Logic of Chemical Synthesis, Wiley-Blackwell; Revised ed., 1995.

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#### II Year B.Pharm. I Semester (23BP302T) PHYSICAL PHARMACEUTICS - I (Theory)

L	T	P	C
3	1	0	4

Scope: The course deals with the various physical and physicochemical properties, and principles involved in dosage forms/formulations. Theory and practical components of the subject help the student to get a better insight into various areas of formulation research and development, and stability studies of pharmaceutical dosage forms.

Objectives:

Upon the completion of the course student shall be able to

- 1. Understand various physicochemical properties of drug molecules in the designing the dosage forms
- 2. Know the principles of chemical kinetics & to use them for stability testing nad determination of expiry date of formulations
- 3.Demonstrate use of physicochemical properties in the formulation development and evaluation of dosage

**Course Content:** 

10 Hours UNIT-I

Solubility of drugs: Solubility expressions, mechanisms of solute solvent interactions, ideal solubility parameters, solvation & association, quantitative approach to the factors influencing solubility of drugs, diffusion principles in biological systems. Solubility of gas in liquids, solubility of liquids in liquids, (Binary solutions, ideal solutions) Raoult's law, real solutions. Partially miscible liquids, Critical solution temperature and applications. Distribution law, its limitations and applications

UNIT-II

States of Matter and properties of matter: State of matter, changes in the state of matter, latent heats, vapour pressure, sublimation critical point, eutectic mixtures, gases, aerosols

- inhalers, relative humidity, liquid complexes, liquid crystals, glassy states, solid- crystalline, amorphous & polymorphism.

Physicochemical properties of drug molecules: Refractive index, optical rotation, dielectric constant, dipole moment, dissociation constant, determinations and applications, Molar refraction and induced polarizability -induced dipole moment.

08 Hours UNIT-III

Surface and interfacial phenomenon: Liquid interface, surface & interfacial tensions, surface free energy, measurement of surface & interfacial tensions, spreading coefficient, adsorption at liquid interfaces, surface active agents, HLB Scale, solubilization, detergency, adsorption at solid interface.

**UNIT-IV** 

Complexation and protein binding: Introduction, Classification of Complexation, Applications, methods of analysis, protein binding, Complexation and drug action, crystalline structures of complexes and thermodynamic treatment of stability constants.

**UNIT-V** 

PH, buffers and Isotonic solutions: Sorensen's pH scale, pH determination (electrometric and calorimetric), applications of buffers, buffer equation, buffer capacity, buffers in pharmaceutical and biological systems, buffered isotonic solutions.

#### Recommended Books: (Latest Editions)

- 1. Physical Pharmacy by Alfred Martin
- 2. Experimental Pharmaceutics by Eugene, Parott.
- 3. Tutorial Pharmacy by Cooper and Gunn.
- 4. Stocklosam J. Pharmaceutical Calculations, Lea & Febiger, Philadelphia.
- 5. Liberman H.A, Lachman C., Pharmaceutical Dosage forms, Tablets, Volume-1 to 3, MarcelDekkar Inc.
- 6. Liberman H.A, Lachman C, Pharmaceutical Dosage forms. Disperse systems, volume 1, 2,3. Marcel Dekkar Inc.
- Physical Pharmaceutics by Ramasamy C and ManavalanR.
- 8. Laboratory Manual of Physical Pharmaceutics, C.V.S. Subramanyam, J. Thimma settee
- 9. Physical Pharmaceutics by C.V.S. Subramanyam
- 10. Test book of Physical Phramacy, by Gaurav Jain & Roop K. Khar

#### Reference Books:

- A.T. Florence and D. Attwood W: Physiochemical principles of Pharmacy.
- Shotton and Ridgeway: Physical Pharmaceutics.
- 3. Remingtons Pharmaceutical Sciences, Mark Publishing Co.
- 4. H.S. Beans, A.H. Beckett and J.E. Carless: Advances in Pharmaceutical Sciences, Vol. 1 to 4.
- S.P.Agarwal, Rajesh Khanna: Physical Pharmacy, CBS Publishers, New Delhi.

2. Pharmacopoeias: IP,BP,USP,EP

#### II Year B.Pharm. I Semester

#### (23BP304T) PHARMACEUTICAL ENGINEERING - (Theory)

L	T	P	C
3	0	0	3

45 Hours

Scope: This course is designed to impart a fundamental knowledge on the art and science of various unit operations used in pharmaceutical industry.

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

- 1. To know various unit operations used in pharmaceutical industries.
- 2. To understand the material handling techniques.
- 3. To perform various processes involved in pharmaceutical manufacturing process.
- 4. To carry out various test to prevent environmental pollution.
- 5. To appreciate and comprehend significance of plant lay out design for optimum use of resources.
- 6. To appreciate the various preventive methods used for corrosion control in pharmaceutical industries.

#### Course content:

UNIT-I

10 Hours

Flow of fluids: Types of manometers, Reynolds number and its significance, Bernoulli's theorem and its applications, Energy losses, Orifice meter, Venturimeter, Pitot tube and Rotometer.

Size Reduction: Objectives, Mechanisms & Laws governing size reduction, factors affecting size reduction, principles, construction, working, uses, merits and demerits of Hammer mill, ball mill, fluid energy mill, Edge runner mill & end runner mill.

Size Separation: Objectives, applications & mechanism of size separation, official standards of powders, sieves, size separation Principles, construction, working, uses, merits and demerits of Sieve shaker, cyclone separator, Air separator, Bag filter & elutriation tank.

UNIT-II

10 Hours

Heat Transfer: Objectives, applications & Heat transfer mechanisms. Fourier's law, Heat transfer by conduction, convection & radiation. Heat interchangers & heat exchangers.

Evaporation: Objectives, applications and factors influencing evaporation, differences between evaporation and other heat process. principles, construction, working, uses, merits and demerits of Steam jacketed kettle, horizontal tube evaporator, climbing film evaporator, forced circulation evaporator, multiple effect evaporator& Economy of multiple effect evaporator.

Distillation: Basic Principles and methodology of simple distillation, flash distillation, fractional distillation, distillation under reduced pressure, steam distillation & molecular distillation

UNIT- III

08 Hours

**Drying:** Objectives, applications & mechanism of drying process, measurements & applications of Equilibrium Moisture content, rate of drying curve. principles, construction, working, uses, merits and demerits of Tray dryer, drum dryer spray dryer, fluidized bed dryer, vacuum dryer, freeze dryer.

Mixing: Objectives, applications & factors affecting mixing, Difference between solid and liquid mixing, mechanism of solid mixing, liquids mixing and semisolids mixing. Principles, Construction, Working, uses, Merits and Demerits of Double cone blender, twin shell blender, ribbon blender, Sigma blade mixer, planetary mixers, Propellers, Turbines, Paddles & Silvers on Emulsifier,

**UNIT-IV** 

08 Hours

Filtration: Objectives, applications, Theories & Factors influencing filtration, filter aids, filter medias. Principle, Construction, Working, Uses, Merits and demerits of plate & frame filter, filter leaf, rotary drum filter, Meta filter & Cartridge filter, membrane filters and Seitz filter.

Centrifugation: Objectives, principle & applications of Centrifugation, principles, construction, working, uses, merits and demerits of Perforated basket centrifuge, non-perforated basket centrifuge, semi continuous centrifuge & super centrifuge.

UNIT- V

07 Hours

Materials of pharmaceutical plant construction, Corrosion and its prevention: Factors affecting during materials selected for pharmaceutical plant construction, Theories of corrosion, types of corrosion and their prevention. Ferrous and nonferrous metals, inorganic and organic nonmetals, basic of material handling systems, Industrial

pollution and controlled with special focus on water pollution abatement

Recommended Books: (Latest Editions)

- 1. Introduction to chemical engineering Walter L Badger & Julius Banchero, Latest edition.
- 2. Solid phase extraction, Principles, techniques and applications by Nigel J.K. Simpson-Latest edition.

3. Unit operation of chemical engineering - Mcabe Smith, Latest edition.

4. Pharmaceutical engineering principles and practices - C.V.S Subrahmanyam et al., Latest edition.

5. Remington practice of pharmacy- Martin, Latest edition.

- 6. Theory and practice of industrial pharmacy by Lachmann., Latest edition.
- 7. Physical pharmaceutics- C.V.S Subrahmanyam et al., Latest edition.
- 8. Cooper and Gunn's Tutorial pharmacy, S.J. Carter, Latest edition.

#### Reference Books:

1. J.F. Richardson and J.M. Coulron: Chemical Engineering

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#### Academic Regulations (R23) & Syllabus for B. Pharm.

2. Perry: Handbook of Chemical Engineering

- 3. Lauer & Heckmann: Chemical Engineering Techniques
- 4. Peters: Elementary Chemical Engineering

#### II Year B.Pharm. I Semester

(23BP305T) PATHOPHYSIOLOGY – (Theory)

L	T	P	C
3	0	0	3

45 Hours

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, Enzymeleakage 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, Pneumonia.

Renal system: Acute and chronic renal failure

Unit III

10Hours

Hematological Diseases: Iron deficiency, megaloblastic anemia (Vit B12 and folic acid), sickle cell anemia, thalassemia, hereditary acquired anemia, hemophilia

Endocrine system: Diabetes, thyroid diseases, disorders of sex hormones

Nervous system: Epilepsy, Parkinson's disease, stroke, Mania.

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, gout and Osteoarthritis.

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)

- 1. Vinay Kumar, Abul K. Abas, Jon C. Aster; Robbins & Cotran Pathologic Basis of Disease; South Asia edition; India; Elsevier; 2014.
- 2. Harsh Mohan; Text book of Pathology; 6th edition; India; Jaypee Publications; 2010.
- 3. Laurence B, Bruce C, Bjorn K.; Goodman Gilman's The Pharmacological Basis of Therapeutics; 12th edition; New York; McGraw-Hill; 2011.
- 4. Best, Charles Herbert 1899-1978; Taylor, Norman Burke 1885-1972; West, John B (John Burnard); Best and Taylor's Physiological basis of medical practice; 12th ed; united states;
- 5. William and Wilkins, Baltimore;1991 [1990 printing].
- 6. Nicki R. Colledge, Brian R. Walker, Stuart H. Ralston; Davidson's Principles and Practice of Medicine; 21st edition; London; ELBS/Churchill Livingstone; 2010.
- 7. Guyton A, John .E Hall; Textbook of Medical Physiology; 12th edition; WB Saunders Company; 2010.

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#### Academic Regulations (R23) & Syllabus for B. Pharm.

- 8. Joseph DiPiro, Robert L. Talbert, Gary Yee, Barbara Wells, L. Michael Posey; Pharmacotherapy: A Pathophysiological Approach; 9th edition; London; McGraw-Hill Medical; 2014.
- 9. V. Kumar, R. S. Cotran and S. L. Robbins; Basic Pathology; 6th edition; Philadelphia; WB Saunders Company; 1997.
- Roger Walker, Clive Edwards; Clinical Pharmacy and Therapeutics; 3rd edition; London; Churchill Livingstone publication; 2003.

#### Recommended Journals

- 1. The Journal of Pathology. ISSN: 1096-9896 (Online)
- The American Journal of Pathology. ISSN: 0002-9440
- 3. Pathology. 1465-3931 (Online)
- 4. International Journal of Physiology, Pathophysiology and Pharmacology. ISSN: 1944-8171 (Online)
- 5. Indian Journal of Pathology and Microbiology, ISSN-0377-4929.

#### Reference Books:

- 1. Kulkarni, Shrinivas Krishnarao. Hand book of experimental pharmacology. 3rd edition, Vallabh prakashan, 1999.
- 2. R.K.Goyal, Practicals in Pharmacology, 6th, edition, B.S.ShahPrakashan, Ahmedabad, 2006-2007
- U.K.Seth, N.K.Dadkar, Usha G.Kamat, Selected Topics in Experimental Pharmacology, 1st edition, Kothari Book Depot Mumbai, 1972
- 4. Ghosh M.N, Fundamentals of Experimental Pharmacology, 3rd edition, Hilton and Co, Kolkata, 2005

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