



**CRITERION 2: PROGRAM CURRICULUM AND TEACHING-LEARNING PROCESS**

**Program Curriculum and Teaching-Learning Program**

**Contents of syllabus – courses and modes of teaching**

Course Code	Course Title	Total Number of contact hours				Marks
		Lecture (L)	Tutorial (T)	Practical (P)	Total Hours	
341116(41)	Pharmaceutics-I (Introduction to Pharmaceutics)	4	1	-	5	100
341117(41)	Pharmaceutical Chemistry- I (Inorganic)	4	1	-	5	100
341118(41)	Pharmacognosy- I	4	1	-	5	100
341119(41)	Anatomy, Physiology and Health Education- I ( APHE-I)	4	1	-	5	100
341110(41)	Pharmaceutical Chemistry- II (Organic Chemistry- 1)	4	1	-	5	100
341126(41)	Pharmaceutics-I (Introduction to Pharmaceutics) Practical	4	1	-	5	100
341127(41)	Pharmaceutical Chemistry- I (Inorganic) Practical	-	-	3	3	100
341128(41)	Pharmacognosy- I Practical	-	-	3	3	100
341129(41)	Anatomy Physiology and Health Education- I (APHE-I) Practical	-	-	3	3	100
341120(41)	Workshop	-	-	3	3	100
341216(41)	Pharmaceutics- II (Hospital and Community Pharmacy)	4	1	-	5	100
341217(41)	Anatomy, Physiology and Health Education- II ( APHE-II)	4	1	-	5	100
341218(41)	Pharmaceutics- III Drug Store and Business Management (DSBM)	4	1	-	5	100
341219(41)	Pharmaceutical Chemistry- III (Organic Chemistry-2)	4	1	-	5	100



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<b>341210(41)</b>	English Communication - I	4	1	-	5	<b>100</b>
<b>341226(41)</b>	Pharmaceutics- II (Hospital & Community Pharmacy) Practical	-	-	3	3	<b>100</b>
<b>341227(41)</b>	Anatomy, Physiology and Health Education- II ( APHE-II) Practical	-	-	3	3	<b>100</b>
<b>341229(41)</b>	Pharmaceutical Chemistry- III (Organic Chemistry-2) Practical	-	-	3	3	<b>100</b>
<b>341220(41)</b>	English Communication-I Practical	-	-	3	3	<b>100</b>
<b>341228(41)</b>	Field Work	-	-	3	3	<b>100</b>
<b>341316(41)</b>	Pharmaceutics -IV (Physical Pharmacy- I)	4	1	-	5	<b>100</b>
<b>341317(41)</b>	Pharmaceutical Analysis-I	4	1	-	5	<b>100</b>
<b>341318(41)</b>	Computer Application	4	1	-	5	<b>100</b>
<b>341319(41)</b>	Pharmacognosy- II	4	1	-	5	<b>100</b>
<b>341331(41)</b>	Mathematics	4	1	-	5	<b>100</b>
<b>341332(41)</b>	English Communication- II	4	1	-	5	<b>100</b>
<b>341326(41)</b>	Pharmaceutics - IV (Physical Pharmacy- I) (Lab)	-	-	3	3	<b>100</b>
<b>341327(41)</b>	Pharmaceutical Analysis- I (Lab)	-	-	3	3	<b>100</b>
<b>341328(41)</b>	Computer Application	-	-	3	3	<b>100</b>
<b>341329(41)</b>	Pharmacognosy- II (Lab)	-	-	3	3	<b>100</b>
<b>341416(41)</b>	Pharmaceutics -V (Physical Pharmacy -II)	4	1	-	5	<b>100</b>
<b>341417(41)</b>	Pharmaceutics -VI (Pharmaceutical Engineering- I )	4	1	-	5	<b>100</b>
<b>341418(41)</b>	Pharmaceutical Chemistry- IV (Organic chemistry-3)	4	1	-	5	<b>100</b>
<b>341419(41)</b>	Pharmaceutical Biochemistry	4	1	-	5	<b>100</b>



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<b>341410(41)</b>	Pharmaceutical Microbiology	4	1	-	5	<b>100</b>
<b>341426(41)</b>	Pharmaceutics -V (Physical Pharmacy -II) Lab	-	-	3	3	<b>100</b>
<b>341427(41)</b>	Pharmaceutics -VI (Pharmaceutical Engineering-I) Lab	-	-	3	3	<b>100</b>
<b>341428(41)</b>	Pharmaceutical Chemistry-IV (Organic chemistry -3) Lab	-	-	3	3	<b>100</b>
<b>341429(41)</b>	Pharmaceutical Biochemistry -Lab	-	-	3	3	<b>100</b>
<b>341420(41)</b>	Pharmaceutical Microbiology - Lab	-	-	3	3	<b>100</b>
<b>341516(41)</b>	Pharmaceutics -VII (Pharmaceutical Engineering- II)	4	1	-	5	<b>100</b>
<b>341517(41)</b>	Medicinal Chemistry-I	4	1	-	5	<b>100</b>
<b>341518(41)</b>	Pharmacognosy-III	4	1	-	5	<b>100</b>
<b>341519(41)</b>	Pharmacology-I	4	1	-	5	<b>100</b>
<b>341510(41)</b>	Pharmaceutics VIII (Cosmetic technology)	4	1	-	5	<b>100</b>
<b>341526(41)</b>	Pharmaceutics -VII (Pharmaceutical Engineering II) (LAB)	-	-	3	3	<b>100</b>
<b>341527(41)</b>	Medicinal Chemistry-I (LAB)	-	-	3	3	<b>100</b>
<b>341528(41)</b>	Pharmacognosy- III (LAB)	-	-	3	3	<b>100</b>
<b>341529(41)</b>	Pharmacology-I (LAB)	-	-	3	3	<b>100</b>
<b>341520(41)</b>	Pharmaceutics VIII (Cosmetic technology) (LAB)	-	-	3	3	<b>100</b>
<b>341616(41)</b>	Pharmaceutics -IX (Pharmaceutical Technology- I)	4	1	-	5	<b>100</b>
<b>341617(41)</b>	Medicinal Chemistry -II	4	1	-	5	<b>100</b>
<b>341618(41)</b>	Pharmacology - II	4	1	-	5	<b>100</b>



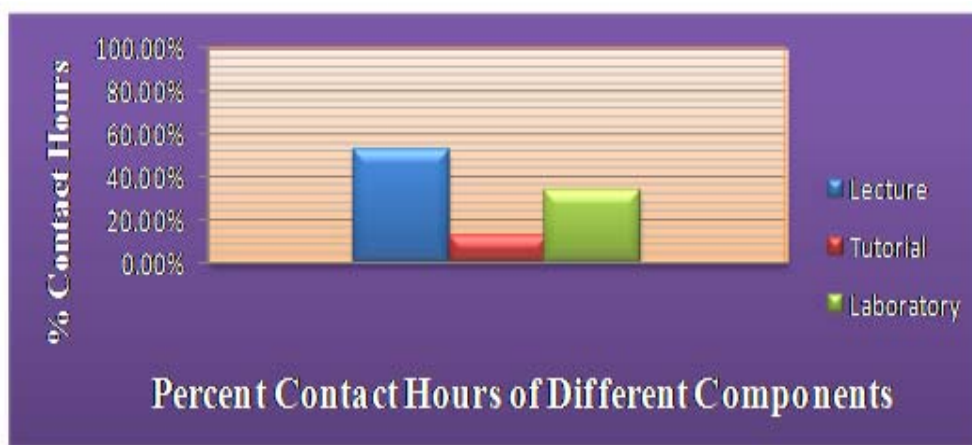
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<b>341619(41)</b>	Pharmaceutical Analysis II	4	1	-	5	<b>100</b>
<b>341610(41)</b>	Pharmaceutical Biotechnology	4	1	-	5	<b>100</b>
<b>341625(41)</b>	Pharmaceutics -IX (Pharmaceutical Technology- I) (LAB)	-	-	3	3	<b>100</b>
<b>341626(41)</b>	Medicinal Chemistry- II (LAB)	-	-	3	3	<b>100</b>
<b>341627(41)</b>	Pharmacology II (LAB)	-	-	3	3	<b>100</b>
<b>341628(41)</b>	Pharmaceutical Analysis II (LAB)	-	-	3	3	<b>100</b>
<b>341629(41)</b>	Pharmaceutical Biotechnology (LAB)	-	-	3	3	<b>100</b>
<b>341716(41)</b>	Pharmaceutics –X (Pharmaceutical Technology -II)	4	1	-	5	<b>100</b>
<b>341717(41)</b>	Pharmaceutics-XI (Biopharmaceutics & Pharmacokinetics )	4	1	-	5	<b>100</b>
<b>341718(41)</b>	Medicinal Chemistry- III	4	1	-	5	<b>100</b>
<b>341719(41)</b>	Pharmacology- III	4	1	-	5	<b>100</b>
<b>341710(41)</b>	Pharmacognosy- IV	4	1	-	5	<b>100</b>
<b>341725(41)</b>	Pharmaceutics –X (Pharmaceutical Technology -II ) Lab	-	-	3	3	<b>100</b>
<b>341726(41)</b>	Pharmaceutics- XI (Biopharmaceutics & Pharmacokinetics ) Lab	-	-	3	3	<b>100</b>
<b>341727(41)</b>	Pharmacology –III (Lab)	-	-	3	3	<b>100</b>
<b>341728(41)</b>	Pharmacognosy- IV (Lab)	-	-	3	3	<b>100</b>
<b>341729(41)</b>	Industrial Training and report writing	-	-	-		<b>100</b>
<b>341815(41)</b>	Pharmaceutics-XII (Pharmaceutical Technology –III)	4	1	-	5	<b>100</b>
<b>341816(41)</b>	Pharmaceutical Analysis- III (Instrumental)	4	1	-	5	<b>100</b>
<b>341817(41)</b>	Pharmaceutical Analysis- IV (Quality Assurance and Drug Regulatory Affairs )	4	1	-	5	<b>100</b>



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<b>341818(41)</b>	Pharmacognosy- V	4	1	-	5	<b>100</b>
<b>341819(41)</b>	Pharmaceutics- XIII (Pharmaceutical Jurisprudence)	4	1	-	5	<b>100</b>
<b>341825(41)</b>	Pharmaceutics-XII (Pharmaceutical Technology -III) – Lab	-	-	3	3	<b>100</b>
<b>341826(41)</b>	Pharmaceutical Analysis- III (Instrumental) – Lab	-	-	3	3	<b>100</b>
<b>341827(41)</b>	Pharmacognosy-V – Lab	-	-	3	3	<b>100</b>
<b>341828(41)</b>	Project	-	-	3	3	<b>100</b>
<b>TOTAL TIME (HOURS)</b>		<b>168</b>	<b>42</b>	<b>108</b>	<b>318</b>	<b>T = 4200 L= 3700</b>
<b>PERCENTAGE</b>		<b>52.83</b>	<b>13.20</b>	<b>33.96</b>	<b>T = 53.16%</b>	
		<b>%</b>	<b>%</b>	<b>%</b>	<b>L = 46.84%</b>	

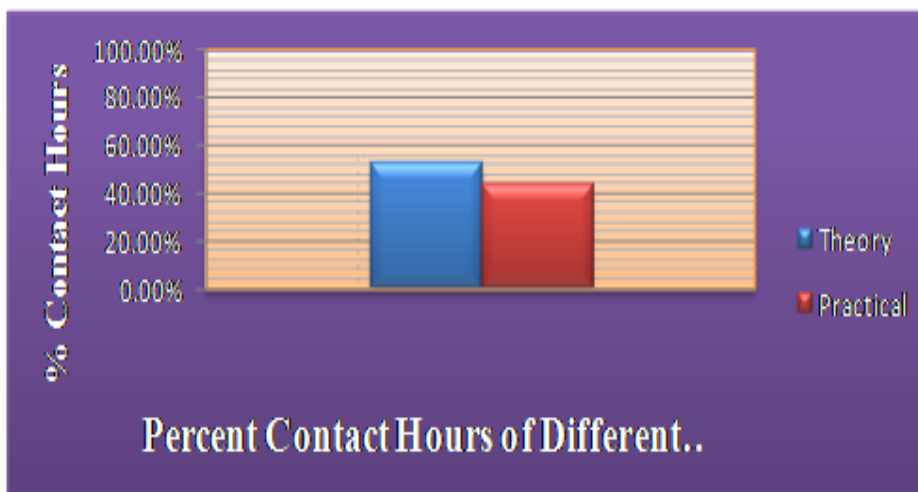


**Graph 3 : Percent Contact Hours of Different Component (Lecture, Tutorial & Laboratory)**



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As per CSVTU regulations, Percentage Contact hours for B. Pharm. teaching are 52.83% for Lecture, 13.20 % for Tutorial and 33.96% for Laboratory.



**Graph 4 : Percent Contact Hours of Different Component (Theory & Practical)**

The Percentage marks are 53.16% for theory and practical component carried 46.84%.

**Syllabus Contents and compliance of the curriculum for attainment of POs are follows-**



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Program Outcome	Courses Considered	Learning Materials	Laboratory Experiments	Projects
<b>Program Outcome 1:</b>	Pharmaceutics-I (Introduction to Pharmaceutics),	Books, Journals etc.	Pharmaceutics - IV (Physical Pharmacy- I) (Lab)	Minor Project,
<b>Program Outcome 2:</b>	Pharmaceutical Chemistry- I (Inorganic), Pharmacognosy- I, Anatomy, Physiology and Health Education- I ( APHE-I),		Pharmaceutical Analysis- I (Lab)	Major Project,
<b>Program Outcome 3:</b>	Pharmaceutical Chemistry- II (Organic Chemistry- 1), Pharmaceutics- II (Hospital and Community Pharmacy),		Pharmacognosy- II (Lab)	Assignments
<b>Program Outcome 4:</b>	Anatomy, Physiology and Health Education- II ( APHE-II), Pharmaceutics- III Drug Store and Business Management (DSBM),		Pharmaceutics-I (Introduction to Pharmaceutics) Practical	
<b>Program Outcome 5:</b>	Pharmaceutical Chemistry-III (Organic Chemistry-2), Pharmaceutics -IV (Physical Pharmacy- I),		Pharmaceutical Chemistry- I (Inorganic) Practical	
<b>Program Outcome 7:</b>	Pharmaceutical Analysis-I, Pharmacognosy- II, Pharmaceutics -V (Physical Pharmacy - II), Pharmaceutics -VI (Pharmaceutical Engineering- I ), Pharmaceutical Chemistry- IV (Organic chemistry-3),		Pharmacognosy- I Practical	
<b>Program Outcome 9:</b>	Pharmaceutical Biochemistry,		Anatomy Physiology and Health Education- I (APHE-I) Practical	
<b>Program Outcome 11:</b>	Pharmaceutical Microbiology, Pharmaceutics -VII (Pharmaceutical Engineering- II), Medicinal Chemistry-I,		Pharmaceutics- II (Hospital & Community Pharmacy) Practical	
			Anatomy, Physiology and Health Education- II ( APHE-II) Practical	
			Pharmaceutical Chemistry- III (Organic Chemistry-2) Practical	
			Pharmaceutics -V (Physical Pharmacy -II) Lab	
			Pharmaceutics -VI (Pharmaceutical Engineering-I) Lab	



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Pharmacognosy-III, Pharmacology-I,  
Pharmaceutics VIII (Cosmetic technology),  
Pharmaceutics -IX (Pharmaceutical  
Technology- I), Medicinal Chemistry –II,  
Pharmacology – II, Pharmaceutical Analysis  
II, Pharmaceutical Biotechnology,  
Pharmaceutics –X (Pharmaceutical  
Technology -II), Pharmaceutics-XI  
(Biopharmaceutics & Pharmacokinetics),  
Medicinal Chemistry- III, Pharmacology-  
III,  
Pharmacognosy- IV, Pharmaceutics-XII  
(Pharmaceutical Technology –III),  
Pharmaceutical Analysis- III (Instrumental),  
Pharmaceutical Analysis- IV (Quality  
Assurance and Drug Regulatory Affairs ),  
Pharmacognosy- V, Pharmaceutics- XIII  
(Pharmaceutical Jurisprudence)





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Pharmaceutical Chemistry- IV  
(Organic chemistry -3) Lab  
Pharmaceutical Biochemistry -Lab  
Pharmaceutical Microbiology - Lab  
Pharmaceutics -VII (Pharmaceutical  
Engineering II) (LAB)  
Medicinal Chemistry-I (LAB)  
Pharmacognosy- III (LAB)  
Pharmacology-I (LAB)  
Pharmaceutics VIII (Cosmetic  
technology) (LAB)  
Pharmaceutics -IX (Pharmaceutical  
Technology- I) (LAB)  
Medicinal Chemistry- II (LAB)  
Pharmacology II (LAB)  
Pharmaceutical Analysis II (LAB)  
Pharmaceutical Biotechnology  
(LAB)  
Pharmaceutics -X (Pharmaceutical  
Technology -II ) Lab  
Pharmaceutics- XI (Biopharmaceutics  
& Pharmacokinetics ) Lab  
Pharmacology -III (Lab)  
Pharmacognosy- IV (Lab)  
Pharmaceutics-XII (Pharmaceutical  
Technology -III) – Lab  
Pharmaceutical Analysis- III  
(Instrumental) – Lab  
Pharmacognosy-V – Lab



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<b>Program Outcome 10:</b>	Environmental Science	Books,	Assignments
<b>Program Outcome 6:</b>	English Communication – I, English Communication –II, Industrial Visit &	Book,	English Communication – I Practical, Workshop, Major and Minor Project
<b>Program Outcome 8:</b>	Report writing, Minor Project, Major Project		



**Core pharmacy subjects and their relevance to Programme Outcomes**

**Basic Science Core Courses**

- **Mathematics & Computer Application** – Understanding of mathematics helps in calculation that are the part of many subjects included in the curriculum. In the present world computer is used in all the spheres of education, hence inclusion of basic knowledge of computer and its application is a must in the curriculum.

**Professional Core Courses –**

- **English Communication** – Most of the admitted students are from rural areas and belonging to schools of vernacular medium. However, the courses conducted in UG is in English medium. The English language is therefore included in the curriculum to develop the understanding of language that results in better understanding of the subjects being taught in the program.

**Basic Pharmacy Science Courses –**

The rest of the subjects of the curriculum fall under following four branches

1. Pharmaceutics
2. Pharmaceutical Chemistry
3. Pharmacognosy
4. Pharmacology

- **Pharmaceutics** - Pharmaceutics deals with formulation of medicines & drugs. The drugs cannot be administered in their raw form. It has to be converted into a suitable dosage form which can be administered to the patient. As per required dose the art and science involved in designing & formulating such dosage form are dealt by pharmaceutics. Therefore They deal with different aspects of pharmaceutics is included in the curriculum.



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Introduction to Pharmaceutics  
Hospital and Community Pharmacy  
Drug Store and Business Management  
Physical Pharmacy – I  
Physical Pharmacy – II  
Pharmaceutical Engineering – I  
Pharmaceutical Engineering – II  
Cosmetic Technology  
Pharmaceutical Technology – I  
Pharmaceutical Jurisprudence  
Pharmaceutical Technology – II  
Pharmaceutical Technology – III  
Bio-Pharmaceutics & Pharmacokinetics

- **Pharmacognosy** – In the study of pharmacognosy, students are taught about the scientific & systematic study of structural, physical, chemical & biological characters of drugs obtained from nature. In this they also study history, method of cultivation, collection & preparation of dosage form from natural materials obtained from plants, animal, mineral & marine sources.

Pharmacognosy – I  
Pharmacognosy – II  
Pharmacognosy – III  
Pharmacognosy – IV



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- **A.P.H.E. & Pharmacology** – The word A.P.H.E. denotes “Anatomy, Physiology & Health Education” It study of human anatomy and function of different anatomical parts, which is physiology, A.P.H.E. describes anatomy of different system present in our body and their related function which is further helpful to understand the pathophysiology & effect of drugs in case of pathophysiology. Therefore, A.P.H.E. Subjects included in curriculum.

Pharmacology is a subject which deals with route of administration, mechanism of drug action and their side effects. So for proper administration of drug, how the drug is going to act against particular diseases after administration is dealt in pharmacology. Pharmacology provides important information regarding drug and their action in the body. Therefore, Pharmacology Subject has been included in the curriculum.

Anatomy, Physiology and Health Education – I  
Anatomy, Physiology and Health Education – II  
Pharmacology – I  
Pharmacology – II  
Pharmacology – III  
Pharmacology – IV (Clinical & Drug Interaction)

- **Pharmaceutical Chemistry** –In the study of Pharmaceutical chemistry students know the development and assessment of therapeutic compounds. Pharmaceutical chemistry encompasses drug design, drug synthesis, and the evaluation of drug efficacy (how effective it is in treating a condition) and drug safety. Students are also taught how to prepare medicinal remedies from natural organic products or inorganic materials through the study of these subjects. By discovering and structurally characterizing compounds with medicinal activity, students are able to know how to design new drugs with enhanced potency and decreased adverse and side effects.



Inorganic Chemistry  
Organic Chemistry – I  
Organic Chemistry – II  
Biochemistry  
Medicinal Chemistry – I  
Medicinal Chemistry – II  
Medicinal Chemistry – III  
Pharmaceutical Analysis – I  
Pharmaceutical Analysis – II  
Pharmaceutical Analysis – III

**State the delivery details of the contents beyond the Syllabus for the attainment of POs**

- **CAY (2017-18): Contents beyond the syllabus-**

S. No.	Gap	Action Taken	Date-Month-Year	Resource Person	Percentage of students present	Relevance to POs
1	First Hand knowledge from Industrialist	National workshop on "Principles and Application of Analytical instruments for Pharmaceutical Analysis	18/08/2017 & 19/08/2017	Dr. Hemant Singh Chouhan Dr. Nagendra, Dr. Kamal Shah, Dr. Manju Singh Rawat	90%	PO1,PO3, PO4, PO11
2	Awareness of Pharmacy Program	Orientation Program	19/08/2017		95%	PO7, PO9
3	Usage of Modern Tools of Pharmaceuticals	In-vitro cell line techniques for drug discovery and development	08/09/2017 & 09/09/2017	Dr. Deepesh Gupta Dr. Naveen Vishwakarma Dr. Deependra Singh	91%	PO1, PO4



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Dr. Renu Bhatt						
4	Usage of Modern Tools of Pharmaceuticals	<p style="text-align: center;">“Frontier in Pharmaceutical Sciences and Research”</p> <p style="text-align: center;">Theme –</p> <p>“Advances in Development, Delivery Systems and Clinical Monitoring of Drugs”</p>	23/09/2017 & 24/09/2017	<p style="text-align: center;">Prof. V. K. Dixit</p> <p style="text-align: center;">Dr. Erwin Faller</p> <p style="text-align: center;">Prof. Vijay Kumar Sharma</p>	97%	PO1,PO3, PO4, PO5, PO6,PO11

### CAY (2016-17): Contents beyond the syllabus-

S. No.	Gap	Action Taken	Date-Month-Year	Resource Person	Percentage of students present	Relevance to POs
1	Agricultural Practice	Good agricultural and collection practices of medicinal Plants.	08/07/2016	Dr. S. P. Rao	88%	PO10
2	Special Session	Yogaprana Vidya	29/07/2016	Vishakha and Bharti.	89.5%	PO9
3	Safety Measurement in Lab.	Workshop on “Use of Fire Extinguisher”	18/08/2016		90%	PO1
4	Awareness of Pharmacy Program	Orientation Program	02/09/2016	Mr. H. V. Vishvesh	95%	PO7, PO9
5	Hydrotrophy Technology	Guest Lecture	08/09/2016	Dr. R. K. Maheshwari	88%	PO1, PO4

### CAYm1 (2015-16): Contents beyond the syllabus-

S. No.	Gap	Action Taken	Date-	Resource	Percentage	Relevance
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			Month- Year	Person	of students present	to POs
1	New Molecule Discovery	Research discovery and finding of new molecule chemical extract from Puna	05/08/2015	Chief Analyst Butchi Labs	87%	PO1, PO4, PO8,
2	Drug Design	Special Lecture Beyond Syllabus	20/08/2015	Dr. Vijay Kumar Singh	91%	PO1, PO11, PO4
3.	Social Aware	World Pharmacist Day Celebration.	25/09/2015	Senior Pharmacists	92.5%	PO6, PO7
4	Industrial Knowledge	Industrial Tour	16/02/2016 – 23/02/2016	-	89%	PO4, PO11
5	Bridging gap between academic and pharmaceutical industry.	Guest Lecture	05/03/2016 and 06/03/2016	Dr. Devkumar Dewangan Mr. Prabhakara Parabhu	91%	PO1, PO9
6	Stem Cell Technique	Workshop on Stem Cell Donation Technique	11/04/2016	Mrs. Ananya Ghosh	88%	PO7, PO9

### CAYm2 (2014-15): Contents beyond the syllabus-

S. No.	Gap	Action Taken	Date- Month- Year	Resource Person	No. of students present	Relevance to POs
1	Ayurvedic Formulation	Workshop on Preparation of Ayurvedic Formulation	07-07-2014	Dr. Ravindra Kumar Pandey	89%	PO9, PO10
2	First Aid Technique	Workshop	07-09-2014	Dr. Satyanarayan Pandey, Dr. A. M. Lakra	90%	PO1, PO2, PO9
3.	Awareness of Pharmacy Program	Orientation Program	11-09-2014	Dr. B. N. Rao	86%	PO1,
4	Social Awareness	Celebration on National Pharmacist Day	25-09-2014		90%	PO5, PO7,
5	International Conferenc		11-10-2014 & 12/10/2014	Dr. Pinna Graziano, Prof. Paul	92%	PO1, PO3, PO4, PO11





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	e on “Frontiers in Pharmace utical Science & Research.”				Hengwan, Prof. Shailendra Saraf		
6	Musical Session	CIP and Spic Macay organized “Bansuri Wizard”	19-11-2014	Pt. Ronu Majumdar	88%	PO9	
7	Special Session	CIP and Spic Macay organized “Classical Dance”	27-11-2014	Ms. Kavita Dwivedi	90%	PO9	
8	Cultural Celebratio n	Basantotsav Celebration	25-01-2015		91%	PO9	
9	Cultural Events	Colors 2015			93%	PO5, PO6	
10	Analytical Technique for Phyto- Chemical	Workshop on “Analytical Technique for Phyto-chemicals.”	14-04-2015	Dr. Nagendra Singh Chouhan, Dr. Sanjay Deharwal	93%	PO1, PO3, PO4, PO6	
11	Care & Handling of Experime ntal Animals	Workshop on “Care and Handling of Experimental Animals”	09-04-2015 & 10-04- 2015	<ul style="list-style-type: none"> <li>• Dr. Neelu Gupta</li> <li>• Dr. C. K. Chakrobor ti</li> <li>• Prof. Sagar Mishra</li> <li>• Mr. Manvendra Singh</li> </ul>	91%	PO1, PO2, PO11	

### Mapping of content beyond syllabus with the Pos

TOPIC	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
<b>Assignments.</b>	✓	✓	-	✓	-	✓	✓	-	-	-	✓
<b>Pre- placement Training</b>	✓	✓	✓	-	-	-	-	-	-	-	✓
<b>Spoken English Classes</b>	-	-	-	✓	-	✓	-	✓	-	-	✓
<b>Mock Personal Interview</b>	✓	-	-	-	-	✓	-	✓	-	-	✓
<b>Guest lectures</b>	✓	✓	✓	✓	-	-	-	-	-	-	✓



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<b>Workshops/conference on current social issues</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Industrial Visits and internships</b>	✓	✓	✓	✓	✓	✓	-	-	✓	-	✓
<b>Orientation Program</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Technical Quizzes</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Personality Development Classes</b>	✓	-	-	-	✓	✓	✓	✓	-	-	✓
<b>Learning with Multimedia</b>	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓

**Adherence to Academic Calendar (10)**

**CAY (2017-18): University Academic Calendars – Almanac and Exams.**

Sem.	Date of commencement		Sessional I	Sessional II	Practical Exam date	
	Almanac	Actual	Actual	Actual	Almanac	Actual
<b>I</b>	01/08/17	01/08/17	09/10/17 - 14/10/17	18/12/17 - 22/12/17	14/01/18- 18/01/18	14/01/18- 18/01/18
<b>III</b>	10/07/17	10/07/17	18/09/17 - 22/09/17	27/11/17 - 02/12/17	28/12/17- 02/01/18	28/12/17- 02/01/18
<b>V</b>	05/07/17	05/07/17	28/08/17 - 01/09/17	13/11/17 - 18/11/17	10/12/17- 14/12/17	10/12/17- 14/12/17
<b>VII</b>	05/07/17	05/07/17	28/08/17 - 01/09/17	31/10/17- 04/11/17	26/11/17- 30/11/17	26/11/17- 30/11/17
<b>II</b>	16/01/2018	16/01/2018	02/04/18- 07/04/18	30/05/18- 05/06/18	28/06/18- 03/07/18	28/06/18- 03/07/18
<b>IV</b>	04/01/2018	04/01/2018	05/03/18 - 09/03/18	17/05/18- 22/05/18	10/06/18- 15/06/18	10/06/18- 15/06/18
<b>VI</b>	02/01/2018	02/01/2018	05/03/18 - 09/03/18	02/05/18- 07/05/18	26/05/18- 31/05/18	26/05/18- 31/05/18
<b>VIII</b>	02/01/2018	02/01/2018	05/03/18 - 09/03/18	16/04/18- 20/04/18	10/05/18- 15/05/18	10/05/18- 15/05/18



## Columbia Institute of Pharmacy, Raipur

### CAY (2016-17): University Academic Calendars – Almanac and Exams.

Sem.	Date of commencement		Sessional I	Sessional II	Practical Exam date	
	Almanac	Actual	Actual	Actual	Almanac	Actual
<b>I</b>	01/08/16	11/07/16	05/09/16 - 09/09/16	13/12/16 - 19/12/16	21/12/16- 26/12/16	21/12/16 - 27/12/16
<b>III</b>	04/07/16	04/07/16	05/09/16 - 12/09/16	01/12/16 - 08/12/16	27/12/16- 31/12/16	27/12/16 - 02/01/17
<b>V</b>	04/07/16	04/07/16	05/09/16 - 09/09/16	14/11/16 - 18/11/16	10/12/16- 15/12/16	09/12/16 - 15/12/16
<b>VII</b>	01/07/16	04/07/16	05/09/16 - 09/09/16	07/11/16 - 11/11/16	26/12/16- 30/12/16	28/11/16 - 02/12/16
<b>II</b>	16/01/2017	16/01/2017	27/03/17 - 31/03/17	30/05/17- 03/06/17	30/06/17 - 04/07/17	30/06/17 - 04/07/17
<b>IV</b>	04/01/2017	04/01/2017	06/03/17 - 10/03/17	15/05/17 - 19/05/17	12/06/17 - 17/06/17	12/06/17 - 17/06/17
<b>VI</b>	02/01/2017	02/01/2017	06/03/17 - 10/03/17	01/05/17 - 06/05/17	26/05/17 - 31/05/17	26/05/17 - 31/05/17
<b>VIII</b>	02/01/2017	02/01/2017	06/03/17 - 10/03/17	17/04/17 - 22/04/17	11/05/17 - 16/05/17	11/05/17 - 16/05/17

### CAYm1 (2015-16): University Academic Calendars – Almanac and Exams.

Sem.	Date of commencement		Sessional I	Sessional II	Practical Exam date	
	Almanac	Actual	Actual	Actual	Almanac	Actual
<b>I</b>	06/07/2015	06/07/2015	28/09/15 - 03/10/15	07/12/15 - 11/12/15	26/12/15 - 30/12/15	21/12/15 - 28/12/15
<b>III</b>	06/07/2015	06/07/2015	07/09/15 - 14/09/15	23/11/15 - 28/11/15	01/01/16 - 05/01/16	01/01/16 - 06/01/16
<b>V</b>	06/07/2015	06/07/2015	07/09/15 - 11/09/15	17/11/15 - 21/11/15	16/12/15 - 22/12/15	16/12/15 - 21/12/15
<b>VII</b>	06/07/2015	06/07/2015	07/09/15 - 14/09/15	02/11/15 - 06/11/15	03/12/15 - 08/12/15	03/12/15 - 08/12/15
<b>II</b>	18/01/16	18/01/16	30/03/16 - 06/04/16	24/05/16 - 06/06/16	21/06/16- 25/06/16	23/06/16 - 27/06/16
<b>IV</b>	07/01/16	07/01/16	15/03/16 - 21/03/16	09/05/16 - 13/05/16	08/06/16- 13/06/16	09/06/16 - 16/06/16
<b>VI</b>	01/01/16	01/01/16	08/03/16 - 14/03/16	27/04/16 - 09/05/16	25/05/16- 30/05/16	25/05/16 - 31/05/16
<b>VIII</b>	01/01/16	01/01/16	08/03/16 - 14/03/16	13/04/16 - 20/04/16	11/05/16- 16/05/16	12/05/16 - 17/05/16



## Columbia Institute of Pharmacy, Raipur

### CAYm2 (2014-15): University Academic Calendars – Almanac and Exams.

Sem.	Date of commencement		Sessional I	Sessional II	Practical Exam date	
	Almanac	Actual	Actual	Actual	Almanac	Actual
<b>I</b>	01/08/14	01/08/14	22/09/14 - 26/09/14	01/12/14 - 05/12/14	07/01/15 - 12/01/15	12/01/15 - 16/01/15
<b>III</b>	01/08/14	01/08/14	22/09/14 - 29/09/14	01/12/14 - 06/12/14	07/01/15 - 12/01/15	07/01/15 - 16/01/15
<b>V</b>	01/08/14	01/08/14	15/09/14 - 19/09/14	17/11/14 - 21/11/14	22/12/14 - 27/12/14	23/12/14 - 02/01/15
<b>VII</b>	01/08/14	01/08/14	15/09/14 - 19/09/14	17/11/14 - 21/11/14	22/12/14 - 27/12/14	23/12/14 - 03/01/15
<b>II</b>	19/01/15	05/01/15	09/03/15 - 13/03/15	04/05/15 - 08/05/15	01/06/15- 06/06/15	30/05/15 - 03/06/15
<b>IV</b>	19/01/15	05/01/15	09/03/15 - 13/03/15	04/05/15 - 08/05/15	01/06/15- 06/06/15	28/05/15 - 02/06/15
<b>VI</b>	05/01/15	05/01/15	09/03/15 - 13/03/15	13/04/15 - 18/04/15	11/05/15- 16/05/15	15/05/15 - 20/05/15
<b>VIII</b>	05/01/15	05/01/15	09/03/15 - 13/03/15	13/04/15 - 18/04/15	11/05/15- 16/05/15	13/05/15 - 15/05/15

ACADEMIC CALENDAR, PROVIDED BY CSVTU FOR SESSION JULY – DEC 2016



# Columbia Institute of Pharmacy, Raipur

## CSVTU Bhilai, Academic Calendar & Schedule of Examination for B Pharmacy Session Jul - Dec 2016

S.No.	Particular of Academic/Exam Activity	B Pham VIII Sem.	B Pham VII Sem.	B Pham VI Sem.	B Pham V Sem.	B Pham IV Sem.	B Pham III Sem.	B Pham II Sem.	B Pham I Sem.
		(Backlog)	(Reg./Backlog)	(Backlog)	(Reg./Backlog)	(Backlog)	(Reg./Backlog)	(Backlog)	(Reg./Backlog)
1	Start of Session		01 Jul. 2016		04 Jul. 2016		04 Jul. 2016		01 Aug. 2016
2	Last date for institutions to send the Subject Wise / Branch Wise List of Teachers with related subjects as per directive of Examination Cell		01 Aug. 2016		01 Aug. 2016		01 Aug. 2016		01 Aug. 2016
3	Last Date for institutions to send the Data of Regular Students Branch/Semester wise including Eletive Subjects Opted for Question Papers Requirement as per directive of Examination Cell		01 Aug. 2016		01 Aug. 2016		01 Aug. 2016		01 Aug. 2016
4	1) Last date of submission of Exam Forms by the students in the institution (Without Late fees) (Bank Challan must be prepared immediately after)	14 Oct. 2016	14 Oct. 2016	31 Oct. 2016	31 Oct. 2016	11 Nov. 2016	11 Nov. 2016	28 Nov. 2016	28 Nov. 2016
	2) Date of submission of Exam Forms by the Institution at CSVTU, Bhilai (without late fee by Institution)	19 Oct. 2016	19 Oct. 2016	03 Nov. 2016	03 Nov. 2016	17 Nov. 2016	17 Nov. 2016	01 Dec. 2016	01 Dec. 2016
	3) Last date of submission of Exam Forms by the students in the Institution (with late fees @ Rs. 30/- per day)	21 Oct. 2016	21 Oct. 2016	05 Nov. 2016	05 Nov. 2016	21 Nov. 2016	21 Nov. 2016	03 Dec. 2016	03 Dec. 2016
	4) Last date of submission of Exam Forms by the Student in the Institution ( with Late fee @ Rs. 120 / day )	26 Oct. 2016	26 Oct. 2016	11 Nov. 2016	11 Nov. 2016	26 Nov. 2016	26 Nov. 2016	09 Dec. 2016	09 Dec. 2016
	5) Date of submission of Exam Forms by the institution at CSVTU, Bhilai (with late fee)	28 Oct. 2016	28 Oct. 2016	15 Nov. 2016	15 Nov. 2016	30 Nov. 2016	30 Nov. 2016	13 Dec. 2016	13 Dec. 2016
	6) Last date of receipt of Exam Forms at CSVTU, Bhilai (with Late fee @ Rs. 200 / day / student from Institution)	02 Nov. 2016	02 Nov. 2016	16 Nov. 2016	16 Nov. 2016	30 Nov. 2016	30 Nov. 2016	14 Dec. 2016	14 Dec. 2016
5	Preparation Leave		10 Nov. 2016 to 14 Nov. 2016		23 Nov. 2016 to 28 Nov. 2016		08 Dec. 2016 to 13 Dec. 2016		15 Dec. 2016 to 20 Dec. 2016
6	Submission of Sessional marks & list of detained candidates, at CSVTU, Bhilai in soft as well as hard copy.		05 Nov. 2016		21 Nov. 2016		05 Dec. 2016		19 Dec. 2016
7	Schedule for Theory Exams	16 Nov. 2016 to 25 Nov. 2016	15 Nov. 2016 to 24 Nov. 2016	30 Nov. 2016 to 09 Dec. 2016	29 Nov. 2016 to 08 Dec. 2016	15 Dec. 2016 to 24 Dec. 2016	14 Dec. 2016 to 26 Dec. 2016	29 Dec. 2016 to 10 Jan. 2017	30 Dec. 2016 to 09 Jan. 2017
8	Schedule for Practical Exams	26 Nov. 2016 to 30 Nov. 2016	26 Nov. 2016 to 30 Nov. 2016	10 Dec. 2016 to 15 Dec. 2016	10 Dec. 2016 to 15 Dec. 2016	27 Dec. 2016 to 31 Dec. 2016	27 Dec. 2016 to 31 Dec. 2016	21 Dec. 2016 to 26 Dec. 2016	21 Dec. 2016 to 26 Dec. 2016
9	Last date for submission of Practical Marks	05 Dec. 2016	05 Dec. 2016	20 Dec. 2016	20 Dec. 2016	05 Jan. 2017	05 Jan. 2017	31 Dec. 2016	31 Dec. 2016
11	Date of Declaration of Result	03 Jan. 2017	03 Jan. 2017	10 Jan. 2017	10 Jan. 2017	07 Feb. 2017	07 Feb. 2017	03 Mar. 2017	03 Mar. 2017

- Note: 1) Student will have to fill up Examination Form for Regular & Backlog/supplementary Exams separately (separate Exam Form for each semester of Exam)  
 2) Admit Card will be dispatched 05 days before the commencement of the Theory Exam  
 3) The result declaration dates are liable to be postponed/postponed.  
 4) It is imperative to follow academic calendar dates strictly for the submission of exam forms, sessional marks and practical marks for the benefit of students.  
 5) Candidate's self attested copies of exam fees receipt is to be enclosed in each exam form.

*[Signature]*  
OSD (Iprocell)

OSD (Acad)

*[Signature]*  
Examination Controller

*[Signature]*  
SUNIL KUMAR  
CSVTU, BHILAI (C.G.)



**Columbia Institute of Pharmacy, Raipur**

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	<b>Semester : VII</b>

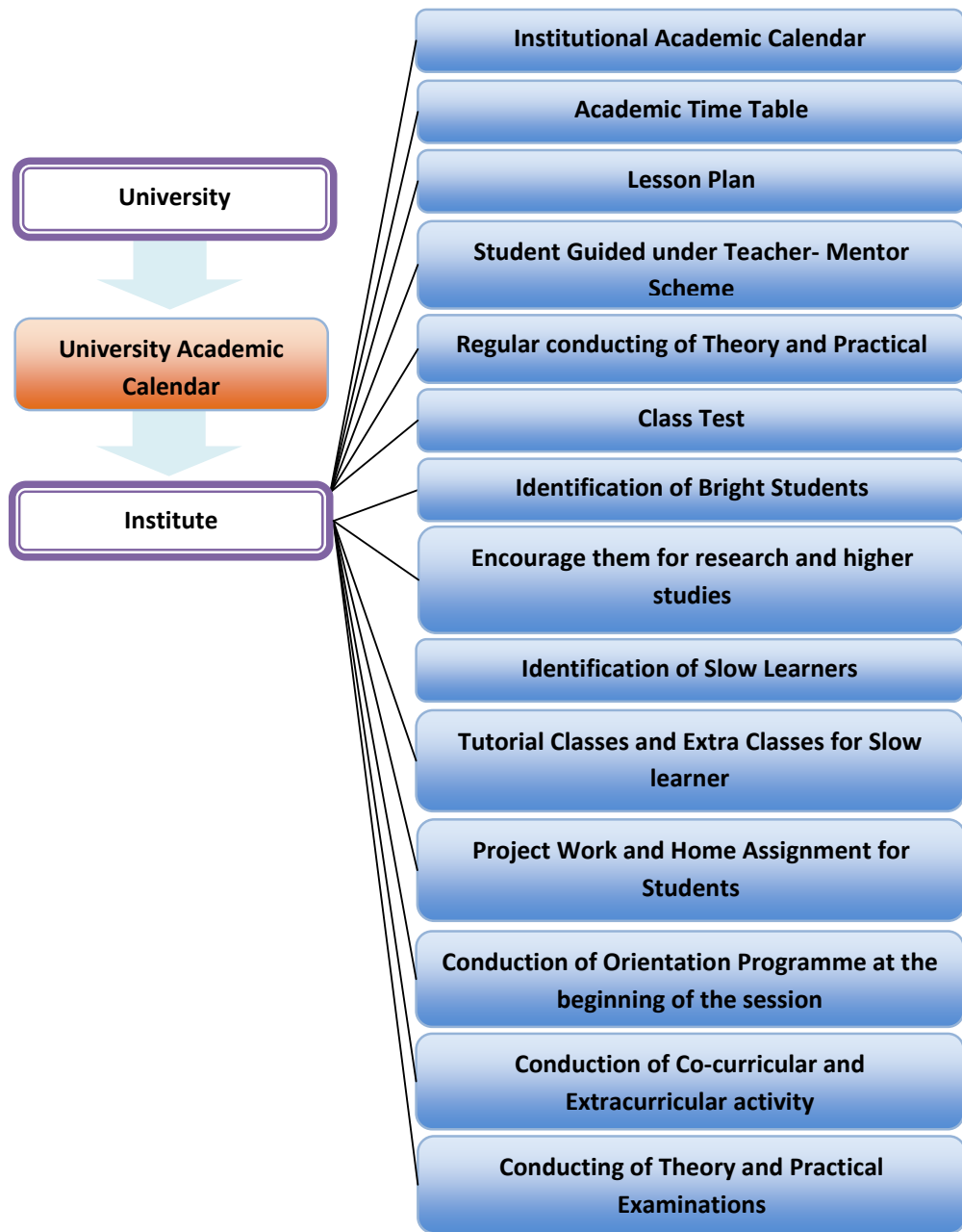
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### Teaching-Learning Process

**Teaching Learning Process-** The Institute has well defined teaching, learning and evaluation schedules which is as follows:



**Fig 5 – Teaching-Learning Process**

#### **A. Use of various instructional methods and pedagogical initiatives**

##### **Lectures/Presentations:**



## Columbia Institute of Pharmacy, Raipur

Lectures are the effective ways of achieving the program outcomes (POs) and course outcomes (COs). The course outcomes could not be better achieved without these.

Lectures are the best ways to get facts, make students to think and understand the concepts. The teacher is always available to clear the doubts instantaneously. All these efforts provide a platform to cover and improve the ability to solve problems of students. Mode of delivery of lectures is power point presentations as well as chalk and board.

The course information and peripheral knowledge on the web are made available to promote learning.

### **Guest Lectures/Expert Talks:**

Expert talks by the eminent persons working in pharmaceutical industries/research organizations/ practicing pharmacists help the students and the faculty to understand current trends in various spheres, which leads to the attainment of POs. External resource persons also add value to the program and help students to realize the link between education and real world in the profession. These talks act as bridge to fill the gaps and also develop rapport for meeting the future need of the industries / research organization / universities. This promotes the habit of life-long learning.

### **Project-based learning:**

During the period of study in the 7th to 8th semester, many real time projects are given to the students and they are guided by faculty.

### **SMART class Room:**

Faculty use SMART class room for interactive teaching sessions.

### **Collaborative Learning:**

Seminars, debates, group discussion, practical classes, tutorial classes etc. are organized to cultivate the culture of collaborative learning and independent learning. The students





## Columbia Institute of Pharmacy, Raipur

residing together in hostels are encouraged to discuss the subject amongst themselves in the evening hours.

### **Educational/Industrial Visits:**

Visiting of resource centers, work places and research organizations, industries helps to explore all opportunities and have greater impact on the students. These allow the students to make real-life decisions. These have proved successful in career exploration, decision making and to become life-long learners.

### **Seminar:**

Seminars serve as a platform for sharing knowledge/expertise in advanced areas, which results in collaboration and attempt for enhancement of the skills, techniques and modern tools necessary for the practice of pharmacy profession. Several POs can be attained in this manner.

### **Workshops:**

The Institute organizes the orientation programs as a first step to introduce the students to the Institute and the course. As a part of this exercise, the Institute also conducts workshops. This also helps in developing self learning process and support the lifelong learning.



**Different Initiatives in Teaching-Learning Process**

**B. Methodologies to support weak students and encourage bright students**



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Faculties of the institute give their 100% efforts to support weak students and encourage bright students. For the attainment of all POs and PEOs Institute follows teacher mentor scheme.

### Guidelines to identify Weak Students/Slow Learners –

Identification Methodology	Action Taken
<ul style="list-style-type: none"><li>• Under the teacher –mentor scheme every faculty regularly conducts meetings regarding progress of their mentees and are identifies the students who have scored less than 60% marks in their internal (sessional) examinations.</li><li>• Subject in-charge of every subjects also identifies the slow learner on basis of class test marks and internal examinations (Below 60% Marks).</li></ul>	<ul style="list-style-type: none"><li>• Teacher Mentor follows their progress regularly advising students about attending classes, making up classes missed, and getting additional helps.</li><li>• Intimating parents to counsel their wards.</li><li>• Conduction of Extra Classes.</li><li>• Increases the number of class test &amp; revision classes.</li><li>• Formation of study group with bright students.</li><li>• Gives extra attention to them during lecture.</li></ul>

### Guidelines to identify Bright Students –

Identification Methodology	Action Taken
<ul style="list-style-type: none"><li>• Under the teacher –mentor scheme every faculty regularly conducts meetings regarding progress of their mentees and are identified the students who scored more than 60% marks in their internal (sessional) examinations.</li><li>• Subject in-charge also identified the students scored more than 60% marks in class test and sessional examinations and mark them as a bright students.</li></ul>	<ul style="list-style-type: none"><li>• Gives extra assignments.</li><li>• Power point presentation by bright students to make them free from stage fear.</li><li>• Institute gives opportunity of to topper of the institute of hoist the flag in the occasion of Republic day and Independence Day.</li><li>• Motivate to give competitive exams (GPAT, Govt. Pharmacist etc.)</li><li>• Motivates towards research activity and higher education through teacher mentor scheme.</li><li>• Topper of the students awarded with cash prize as well as certificate of appreciation.</li><li>• Enncourage the bright students to participate and present posters and</li></ul>



## Columbia Institute of Pharmacy, Raipur

research papers in various conferences, seminars in state as well as national level.

- Encourage them to guide their weak classmates.

### C. Quality of classroom teaching:

The following teaching methods are adopted by the faculty:

- Chalk and board method and powerpoint presentation are the primary methods delivering lectures.
- Online availability of various journals in the digital library.
- Well structured lesson plans are prepared for all theory courses on a period to period basis.
- Faculty members are taking advantage of sources like DELNET, internet sources for effective teaching.
- Internet facility is available to students and faculty.
- The faculty encourages students to use the e-lecture from website. Lectures of our faculties are also uploaded on website. Students can view the lectures in their relevant time.

Lectures on following subject matter have been are uploaded in [www.cec.nic.in](http://www.cec.nic.in) (EMMRC-UGC New Delhi)..

Sl. No.	Name of Faculty	Presentation Title	Semester
1.	Dr. S Prakash Rao	An Overview of plants as Bitters, Sweeteners, Colours, Flavoures, Carotinoids, photosensitizing agents and Vaccines	B.Pharm VIII <sup>th</sup> Sem
2.		Plastic containers for pharmaceuticals – I Classification of plastic, plastic polymers and their physicochemical, mechanical and biological properties; Additives and fabrication processes.	B.Pharm VIII <sup>th</sup> Sem
3.		Plastic Containers for pharmaceuticals – II Plastic containers for parenterals transfusion sterile drip kits, quality control testing, biological toxicity.	B.Pharm VIII <sup>th</sup> Sem
4.	Dr. Trilochan	<b>Pharmacology of Endocrine system –</b>	B.Pharm



Satapathy	<p><b>III</b> Insulin, oral hypoglycaemic agents and glucagons. <b>Pharmacology of Endocrine system – IV</b> ACTH and corticosteroids. Androgens and anabolic steroids. <b>Pharmacology of Endocrine system – IV</b> Estrogen, progesterone and oral contraceptive. Drug acting on the uterus.</p>	VII <sup>th</sup> Sem
5.	<p><b>Chemotherapy – V</b> Definition of poison, general principles of treatment of poisoning with particular reference to barbiturates, opioids, organophosphorous and atropine poisoning. <b>Chemotherapy – VI</b> Heavy metals and heavy metal antagonists.</p>	B.Pharm VII <sup>th</sup> Sem
6.	<p>Defination and basis of drug interactions Machanism of drug Interactions Factors contributing to the occurrence of drug interactions</p>	B.Pharm VIII <sup>th</sup> Sem
7. Dr. Vijay Singh	<p><b>Antiviral agents – I</b> Introduction to DNA, RNA and retroviruses, viral replication, <b>Antiviral agents – II</b> Amantidine hydrochloride, interferones, acyclovir, idoxuridine, trifluorothymidine. <b>Antiviral agents – III</b> Vidarabine, cytarabine, rabavirin, methisazone, zidovudine, Diagnostic agents.</p>	B.Pharm VII <sup>th</sup> Sem
8. Dr. Ram kumar Sahu	<p><b>Drug Laws – III</b> Medicinal and Tiolet Preparations (Excise Duties Act, 1955)</p>	B.Pharm VII <sup>th</sup> Sem
9.	<p><b>Drug Laws – IV</b> Narconic Drugs and Psychotropic Substances Act, 1985 and Rules.</p>	B.Pharm VII <sup>th</sup> Sem
10.	<p><b>Drug Laws – V</b> Drug (Prices Control) Order</p>	B.Pharm VII <sup>th</sup> Sem
11.	<p><b>Drug Laws – VI</b> Drugs and Magic Remedies (Objectionable Advertisements), Act 1954 and Rules.</p>	B.Pharm VII <sup>th</sup> Sem
12. Dr. Amit Roy	<p>An introduction to Tissue culture techniques with their scope as alternative source of Phyto- Pharmaceuticals.</p>	B.Pharm VIII <sup>th</sup> Sem



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13.	Dr. Shiv Shankar Shukla	Premises, location design, plant layout, construction, maintenance of sterile areas, control of contamination	B.Pharm VIII <sup>th</sup> Sem
14.		Equipments selection, Raw materials purchase specification. In process quality controls.	B.Pharm VIII <sup>th</sup> Sem
15.		<b>Flame photometer-I</b> Origin of spectra, atomization and ionization instrumentation (nebulizer, mirrors, burners, slits, monochromators and detectors), <b>Flame photometer-II</b> Background emission, interferences, qualitative applications in pharmaceuticals analysis.	B.Pharm VIII <sup>th</sup> Sem
16.		<b>X Ray – spectrometry- I</b> An introduction to the theory of X ray spectroscopy [ miller, space, lattice, and unit cell, bravais lattices]. Interplaner spacing in crystal system.	B.Pharm VIII <sup>th</sup> Sem
17.		<b>X Ray – spectrometry- II</b> Diffraction of X-ray by crystal, bragg equation, powder method, x-ray diffraction pattern of cubic system [NaCl], application on pharmaceutical analysis.	B.Pharm VIII <sup>th</sup> Sem
18.	Dr. Ravindra Pandey	Valerian (Valerian wallchi), Jatamansi (Nardostacys jatamansi), Gokhru (Tribulus terrestris), Arjuna (Terminalia arjuna)	B.Pharm VIII <sup>th</sup> Sem
19.		Ashok – (Saraca indica), Vidang (Embelia ribes), Lahsun (Garlic Allium sativum), Malkangni (Celastrus paniculata),	B.Pharm VIII <sup>th</sup> Sem
20.		Safed Musli (Chlorophytum borivalianum), Artemisia ( Artemica spp), Thylophora (Thylophora indica), Morinda (Morinda citrifolia),	B.Pharm VIII <sup>th</sup> Sem
21.		Drug Laws – II Drug and Cosmetics Act, 1940 and Rules.	B.Pharm VIII <sup>th</sup> Sem

### D. Conduct of Experiments:

- Curriculum stipulates 4 to 5 laboratory courses per semester from 1<sup>st</sup> to 8<sup>th</sup> Semesters.
- Students carry out more than the required number of experiments, beyond the minimum specified by the university in many subjects.
- Each laboratory has appropriate facilities i.e. work space, equipments, glassware etc.
- For the each experiment detailed instruction manuals are provided.



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- The observations are checked and verified by the faculty and record books are maintained systematically.

### **E. Continuous Assessment in Laboratory:**

- Continuous assessment system is also implemented for assessment of laboratory work.
- The assessment is done on the basis of submission of practical records and understanding of the experiment through oral viva voce questions and participation in performing the experiment.
- Practical Viva Voce mark is displayed on notice board positively on 2<sup>nd</sup> day of experiment to make aware the students about their performance.
- Proper maintenance of practical record is also given weightage in the assessment.

### **F. Student feedback of teaching learning process and action taken:**

At the end of the semester, all the students are required to fill a feedback for appraising the faculty using a scale 1 (Avg.) through 3 (excellent).

- Lecture classes are monitored by Academic in-charge. They give constructive comments to improve the quality of teaching and teaching – learning process.
- Counselling by the Program Assessment & IDMC committee members for those faculty members who have secured low scores and negative comments, if any, in the feedback. This motivates them to improve their skills and abilities.
- Faculty training programs are conducted by the professional experts to excel the skills of the faculty members in teaching, thus improving the efficiency of teaching – learning process.



**Quality of internal semester question papers, assignments and evaluation**

*Internal Assessment in a Year*

Component	Nature of Exam	Quality of Question Paper	Items Covered
<b>Internal Theory</b>	First sessional exam	Good	Short essay and long essay questions
	Second sessional exam	Good	Short essay and long essay questions
<b>Practical</b>	Daily Evaluation	Good	Planning, analysis of lab skills, finishing the experiment
	Practical examination	Good	Synopsis, spotting and viva-voce, major experiment and minor experiment
	Laboratory manual	Good	Communication, data interpretation
<b>Beyond Syllabus</b>	Mock Test (GPAT)	Good	Multiple choice questions

Dear All,

This is for information to you all that Sessional Examination of B. Pharm 1st semester is scheduled as per the following time table.

**COLUMBIA INSTITUTE OF PHARMACY, TEKARI, RAIPUR (C.G.) 493111**

**B. PHARMACY I SEMESTER**

**2<sup>nd</sup> Sessional Examination (Nov Dec 2017)**

**TIME TABLE**

Time: 1:00 – 2:15 pm

Subject	Course Code	Date
Human Anatomy and Physiology I (BP101T)	341151 (41)	16-12-2017
Pharmaceutical Analysis I (BP102T)	341152 (41)	19-12-2017
Pharmaceutics I (BP103T)	341153 (41)	20-12-2017
Pharmaceutical Inorganic Chemistry (BP104T)	341154 (41)	21-12-2017
Communication skills (BP105T)	341155 (41)	22-12-2017
Remedial Biology (BP106RBT)	341171 (41)	





**SAMPLE OF EMAIL-TO ALL FACULTY MEMBERS FOR QUESTION  
PAPER SETTING**

**Columbia Institute of Pharmacy, Raipur**

**I Sessional Examination (April - May 2017)**

**Subject: Pharmaceutical chemistry-III    Subject code: 341219(41)    Semester: II**

**Max. Marks: 20**

**Time: 1 hour    Date: 30-03-17**

**Note: Answer any two questions of the followings. All question carry equal marks.    2X10=20**

1. Define and classify hydrocarbons. Write IUPAC rule for alkane and alkene nomenclature with example.
2. Write various methods of preparation of methane. Explain chlorination of methane. Discuss about various conformational isomers of n-Butane.
3. Write methods of preparation of 1-Propene. Discuss Markovnikov's and Anti-Markovnikov's rule

Name & signature of the teacher

BibhasPandit

Pooja Tiwari



**Evaluation Process –**

- After the completion of internal examination subject teacher evaluates their internal examination answer sheets of their respective subject.

**Implementation Process –**

- Institute's Academic Committee and Institutional Development and Monitoring Committee (IDMC) assure the quality of question papers.
- Academic Committee and IDMC suggests to the Examination committee modify the pattern of questions in the internal question papers whenever required.

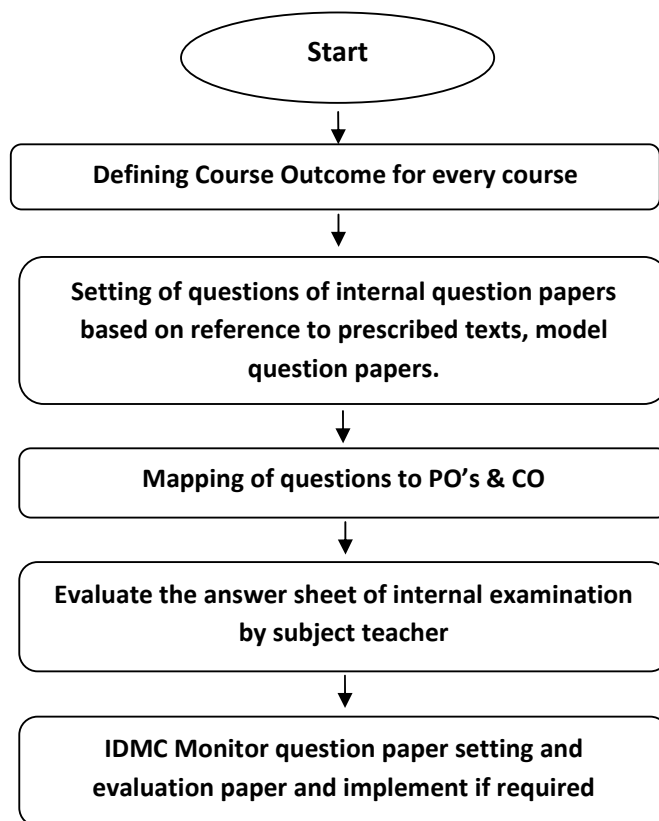
**Quality of Evaluation –**

- Subject in-charge evaluates all the answersheet of students of their respective subjects within 10 days of completion of I and II Sessional.
- “Teacher Assessment” marks awarded to students on the basis of marks obtained in sessional exams, class test and their attendance in the class.
- It is compulsory to display marks obtained in Sessional examination in the examination notice board.
- The evaluation process is monitored by IDMC.
- After the evaluation of internal exams, program assessment committee assess the attainment of CO through result of sessional exams.
- Program Assessment Committee identifies slow learners as well as bright students of every semester.
- Program Assessment Committee submits the list of slow learner and bright students to Academic Committee.



### **Process to ensure questions from outcomes/learning levels perspective**

Each question is mapped with CO's and PO's levels. Student who answered to particular question is taken into consideration and average of all students marks is taken for CO-PO attainment.



### **Evidence of COs coverage in class test / mid-term tests (3)**

- Individual marks obtained by individual students in class test is mapped with CO's.
- Questions asked in sessional examination is mapped with CO's.



Mapping of Internal Questions with Course Outcome  
(Academic Session 2016-17)

<b>C204.3 Pharmaceutical Chemistry-IV (Organic chemistry-3)</b>					
	CO1	CO2	CO3	CO4	CO5
Explain briefly about esters with special accent to synthesis of Acetoacetic ester and its synthetic applications.	✓				
Illustrate with examples different types of Aromatic Substitution reactions.  Explain briefly <ul style="list-style-type: none"> <li>• Preparation and Basicity of Amines</li> <li>• Structure of Benzene and its Aromaticity</li> <li>• Conformational analysis of Cyclohexane and Bayers Strain Theory</li> </ul>		✓			
Explain briefly <ul style="list-style-type: none"> <li>• Preparation and reactions of aniline</li> <li>• Preparation and acidity of phenols</li> <li>• Aromatic carboxylic groups.</li> </ul>			✓		
Write the reaction, mechanism and applications of any two reactions <ul style="list-style-type: none"> <li>• Mannich Reaction</li> <li>• Diels alder Reaction</li> <li>• Fittig reaction</li> </ul>				✓	
What is heterocyclic compounds? Explain structure, reactions and uses of any two heterocyclic compounds.					✓
<b>C204.4 Pharmaceutical Biochemistry</b>					
Describe the biochemical organization of cell along with parts and their functions? Discuss the production of ATP with reference to oxidative phosphorylation?  Write short notes on any two. <ul style="list-style-type: none"> <li>• Free energy concept</li> <li>• Bioenergetics</li> <li>• Biological significance of ATP</li> </ul>	✓				
Write short notes on- <ul style="list-style-type: none"> <li>• Enzymes and their Nomenclature</li> </ul> Write short notes (on any two) <ul style="list-style-type: none"> <li>• co-enzymes</li> </ul>		✓			
Explain the steps of Citric acid cycle. Discuss its energetics? Describe the glycolysis pathway of glucose metabolism along with its energetic?			✓		
Write short notes <ul style="list-style-type: none"> <li>• <math>\beta</math>-oxidation</li> </ul>				✓	
Write short notes <ul style="list-style-type: none"> <li>• Gluconeogenesis</li> <li>• Protein synthesis</li> </ul>					✓

student has to write it to submit within a week and each question is mapped with CO's. So the students will be able to understand course outcome of particular subject.

### SAMPLE OF MAPPING BETWEEN ASSIGNMENT AND COURSE OUTCOMES

#### MAPPING BETWEEN COURSE OUTCOME AND ASSIGNMENTS

<b>C207.5 Pharmacognosy -IV</b>						
Assignment	CO1	CO2	CO3	CO4	CO5	CO6
Q-1 Explain the role of medicinal and aromatic plants	✓					



## **Quality of Students projects**

### **Initiatives**

- The student's projects are selected in line with Vision, Mission and Program Outcomes.
- Students are provided with brief idea of various fields for selecting the project ideas.
- The list of previous year projects are displayed at notice board which ensures no repetition to project work and also encourages students to enhance the previous works.
- The faculty encourage students to participate in project exhibitions. The project exhibition is aimed to provide common platform to exhibit their innovations and their work towards excellence in latest technology.
- The faculty encourage students to publish their project work in reputed journals/conferences.

### **Impact Analysis**

- Skills or abilities of students is improved.
- Knowledge on various aspects of project management are developed.
- Confidence level of the students was boosted.
- Improved teamwork spirit.
- Implementation and development of the project for the benefit of profession and society.
- Document preparation and presentation.



### **Identification of projects and allocation methodology to Faculty Members. (3)**

- A Staff Council Meeting of Principal with all faculty members is organized in every semester for the selection of supervisor for the Minor and Major Project of students.
- Students meet their respective supervisor to explore their idea for the choice of Project title.
- Faculty analyze the interest of the students in different areas of research.
- After the selection of Supervisor a meeting is again organize for the finalization of research topic with the help of scientific/research committee and Principal.
- After the overall steps project topic decides and allocated to the students.

### **Types and relevance of the projects and their contribution towards attainment of PO's.**

- All the academic projects of UG students are mapped to Pos.
- Each project is evaluated with internal makrs and are graded according to their project quality and with their contribution towards attainment of PO's.

### **Process for monitoring and evaluation**

- A Institutional Scientific/Research Committee meeting with all faculty members is organized for the discussion about the progress of projects.
- Institutional Scientific/Research Committee monitors regularly for the progress of projects and assure the quality of projects.
- Students deliver presentation about the progress of their projects periodically.
- Institutional Scientific/Research Committee evaluate their projects.

### **Process to assess individual and team performance**

- Project progress presentation is conducted once in every month by the each students and their respective guide, a professor cadre faculty, an associative professor.



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- Each student is assessed on the basis of their presentation skill set to deliver the seminar, explain the concept and way to make project assess team to understand their work.
- Each individual's performance is purely based on their project presentation and the viva voice and progress work.

### Quality of completed projects/working prototypes

- The students submit the dissertation and delivers the final presentation in front of external examiner appointed by the university.
- The projects are evaluated and are awarded internal assessment marks for maximum 100 and are graded according to the project contribution towards attainment of PO's.

### PARTICULARS OF MAJOR PROJECTS UNDERTAKEN BY THE STUDENTS OF B. PHARM. 8TH SEMESTER (2017-18)

Student Name	Title	Relevance To POs	Relevance To PEOs
<b>Aakriti</b>	Medicinal Plant of Addiction	PO1, PO2, PO3, PO4	PEO1, PEO2, PEO3
<b>Aman chandrakar</b>	Magnetic Nanoparticles	PO1, PO3,	PEO1, PEO2,
<b>Ankush Kumar Gupta</b>	“Instrumental and Application of HPLC”	PO1, PO2, PO11	PEO1, PEO2, PEO3
<b>Ashish Verma</b>	Role of Biomarkers for Diagnosis of Diabetes	PO1, PO2, PO3, PO4	PEO1, PEO2, PEO3
<b>Ashu Panjwani</b>	Chemo Preventive Potential of herbs	PO1, PO2, PO3, PO11	PEO1, PEO2
<b>Bhagwat Prasad Sahu</b>	HARBELLIUM	PO1, PO4, PO11	PEO1, PEO2
<b>Bhawana Sahu</b>	Nanogel –A Potential Carrier system	PO1, PO3,	PEO1, PEO2, PEO3



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<b>Bhumika Verma</b>	A Comprehensive report on Targeted Drug Delivery System With special Emphasis in carrier	PO1, PO2, PO4,	PEO1, PEO2, PEO3
<b>Chandrakant Yadav</b>	Some Plant having Antidiabetics activity in homoeopathy Medicine	PO1, PO2, PO3, PO11	PEO1, PEO2, PEO3
<b>Deepa Sahu</b>	Medicinal Plant used in Treatment of Diabetes	PO1, PO2, PO3	PEO1, PEO2
<b>Deepak Dhiwar</b>	A Short and snappy review on Trraditional india herbs Tinospora cordifolia (wild ) Miers ex Hook .F.& Thoms	PO1, PO2, PO3, PO11	PEO1, PEO2
<b>Deepak Kumar</b>	Some Plant having Antidiabetics activity in homoeopathy Medicine	PO1, PO2, PO11	PEO1, PEO2
<b>Deepak Kumar Sahu</b>	A Review on Herbal Plant Used in Hypertension	PO1, PO2, PO11	PEO1, PEO3
<b>Dhanendra Kurre</b>	A Review on Phytosome as Drug delivery System	PO1, PO3, PO4,	PEO1, PEO2, PEO3
<b>Dhanraj pater</b>	“Diabetes Complications and it’s Management Busing Plants Polyphenols “	PO1, PO2, PO4	PEO1, PEO2, PEO3
<b>Dikeshwar Sahu</b>	“Hypertension & its Treatment :	PO1, PO2, PO3	PEO1, PEO2
<b>Domeshwari Upadhyay</b>	Medicinal Plant used in Treatment of Diabetes	PO1, PO2, PO3, PO4	PEO1, PEO2
<b>Gajpal Singh Banjare</b>	Some Plant having Antidiabetics activity in homoeopathy Medicine	PO1, PO3,	PEO1, PEO2, PEO3
<b>Ghanshyam Patel</b>	Hypertension	PO1, PO2, PO3,	PEO1, PEO2
<b>Gulshan Kumar</b>	Role of 5HT receptor in Addiction	PO1, PO2, PO4, PO11	PEO1, PEO2, PEO3
<b>Girish Kumar Sonwani</b>	Sustained Release formulation A Review	PO1, PO2, PO3	PEO1, PEO2
<b>Gulshan Kumar Naik</b>	Vildagliptin Combination Therapy	PO1, PO2, PO11	PEO1, PEO3
<b>Harish Bhardwaj</b>	Minimization of side Effect of Chemotherapy	PO1, PO4,	PEO1, PEO2, PEO3





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<b>Harisharan</b>	A Review on role of inflammatory mediators	PO1, PO3,	PEO1, PEO2, PEO3
<b>Indranil Nandi</b>	Herbal Home Remedies used for Brain Tumor	PO1, PO2, , PO11	PEO1, PEO2, PEO3
<b>Jaikishan rathia</b>	A Review on Anabolic Steroids	PO1, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>KailashKumar</b>	Emerging Approaches of Liposomal Drugs Delivery system	PO1, PO2, PO3,	PEO1, PEO2, PEO3
<b>Kamesh Yadu</b>	“Recent Advancement of Granulation Technology “	PO1, PO3, PO4, PO11	PEO1, PEO2
<b>Karishma Lalwani</b>	A Review on Natural Antioxidant	PO1, PO3,	PEO1, PEO2
<b>Khemraj Yadu</b>	Chemicals and Techniques Which Enhance the Penetration of Transdermal Drugs Delivery system “	PO1, PO2, , PO11	PEO1, PEO3
<b>Krishna Choudhary</b>	Role of DPP-IV in Diabetes	PO1, PO3, PO4, PO11	PEO1, PEO2
<b>Lakhan Lal Kashyap</b>	Biosensors	PO1, PO2, PO3, PO11	PEO1, PEO2, PEO3
<b>Love Kumar Sonkar</b>	Nanoparticles for OESTEOARTHRITIS	PO1, PO2, PO4	PEO1, PEO2, PEO3
<b>Lukeshwari Sahu</b>	UV-VISIBLE SPECTROSCOPY	PO1, PO2, PO3,	PEO1, PEO2
<b>Mahendra Kumar</b>	Some Plant Having Ant diabetic activity in Homeopathic medicine -	PO1, PO3, PO11	PEO1, PEO2, PEO3
<b>Madhu Todar</b>	Nanoparticles for OESTEOATHRITIS	PO1, PO2, PO3	PEO1, PEO3
<b>Manisha Jogi</b>	Herbal Drugs for skin Diseases	PO1, PO2, PO4,	PEO1, PEO2, PEO3
<b>Masoom Kerketta</b>	Diabetes and its management	PO1, PO2, PO4, PO11	PEO1, PEO2, PEO3
<b>Murli Kumar Sahu</b>	Antioxidant	PO1, PO2, PO3, PO4	PEO1, PEO2, PEO3
<b>N Diksha</b>	A Concise overview towards the herbal approach for the treatment	PO1, PO3, PO11	PEO1, PEO3



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	of Leucoderma		
<b>Nagesh Kumar</b>	Herbal Plant Used for Diabetes	PO1, PO3, PO11	PEO1, PEO2, PEO3
<b>Neeraj Karmakar</b>	Hydropathy :A New Insight of Treatment	PO1, PO4,	PEO1, PEO2
<b>Nidhi Aditya</b>	Sustained Release Drugs Delivery System	PO1, PO3, PO11	PEO1, PEO2, PEO3
<b>Pallavi yadav</b>	A Review on Implant as Drug Delivery system	PO1, PO2, PO3, PO4	PEO1, PEO2, PEO3
<b>Pawan Dewangan</b>	Formulation of Bitter Drugs	PO1, PO2, PO4, , PO11	PEO1, PEO2
<b>Peetamber Ram</b>	A synopsis on Microencapsulation	PO1, PO2, PO3, PO4	PEO1, PEO2, PEO3
<b>Poonam Verma</b>	“A Recent Advancement on Granulation Technique”	PO1, PO2, PO3,PO4,	PEO1, PEO2, PEO3
<b>Prachi Dewangan</b>	Diabetics Mellitus	PO1, PO2, PO3	PEO1, PEO2, PEO3
<b>Prakash Kumar</b>	Diuretics –its Effects and side Effects”	PO1, PO2, PO4,	PEO1, PEO2, PEO3
<b>Pranjali Verma</b>	“Addiction”	PO1, PO2, PO4, PO11	PEO1, PEO2, PEO3
<b>Priya Thakur</b>	Targeted Drug Delivery system special reference to liposome	PO1, PO2, PO4,PO3 PO11	PEO1, PEO2, PEO3
<b>Rajat Harbans</b>	New approaches to the treatment of latent tuberculosis	PO1, PO2, PO3,PO4	PEO1, PEO2, PEO3
<b>Ravi Kumar</b>	Recent Advancements in HPLC	PO1, PO2, PO3,	PEO1, PEO2, PEO3
<b>Rishabh Agrawal</b>	An overview on Novel Drug Delivery System and carriers Involved in it.	PO1, PO2, PO3,PO4	PEO1, PEO2, PEO3
<b>Sahajo Chouhan</b>	Basic Principle of NMR	PO1, PO2, , PO11	PEO1, PEO2, PEO3
<b>Sandeep Kaushik</b>	Migraine	PO1, PO2, PO11,PO4	PEO1, PEO2, PEO3
<b>Sanjay Kumar</b>	HARBELLIUM	PO1, PO2, PO3,PO11	PEO1, PEO2, PEO3



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<b>Sanjay Kumar Thakur</b>	Mediators in arthritis and inflammation	PO1, PO2, PO3, PO4,, PO11	PEO1, PEO2, PEO3
<b>Sarika Surywanshi</b>	“A Review on Recent Advances in Tablet Technology “	PO1, PO2, PO4, PO11	PEO1, PEO2, PEO3
<b>Sateesh Kumar gupta</b>	Instrumental and Application of HPLC”	PO1, PO2, PO3, PO4,,	PEO1, PEO2, PEO3
<b>Saurabh Sahu</b>	Project written on CANCER and Anticancer Drugs	PO1, PO2, PO3,	PEO1, PEO2, PEO3
<b>Shaheen Parveen</b>	Transdermal Drug Delivery System	PO1, PO2, PO3, PO11	PEO1, PEO2, PEO3
<b>Shariq Ahmed</b>	Recent Advancement in Burn Therapy	PO1, PO3,	PEO1, PEO2, PEO3
<b>Shivani Sharma</b>	A Review on Arthritis Disease and Various Treatment Approaches	PO1, PO2, PO3, PO4,, PO11	PEO1, PEO2, PEO3
<b>Shivansh Kumar Rai</b>	“Diabetes Mellitus “	PO1, PO3, PO11	PEO1, PEO3
<b>Shobha Sahu</b>	“Principle and Applications of Green Chemistry “	PO1, PO2, , PO4	PEO1, PEO2
<b>Somesh Agrawal</b>	A Review on Phytoconstituents in Arthritis	PO1, PO3, PO4,	PEO2, PEO3
<b>Somesh Raj</b>	A Review on study on Nanoparticles	PO1, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Sourabh Kumar Singh</b>	“Diabetes Mellitus “	PO1, PO2, PO3, PO4,, PO11	PEO1, PEO2, PEO3
<b>Suman Sahu</b>	A Review on Liposomal Drugs Delivery system	PO1, PO2, PO3, PO4,	PEO1, PEO2
<b>Supriya Sahu</b>	Recent Advances in Transdermal Drug Delivery system	PO1, PO2, PO4,	PEO1, PEO3
<b>Swati Borkar</b>	Systemic Lupus ERYTHROMATOSUS	PO1, PO2, PO4, PO11	PEO1, PEO2, PEO3
<b>Tejswi Sahu</b>	“Diabetes and it’s Management “	PO1, PO2, PO3, PO4,	PEO1, PEO2, PEO3
<b>Terisha Banshi</b>	Natural Antioxidants	PO1, PO2, PO3,	PEO1, PEO2, PEO3
<b>Tripti</b>	“A Wast Review on Antioxidant	PO1, PO2, PO3, PO11	PEO1, PEO3



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<b>Naurange</b>			
<b>Uttam Sahu</b>	A Report on project written on CANCER and ANTICANCER Drugs	PO1,PO3,PO4,	PEO1, PEO2, PEO3
<b>Vikas Netam</b>	Role of same Natural Bioactive compound in the Treatment of diabetes	PO1,PO3,PO4,PO11	PEO1, PEO2, PEO3
<b>Vikas Sahu</b>	“Solubility Enhancement techniques”	PO1, PO2, PO3,	PEO1, PEO2, PEO3
<b>Vivek Mandawi</b>	Chemical Penetration Enhancer for Transdermal Drug Delivery Systems	PO1, PO2, PO3,PO11	PEO2, PEO3
<b>Yogesh Dewangan</b>	Pathophysiology of cardio Vascular System	PO1, PO2, PO4,	PEO1, PEO2, PEO3
<b>Gourav Chhatija</b>	Natural Anticancer Drugs	PO1, PO2, PO3,PO4,	PEO1, PEO2, PEO3
<b>Riya Vaiswade</b>	Comprehensive Phrmacognostic abridgement of dregea Volibillis	PO1, PO2, PO3,PO4,	PEO1, PEO2, PEO3
<b>Kamini Verma</b>	A Review on Nanoparticles	PO1, PO2, PO3,PO4,	PEO1, PEO3
<b>Kamal Manglani</b>	General approach for the treatment of leucoderma	PO1, PO2, PO3,PO4,	PEO1, PEO2, PEO3
<b>Neha Baghel</b>	Nobel Approach to cross Blood Brain barrier	PO1, PO2, PO3,PO4,, PO11	PEO1, PEO2, PEO3
<b>Gurudayal</b>	“A Report on swine flu”	PO1, PO2, PO3,PO4,	PEO1, PEO2, PEO3
<b>Manisha Sahu</b>	Plant Used in Skin Disease	PO1, PO2, PO3,PO4,PO11	PEO1, PEO2
<b>Vikas Verma</b>	Diuretics –its Effects and side Effects”	PO1, PO2, PO3	PEO2, PEO3
<b>Naveen Sahu</b>	“Natural Antioxidant “	PO1, PO4,	PEO1, PEO2, PEO3
<b>Anand Kushawaha</b>	A Concise synopsis on Ethnobotanical documentation and quantitative tools for medicinal plant analysis	PO1, PO2, PO11	PEO1, PEO2, PEO3
<b>Jai Kishan</b>	“Natural herbs as Anticancer	PO1,PO2,PO4,	PEO1, PEO2,



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<b>Lalwani</b>	Drugs “		PEO3
<b>Annapurna Parhi</b>	Treatment strategies of skin Polishing	PO1, PO2, PO3, PO11	PEO1, PEO2, PEO3
<b>Geetika Soni</b>	Chemo Preventive Potential of herbs	PO1, PO2, PO3	PEO1, PEO3
<b>Jayprakash Sonkar</b>	Uses Herbal Drugs for Diabetes	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Rajneesh Kumar</b>	Recent Advances in Pulmonary Drug delivery system	PO1, PO2, PO3, PO4,	PEO1, PEO2, PEO3
<b>Sachin Keshari</b>	“Transdermal Drug Delivery Systems”	PO1, PO2, PO3, PO11	PEO2, PEO3
<b>Sanjay Kumar</b>	HARBELLIUM	PO1, PO2, PO3,	PEO1, PEO2, PEO3
<b>Subir Karmakar</b>	Principle of UV –VISIBLE Spectroscopy	PO1, PO2, PO4,	PEO1, PEO2, PEO3
<b>Yashmeet Chhabra</b>	Role of Nsaids in Alzheimer Disease	PO1, PO2, PO3, PO11	PEO1, PEO2, PEO3
<b>Harish Sahu</b>	A synopsis and implications of intellectual Property Rights (IPR) in Pharmaceutical industry	PO1, PO2, PO3, PO4	PEO1, PEO2
<b>Sawan Dhiwar</b>	Mediators in arthritis and inflammation	PO1, PO2, PO4	PEO1, PEO2, PEO3
<b>Shubham Das</b>	Medicinal Plant Used in the Treatment of Diabetes	PO1, PO3, PO4,	PEO1, PEO2, PEO3
<b>Shubham Khandelwal</b>	Summarizing Abridgment on Pathogenesis and Treatment of Leucoderma	PO1, PO3, PO4, PO11	PEO1, PEO3
<b>Yama</b>	A Review on Dullness of skin and its Treatment Strategies	PO1, PO2, PO3, PO4	PEO1, PEO2, PEO3

### PARTICULARS OF MAJOR PROJECTS UNDERTAKEN BY THE STUDENTS OF B. PHARM. 8TH SEMESTER (2016-17 )

Student Name	Title	Relevance To POs	Relevance To
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			PEOs
<b>Aayusee Sahu</b>	A REVIEW ON HISTORY OF ANTIDIABTIC DRUG	PO1, PO3, PO4	PEO1, PEO2
<b>Abha Rani</b>	A REVIEW ON COATING TABLET	PO1, PO2, PO3	PEO1, PEO2
<b>Abhishek Chandrakar</b>	A REVIEW ON ROLE OF GLUT-2 RECEPTOR IN DIABETES	PO1, PO2, PO4,	PEO1, PEO2, PEO3
<b>Ajay Kumar Fulwani</b>	ANTICANCER HERBAL DRUG AND THERE CHEMICAL EXTRACTION	PO1, PO2, PO11	PEO1, PEO2
<b>Akash Kumar Sao</b>	ROLE OF 5HT RECEPTORS IN HUMAN BODY	PO1, PO2, PO3,	PEO1, PEO2, PEO3
<b>Ankit Dhoke</b>	A REVIEW ON RECEPTOR	PO1, PO2, PO4	PEO1, PEO2
<b>Arvind Tirkey</b>	MICROEMULSION	PO1, PO3, PO11	PEO1, PEO2
<b>Ashutosh Dinkar</b>	HORMONAL REPLACEMENT THERAPY : A REVIEW	PO1, PO2, PO3, PO4	PEO1, PEO2, PEO3
<b>Avinash Dewangan</b>	MEDICINAL HERBS POSSESSING ANTIDIABETIC PROPERTIES	PO1, PO2, PO3,	PEO1, PEO2, PEO3
<b>Bhuneshwar Sahu</b>	HIGH PERFORMANCES LIQUID CHROMATOGRAPHY	PO1, PO2, PO3, PO11	PEO1, PEO2, PEO3
<b>Chandrakant Yadav</b>	CONTROL RELEASE DRUG DELIVERY SYSTEM	PO1, PO2, PO3, PO4	PEO1, PEO2
<b>Chandrakumar</b>	DETERMINATION OF PRELIMINARY PHYTOCHEMICAL AND ANTIOXIDENT ACTIVITY OF HERBAL ANTI – DIBETES FORMULATION	PO1, PO3, PO4,	PEO1, PEO2, PEO3
<b>Chetna Sahu</b>	NOVEL DRUG DELIVERY SYSTEM IN OPHTHALMIC DRUG DELIVERY	PO1, PO2, PO3, PO11	PEO1, PEO2
<b>Daneshwar Dewangan</b>	HISTORY OF ANTIDIABTIC DRUG	PO1, PO4,	PEO1, PEO2, PEO3



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<b>Deepak Kumar Bariha</b>	DRUNG INTERACTION ON ANTIBIOTICS; A REWIEW	PO1,PO3, PO11	PEO1, PEO2
<b>Deepak Mandal</b>	REVIEW ON NATURAL POLYMERS	PO1, PO2, PO3	PEO1, PEO2
<b>Deepankar Barman</b>	SUPPOSITORIE & SUPPOSITORIE MOULDING MACHINE	PO1, PO2, PO4	PEO1, PEO3
<b>Devanand Nirmlkar</b>	VACCINATION	PO1, PO2, PO3, PO4	PEO1, PEO2
<b>Dharmendra Bhardwaj</b>	ADVERSE EFFECT OF ANTICANCER DRUG	PO1, PO3,	PEO1, PEO2
<b>Dharnee Rathore</b>	A REWIEW ON ANTICANCER DRUG	PO1, PO2,PO4 PO11	PEO1, PEO2, PEO3
<b>Dushyant Dewangan</b>	RECENT APPROACHES FOR ENHANCING THE SOLUBILITY OF DRUG	PO1, PO2, PO3, PO4	PEO1, PEO2, PEO3
<b>Garima Kerketta</b>	A REWIEW ON CURRENT STUTE OF PHARMACEUTICAL GEL	PO1, PO2,PO3	PEO1, PEO2
<b>Harish Ratnesh</b>	UV VIS SPECTROSCOPY	PO1, PO2, PO3	PEO1, PEO2
<b>Hemant Sahu</b>	A REWIE ON RECENT ADVANCMET OF CONTROL DRUG DELIVERY SYSTEM	PO1, PO2,PO4	PEO1, PEO2, PEO3
<b>Himani Kanwar</b>	AREVIEW ONSEPARATION TECHNIQUES USED IN PHARMACEUTICAL SCIENCES	PO1, PO2, PO11	PEO1, PEO2, PEO3
<b>Himanshu</b>	REVIEW ON CAPSULE FILLING MACHINE	PO1, PO2	PEO1, PEO2
<b>Indraman Sahu</b>	POTENTIAL BIOMARKER FOR CANCER	PO1, PO3, PO11	PEO1, PEO2
<b>Jitendra Sahu</b>	DEPRESSION	PO1, PO2,PO3	PEO1, PEO2
<b>Kedarnath Dansena</b>	HERBAL PAIN RELEIF OIL	PO1,PO2, ,PO11	PEO1, PEO2
<b>Khemchand Dewangan</b>	HERBAL ANTIFUNGAL DRUGS	PO1,PO2,	PEO1, PEO2



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<b>Khilendra Kumar</b>	ASSESMENT OF PRELIMINARY PYTHOCHEMICAL&ANTIOXIDANT ESTIMATION OF CRUDE DRUGS USED IN FORMULATION FOR THE TRETMENT OF CANCER BY HERBAL MEDICINES	PO1,PO2, PO3,PO11	PEO1, PEO2, PEO3
<b>Khileshwar Nirmalkar</b>	HYPHENATED TECHNIQUES	PO1,PO4,	PEO1, PEO2
<b>Khirod Patel</b>	HISTORY DEVELOPMENT AND CHALLENGES OF ANTIFUNGAL DRUGS	PO1,PO2, PO3,PO4	PEO1, PEO2
<b>Kunal Chandrakar</b>	ALOEVERA MARKETED PRODUCT	PO1,PO2, PO11	PEO1, PEO2
<b>Kunjali Ram</b>	DRUG THERAPY IN DIEBETES MILLITUS	PO1, PO3,PO4	PEO1, PEO2
<b>Laxminarayan</b>	DIABETES MELLITUS	PO1,PO2, PO3,PO4	PEO1, PEO2
<b>Lilly</b>	A REWIEW ON TRADITIONAL HEALING SYSTEMS	PO1,PO2, PO4,	PEO1, PEO2, PEO3
<b>Lokesh Verma</b>	HERBAL ANTIFUNGAL DRUGS	PO1,PO2, PO3,	PEO1, PEO2
<b>Manish Janghel</b>	TUBERCULOSIS THE HIDDEN DISEASE	PO1,PO3, ,,PO11	PEO1, PEO2, PEO3
<b>Mithlesh Singh</b>	LOCAL ANAESTHETHIC DRUGS	PO1,PO2, PO3,	PEO1, PEO2,
<b>Nagendra Kumar</b>	MANUFACTURING OF TABLET AND THEIR PACKAGING	PO1,PO2, PO3,	PEO1, PEO2, PEO3
<b>Nagesh Kumar Ghoghare</b>	REWIEW ON MICROSPHERE	PO1,PO2, PO4,PO11	PEO1, PEO2, PEO3
<b>Narayan Hemnani</b>	ROLE OF STEM CELL IN CANCER AND CANCER THERAPY	PO1,PO3, PO4	PEO1, PEO2,
<b>Narayan Lal</b>	VACCINATION	PO1,PO2, PO3	PEO1, PEO2





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<b>Premshankar Sahu</b>	TABLET COATING	PO1,PO2,	PEO1, PEO2
<b>Priya Rawat</b>	HARBELLIUM	PO1,PO4,	PEO1, PEO2
<b>Pushpendra Kumar</b>	VARIOUS IN VIVO AND IN VITRO EXPERIMENTAL MODEL FOR DIABETES	PO1,PO2, PO3,	PEO1, PEO2
<b>Rahul Kumar Sharma</b>	A REWIEW ON TABLET COATING	PO1,PO2, PO4	PEO1, PEO2
<b>Rahul Kumar Singh</b>	A REWIE ON RECENT ADVANCMENT OF CONTROL DRUG DELIVERY SYSTEM	PO1,PO2,	PEO1, PEO2
<b>Rakhi Mishra</b>	AREVIEW ONSEPARATION TECHNIQUES USED IN PHARMACEUTICAL SCIENCES	PO1,PO2, PO3	PEO1, PEO2,PO3
<b>Renuka Verma</b>	A REWIEW ON ROLL OF MULTIVITAMIN AND MINERALS IN THE TREATMENT OF CANCER	PO1,PO2, PO3,PO11	PEO1, PEO2
<b>Rohan Nene</b>	A REWIEW ON PATHOPHYSIOLOGY AND PHARMACOLOGY OF DIABETES	PO1,PO2, PO3,	PEO1, PEO2, PEO3
<b>Ruchi Thakur</b>	A REWIEW ON SPECTROSCOPY	PO1,PO2, PO4	PEO1, PEO2
<b>Sakshi Tiwari</b>	A REWIEW ON AAS	PO1,PO3,	PEO1, PEO2
<b>Sakshi Tiwari</b>	A REWIEW ON PACKAGING OF TABLETS	PO1,PO4, PO11	PEO1, PEO2, PEO3
<b>Sameer Sharma</b>	TABLET PUNCHING MACHINE	PO1,PO2, PO3	PEO1, PEO2
<b>Sandeep Kumar Verma</b>	CANCER AND ITS TREATMENT	PO1,PO2, PO3,PO4	PEO1, PEO2, PEO3
<b>Sarita Sahu</b>	CURRENT STATUS OF PHARMACEUTICAL GEL	PO1,PO3,	PEO1, PEO2,
<b>Shivangi Das</b>	HERBAL COSMETICS	PO1,PO2, PO11	PEO1, PEO2, PEO3



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<b>Somesh Kumar Gupta</b>	TECHNOLOGY DEVELOPMENT FOR BITTER DRUGS	PO1,PO2, PO3	PEO1, PEO2, PEO3
<b>Somesh Kumar Verma</b>	TARGETED DRUG DELIVERY SYSTEM	PO1,PO2, PO4,	PEO1, PEO2, PEO3
<b>Sunita</b>	NEWER DRUG THERAPY OF DIABETES	PO1,PO3, PO11	PEO1, PEO2
<b>Vivek Sahu</b>	NEW DEVELOPMENTS IN VACCINES	PO1,PO4,	PEO1, PEO2
<b>Yogesh Singh</b>	ADVANCES IN TOOTHPESTE	PO1,PO2, PO3	PEO1, PEO2
<b>Yukta Verma</b>	BIOSENSORS-AN IMPORTANT BIOMEDICAL TOOL	PO1,PO2, PO3	PEO1, PEO2, PEO3
<b>Arvind Kumar Sahu</b>	STUDY OF PSEUDO TERNARY PHASE DIAGRAM AND FORMULATION OF MICROEMULSION	PO1,PO2, PO3,PO4	PEO1, PEO2, PEO3
<b>Beyant singh</b>	RECENT DEVELOPMENT PARENTERAL IN INJECTION 2010-17	PO1,PO2,	PEO1, PEO2, PEO3
<b>Divya Sahu</b>	RECENT DEVELOPMENT IN TABLET MANUFACTURING TECHNIQUES	PO1,PO2,	PEO1, PEO2, PEO3
<b>Leeladhar</b>	SOLVENT EVAPORATION TECHNIQUES	PO1,PO2, PO3	PEO1, PEO2
<b>Sonal Goyal</b>	HYPERTENSION	PO1,PO2, PO4	PEO1, PEO2, PEO3
<b>Anshu Kerketta</b>	A REVIEW ARTICLE ON CEPHALOSPORIN	PO1,PO3, PO11	PEO1, PEO2, PEO3
<b>Arti Tripathi</b>	SOLVENT SYSTEM FOR EXTRACTION AND ISOLATION OF PHYTOCONSTITUENTS/PHYTOCHEMICALS.	PO1,PO2, PO3,	PEO1, PEO2, PEO3
<b>Chandrashekhar</b>	TABLET PRESS	PO1,PO4,	PEO1, PEO2, PEO3



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<b>Gaushiya Mahtab</b>	HYPERTENSION	PO1,PO2, PO3	PEO1, PEO2
<b>Mukesh Tandi</b>	DRUGS INTERACTION IN ANTINEOPLASTIC AGENT	PO1, PO4,	PEO1, PEO2, PEO3
<b>Rahul Kumar</b>	HARBELLIUM	PO1,PO2, PO3	PEO1, PEO2
<b>Sonal Sharma</b>	ANTIFUNGAL AGENT	PO1,PO2, PO4	PEO1, PEO2
<b>Sukriti Kaushal</b>	POORLY -SOLUBLE PHYTOCONSTITUENT	PO1,PO2, PO3,	PEO1, PEO2, PEO3
<b>Sumit Kumar Agrawal</b>	SUSTAINED RELEASE OF TABLETS	PO1, PO3,PO11	PEO1, PEO2, PEO3
<b>Vikas Verma</b>	NEW DRUGS APPROVAL BY USFDA FOR LIVER DISEASE-2016	PO1,PO2, PO4	PEO1, PEO2, PEO3
<b>Khemraj Sahu</b>	CUBOSOME	PO1,PO2, PO3	PEO1, PEO2
<b>Jaishree Verma</b>	HERBOSOMES	PO1,PO2, PO3	PEO1, PEO2
<b>Asha Sahu</b>	HYPERTENSIVE DRUGS	PO1,PO4, PO11	PEO1, PEO2, PEO3
<b>Bhoj Ram</b>	HARBELLIUM	PO1,PO3,	PEO1, PEO2, PEO3
<b>Suraj Kumar Gupta</b>	IMPORTANCE OF HORMONES IN OUR BODY	PO1,PO2, PO4	PEO1, PEO2, PEO3
<b>Pinku Kosle</b>	A REVIEW ON PLANT ALKALOIDS	PO1,PO2, PO3	PEO1, PEO2
<b>Vivek KumaPatel</b>	ANTI ULCER DRUG	PO1,PO3, PO11	PEO1, PEO2, PEO3
<b>Ashutosh Gupta</b>	ANTICANCER HERBAL DRUGS	PO1,PO2, PO3,PO4,	PEO1, PEO2, PEO3
<b>Danesh Kumar Sao</b>	A REVIEW ON TLC	PO1,PO2, PO3,PO11	PEO1, PEO2, PEO3
<b>Mukesh Kumar</b>	ANTIDIABETIC MODELS	PO1,PO2, PO3	PEO1, PEO2
<b>Suraj Kumar Mairisha</b>	IN VITRO & VIVO EXPERIMENTAL METHODS OF DIABETES	PO1,PO2, PO3	PEO1, PEO2, PEO3
<b>Himanshu</b>	A REWIEW ON	PO1,PO2, PO3	PEO1, PEO2



<b>Nishad</b>	ANTIFUNGAL DRUGS		
<b>Azeem Khan</b>	PRILIMINARY PHYTOCHEMICAL SCREENING OF SOLANUM XANTHOCARPUM URGINEA MATITIMA AND CAPSICUM FRUTESCENS	PO1,PO2, PO3,PO4, PO11	PEO1, PEO2, PEO3

**PARTICULARS OF MAJOR PROJECTS UNDERTAKEN  
BY THE STUDENTS OF  
B. PHARM. 8TH SEMESTER (2015-16)**

Student Name	Title	Relevance To POs	Relevance to PEOs
<b>Krishna Kumar Sahu</b>	A Review On Nuclear Magnetic Resonance(NMR) Spectroscopy	PO1, PO4, PO11	PEO1 , PEO 2
<b>Anish Saifi</b>	A Review On Biomarkers In Diabetes	PO1, PO4, PO11	PEO1 , PEO 2
<b>Devesh Kumar Jaishwal</b>	Modulatory Effects Of Aegle Marmelos On Gentamycin-Induced Hepatotoxicity And Nephrotoxicity Strees In Rats	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Chandra Prakash Rajwade</b>	Evaluation Of Preliminary Phytochemical And Antioxidant Activity Of Herbal Antidiabetic Formulation Collected From Ambikapur (C.G.)	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Jhanak Lal Kudram</b>	Medicinal Plant Used In Treatment of Type2 Diabates	PO1, PO2, PO3, PO4, ,PO11	PEO1, PEO 2, PEO 3
<b>Aakash Kesharwani</b>	Preparation And Evaluation Of Hydroxypropyl Methylcellulose (H.P.M.C.) Based Gel	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Abhijeet Soni</b>	Modulatory Effects Of Aegle Marmelos On Gentamycin Induced Hepatotoxicity And Nephrotoxicity Strees In Rats	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Abhishek Sharma</b>	General Standardization & Microscopic Study Of	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2,



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	Endangered Plants Of Chhattisgarh		PEO 3
<b>Abhishek Shrivastava</b>	A Review On Molecular Mechanism Of Obesity	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Amit Kashyap</b>	A Review On Ayurvedic Formulation Of Vati & Gutika	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Ashendra Kumar</b>	Formulation And Evaluation Of Liposomal Drug Delivery Of Gatifloxacin	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Ashish Mahant</b>	A Review On Study On Pharmacology Of Ceftaroline	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Avinash Sharma</b>	A Review On Liposome: An Update	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Kishor Kumar Thakur</b>	Changing Scenario In Pharmacy Higher Education In India And Future Aspects	PO1, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Bhumika Guna</b>	Evaluation Of Antioxidant Property Of Methanolic Extract Of Plant Eclipta Alba	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Chhannu Nirmalkar</b>	A Review On Ayurvedic Formulation Of Churna	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Chitresh Verma</b>	Evaluation Of Preliminary Phytochemical Physiochemical And Antioxidant Activity Of Herbal Antidiabetic Formulation	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Deepak Chandravanshi</b>	A Drug Detailing On Ceftabiprole (Antibiotic Drug)	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Deepak Kumar Sahu</b>	Preparation And Evaluation Of Glipizide Tablet	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Diksha Chandrakar</b>	A Review On Herbal Formulation Used In Hypertension	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Gomeshwari Thakur</b>	Formulation & Evaluation Of Herbal Hair Pack : An Ecofriendly Process	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3



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<b>Hitesh Sahu</b>	Assesment Of Preliminary Phytochemical & Antioxidant Estimation Of Crude Drugs Used In Formulations For The Treatment Of Diabetes In Janjgir Champa District	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Jagriti Surojiya</b>	A Review On Prognosis Biomarker For Cardiov Ascular Disease	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Kedarnath</b>	Estimation Of Preliminary Phytochemical Physiochemical And Antioxidant Activity Of Herbal Antidiabetic Formulation Collected From Dist- Baloudabazar (C.G.)	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Khushboo Verma</b>	Study Of Pseudo Ternary Phase Diagram And Formulation Of Microemulsion	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Lalitmohan</b>	A Review On Herbal Plants Used In Skin Diseases	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Laxman Kashyap</b>	A Drug Detailing On Pregabalin	PO1, PO4, PO11	
<b>Madhu Sahu</b>	Review : Recent Advances In Vaccine Delivery System	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Mahendra Kumar Sahu</b>	A Review On Mass Spectrophotometer	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Manish Kumar Rathore</b>	Review On Floting Microsphere : Gastro Retention Floting Drug Delivery System (FDDS)	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Manrakhan</b>	A Review of Medical Plant With Antihypertensive Effect	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Manu Dewangan</b>	A Review On Biomarker For Cardiovascular Disease	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Meenakshee Gop</b>	Obesity & Its Molecular Mechanisms	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Moniza Nurez Khan</b>	Post Marketing Survellance	PO1, PO4, PO11	PEO1 , PEO 2,



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<b>Omesh Kumar Soni</b>	Herbal Drug Standardization And Harmonization Of Laboratories Methodologies For The Detection Of Antioxidant Activity Of Andrographis Paniculata (Kalmegh)	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Pankaj Chandrakar</b>	Priliminary Phytochemical Screening Of Solanum Xanthocarpum Urginea Maritima And Capsicum Frutescens	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Pradeep Sarkar</b>	Diabetes : A Review	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2,
<b>Pranav Pachouri</b>	Study Of Preliminary Phytochemical And Antioxidant Activity Of Herbal Antidiabetic Formulation Collected From Village – Amleshwar Raipur(C.G.)	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Pranay Sen</b>	A Review On Standrdization Of Herbal Drugs	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Preeti Sahu</b>	Study Of Pseudo Ternary Phase Diagram And Formulation Of Microemulsion	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Priyanka Morewala</b>	Transdermal Patches: A Recent ApproachTo Advancements in Drug Delivery Through Skin	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Purandhar Choudhary</b>	A Review On Neurotransmitter – Types And Their Function	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Pushpendra Singh Verma</b>	Preparation And Evaluation Of Sodium Alginate Based Gel	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Rajendra Kumar</b>	Study Of Psuedoternary Phase Diagram And Formulation Of Microemulsion	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Rajesh Kumar</b>	Priliminary Phytochemical Screening Of Solanum	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2,



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	Xanthocarpum Maritima And Frutescens	Urginea Capsicum		PEO 3
<b>Dipesh Verma</b>	Study Of Phytochemical Antioxidant Activity Of Herbal Antidiabetic Formulation Collected From Ambikapur (C.G.)	Preliminary And	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Ranvijay Pratap Singh</b>	Mixed Microemulsion	Surfactant	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Raseshwar Benerjee</b>	Modulatory Effects Of Aegle Marmelos On Cisplatin Induced Hepatotoxicity And Nephrotoxicity Strees In Rats		PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Rohit Raj Yadav</b>	A Review On Liposome:An Update		PO1, PO4, PO11	PEO1 , PEO 2,
<b>Roshan Lal Sahu</b>	Ethanomedicinal Plants Used To Treat Bone Fracture in Chhatishgarh		PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Salman Khan</b>	Comparative Evaluation Of Different Brands Of Fol ic Acid Tablets		PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Saraswati Sahu</b>	Review ON UV Visible Spectroscopy		PO1, PO4, PO11	PEO1 , PEO 2,
<b>Shekhar Singh Dewangan</b>	Product Detailing Of Omeprazole		PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>Shubham Chandrakar</b>	Modulatory Effects Of Aegle Marmelos On Cisplatin- Induced Hepatotoxicity And Nephrotoxicity Strees In Rats		PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO 3
<b>S. Venkat Ram</b>	A Review On Magnetic Nanoparticles		PO1, PO4, PO11	PEO1 , PEO 2,
<b>Sindhu Sagar Choudhary</b>	Online Pharmacy		PO1, PO4, PO11	PEO1 , PEO 2,
<b>Suman Patel</b>	A Review On Current Status Of Pharmaceutical Gel		PO1, PO4, PO11	PEO1 , PEO 2,





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<b>Suman Sahu</b>	Therapeutic Benefits Of Herbal Nutraceuticals	PO1, PO4, PO11	PEO1 , PEO 2, PEO3
<b>Sunil Kumar</b>	A Review On Multiparticulate System For Colon Targeted Drug Delivery System	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Suraj Kashyap</b>	Determination Of Preliminary Phytochemical And Antioxidant Activity Of Herbal Antidiabetic Formulation	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO3
<b>Khushbu Sao</b>	A Review On Chemicals And Techniques Which Enhance The Penetration Of Transdermal Drug Delivery System	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Swapna Singh</b>	A Review On Role Of Biomarkers For Diagnosis Of Diabetes	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Mr. Tejeshwar Verma</b>	Pathophysiology Of Wound Healing	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2,
<b>Umashankar Patel</b>	A Review On Liposome: An Update	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Varun Verma</b>	Pharmaceutical Dosage From (Jellies)	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2,
<b>Vikash</b>	Study Of Preliminary Phytochemical Physiochemical And Antioxidant Activity Of Herbal Antidiabetic Formulation Collected From Dist- Balouda bazar (C.G.)	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO3
<b>Vikram Pratap</b>	A Overview Of Natural Plant Antioxidant: Formulation And Analysis	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Yogesh Kumar Sahu</b>	A Review On Liposome An Update	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Yogesh Kumar Sahu</b>	General Standardization & Microscopic Study Of Endangered Plants Of Chhattisgarh	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO3
<b>Yogeshwari Yadu</b>	Role Of Some Natural	PO1, PO2, PO3,	PEO1 , PEO 2,



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	Bioactive Compound IN the Treatment Of Diabetes	PO4, PO11	
<b>Prachi Gurudiwan</b>	A Prospective Review On Microsphere	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Ravi Shankar Markam</b>	Online Pharmaceutical Mobile Apps	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Sudhir Kumar Kathane</b>	Digital Pharmaceutical Marketing	PO1, PO4, PO11	PEO1 , PEO 2, PEO3
<b>Surabhi Sahu</b>	High Performance Liquid Chromatography	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Vishwajeet Vishwas</b>	Heparin Of Drug Delivery And Targetting	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2,
<b>Vishal Kesharwani</b>	A Review On Biomarkers of Diabetes	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Akash Kesharwani</b>	Estimation Of Preliminary Phytochemical And Antioxidant Activity Of Herbal Antidiabetic Formulation	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO3
<b>Chhabilal Nayak</b>	Impact Of New Regulation On Clinical Trial In India	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Chiranjeev Singh</b>	Formulation And Evaluation Of Herbal Paste For Skin Disorder	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO3
<b>Devnarayan Ram Rajwade</b>	Review On Microsphere	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Harendra Kumar Nayak</b>	A Drug Detailing on Ranitidine	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO3
<b>Nandkishor Rautrai</b>	Muscular Dystrophy And Its Remedies	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO3
<b>Nasreen Bano</b>	A Review On Biomarkers For Diabetes	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Pooja Narwani</b>	Polimer Utility In Drug Delivery System- In Over View	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO3



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<b>Sanjay Gupta</b>	General Standardization & Microscopic Study Of Endangered Plants Of Chhattisgarh	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO3
<b>Yogesh Kumar Ramteke</b>	A Review On Complete Pharmacology Of Antihypertensive & Antidiabetic Drugs	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Dilip Kumar Nag</b>	Sustained Release Tablets	PO1, PO4, PO11	PEO1 , PEO 2,
<b>Shani Bareta</b>	Modulatory Effects Of Aegle Marmelos On Gentamycin Induced Hepatotoxicity And Nephrotoxicity Strees In Rats	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO3
<b>Vandana Dewangan</b>	Antidipression Activity Of Some Drug By Forced Swim Test (Animal Model)	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO3
<b>Sushmita Sharma</b>	Apoptosis Contributes to the Delaying of Healing in Diabetic Patient	PO1, PO2, PO3, PO4, PO11	PEO1 , PEO 2, PEO3

### PARTICULARS OF MAJOR PROJECTS UNDERTAKEN BY THE STUDENTS OF B. PHARM. 8TH SEMESTER (2014 –2015)

Name of Student	Title of Project	Relevance To POs	Relevance to PEOs
<b>Anjali Gaute</b>	Anti Microbial Cream Azadirachta indica	PO1, PO2, PO3, PO11	PEO1, PEO2, PEO3
<b>Avinash Naurang</b>	Anti-inflammatory Activity of Calcium Channel Blockers	PO1, PO2, ,PO11	PEO1, PEO2, PE O3
<b>Barkha Bhagwani</b>	Therapeutic Benefits of Neutraceutical	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Bhupendra Negi</b>	Some plants having Antidiabetic activity in Homeopathic Medicine – Review	PO1, PO4, PO11	PEO1, PEO2,
<b>Birendra Kumar</b>	Comparative Evaluation of few marketed product of Metformin Hydrochloride tablets	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3



## Columbia Institute of Pharmacy, Raipur

<b>Hemlata Dewangan</b>	Screening of Sickle Cell Anaemia in Chhattisgarh	PO1, PO4, PO11	PEO1, PEO2,
<b>Hukmeshwar Negi</b>	Evaluation of Transdermal Gel	PO1, PO4, PO11	PEO1, PEO2, PEO3
<b>Khushboo Sen</b>	Praparation & Characterization of Floating Microsphere containing Bioactive compound	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Mamta Tirkey</b>	Extraction & Isolation of Piperine from Pipur Nigrum Linn	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Meena Kumari Chouhan</b>	Comparative Evaluation of Different brands of Diclofenac Sodium Tablets	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Nepal Patel</b>	Preparation & Evaluation of Paracetamol tablet using natural polymer	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Payal Pandey</b>	Nano Emulsion – A Brief Review	PO1, PO4, PO11	PEO1, PEO2,
<b>Prafulla Jaiswal</b>	Evaluation & Evaluation of Sustained Release tablets	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Preamsagar Patel</b>	Preparation & Characterization of Floating Microspheres containing Bioactive compound	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Priya Shaw</b>	Method development of Abafungin by derivative UV-Visible Spectrophotometric Method	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Ravi Chandrakar</b>	Preparation & Characterization of Floating Microspheres containing Bioactive compound	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Rupesh Kumar Yadav</b>	Preparation & Evaluation of Polyherbal Formulation of some regional plant	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Shubham Jaiswal</b>	Evaluation of Antidiabetic Activity of Aqueous Extract of L1 Sample	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3



## Columbia Institute of Pharmacy, Raipur

<b>Shweta Ramkar</b>	A project on Formulation & Evaluation of Pulsatile Drug Delivery System using different Polymers	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Sumit Kumar Kerketta</b>	A Review on “Causes & Prevention of Obesity”	PO1, PO4, PO11	PEO1, PEO2,
<b>Sunita Verma</b>	Evaluation of Antidiabetic Activity of Aqueous Extract of L6 sample	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Suresh Kumar Ghritlahare</b>	Evaluation of Antidiabetic Activity of Aqueous Extract of L2 Sample	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Tilashmi Baghel</b>	Assay of Metformine HCL IP & Dissolution	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Tripti Dewangan</b>	Formulation & Evaluation of Pulsatile Drug Delivery System by using different polymers	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Uttam Kumar Yadav</b>	Herbal Plants used in Diabetes	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2,
<b>Aashay Das</b>	Antimicrobial & Weight Gaining Activity of Moringa Oleifera Leaves	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2,
<b>Aditee Kesharwani</b>	Evaluation of Antidiabetic Activity of Aqueous Extract of L4 Sample	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Akash Kumar Manna</b>	Evaluation of Transdermal Gel	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Dakeshwar Kumar</b>	A Review on Transdermal Drug Delivery System	PO1, PO4, PO11	PEO1, PEO2,
<b>Garima Sahu</b>	Evaluation of Ant diabetic Activity of Aqueous Extract of L3 Sample	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Geetika Sharma</b>	Formulation of Micro Emulsion of Ciprofloxacin by using non- ionic Surfactant	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Gireeraj Bhojar</b>	Preparation of Micro Emulsion	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3



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<b>Govind Ram</b>	Marketing Survey of Diabetic Drug	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Jai Kumar Naik</b>	Complication of Diabetes Mellitus Based on foot Ulcer	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Jyoti Dewangan</b>	Formulation of Microemulsion of Ciprofloxacin by using non-ionic surfactant	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Jyotsana</b>	Formulation and Evaluation of Anti Acne Cream	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Kamlesh Ghansham Sahu</b>	A Review on "Ethanopharmacological importance of Chhattisgarh originated Raphnus Sativus	PO1, PO4, PO11	PEO1, PEO2,
<b>Kamleshwar Sahu</b>	Formulation of Tablet using Natural Mucilage	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Kamleshwari Bharadwaj</b>	Management of Peptic Ulcer, its Etiology, Pathogenesis & Current Trends in Therapy	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Kishan Lal Bharti</b>	Formulation of Tablet using Mucilage	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Lekha Verma</b>	Some plant having Antidiabetic activity in Homeopathic Medicine – Review	PO1, PO4, , PO11	PEO1, PEO2,
<b>Lokesh Kumar Vaishnav</b>	Comparative study of different brands if Diclofenac Sodium Tablets	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Mohammad Shafiq Ansari</b>	Formulation & Evaluation of Microencapsule	PO1, PO2, PO3, PO4, , PO11	PEO1, PEO2, PEO3
<b>Mukesh Katakwar</b>	Formulation and characterization of Sustained Release tablets of Glimepirid by using synthetic and natural polymers	PO1, PO2, PO3, PO4, , PO11	PEO1, PEO2, PEO3
<b>Narendra Sahu</b>	Review plants for Antihypertensive & Antiasthamatic	PO1, PO4, PO11	PEO1, PEO2,
<b>Pooja Kewat</b>	Extimation of different	PO1, PO2, PO3,	PEO1, PEO2,



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	brands of Paracetamol Tablet	PO4, PO11	PEO3
<b>Praveen Kumar Markande</b>	Management of Diabetes & Treatment from Herbal Plants	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Rakesh Kumar Chandrakar</b>	Herbal Plants used in Diabetes	PO1, PO2, PO3, PO4, , PO11	PEO1, PEO2, PEO3
<b>Rakesh Nagwani</b>	A Review on “Ethanopharmacological Study of Cassia Tora	PO1, PO4, PO11	PEO1, PEO2,
<b>Rameshwar Sahu</b>	Spectrophotometric Estimation of Amoxicillin Trihydrate of marketed Tablets	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Sandeep Kumar Chandrawanshi</b>	Evaluation of Transdermal Gel	PO1, PO4, PO11	PEO1, PEO2, PEO3
<b>Shweta Dutta</b>	Manufacturing of Scented White Phenyl for small scale industry	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Sumit Chhabra</b>	Formulation and Evaluation of Ketoprofen Sustained Release Tablet	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Sunder Lal Chandravanshi</b>	A Natural Anti-inflammatory Aloe Vera Face Wash Great for Sensitive Skin	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Suraj Ojha</b>	Ethnopharmacology of Herbal Drug used in Chhattisgarh	PO1, PO4, PO11	PEO1, PEO2, PEO3
<b>Surekha Sahu</b>	A project on Formulation & Evaluation of Pulsatile Drug Delivery System using different Polymers	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Umabharati Satya</b>	The Review on Ethanopharmacological Significance of Fenugreek.	PO1, PO4, PO11	PEO1, PEO2,
<b>Urmila</b>	Ethnomedicinal Survey of Black Pepper, Gokhru & Giloy.	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2,
<b>Dugesh Kumar</b>	Spectrophotometric Estimation of Amoxicillin Trihydrate of marketed	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3



Tablets			
<b>Himani Thakur</b>	Extraction, Isolation and Study the Rheological Property of Cassia Tora Mucilage Powder	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Shiv Kumar Bharadwaj</b>	Comparative Evaluation of Different Brands of Folic Acid Tablets	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Deepa Dehari</b>	Method development of Abafungin by Derivative UV-Visible Spectrophotometric Method	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Umesh Kumar Tiwari</b>	Comparative Evaluation of different brands of Metformin Hydrochloride Tablets	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Chandresh Kumar Patil</b>	Formulation of tablets using Natural Mucilage	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Gaurav Giri Goswami</b>	Comparative Evaluation of different brands of folic acid tablets	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Dwarika Jharia</b>	Analytical Evaluation of $\beta$ -lactam	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Gayatri Verma</b>	Preparation & Scientific Evaluation of Anti Diabetic formulation	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3
<b>Deneshwar Kumar Sahu</b>	Treatment of Stress	PO1, PO2, PO3, PO4, PO11	PEO1, PEO2, PEO3

### Best Project Evaluation Scheme

- Innovations recognize the need for lifelong learning.
- Contemporary issues, organization of the report.
- Listening to and answering questions.
- Publications and internal and external marks.





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Name of the Students	Project Title	Relevance to POs
<b>2017-18 (Best Seminar/Presentation)</b>		
<b>Indranil Nandi</b>	Herbal Home Remedies used for Brain Tumor	PO1,PO2, PO11
<b>Love Kumar Sonkar</b>	Nanoparticles for OESTEOARTHRITIS	PO1, PO2, PO4
<b>N Diksha</b>	A Concise overview towards the herbal approach for the treatment of Leucoderma	PO1,PO3, PO11
<b>Neeraj Karmakar</b>	Hydropathy :A New Insight of Treatment	PO1,PO4, PO10
<b>Shaheen Parveen</b>	Transdermal Drug Delivery System	PO1,PO2, PO3,PO11
<b>2016-17 (Best Seminar/Presentation)</b>		
<b>Aayusee Sahu</b>	A REWIEW ON HISTORY OF ANTIDIABTIC DRUG	PO1, PO3, PO4
<b>Indraman Sahu</b>	POTENTIAL BIOMARKER FOR CANCER	PO1, PO3, PO11
<b>Kedarnath Dansena</b>	HERBAL PAIN RELEIF OIL	PO1,PO2, PO10,PO11
<b>Narayan Hemnani</b>	ROLE OF STEM CELL IN CANCER AND CANCER THERAPY	PO1,PO3, PO4
<b>Sakshi Tiwari</b>	A REWIEW ON PACKAGING OF TABLETS	PO1,PO4, PO11
<b>2015-16 (Best Seminar/Presentation)</b>		
<b>Ashendra Kumar</b>	Formulation And Evaluation Of Liposomal Drug Delivery Of Gatifloxacin	PO1, PO2, PO3, PO4, PO11
<b>Devesh Kumar Jaishwal</b>	Modulatory Effects Of Aegle Marmelos On Gentamycin- Induced Hepatotoxicity And Nephrotoxicity Strees In Rats	PO1, PO2, PO3, PO4, PO11
<b>Chitresh Verma</b>	Evaluation Of Preliminary Phytochemical, Physiochemical And Antioxidant Activity Of Herbal Antidiabetic Formulation	PO1, PO2, PO3, PO4, PO11
<b>Pranav Pachouri</b>	Study Of Preliminary Phytochemical And Antioxidant Activity Of Herbal Antidiabetic Formulation Collected From Village – Amleshwar Raipur(C.G.)	PO1, PO2, PO3, PO4, PO11
<b>Suraj Kashyap</b>	Determination Of Preliminary Phytochemical And Antioxidant Activity Of Herbal Antidiabetic Formulation	PO1, PO2, PO3, PO4, PO11
<b>2014-15 (Best Seminar/Presentation)</b>		
<b>Priya Shaw</b>	Method development of Abafungin by derivative UV-Visible Spectrophotometric Method	PO1, PO2, PO3, PO4, PO11
<b>Tripti Dewangan</b>	Formulation & Evaluation of Pulsatile Drug Delivery System by using different polymers	PO1, PO2, PO3, PO4, PO11
<b>Sumit Chhabra</b>	Formulation and Evaluation of Ketroprofen Sustained Release Tablet	PO1, PO2, PO3, PO4, PO11
<b>Rameshwar Sahu</b>	Spectrophotometric Estimation of Amoxicillin Trihydrate of marketed Tablets	PO1, PO2, PO3, PO4, PO11



## Columbia Institute of Pharmacy, Raipur

<b>Premsagar Patel</b>	Preparation & Characterization of Floating Microspheres containing Bioactive compound	PO1, PO2, PO3, PO4, PO11
<b>2013-14 (Best Seminar/Presentation)</b>		
<b>Bhavana Deshmukh</b>	Development of Quality Control Parameter of Hingwashtak Churna	PO1, PO2, PO3, PO4, PO11
<b>Kumendra Sahu</b>	Evaluation of Anti Diabetic Potential of Pleurotus Ostreatus by using invitro Enzyme assay	PO1, PO2, PO3, PO4, PO11
<b>Reema Verma</b>	Development and Characterization of Topical Phyto- Formulation for antifungal Activity	PO1, PO2, PO3, PO4, PO11
<b>Poonam Sahu</b>	Formulation and evaluation of Metformin HCl Sustained Release Tablet by using natural Polymer Fenugreek Seeds.	PO1, PO2, PO3, PO4, PO11
<b>Ranjita Halder</b>	Preparation & Evaluation of Herbal Face Powder	PO1, PO2, PO3, PO4, PO11

**Table 1: Best Presentation by the Student of their project**

### List of the students who are published paper/received award

Sl. No.	Name of Student	Year
1	Payal Singh	2013
2	Hemlata Dewangan	2014
3	Omesh Soni	2015
4	Pranav Pachouri	2015
5	Sakshi Tiwari	2016
6	Charul Lautre	2017

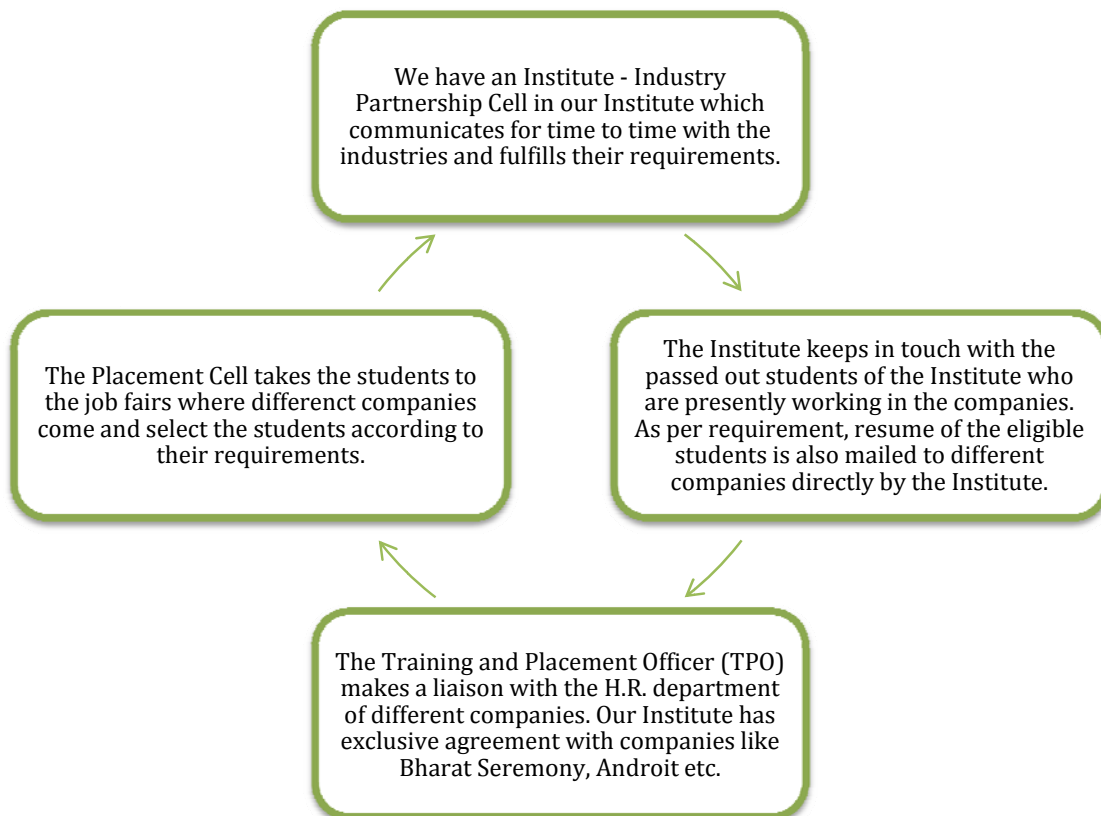
### Justification

A project work assigned to students covers all the Pos.

### Initiatives related to Industry and/or Hospital interaction



## Columbia Institute of Pharmacy, Raipur



- **Industry supported laboratories (5)**

Laboratory of CIP	Name of Industrie's supports to the Lab
Cell Line lab	Bharat Serum & Vaccines Limited
Pharmacology Lab	House Hold Pharmaceutical Limited

- **Industry involvement in the program design and partial delivery of any regular courses for students**  
MOU's was done with industries to emphasize on –
  1. Internship
  2. Project Workshop for Students
  3. Industrial Visits
  4. Students Specific Training

### LIST OF CONDUCTED WORKSHOP DURING THE ASSESSMENT YEAR



## Columbia Institute of Pharmacy, Raipur

YEAR	TITLE	RESOURCE PERSON	NUMBER OF STUDENTS PARTICIPATED
2014-15	Recent Advances in drug delivery system in pharma industry.	Mr. Devendra Dewangan	70
2015-16	Advancement in Flash Chromatography	Mr. Dilip Padhi	100
2016-17	Problem analysis in pharma ingrediante.	Dr. Hemendra Singh Singh Chouhan	100
2016-17	In-vitro cell line techniques for drug discovery and development	Dr. Renu Bhatt	100
2017-18	Principles and Application of Analytical instruments for Pharmaceutical Analysis	Dr. Kamal Shah	100
2017-18	Hands on training on working with cancer cell lines for preliminary screening of chemopreventive agent	Dr. Naveen Vishvakarma	50

- **Hospital involvement in the program like collaborative initiatives with the hospitals etc.**
  - Institute has the MOU with the Sanjeevani CBCC USA Cancer Hospital, Pachpedi Naka, Raipur.
  - Hospital trains the students of final year into different department of the hospital i.e. pharmacy, clinical.
  - Institute promotes the students to undergo the training from the hospital.



**Number of Students undergo training in hospitals**

Year	Hospital	Number of Students attended training
2017-18	Sri Balaji Multispeciality hospital Mowa	15
	Sanjeevani CBCC USA Cancer Hospital, Pachpedi Naka, Raipur.	15
	Dr. Bhimrao Ambedkar Medical College Hospital Raipur	20
2016-17	Sri Balaji Multispeciality hospital Mowa	15
	Sanjeevani CBCC USA Cancer Hospital, Pachpedi Naka, Raipur.	20
	Dr. Bhimrao Ambedkar Medical College Hospital Raipur	20
2015-16	Sri Balaji Multispeciality hospital Mowa	12
	Sanjeevani CBCC USA Cancer Hospital, Pachpedi Naka, Raipur.	15
	Dr. Bhimrao Ambedkar Medical College Hospital Raipur	22
2014-15	Sri Balaji Multispeciality hospital Mowa	22
	Sanjeevani CBCC USA Cancer Hospital, Pachpedi Naka, Raipur.	18
	Dr. Bhimrao Ambedkar Medical College Hospital Raipur	14

**Initiatives related to skill Development programs/industry internships/summer training**

**Industrial training/tours for students**

**Initiatives-**

- Institute makes their efforts to organize seminars/workshops/ motivational lectures for the skill developments of the students.
- It is mandatory for every students of B. Pharm. VI semester to undergo one month training in an Industry for firsthand knowledge of profession.

**Implementation-** A list of students, their summer industrial training for the last three years is listed below. The industries covered are: formulations, and biological products. A list of students undergone skill development program in various pharmaceutical industries is also included.



## Columbia Institute of Pharmacy, Raipur

### List of the Seminar/Conferences/Workshops/Staff Development Programme Conducted

Title of the Seminar/SDP/Conference	Funding Agency	Scheme	Co-ordinator/ Convenor/ Organizing Secretary	Date
<a href="#"><u>Utilization &amp; Commercialization of Ethnomedicine of Chhattisgarh</u></a>	AICTE	Seminar	Dr. Amit Roy	27th -28th March 2010
<a href="#"><u>Importance of Documentation and Standardization of Ethnomedicinal Formulation of Chhattisgarh</u></a>	AICTE	Seminar	Dr. Amit Roy	1st - 2nd May 2011
<a href="#"><u>Need of Standardization of Indegenous Medicinal Formulation of Chhattisgarh</u></a>	CGCOST	Seminar	Dr. Amit Roy	3rd-4th May 2011
<a href="#"><u>Innovation in Pharmacy Education, Research &amp; Profession in the Indian Context</u></a>	AICTE	SDP	Dr. Amit Roy	20th-30th June 2011
<a href="#"><u>Expection of Industries from Academics</u></a>	CGCOST	Seminar	Dr. Amit Roy	14th-15th January 2012
<a href="#"><u>Development, Valuation &amp; Standardization of Classic Indian Formulation</u></a>	AICTE	SDP	Dr. Amit Roy	6th-17th May 2012
<a href="#"><u>Globalization of Indian Herbal Formulations - Bolltlenecks &amp; Solutions</u></a>	AICTE	SDP	Dr. Amit Roy	8th-19th February 2013
<a href="#"><u>Cuurent Development for Modernization of Indigenous Herbal Formulation</u></a>	ICMR	Seminar	Mr. Sanjib Bahadur	16th - 17th March 2013
<a href="#"><u>Advances in Molecular Pharmaceutics, Nanomedicine, Nanobiotechnologies &amp; Drug Research</u></a>	DBT	Seminar	Dr. Rishi Paliwal	17th March 2013
<a href="#"><u>Rules &amp; Precinsts of IPR and Regulatory Affairs for Indian Drugs</u></a>	CGCOST	Seminar	Dr. Shiv Shankar Shukla	29th - 30th Sept 2013
<a href="#"><u>Investigation of Ethano-Medicinal Plants used by ethnic group of</u></a>	DST	Seminar	Dr. Ravindra Pandey	19th - 20th October 2013



## Columbia Institute of Pharmacy, Raipur

<u><b>Chhattisgarh</b></u>				
<u><b>Emerging Trends and Innovations in Drug Delivery and Pharmaceutical Sciences</b></u>	AICTE	Seminar	Dr. Rishi Paliwal	20th October 2013
<u><b>Recent Developments for Modernization of Indian Traditional Formulations</b></u>	AICTE	Seminar	Dr. Ravindra Pandey	24th -25th January 2014
<b>Agricultural Practices of Medicinal Plant</b>	CIP	Workshop	Dr. Ravindra Pandey	12 <sup>th</sup> & 13 <sup>th</sup> September 2014
<u><b>Frontiers in Pharmaceutical Science &amp; Research, Theme “Cutting Edge Technology in New Drug Discovery &amp; Drug Delivery System”</b></u>	SERB DBT CGCOST	International Conference	Mr. Sanjib Bahadur	11th – 12th October 2014
<b>Care and Handling of Experimental Animals</b>	CIP	Workshop	Dr. Trilochan Satapathy	9 <sup>th</sup> & 10 <sup>th</sup> Apr 2015
<b>Recent Advances in Drug Delivery System.</b>	CIP	FDP	Mr. Suman Saha & Mr. Sanjib Bahadur	8 <sup>th</sup> to 10 <sup>th</sup> Oct 2015
<u><b>Bridging Gap Between Academic and Pharmaceutical Industry</b></u>	CGCOST	National Seminar	Dr. Ram Kumar Sahu	5th - 6th March, 2016
<b>Recent Advances in Pharmaceutical Analysis.</b>	CIP	FDP	Dr. Shiv Shankar Shukla & Dr. Vijay Kumar Singh	20 <sup>th</sup> to 22 <sup>nd</sup> Oct 2016
<b>National workshop on "Principles and Application of Analytical instruments for Pharmaceutical Analysis</b>	-	Workshop	Ms. Swati Dubey	18 <sup>th</sup> & 19 <sup>th</sup> Aug 2017
<b>In-vitro cell line techniques for drug discovery and development</b>	-	Workshop	Dr. Vijay Kumar Singh	8 <sup>th</sup> & 9 <sup>th</sup> Sep. 2017
<b>“Frontier in Pharmaceutical Sciences and Research” Theme – “Advances in Development, Delivery Systems and Clinical</b>	ICMR, CCOST, JPES, SERB	International Seminar	Prof. Amit Roy	23 <sup>rd</sup> & 24 <sup>th</sup> September 2017



## Monitoring of Drugs”

### **Impact Analysis –**

1. Gain Valuable Work Experience
2. Have an Edge in the Job Market
3. Apply classroom knowledge
4. Gain first hand knowledge of pharmaceutical industry
5. Gain Confidence.

### **Student Feedback on Initiative**

After the visit students are provided with feedback form on initiative taken. Feedback is considered to do further improvement for the same.





# Columbia Institute of Pharmacy, Raipur



## COLUMBIA INSTITUTE OF PHARMACY

(Affiliated to CSVTU, Bilai)

Approved by AICTE (New Delhi)

Near Vidhansabha, Village - Tekari, Raipur (C.G.) Website - www.columbiaiop.ac.in  
Ph. No. - 07721-266302/303, 0771-6456853 E-mail - cipraipur@gmail.com

### INDUSTRIAL VISIT FEEDBACK FORM

Name	Bhumiya Veema		Branch	B. Pharmacy
Class & Semester	7 <sup>th</sup> sem.			

Note: Answer the following questions by marking (✓) against the choice answer.

- Was Visit technically helpful to you?  
Yes (✓) No ( )
- Was the industrial visit coordinator co-operative with you?  
Yes (✓) No ( )  
Somewhat ( ) Prefer not to say ( )
- Was the industrial visit educational?  
Yes (✓) No ( )
- Did the industrial visit was helpful for the achievement of program outcome of your pharmacy course?  
Yes (✓) No ( )  
Somewhat ( ) Prefer not to say ( )
- Were you satisfied with the type of service you received in the whole tour of industrial visit?  
Very Much (✓) Not Much ( )  
No Comments ( )
- Do you advise to arrange this type of visits in future?  
Yes (✓) No ( )
- Any suggestions that you would like to give us to improve our services.

Analysis by:  
*[Signature]*

Member Program Assessment Committee

Sign *[Signature]*



### Continuous Evaluation Process

Continuous evaluation is a practice in CIP, keeping the spirit of semester system. Sufficient tests and assessments are counter-productive. The main components of evaluation are described below.

**Theory evaluation:** In a semester period (90 days of instruction), two examinations are conducted with a gap of 40-45 days. Examination is of 1 hour, it gives greater opportunity to express. The pattern is short notes type and long essay type. Assignments are given to students which are corrected and feedback are given. Attendance regularity, active interaction in the classroom are given due credit in the evaluation. This makes the student engaged in the academic activity throughout the semester.

**Practical Evaluation:** In the laboratory setup, the experiments are conducted as per the list provided by the affiliating University (CSVTU). A lot of time is spent for acquiring practical skills. The continuous evaluation provides the opportunity to practice the skill. It normally involves feedback and corrective action, completing the given task in a given time. This is the informal evaluation. The writing of the practical records, submission and evaluation are done regularly. Viva voce is conducted at the end of each experiment (every day) is another important feature of evaluation.

#### **Evaluation:**

The Sessional examination dates are mentioned in the Institutional academic calendar and Institutional annual calendar.

The examination committee prepares the schedule of –

1. Examination Time Table must be displayed on Examination Notice Board, 10 days prior to exam.
2. Comparative attendance must be submitted, 4days before the exam.
3. Students with attendance less than 75% are detained and same is informed to their parents.
4. Submission of question paper in prescribed format, 2days before the exam.
5. Submission of marks list, with in 15days.
6. Sessional Marks displayed in the Examination's Notice Board.
7. Student's performances are discussed in classrooms in order to update their subject comprehension.



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8. Feeding of marks in sessional register.
9. Last date for submission of internal assessment marks to university is also indicated in the Institutional academic calendar.
10. Faculties evaluate the student's performance through exams.

**Effectiveness:** The above process demonstrates that the evaluation is a continuous process in our Institute. We also conduct feedback survey for the above parameters.

### **Quality of Experiments**

**The coordination between theory and practical knowledge is necessary for the technical upgradation of the students. Institutes follow the syllabus provided by the CSVTU (affiliated university). Institute maintain the quality of experiments in following manner:**

- The laboratories are spacious and equipped with the necessary infrastructure that facilitate for the smooth conduct of experiments.
- The Institute has the necessary equipments, instruments and apparatus as prescribed the Pharmacy Council of India. (List Enclosed in Criteria 6)
- The faculties are well qualified and experienced for handling the practical/labs work and effective learning.
- The faculties are continuously striving and actively involved in research work, which is translated into the practicals.
- The simulation experiments for the pharmacology are conducted regularly using established software. The animal experiments conducted by PG students are being exposed to B. Pharm. students for enhanced learning of pharmacology.
- Lab manual of all subjects made available to every respective laboratory for smoothly conduction of experiments.
- Sufficient number of systems is maintained in the computer lab to enable that each student can get one terminal, so as to work independently in a lab.
- SOPs are also prepared of every instrument.
- Faculties implement the SOPs whenever required.
- Academic Committee and IDMC assure the quality of experiments.



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Based on the perspective and setup, the experimental course work is correlated to the program outcomes, while rating the equipment and performance of the students.

### CENTRAL INSTRUMENTATION ROOM

Sl. No.	Name of Instruments	Manufacturer	Model	Existence of SOPs	Existence of Log Book
1.	High Performance Liquid Chromatography	Younglin	SP930D	Yes	Yes
2.	Fourier Transform Infrared Spectrophotometer	Shimadzu	IR affinity 1	Yes	Yes
3.	UV Spectrophotometer	Shimadzu	UV-1800	Yes	Yes
4.	UV Spectrophotometer	Electronic India (EI)	1372	Yes	Yes
5.	Flash Chromatography	Buchi	Pump Manager C615 Pump Manager C601	Yes	Yes
6.	Viscometer	Brookfield	Model-RVT	Yes	Yes
7.	Lyophilizer (Freeze Dryer)	Assembled By Multitech Scientific Instruments	Temperature - 40°C	Yes	Yes
8.	Digital Balance	Keroy	Capacity Min 10mg	Yes	Yes
9.	Digital Balance	Shimadzu	Mg sensitivity	Yes	Yes
10.	pH Meter	Electronic India (EI)	111	Yes	Yes
11.	Digital Potentiometer	Electronic India (EI)	118	Yes	Yes
12.	Conductivity Meter	Electronic India (EI)	611	Yes	Yes
13.	Probe Sonicator	PCI	PCI 750F	Yes	Yes
14.	Bath Sonicator	PCI		Yes	Yes
15.	Digital Turbidity Meter	Electronic India (EI)	331	Yes	Yes
16.	Digital Flame Photometer	Esico	381	Yes	Yes
17.	Biochemistry Analyser	Electronic India (EI)	Chem 400	Yes	Yes
18.	Digital Photo	Teknik	-	Yes	Yes



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	Colorimeter				
19.	Digital Microscope	Coslab	HL-22	Yes	Yes
20.	Fluorescence Microscope	Labomed	Lx 400 eFL	Yes	Yes
21.	Digital Fluorometer	EI	681	Yes	Yes

### DEPARTMENT OF PHARMACEUTICS

#### Pharmaceutics Lab

##### Equipment:

Sl. No.	Name	Minimum Required Nos.	Available Nos.	Working Yes / No
1.	Mechanical stirrers	20	20	Yes
2.	Homogenizer	10	10	Yes
3.	Digital balance	05	05	Yes
4.	Microscopes	10	10	Yes
5.	Stage and eye piece micrometers	15	15	Yes
6.	Steam distillation still	01	01	Yes
7.	Standard sieves, sieve no. 8, 10, 12, 22, 24, 44, 66, 80	10 sets	10 Sets	Yes
8.	Tablet punching machine	01	01	Yes
9.	Capsule filling machine	01	01	Yes
10.	Ampoule washing machine	01	01	Yes
11.	Ampoule filling and sealing machine	01	01	Yes
12.	Tablet disintegration test apparatus IP	02	02	Yes
13.	Tablet dissolution test apparatus IP	01	01	Yes
14.	Monsanto's hardness tester	02	02	Yes
15.	Pfizer type hardness tester	01	01	Yes
16.	Friability test apparatus	01	01	Yes
17.	Magnetic stirrer, 500ml and 1 liter capacity with speed control	05 EACH 10	05 Each 10	Yes
18.	Digital pH meter	01	01	Yes
19.	BOD Incubator	02	02	Yes
20.	Bulk Density Apparatus	02	02	Yes
21.	Conical Percolator (glass/ copper/ stainless steel)	10	10	Yes
22.	Mechanical stirrer with speed regulator	02	02	Yes



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### Apparatus:

Sl. No.	Name	Minimum required Nos.	Available Nos.	Working Yes / No
1	Ostwald's viscometer	20	20	Yes
2	Stalagmometer	20	20	Yes
3	Desiccator*	10	10	Yes
4	Suppository moulds	20	20	Yes
5	Buchner Funnels (Small, medium, large)	05 each	05 Each	Yes
6	Filtration assembly	01	01	Yes
7	Permeability Cups	05	05	Yes
8	Andreason's Pipette	05	05	Yes
9	Lipstick moulds	10	10	Yes

### Machine Room

Sl. No.	Name	Minimum Required Nos.	Available Nos.	Working Yes / No
1.	Tray dryer	01	01	Yes
2.	Ball mill	01	01	Yes
3.	Sieve shaker with sieve set	01	01	Yes
4.	Double cone blender	01	01	Yes
5.	Autoclave	01	01	Yes
6.	Steam distillation still	01	01	Yes
7.	Vacuum Pump	01	01	Yes
8.	Tablet punching machine	01	01	Yes
9.	Capsule filling machine	01	01	Yes
10.	Ampoule washing machine	01	01	Yes
11.	Ampoule filling and sealing machine	01	01	Yes
12.	Tablet disintegration test apparatus IP	02	02	Yes
13.	Tablet dissolution test apparatus IP	01	01	Yes
14.	Ointment filling machine	01	01	Yes
15.	Collapsible tube crimping machine	01	01	Yes
16.	Tablet coating pan	01	01	Yes
17.	All purpose equipment with all accessories	01	01	Yes
18.	Aseptic Cabinet	01	01	Yes



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19.	Bottle washing Machine	01	01	Yes
20.	Bottle Sealing Machine	01	01	Yes
21.	Humidity Control Oven	01	01	Yes
22.	Liquid Filling Machine	01	01	Yes
23.	Precision Melting point Apparatus	01	01	Yes
24.	Distillation Unit	01	01	Yes

### DEPARTMENT OF PHARMACOLOGY

Sl. No.	Name	Minimum required Nos.	Available Nos.	Working Yes / No
1	Microscopes	20	20	Yes
2	Haemocytometer with Micropipettes	20	20	Yes
3	Sahli's haemocytometer	20	20	Yes
4	Hutchinson's spirometer	01	01	Yes
5	Spygmomanometer	10	12	Yes
6	Stethoscope	10	24	Yes
7	Permanent Slides for various tissues	One pair of each tissue Organs and endocrine glands One slide of each organ system	Available	Yes
8	Models for various organs	One model of each organ system	Available	Yes
9	Specimen for various organs and systems	One model for each organ system	Available	Yes
10	Skeleton and bones	One set of skeleton and one spare bone	Available	Yes
11	Different Contraceptive Devices and Models	One set of each device	Available	Yes
12	Muscle electrodes	01	01	Yes
13	Lucas moist chamber	01	01	Yes
14	Myographic lever	01	01	Yes
15	Stimulator	01	01	Yes
16	Centrifuge	01	01	Yes
17	Digital Balance	01	01	Yes
18	Physical /Chemical Balance	01	01	Yes
19	Sherrington's Kymograph Machine / Polyrite	10	44	Yes
20	Sherrington Drum	10	44	Yes
21	Perspex bath assembly (single unit)	10	44	Yes
22	Aerators	10	20	Yes
23	Computer with LCD	01	01	Yes
24	Software packages for experiment	01	01	Yes



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<b>25</b>	Standard graphs of various drugs	Adequate number	<b>Available</b>	<b>Yes</b>
<b>26</b>	Actophotometer	01	<b>01</b>	<b>Yes</b>
<b>27</b>	Rotarod	01	<b>01</b>	<b>Yes</b>
<b>28</b>	Pole climbing apparatus	01	<b>01</b>	<b>Yes</b>
<b>29</b>	Analgesiometer (Eddy's hot plate and radiant heat methods)	01	<b>01</b>	<b>Yes</b>
<b>30</b>	Convulsiometer	01	<b>01</b>	<b>Yes</b>
<b>31</b>	Plethysmograph	01	<b>01</b>	<b>Yes</b>
<b>32</b>	<b>Digital pH meter</b>	<b>01</b>	<b>01</b>	<b>Yes</b>

### Apparatus:

Sl. No.	Name	Minimum required Nos	Available Nos.	Working Yes / No
<b>1</b>	Folin-Wu tubes	60	<b>60</b>	<b>Yes</b>
<b>2</b>	Dissection Tray and Boards	10	<b>10</b>	<b>Yes</b>
<b>3</b>	Haemostatic artery forceps	10	<b>10</b>	<b>Yes</b>
<b>4</b>	Hypodermic syringes and needles of size 15,24,26G	10	<b>10</b>	<b>Yes</b>
<b>5</b>	<b>Levers, cannulae</b>	<b>20</b>	<b>20</b>	<b>Yes</b>

### DEPARTMENT OF PHARMACOGNOSY

Sl. No.	Name	Minimum required Nos.	Available Nos.	Working Yes / No
<b>1</b>	Microscope with stage micrometer	20	<b>20</b>	<b>Yes</b>
<b>2</b>	Digital Balance	02	<b>02</b>	<b>Yes</b>
<b>3</b>	Autoclave	02	<b>02</b>	<b>Yes</b>
<b>4</b>	Hot air oven	02	<b>02</b>	<b>Yes</b>
<b>5</b>	B.O.D. incubator	01	<b>01</b>	<b>Yes</b>
<b>6</b>	Refrigerator	01	<b>01</b>	<b>Yes</b>
<b>7</b>	Laminar air flow	01	<b>01</b>	<b>Yes</b>
<b>8</b>	Colony counter	02	<b>02</b>	<b>Yes</b>
<b>9</b>	Zone reader	01	<b>01</b>	<b>Yes</b>
<b>10</b>	Digital pH meter	01	<b>01</b>	<b>Yes</b>





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11	Sterility testing unit	01	01	Yes
12	Camera Lucida	20	20	Yes
13	Eye piece micrometer	20	20	Yes
14	Incinerator	01	01	Yes
15	Moisture balance	01	01	Yes
16	Heating mantle	20	20	Yes
17	Flourimeter	01	01	Yes
18	Vacuum pump	02	02	Yes
19	Micropipettes (Single and multi channeled)	05	05	Yes
20	Micro Centrifuge	01	01	Yes
21	<b>Projection Microscope</b>	<b>01</b>	<b>01</b>	<b>Yes</b>

### Apparatus:

Sl. No.	Name	Minimum required Nos.	Available Nos.	Working Yes / No
1	Reflux flask with condenser	20	20	Yes
2	Water bath	20	20	Yes
3	Clavengers apparatus	10	10	Yes
4	Soxhlet apparatus	10	10	Yes
6	TLC chamber and sprayer	10	10	Yes
7	<b>Distillation unit</b>	<b>01</b>	<b>01</b>	<b>Yes</b>

### DEPARTMENT OF PHARMACEUTICAL CHEMISTRY

Sl. No.	Name	Minimum required Nos.	Available Nos.	Working Yes / No
1	Hot plates	05	05	Yes
2	Oven	03	03	Yes
3	Refrigerator	01	01	Yes
4	Analytical Balances for demonstration	05	05	Yes
5	Digital balance 10mg	10	10	Yes



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	sensitivity			
6	Digital Balance (1mg sensitivity)	01	01	Yes
7	Suction pumps	06	06	Yes
8	Muffle Furnace	01	01	Yes
9	Mechanical Stirrers	10	10	Yes
10	Magnetic Stirrers with Thermostat	10	10	Yes
11	Vacuum Pump	01	01	Yes
12	Digital pH meter	01	01	Yes
13	Microwave Oven	02	02	Yes

### Apparatus:

Sl. No.	Name	Minimum required Nos.	Available Nos.	Working Yes / No
1	Distillation Unit	02	02	Yes
2	Reflux flask and condenser single necked	20	20	Yes
3	Reflux flask and condenser double / triple necked	20	20	Yes
4	Burettes	100	100	Yes
5	Arsenic Limit Test Apparatus	25	25	Yes
6	Nessler's Cylinders	50	50	Yes

### PHARMACEUTICAL BIOTECHNOLOGY

Sl. No.	Name	Minimum required Nos.	Available Nos.	Working Yes / No
1	Orbital shaker incubator	01	01	Yes
2	Lyophilizer (Desirable)	01	01	Yes
3	Gel Electrophoresis (Vertical and Horizontal)	01	01	Yes



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4	Phase contrast/Trinocular Microscope	01	01	Yes
5	Refrigerated Centrifuge	01	01	Yes
6	Fermenters of different capacity (Desirable)	01	---	---
7	Tissue culture station	01	01	Yes
8	Laminar airflow unit	01	01	Yes
9	Diagnostic kits to identify infectious agents	01	01	Yes
10	Rheometer	01	01	Yes
11	Viscometer	01	01	Yes
12	Micropipettes (single and multi channeled)	01 each	01 Each	Yes
13	Sonicator	01	01	Yes
14	Respinometer	01	01	Yes
15	BOD Incubator	01	01	Yes
16	Paper Electrophoresis Unit	01	01	Yes
17	Micro Centrifuge	01	01	Yes
18	Incubator water bath	01	01	Yes
19	Autoclave	01	01	Yes
20	Refrigerator	01	01	Yes
21	Filtration Assembly	01	01	Yes
22	Digital pH meter	01	01	Yes

### List of Instruments

### CELL CULTURE LABORATORY



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<b>Sl. No.</b>	<b>Name</b>	<b>Minimum required Nos.</b>	<b>Available Nos.</b>	<b>Working Yes / No</b>
<b>1</b>	Inverted Microscope	01	<b>01</b>	<b>Yes</b>
<b>2</b>	Microplate Reader	01	<b>01</b>	<b>Yes</b>
<b>3</b>	CO <sub>2</sub> Incubator	01	<b>01</b>	<b>Yes</b>
<b>4</b>	Bio Safety Cabinet	01	<b>01</b>	<b>Yes</b>
<b>5</b>	Deep Freezer	01	<b>01</b>	<b>Yes</b>
<b>6</b>	Rota Evaporator	01	<b>01</b>	<b>Yes</b>