



## **CRITERION 2**

### **TEACHING - LEARNING AND EVALUATION**

#### **2.6**

#### **Student Performance and Learning Outcome**

##### **2.6.2**

**Attainment of POs and COs are Evaluated**





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# CHANNABASWESHWAR PHARMACY COLLEGE (DEGREE)

Kava Road, Basweshwar Chowk, Latur-413512 (Maharashtra) Tel./Fax :- (02382) 243855

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## 2.6 Student Performance and Learning Outcome

### 2.6.2 Attainment of POs and COs are Evaluated

#### INDEX

Sr. No.	Document	Page Number
01	2.6.2: Attainment of POs and COs are evaluated	1-2
02	Evaluation Of Attainment Of Course Outcome	3
03	Attainment of Course Outcomes B. Pharm First Year First Semester	4
04	Attainment of Course Outcomes B. Pharm First Year Second Semester	5
05	Attainment of Course Outcomes B. Pharm Second Year Third Semester	6
06	Attainment of Course Outcomes B. Pharm Second Year Fourth Semester	7
07	Attainment of Course Outcomes B. Pharm Third Year Fifth Semester	8
08	Attainment of Course Outcomes B. Pharm Third Year Sixth Semester	9
09	Attainment of Course Outcomes B. Pharm Final Year Seventh Semester	10
10	Attainment of Course Outcomes B. Pharm Final Year Eighth Semester	11
11	Attainment of Course Outcomes Pharm D First Year	12
12	Attainment of Course Outcomes Pharm D Second Year	13
13	Attainment of Course Outcomes Pharm D Third Year	14
14	Attainment of Course Outcomes M.Pharm First Year First Semester (Pharmaceutics)	15

15	Attainment Of Course Outcomes M.Pharm First Year Second Semester (Pharmaceutics)	16
16	Attainment Of Course Outcomes M.Pharm First Year First Semester (Pharmaceutical Chemistry)	17
17	Attainment Of Course Outcomes M.Pharm First Year Second Semester (Pharmaceutical Chemistry)	18
18	Attainment Of Course Outcomes M.Pharm First Year First Semester (Pharmaceutical Quality Assurance)	19
19	Attainment Of Course Outcomes M.Pharm First Year Second Semester (Pharmaceutical Quality Assurance)	20
20	Attainment Of Course Outcomes M.Pharm First Year First Semester (Pharmacology)	21
21	Attainment Of Course Outcomes M.Pharm First Year Second Semester (Pharmacology)	22
22	Attainment Of Program Outcome B. Pharm Final Year	23
23	Program Outcomes Of B. Pharmacy, M. Pharmacy & Pharm D Program	24
24	Program Specific Outcomes (PSO) Of B. Pharmacy	25
25	Program Specific Outcomes (PSO) Of Pharm D	26
26	Program Specific Outcomes (PSO) Of M. Pharm	27-28
27	Sample Of Course Outcomes Programme: B. Pharm	29
28	Sample Of Course Outcomes Programme: Pharm D	30
29	Sample Of Course Outcomes Programme: M. Pharm	31
30	Sample B. Pharmacy Question Paper Linked With Course Outcomes	32
31	Sample Pharm D Question Paper Linked with Course Outcomes	33
32	Sample M. Pharmacy Question Paper Linked with Course Outcomes	34
33	Sample of Course Outcome-Program Outcome (CO-PO) Mapping Matrix B. Pharmacy	35
34	Sample of Course Outcome-Program Outcome (CO-PO) Mapping Matrix Pharm D	36
35	Sample of Course Outcome-Program Outcome (CO-PO) Mapping Matrix M. Pharmacy	37



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### 2.6.2: Attainment of POs and COs are evaluated

Pharmacy graduates must acquire comprehensive knowledge and essential skills to excel in diverse professional roles within the pharmaceutical sector. To excel in pharmacy practice, students need thorough training in both theoretical concepts and practical applications. The curriculum, crafted by the Pharmacy Council of India, places a strong emphasis on skill development, with an average of 70-75% of the coursework dedicated to practical components. This practical focus significantly contributes to the effective achievement of Course Outcomes (COs) and Program Outcomes (POs). In the university curriculum, which encompasses mandatory and elective courses, each subject is enriched with meticulously defined Course Outcomes (COs) developed by dedicated subject teachers. The assessment of COs in B. Pharm, Pharm D or M. Pharm programs is based on a scale from 0 to 3, corresponding to the students' marks in both internal and university examinations. This structured approach ensures a comprehensive evaluation of student performance across various pharmacy courses.

The measurement of PO attainment employs various methods, including both direct and indirect tools.

#### Assessment and evaluation methods:

The assessment method is the general type of tool to assess the Student Course Outcomes. The direct assessment and evaluation methods adopted are as follows:

- 1. Internal and External Written Examination (Long and Short Answer Questions):** Students undergo both internal and external written examinations, featuring a mix of long and short answer questions. This method assesses their theoretical knowledge and understanding.
- 2. Assignments (Multiple Choice Questions, Open Book Test, Close Book Test, Presentation, and Cognitive Skill-Based):** Assignments play a crucial role, incorporating diverse formats such as Multiple-Choice Questions, Open Book Tests, Close Book Tests, and presentations. This approach evaluates not only knowledge but also cognitive skills and application abilities.



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- 3. Practical Examination (Lab Report, Lab Work):** Practical examinations focus on assessing hands-on skills through lab reports and actual lab work. This ensures students can apply theoretical knowledge to practical scenarios.
- 4. Project Work (Literature Review, Research):** Project work involves comprehensive tasks such as literature reviews and research. This method evaluates students' ability to explore into in-depth subject matter and contribute to the academic discourse.

Through these systematic approaches, the organization ensures the fulfillment of both COs and POs, guided by precise assessment criteria.

### Attainment Criteria:

The culmination of the assessment process for Course Outcome (CO) attainment varies for different pharmacy programs. For B. Pharm and M. Pharm, the evaluation includes a correlation between internal examination performance and continuous assessment, with a weightage of 25%, complemented by external exam results carrying a heavier weightage of 75%. On the other hand, for Pharm D, the CO attainment is determined by correlating internal examination performance and continuous assessment, with a slightly higher weightage of 30%, along with external exam results holding a weightage of 70%. These distinct weightage allocations reflect the tailored evaluation strategies adopted for each pharmacy program to ensure a comprehensive and program-specific assessment of student achievement.

### Vmedulife software:

The teachers use Vmedulife software for teaching plans, mapping the CO-PO with course content, evaluation of the attainment levels etc. for all academic programmes.



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### EVALUATION OF ATTAINMENT OF COURSE OUTCOME

Attainment of Course Outcomes are evaluated as per the following table

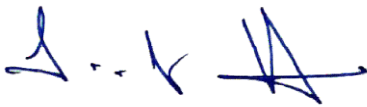
Method	Tools of Assessment	Programme	Weightage	% Contribution
Direct (Internal + External)	Internal Examination Marks, Continuous Assessment Marks	B. Pharm & M. Pharm	25%	80%
	Sessional Internal Assessment Marks			
	University End Semester Examination	Pharm D	75%	20%
	Internal Examination Marks, Continuous Assessment Marks			
University End Semester Examination		30%		
Indirect	Course Exit Survey			

### Attainment Criteria

Assessment Tools	Criteria	Level
Internal Assessment Sessional (Theory & Practical) Marks CIA	If more than 70% students score 50% and above marks	L3
	If more than 60-69% students score 50% and above marks	L2
	If more than 50-59% students score 50% and above marks	L1
External Assessment University End Semester Exam	If more than 70% students score 40% and above marks	L3
	If more than 60-69% students score 50% and above marks	L2
	If more than 50-59% students score 50% and above marks	L1

Level	L1	L2	L3
Score	01	02	03



  
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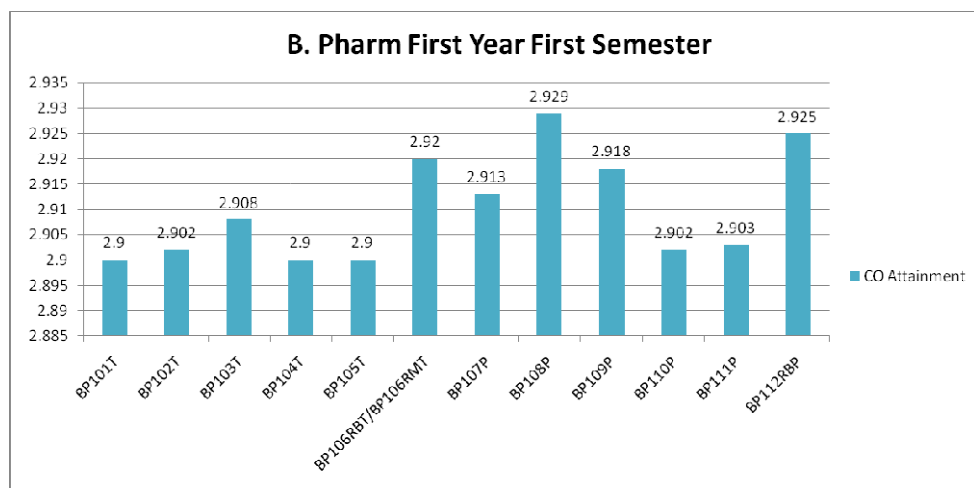
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## ATTAINMENT OF COURSE OUTCOMES

### B. PHARM FIRST YEAR FIRST SEMESTER

Course code	Name of the course	DA	80% of DA	IA	20% of IA	Total CO attainment
BP101T	Human Anatomy and Physiology I – Theory	3	2.4	2.500	0.500	2.900
BP102T	Pharmaceutical Analysis I – Theory	3	2.4	2.510	0.502	2.902
BP103T	Pharmaceutics I – Theory	3	2.4	2.540	0.508	2.908
BP104T	Pharmaceutical Inorganic Chemistry – Theory	3	2.4	2.500	0.500	2.900
BP105T	Communication skills – Theory	3	2.4	2.400	0.500	2.900
BP106RBT BP106RMT	Remedial Biology/Remedial Mathematics – Theory	3	2.4	2.410	0.520	2.920
BP107P	Human Anatomy and Physiology – Practical	3	2.4	2.432	0.513	2.913
BP108P	Pharmaceutical Analysis I – Practical	3	2.4	2.490	0.529	2.929
BP109P	Pharmaceutics I – Practical	3	2.4	2.475	0.518	2.918
BP110P	Pharmaceutical Inorganic Chemistry – Practical	3	2.4	2.510	0.502	2.902
BP111P	Communication skills – Practical	3	2.4	2.515	0.503	2.903
BP112RBP	Remedial Biology – Practical	3	2.4	2.495	0.525	2.925

\*DA: Direct Attainment Score, IA: Indirect Attainment Score



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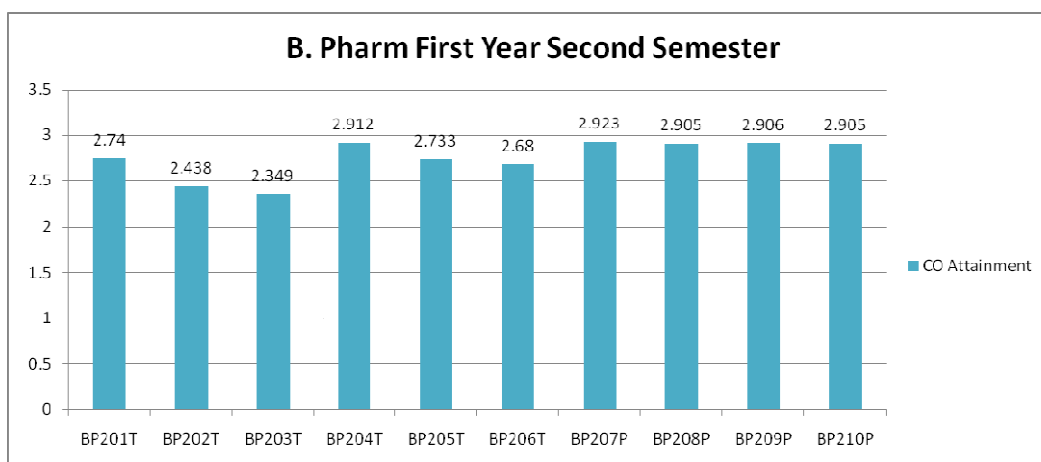
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## ATTAINMENT OF COURSE OUTCOMES

### B. PHARM FIRST YEAR SECOND SEMESTER

Course code	Name of the course	DA	80% of DA	IA	20% of IA	Total CO attainment
BP201T	Human Anatomy and Physiology II – Theory	2.8	2.240	2.500	0.500	2.74
BP202T	Pharmaceutical Organic Chemistry I – Theory	2.4	1.920	2.592	0.518	2.438
BP203T	Biochemistry – Theory	2.3	1.840	2.545	0.509	2.349
BP204T	Pathophysiology – Theory	3	2.4	2.564	0.512	2.912
BP205T	Computer Applications in Pharmacy – Theory	2.9	2.32	2.518	0.503	2.733
BP206T	Environmental Sciences – Theory	2.7	2.16	2.600	0.520	2.680
BP207P	Human Anatomy and Physiology II –Practical	3	2.4	2.618	0.523	2.923
BP208P	Pharmaceutical Organic Chemistry I – Practical	3	2.4	2.525	0.505	2.905
BP209P	Biochemistry – Practical	3	2.4	2.530	0.506	2.906
BP210P	Computer Applications in Pharmacy –Practical	3	2.4	2.527	0.505	2.905

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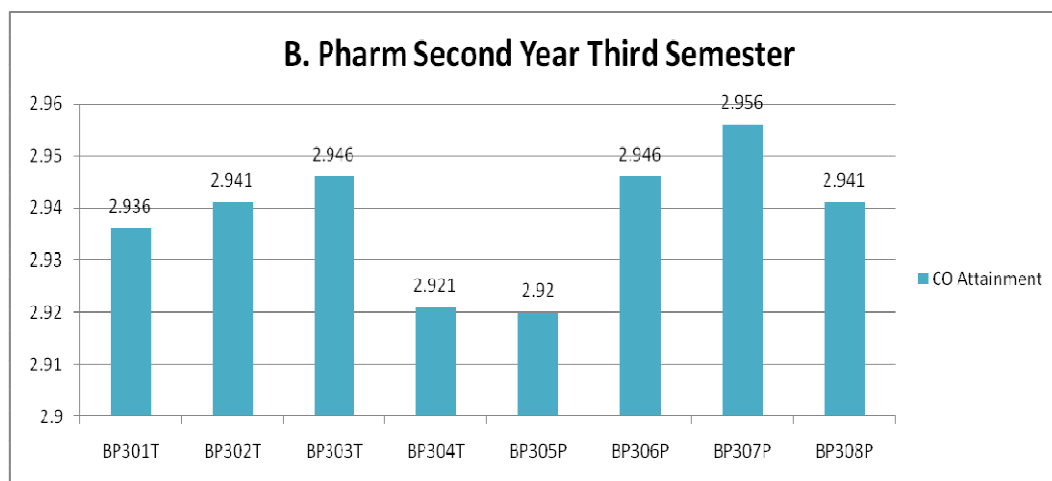
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## ATTAINMENT OF COURSE OUTCOMES

### B. PHARM SECOND YEAR THIRD SEMESTER

Course code	Name of the course	DA	80 % of DA	IA	20%of IA	Total CO attainment
BP301T	Pharmaceutical Organic Chemistry - II (T)	3	2.4	2.68	0.536	2.936
BP302T	Physical pharmaceutics – Theory	3	2.4	2.707	0.541	2.941
BP303T	Pharmaceutical Microbiology – Theory	3	2.4	2.730	0.546	2.946
BP304T	Pharmaceutical Engineering – Theory	3	2.4	2.608	0.521	2.921
BP305P	Pharmaceutical Organic Chemistry II – Practical	3	2.4	2.600	0.520	2.920
BP306P	Physical Pharmaceutics I – Practical	3	2.4	2.730	0.546	2.946
BP307P	Pharmaceutical Microbiology – Practical	3	2.4	2.825	0.556	2.956
BP308P	Pharmaceutical Engineering – Practical	3	2.4	2.709	0.541	2.941

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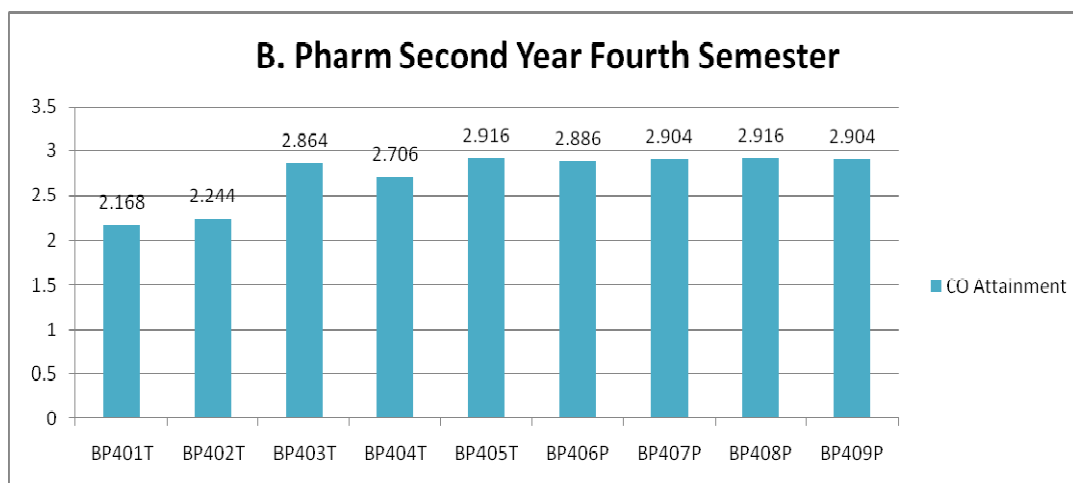
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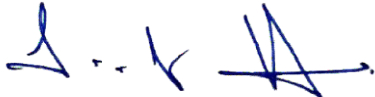
## ATTAINMENT OF COURSE OUTCOMES

### B. PHARM SECOND YEAR FOURTH SEMESTER

Course code	Name of the course	DA	80 % of DA	IA	20%of IA	Total CO attainment
BP401T	Pharmaceutical Organic Chemistry III (T)	2.05	1.64	2.664	0.528	2.168
BP402T	Medicinal Chemistry I – Theory	2.13	1.704	2.710	0.540	2.244
BP403T	Physical Pharmaceutics II – Theory	2.92	2.336	2.664	0.528	2.864
BP404T	Pharmacology I – Theory	2.70	2.160	2.731	0.546	2.706
BP405T	Pharmacognosy and Phytochemistry I – Theory	2.98	2.384	2.66	0.532	2.916
BP406P	Medicinal Chemistry I – Practical	3	2.4	2.430	0.486	2.886
BP407P	Physical Pharmaceutics II – Practical	3	2.4	2.521	0.504	2.904
BP408P	Pharmacology I – Practical	3	2.4	2.580	0.516	2.916
BP409P	Pharmacognosy and Phytochemistry I – Practical	3	2.4	2.520	0.504	2.904

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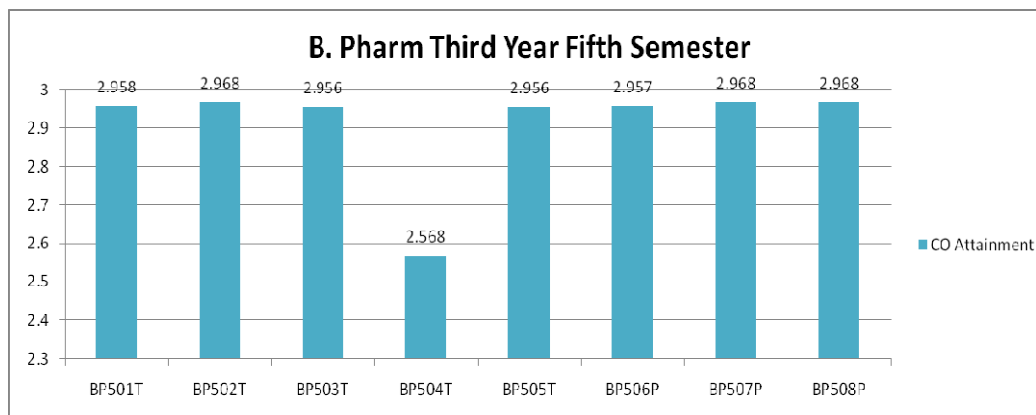
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## ATTAINMENT OF COURSE OUTCOMES

### B. PHARM THIRD YEAR FIFTH SEMESTER

Course code	Name of the course	DA	80 % of DA	IA	20%of IA	Total CO attainment
BP501T	Medicinal Chemistry II – Theory	3	2.4	2.792	0.558	2.958
BP502T	Industrial Pharmacy I– Theory	3	2.4	2.843	0.568	2.968
BP503T	Pharmacology II – Theory	3	2.4	2.781	0.556	2.956
BP504T	Pharmacognosy and Phytochemistry II– Theory	3	2.4	2.843	0.568	2.568
BP505T	Pharmaceutical Jurisprudence – Theory	3	2.4	2.781	0.556	2.956
BP506P	Industrial Pharmacy I – Practical	3	2.4	2.788	0.557	2.957
BP507P	Pharmacology II – Practical	3	2.4	2.843	0.568	2.968
BP508P	Pharmacognosy and Phytochemistry II – Practical	3	2.4	2.844	0.568	2.968

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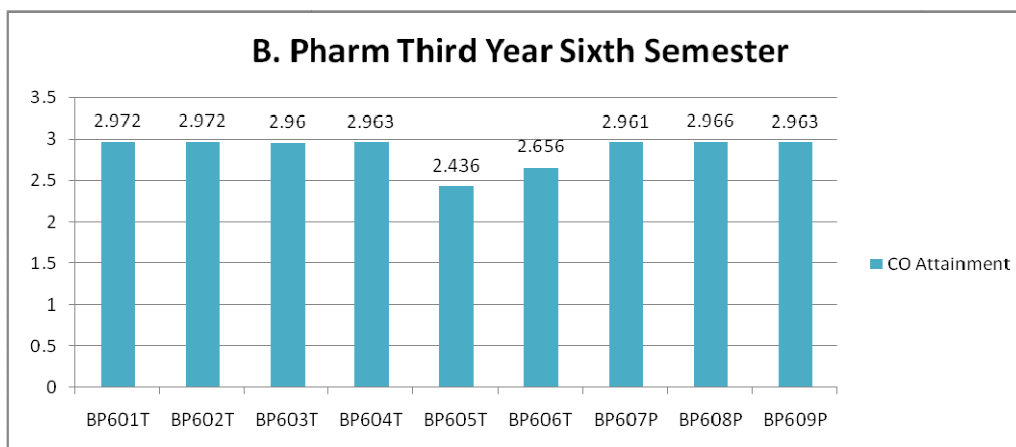
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## ATTAINMENT OF COURSE OUTCOMES

### B. PHARM THIRD YEAR SIXTH SEMESTER

Course code	Name of the course	DA	80%of DA	IA	20%of IA	Total CO attainment
BP601T	Medicinal Chemistry III – Theory	3	2.4	2.863	0.572	2.972
BP602T	Pharmacology III – Theory	3	2.4	2.861	0.572	2.972
BP603T	Herbal Drug Technology – Theory	3	2.4	2.800	0.560	2.960
BP604T	Biopharmaceutics and Pharmacokinetics –Theory	3	2.4	2.816	0.563	2.963
BP605T	Pharmaceutical Biotechnology – Theory	2.4	1.92	2.805	0.561	2.436
BP606T	Quality Assurance –Theory	2.6	2.1	2.780	0.556	2.656
BP607P	Medicinal chemistry III – Practical	3	2.4	2.805	0.561	2.961
BP608P	Pharmacology III – Practical	3	2.4	2.832	0.566	2.966
BP609P	Herbal Drug Technology – Practical	3	2.4	2.818	0.563	2.963

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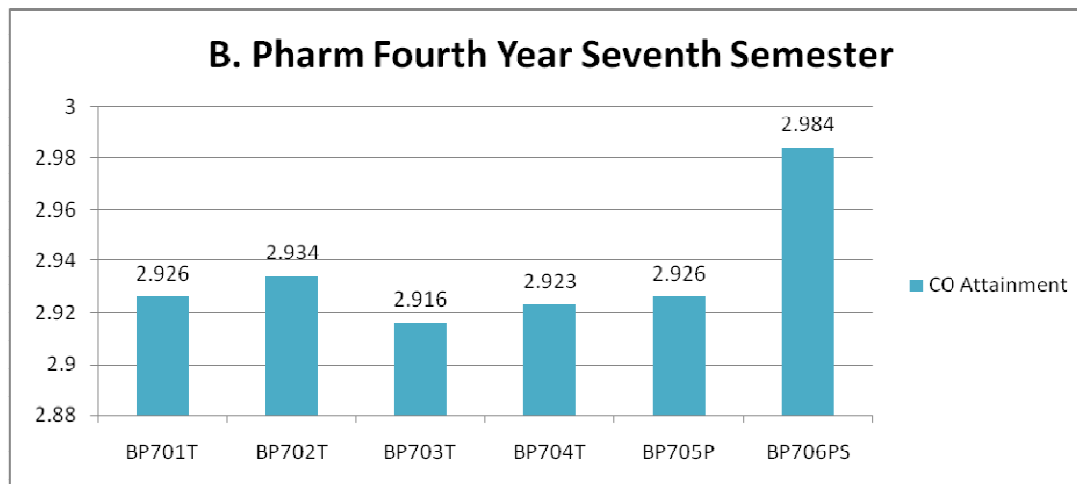
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#### B. PHARM FOURTH YEAR SEVENTH SEMESTER

Course code	Name of the course	DA	80%of DA	IA	20%of IA	Total CO attainment
BP701T	Instrumental Methods of Analysis – Theory	3	2.4	2.630	0.526	2.926
BP702T	Industrial Pharmacy II – Theory	3	2.4	2.670	0.534	2.934
BP703T	Pharmacy Practice – Theory	3	2.4	2.580	0.516	2.916
BP704T	Novel Drug Delivery System – Theory	3	2.4	2.618	0.523	2.923
BP705P	Instrumental Methods of Analysis – Practical	3	2.4	2.630	0.526	2.926
BP706PS	Practice School	3	2.4	2.922	0.584	2.984

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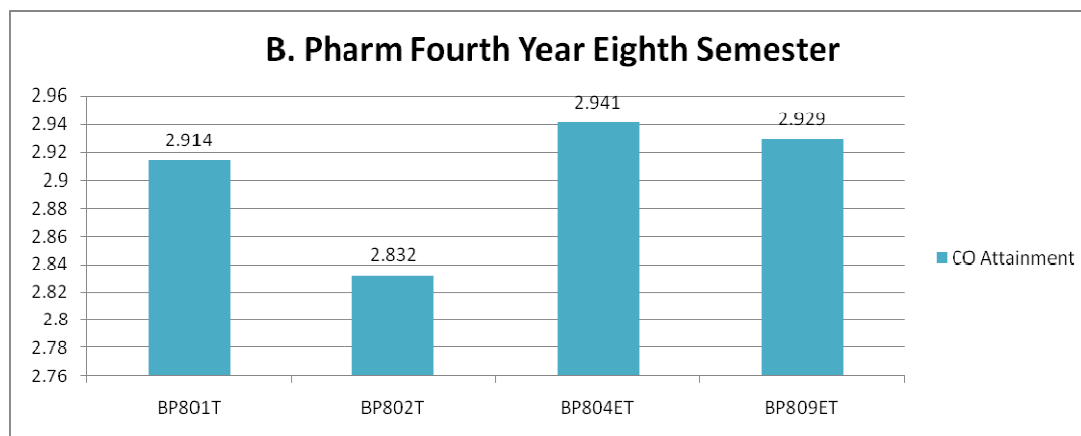
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Course code	Name of the course	DA	80% of DA	IA	20% of IA	Total CO attainment
BP801T	Biostatistics and Research Methodology – Theory	3	2.4	2.571	0.514	2.914
BP802T	Social and Preventive Pharmacy – Theory	2.9	2.32	2.561	0.512	2.832
BP804ET	Pharmaceutical Regulatory Science – Theory	3	2.4	2.709	0.541	2.941
BP809ET	Cosmetic Science– Theory	3	2.4	2.649	0.529	2.929

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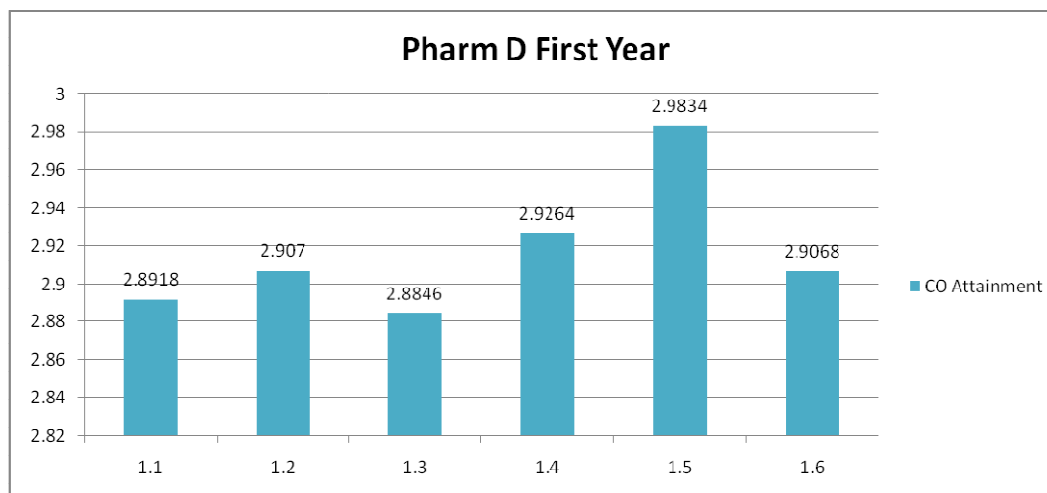
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## ATTAINMENT OF COURSE OUTCOMES

### PHARM D. FIRST YEAR

Course code	Name of the course	DA	80% of DA	IA	20% of IA	Total CO attainment
1.1	Human Anatomy and Physiology	3	2.4	2.459	0.4918	2.8918
1.2	Pharmaceutics	3	2.4	2.535	0.507	2.9070
1.3	Medicinal Biochemistry	3	2.4	2.423	0.4846	2.8846
1.4	Pharmaceutical Organic Chemistry	3	2.4	2.632	0.5264	2.9264
1.5	Pharmaceutical Inorganic Chemistry	3	2.4	2.917	0.5834	2.9834
1.6	Remedial Mathematics/Biology	3	2.4	2.534	0.5068	2.9068

\*DA: Direct Attainment Score, IA: Indirect Attainment Score



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**CHANNABASWESHWAR PHARMACY COLLEGE (DEGREE)**

Kava Road, Basweshwar Chowk, Latur-413512 (Maharashtra) Tel./Fax :- (02382) 243855

DTE Code :- 2253, University Code :- 947, MSBTE Code :- 2041

Email:- channabasweshwar@gmail.com / principalcbpc@gmail.com Website:- www.channabasweshwar.org

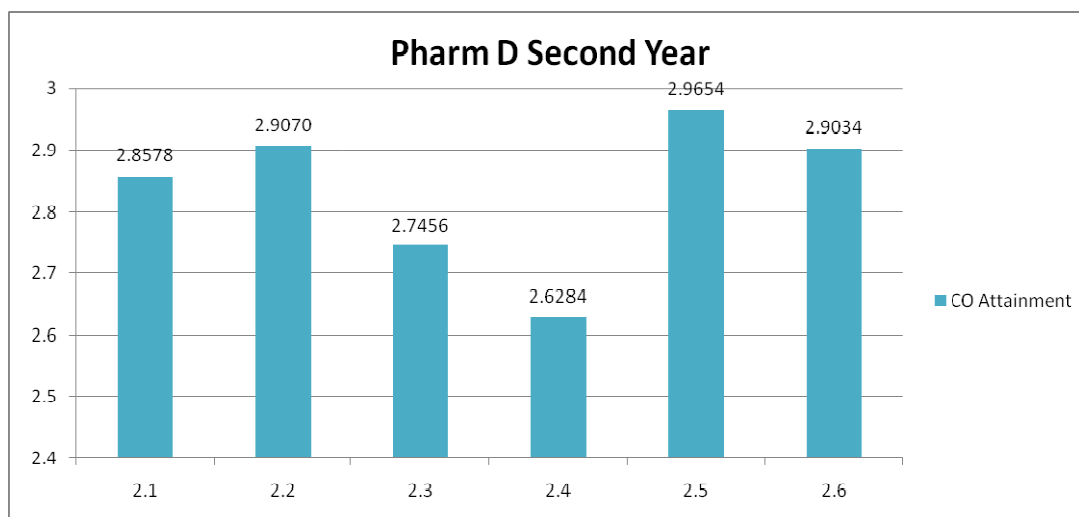
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**ATTAINMENT OF COURSE OUTCOMES**

**PHARM D. SECOND YEAR**

Course code	Name of the course	DA	80 % of DA	IA	20% of IA	Total CO attainment
2.1	Pathophysiology	3	2.4	2.289	0.4578	2.8578
2.2	Pharmaceutical Microbiology	3	2.4	2.535	0.50696	2.9070
2.3	Pharmacognosy & Phytopharmaceuticals	2.8	2.24	2.528	0.5056	2.7456
2.4	Pharmacology-I	2.6	2.08	2.742	0.5484	2.6284
2.5	Community Pharmacy	3	2.4	2.827	0.5654	2.9654
2.6	Pharmacotherapeutics-I	3	2.4	2.517	0.5034	2.9034

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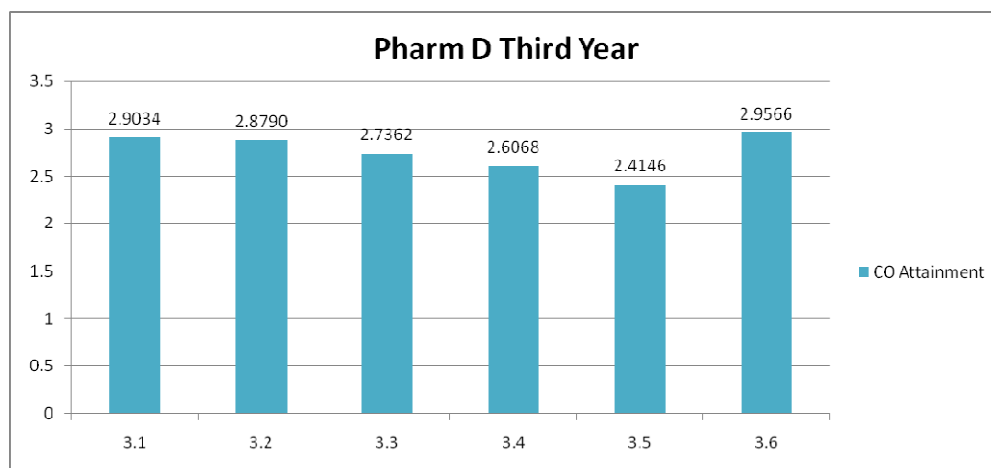
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## ATTAINMENT OF COURSE OUTCOMES

### PHARM D. THIRD YEAR

Course code	Name of the course	DA	80% of DA	IA	20% of IA	Total CO attainment
3.1	Pharmacology-II	3	2.4	2.517	0.5034	2.9034
3.2	Pharmaceutical Analysis	3	2.4	2.395	0.479	2.8790
3.3	Pharmacotherapeutics-II	2.8	2.24	2.481	0.4962	2.7362
3.4	Pharmaceutical Jurisprudence	2.6	2.08	2.634	0.5268	2.6068
3.5	Medicinal Chemistry	2.4	1.92	2.473	0.4946	2.4146
3.6	Pharmaceutical Formulations	3	2.4	2.783	0.5566	2.9566

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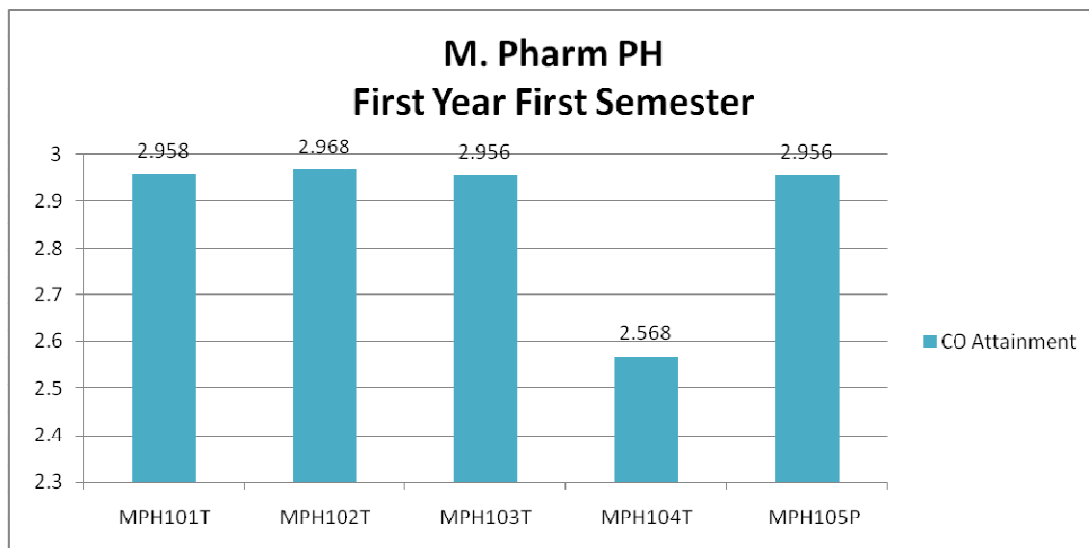
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### ATTAINMENT OF COURSE OUTCOMES

#### M.PHARM FIRST YEAR FIRST SEMESTER (PHARMACEUTICS)

Course code	Name of the course	DA	80% of DA	IA	20% of IA	Total CO attainment
MPH101T	Modern Pharmaceutical Analytical Techniques	3	2.4	2.792	0.558	2.958
MPH102T	Drug Delivery System	3	2.4	2.843	0.568	2.968
MPH103T	Modern Pharmaceutics	3	2.4	2.781	0.556	2.956
MPH104T	Regulatory Affair	3	2.4	2.843	0.568	2.568
MPH105P	Pharmaceutics Practical I	3	2.4	2.781	0.556	2.956

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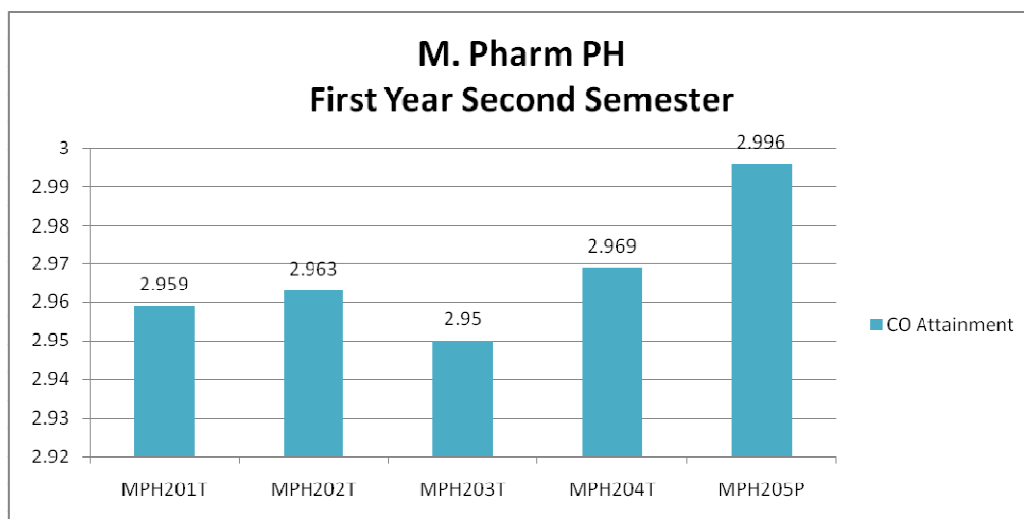
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## ATTAINMENT OF COURSE OUTCOMES

### M.PHARM FIRST YEAR SECOND SEMESTER (PHARMACEUTICS)

Course code	Name of the course	DA	80% of DA	IA	20% of IA	Total CO attainment
MPH201T	Molecular Pharmaceutics (Nano Tech and Targeted DDS)	3	2.4	2.795	0.559	2.959
MPH202T	Advanced Biopharmaceutics & Pharmacokinetics	3	2.4	2.813	0.5626	2.963
MPH203T	Computer Aided Drug Delivery System	3	2.4	2.751	0.5502	2.950
MPH204T	Cosmetic and Cosmeceuticals	3	2.4	2.843	0.5686	2.969
MPH205P	Pharmaceutics Practical II	3	2.4	2.981	0.5962	2.996

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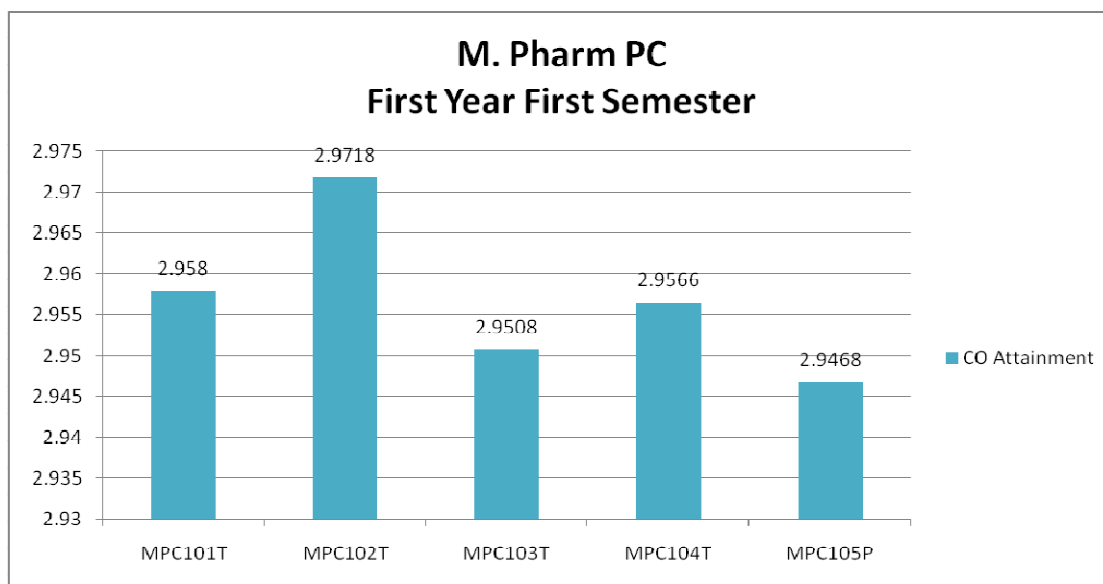
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## ATTAINMENT OF COURSE OUTCOMES

### M.PHARM FIRST YEAR FIRST SEMESTER (Pharmaceutical Chemistry)

Course code	Name of the course	DA	80% of DA	IA	20% of IA	Total CO attainment
MPC101T	Modern Pharmaceutical Analytical Techniques	3	2.4	2.792	0.558	2.958
MPC102T	Advanced Organic Chemistry - I	3	2.4	2.859	0.5718	2.9718
MPC103T	Advanced Medicinal chemistry	3	2.4	2.754	0.5508	2.9508
MPC104T	Chemistry of Natural Products	3	2.4	2.783	0.5566	2.9566
MPC105P	Pharmaceutical Chemistry Practical - I	3	2.4	2.734	0.5468	2.9468

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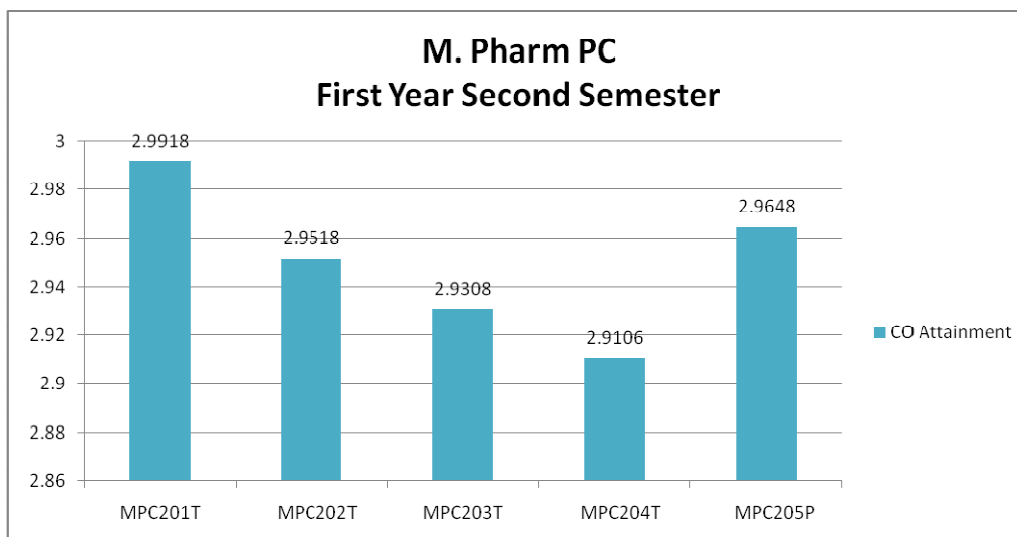
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### ATTAINMENT OF COURSE OUTCOMES

#### M.PHARM FIRST YEAR SECOND SEMESTER (Pharmaceutical Chemistry)

Course code	Name of the course	DA	80% of DA	IA	20% of IA	Total CO attainment
MPC201T	Advanced Spectral Analysis	3	2.4	2.959	0.5918	2.9918
MPC202T	Advanced Organic Chemistry -II	3	2.4	2.759	0.5518	2.9518
MPC203T	Computer Aided Drug Design	3	2.4	2.654	0.5308	2.9308
MPC204T	Pharmaceutical Process Chemistry	3	2.4	2.553	0.5106	2.9106
MPC205P	Pharmaceutical Chemistry Practical -II	3	2.4	2.824	0.5648	2.9648

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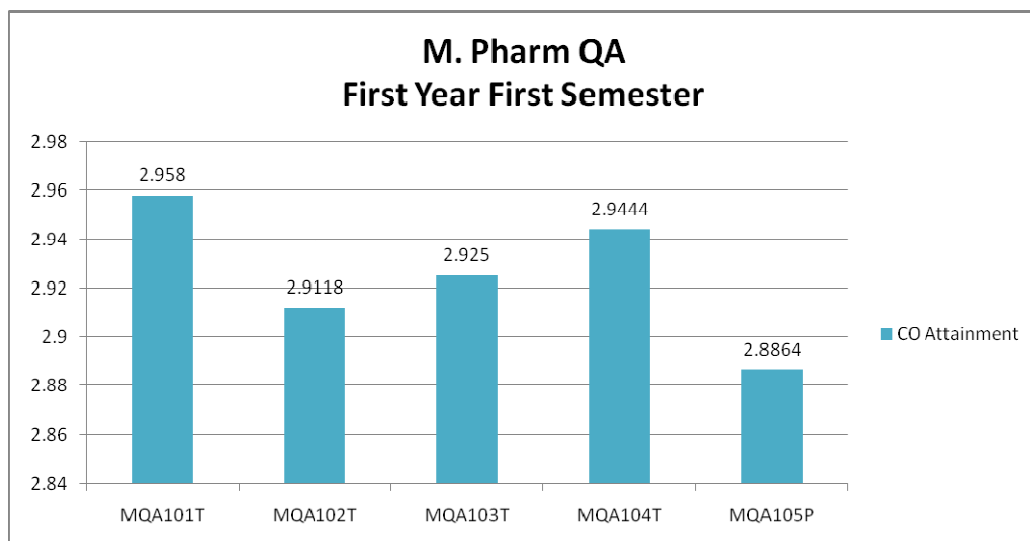
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## ATTAINMENT OF COURSE OUTCOMES

### M.PHARM FIRST YEAR FIRST SEMESTER (Pharmaceutical Quality Assurance)

Course code	Name of the course	DA	80% of DA	IA	20% of IA	Total CO attainment
MQA101T	Modern Pharmaceutical Analytical Techniques	3	2.4	2.792	0.558	2.958
MQA102T	Quality Management System	3	2.4	2.559	0.5118	2.9118
MQA103T	Quality Control and Quality Assurance	3	2.4	2.625	0.525	2.9250
MQA104T	Product Development and Technology Transfer	3	2.4	2.722	0.5444	2.9444
MQA105P	Pharmaceutical Quality Assurance Practical I	3	2.4	2.432	0.4864	2.8864

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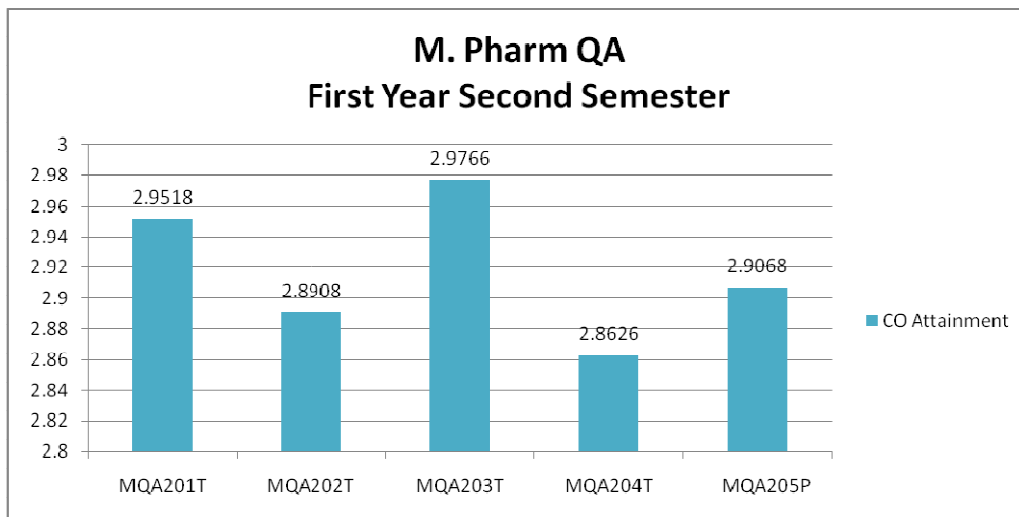
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## ATTAINMENT OF COURSE OUTCOMES

### M.PHARM FIRST YEAR SECOND SEMESTER (Pharmaceutical Quality Assurance)

Course code	Name of the course	DA	80% of DA	IA	20% of IA	Total CO attainment
MQA201T	Hazards and Safety Management	3	2.4	2.759	0.5518	2.9518
MQA202T	Pharmaceutical Validation	3	2.4	2.454	0.4908	2.8908
MQA203T	Audits and Regulatory Compliance	3	2.4	2.883	0.5766	2.9766
MQA204T	Pharmaceutical Manufacturing Technology	3	2.4	2.313	0.4626	2.8626
MQA205P	Pharmaceutical Quality Assurance Practical II	3	2.4	2.534	0.5068	2.9068

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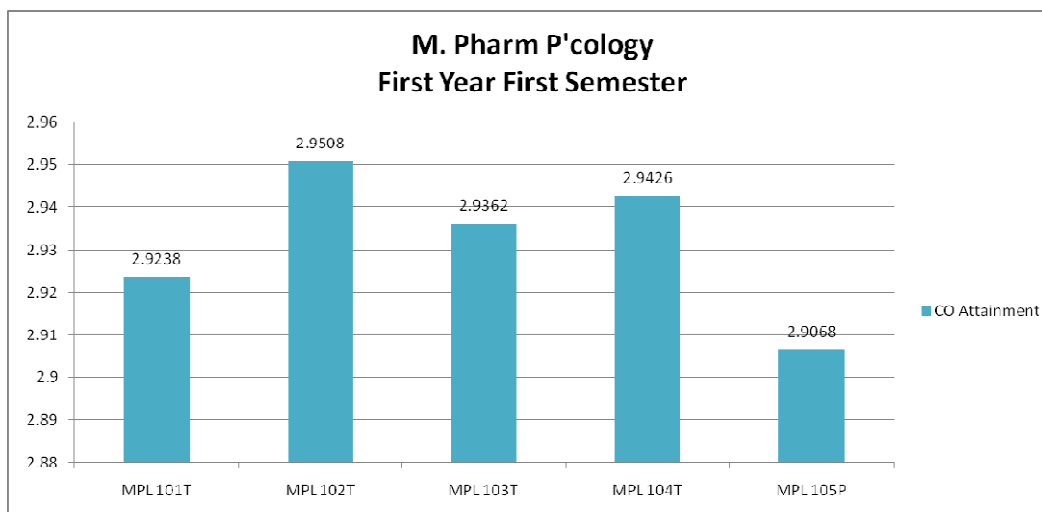
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## ATTAINMENT OF COURSE OUTCOMES

### M.PHARM FIRST YEAR FIRST SEMESTER (Pharmacology)

Course code	Name of the course	DA	80% of DA	IA	20% of IA	Total CO attainment
MPL 101T	Modern Pharmaceutical Analytical Techniques	3	2.4	2.619	0.5238	2.9238
MPL 102T	Advanced Pharmacology-I	3	2.4	2.754	0.5508	2.9508
MPL 103T	Pharmacological and Toxicological Screening Methods-I	3	2.4	2.681	0.5362	2.9362
MPL 104T	Cellular and Molecular Pharmacology	3	2.4	2.713	0.5426	2.9426
MPL 105P	Experimental Pharmacology - I	3	2.4	2.534	0.5068	2.9068

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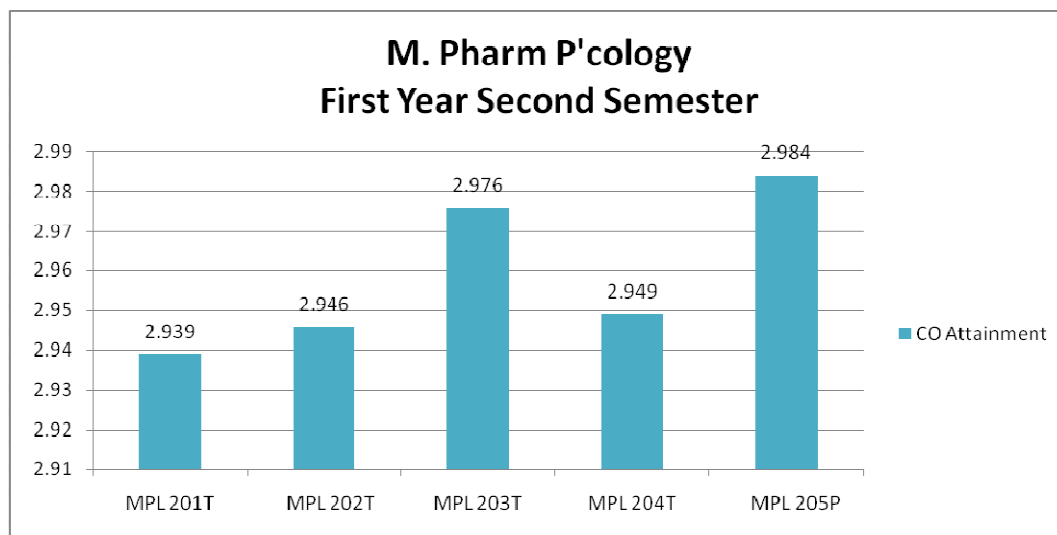
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## ATTAINMENT OF COURSE OUTCOMES

### M.PHARM FIRST YEAR SECOND SEMESTER (Pharmacology)

Course code	Name of the course	DA	80% of DA	IA	20% of IA	Total CO attainment
MPL 201T	Advanced Pharmacology II	3	2.4	2.699	0.5398	2.939
MPL 202T	Pharmacological and Toxicological Screening Methods-II	3	2.4	2.734	0.5468	2.946
MPL 203T	Principles of Drug Discovery	3	2.4	2.881	0.5762	2.976
MPL 204T	Clinical research and pharmacovigilance	3	2.4	2.743	0.5486	2.949
MPL 205P	Experimental Pharmacology - II	3	2.4	2.922	0.584	2.984

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### ATTAINMENT OF PROGRAM OUTCOME

#### B. PHARM FINAL YEAR

Course code	Name of the course	PO Attainment
BP701T	Instrumental Methods of Analysis – Theory	2.910
BP702T	Industrial Pharmacy II – Theory	2.926
BP703T	Pharmacy Practice – Theory	3.110
BP704T	Novel Drug Delivery System – Theory	3.214
BP705P	Instrumental Methods of Analysis – Practical	2.910

Course code	Name of the course	PO Attainment
BP801T	Biostatistics and Research Methodology – Theory	2.916
BP802T	Social and Preventive Pharmacy – Theory	2.770
BP804ET	Pharmaceutical Regulatory Science – Theory	2.913
BP809ET	Cosmetic Science– Theory	2.934



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### PROGRAM OUTCOMES OF B. PHARMACY, M. PHARMACY & PHARM D PROGRAM

Programme Code	Programme Outcomes	Content
PO 01	Pharmacy Knowledge	Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioural, social, and administrative pharmacy sciences; and manufacturing practices
PO 02	Planning Abilities	Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines
PO 03	Problem analysis	Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions
PO 04	Modern tool usage	Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations
PO 05	Leadership skills	Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and wellbeing
PO 06	Professional Identity	Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees)
PO 07	Pharmaceutical Ethics	Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions
PO 08	Communication	Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions
PO 09	The Pharmacist and society	Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice
PO 10	Environment and sustainability	Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PO 11	Life-long learning	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis



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### Program Specific Outcomes (PSO) of B. Pharmacy

PSO Code	Program Specific Outcomes (PSO)
PSO1	Enable graduates to gain theoretical and practical knowledge in different core and allied subjects of pharmaceutical sciences as per the need of pharmaceutical sectors.
PSO2	Enable graduates to exhibit ability to designing of formulation, drug synthesis and screening as per the requirement of pharmaceutical sectors.
PSO3	Enable graduates to show the skills to use modern pharmaceutical tools, software and equipment to analyze & solve the pharmaceutical problems.
PSO4	Enable graduates to understand about various laws that govern different facets of pharmacy that builds up their basic knowledge about the ethics associated with the profession of pharmacy.
PSO5	Enable graduate to practice profession and update with latest advancements made in the field of pharmaceutical product development.



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### Program Specific Outcomes (PSO) of Pharm D

PSO Code	Program Specific Outcomes (PSO)
PSO1	Acquire knowledge and understanding of drugs, their therapeutic uses, adverse effects, drug interactions, and management of medication-related problems
PSO2	Demonstrate competencies in the selection, dosage, administration, monitoring of medication therapy, including pharmacokinetics, pharmacodynamics and drug metabolism, and evidence-based practice guidelines
PSO3	Communicate effectively with patients, healthcare providers, and other stakeholders regarding medication therapy and related issues



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### Program Specific Outcomes (PSO) of M. Pharm

#### Pharmaceutics

PSO Code	Program Specific Outcomes (PSO)
PSO1	To acquire knowledge of novel as well as conventional drug delivery systems
PSO2	To identify and resolve the research problems by utilizing the technical skill gained through training and experimentation
PSO3	To utilize the soft skills as a part of team in the professional endeavour

#### Pharmaceutical Quality Assurance

PSO Code	Program Specific Outcomes (PSO)
PSO1	Understand the applications of Quality assurance and Quality control throughout product life cycle
PSO2	To Analyze the Application Based Importance of Emerging Quality Building Concepts in Product Manufacturing
PSO3	To Perform Procedures like Method Validation, Process Validation, Equipment /Facilities/Utilities Validation, Documents and Records Designing as per the Regulatory Standards Leading to Compliance of cGMP
PSO4	To Understand the Regulatory requirements of Pharmaceuticals



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### Pharmaceutical Chemistry

PSO Code	Program Specific Outcomes (PSO)
PSO1	To acquire advanced knowledge of Analytical Techniques, Pharmaceutical Chemistry, Medicinal Chemistry, Drug Design, Research Methodology and Drug Regulatory Affairs.
PSO2	To develop research aptitude to identify and provide valid conclusions for pharmaceutical problems by utilizing the technical skill gained through training and experimentation.
PSO3	To utilize the soft skills as a part of team in the professional endeavour.

### Pharmacology

PSO Code	Program Specific Outcomes (PSO)
PSO1	Understand the basic concepts of Anatomy, Physiology, Pathophysiology and Clinical Biochemistry and Pharmacology including pharmacokinetics; pharmacodynamics; drug metabolism; and drug-drug interactions; and the interrelation of these pharmacological properties and pharmacological profile of a drug.
PSO2	Understand the application of basic knowledge of Anatomy, Physiology and Pathophysiology, Pharmacotherapeutics, Clinical Pharmacology and Toxicology.
PSO3	Understand the approaches for drug discovery and development and the regulatory procedures.
PSO4	Know Current clinical judgement and Pharmacological details of major drugs in clinical practice.
PSO5	Know etiological factors; pathogenesis, pathophysiological changes that occur in the most common disease states, their clinical presentations and strategy of the therapy along with the choice of drug(s) can act to effectively treat, cure, or mitigate the underlying disease causes and/or symptoms along with the non-pharmacological approaches.
PSO6	Understand the physiological, pharmacological, and psychological effects of acute and chronic exposure of individuals to drugs of abuse, and describe the consequences of sudden withdrawal of such a drug from a drug dependent individual.



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## Sample of Course Outcomes

### PROGRAMME: B. PHARM

Name of Subject with Code	CO Code	Course Outcomes	Bloom's Level
<b>B. Pharm I (Semester-I)</b>			
<b>BP101T - Human Anatomy and Physiology - Theory</b>	BP101T_CO1	<b>Explain</b> the relationships between cell structure and function, histology, gross anatomy, and physiology within various organ systems.	L2, L5
	BP101T_CO2	<b>Apply</b> knowledge to clinical scenarios, demonstrating integration and implementation in real-world healthcare situations.	L3
	BP101T_CO3	<b>Critically</b> evaluate diverse information sources related to organ systems, distinguishing reliable scientific information from unsourced data and pseudoscience.	L5
	BP101T_CO4	<b>Assess</b> social, environmental, and ethical implications of human health and medical research as a responsible member of society.	L5
	BP101T_CO5	<b>Use</b> scientific laboratory equipment proficiently to collect and analyze data on human anatomy and physiology.	L3
	BP101T_CO6	<b>Demonstrate</b> a holistic understanding of how human organ systems are interrelated, applying this knowledge to approach human health comprehensively.	L2
<b>BP102T - Pharmaceutical Analysis I - Theory</b>	BP102T_CO1	<b>Recall</b> and understand fundamental concepts of analytical chemistry.	L1
	BP102T_CO2	<b>Comprehend</b> sources of errors in analytical chemistry and techniques to minimize them.	L2, L5
	BP102T_CO3	<b>Apply</b> and demonstrate fundamentals of volumetric analytical skills in practical scenarios.	L3
	BP102T_CO4	<b>Analyze</b> and explain the basic principles of electrochemical analytical techniques.	L4
	BP102T_CO5	<b>Evaluate</b> and enhance student interpretation skills, especially in choosing analytical techniques for estimating drugs of different categories.	L5



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## Sample of Course Outcomes

### PROGRAMME: PHARM D

Name of Subject with Code	CO Code	Course Outcomes	Bloom's Level
<b>Pharm D I</b>			
<b>1.1 Human Anatomy and Physiology - Theory</b>	PD1.1T_CO1	<b>Describe</b> the structure (gross and histology) and functions of various organs of the human body	L2
	PD1.1T_CO2	<b>Describe</b> the various homeostatic mechanisms and their imbalances of various systems	L2
	PD1.1T_CO3	<b>Identify</b> the various tissues, bones, and organs of the different systems of the human body	L3
	PD1.1T_CO4	<b>Perform</b> hematological tests and record blood pressure, heart rate, pulse, and respiratory volumes	L3
	PD1.1T_CO5	<b>Recognize</b> the coordinated working pattern of different organs of each system	L1
	PD1.1T_CO6	<b>Appreciate</b> the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of the human body	L3
<b>1.2 Pharmaceutics - Theory</b>	PD1.2T_CO1	<b>Impart</b> fundamental knowledge on the science of formulating different dosage forms	L3
	PD1.2T_CO2	<b>Study</b> different pharmaceutical calculations involved in formulation	L3, L4
	PD1.2T_CO3	<b>Study</b> the basic formulation preparations of dosage forms	L3, L4
	PD1.2T_CO4	<b>Study</b> classifications, evaluations, applications of various dosage forms	L3, L4
	PD1.2T_CO5	<b>Know</b> about historical developments, pharmacopoeia developments, and drug-related incompatibilities	L1, L3



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## Sample of Course Outcomes

### PROGRAMME: M. PHARM

Name of Subject with Code	CO Code	Course Outcomes	Bloom's Level
<b>M. Pharm I (Semester-I) in Pharmaceutics</b>			
<b>MPH101T Modern Pharmaceutical Analytical Technique - Theory</b>	MPH101T_CO1	<b>Acquire</b> basic knowledge of the assay of single and multiple component analysis.	L1, L3
	MPH101T_CO2	<b>Develop</b> fundamental practical skills using instrumentation techniques.	L3, L6
	MPH101T_CO3	<b>Gain</b> skills in selecting suitable techniques for the analysis of drugs and pharmaceuticals.	L1
	MPH101T_CO4	<b>Apply</b> theoretical knowledge to various instrumental techniques effectively.	L3
	MPH101T_CO5	<b>Apply</b> learned knowledge to develop new procedures of their own design.	L3
	MPH101T_CO6	<b>Demonstrate</b> the ability to compare various methods of analysis and their outcomes for specific applications.	L2
<b>MPH102T Drug Delivery System - Theory</b>	MPH102T_CO1	<b>Understand</b> concepts of dosages like Sustained Release (SR), Controlled Release (CR) Formulations, bioelectric, personalized medicine, 3D printing, and their factors.	L2, L5
	MPH102T_CO2	<b>Acquire</b> knowledge on principles and fundamentals of Rate Controlled Drug Delivery Systems.	L1, L3
	MPH102T_CO3	<b>Understand</b> concepts of Gastro-Retentive and Ocular Drug Delivery Systems.	L2, L5
	MPH102T_CO4	<b>Acquire</b> knowledge on Transdermal Drug Delivery Systems and its barriers.	L1, L3
	MPH102T_CO5	<b>Understand</b> fundamentals of Protein and Peptide & Vaccine delivery systems.	L2, L5



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## Sample B. Pharmacy Question Paper Linked with Course Outcomes

		
Channabasweshwar Pharmacy College ( Degree), Latur		
B. Pharmacy [2022-23]		
Second sessional theory examination 2022-23		
<b>Subject :</b> [ BP 303 T ] Pharmaceutical Microbiology - Theory <b>Faculty :</b> MR.AVINASH BASWESHWAR SWAMI		
<b>Year :</b> Second Year - Semester III <b>Marks :</b> 30 <b>Date :</b> 8 February, 2023 <b>Duration :</b> 90 Minutes		
<b>Instructions for candidates</b>		
- Figures to the right indicate full marks.		
- Draw neat diagram wherever necessary.		
- Answer to the point only.		
Question	Marks	Course Outcome
<b>Q. 1. Solve the following</b>		
1) Define Z value & D value	2.00	CO2
2) Enlist ideal properties of disinfectants.	2.00	CO3
3) Write difference between bacteriostatic & bacteriocidal	2.00	CO3
4) Draw neat labelled diagram of Virus	2.00	CO3
5) Define spoilage	2.00	CO5
<b>Q. 2. Solve any one</b>		
1) Explain in detail construction and working of large scale equipments a) Autoclave b) Laminar air flow	10.00	CO2
2) Write in detail aseptic area.	10.00	CO4
<b>Q. 3. Solve any two</b>		
1) Explain in short morphological classification of Fungi	5.00	CO3
2) Write in brief factors affecting spoilage.	5.00	CO5
3) Write in brief factors affecting disinfection.	5.00	CO3,CO5



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## Sample Pharm D. Question Paper Linked with Course Outcomes



### Channabasweshwar Pharmacy College ( Degree), Latur

Pharm D

First Sessional Theory Examination 2022-23 - 2022-23

Subject : [ 3.1 ] Pharmacology II - Regular - Theory Faculty : Shivakumar S. Ladde

Year : Third Year - TY 2022-23 Marks : 30 Date : 7 November, 2022 Duration : 90 Minutes

- Figures to the right indicate full marks.
- Draw neat diagram wherever necessary.
- Assume suitable data if necessary, stating it clearly.

- 1 **Q. NO I Answer any THREE of the following** **03x02=06**
- 1.1 What are thrombolytics? Give two suitable examples **(2.00 Marks)**  
**Bloom's Level** : Understand,Remember **Course Outcome** : CO1
- 1.2 Write the mechanism of action of antidiuretics? **(2.00 Marks)**  
**Bloom's Level** : Understand,Remember **Course Outcome** : CO1
- 1.3 Define the term (i) Bacteriostatic Effect (ii) Bacteriocidal Effect **(2.00 Marks)**  
**Bloom's Level** : Understand,Remember **Course Outcome** : CO2
- 1.4 Enlist importance of Haemopoietics **(2.00 Marks)**  
**Bloom's Level** : Evaluate,Remember **Course Outcome** : CO1
- 1.5 Write the mechanism and effects of Drug Interaction between Tolbutamide and Sulfonamides **(2.00 Marks)**  
**Bloom's Level** : Evaluate,Analyze,Apply,Understand,Remember **Course Outcome** : CO2
- 2 **Q. No II Answer any FOUR of the following questions** **04x06=24**
- 2.1 Classify Anticoagulants with suitable examples? Write mechanism of action, pharmacological action and therapeutic uses of Heparin? **(6.00 Marks)**  
**Bloom's Level** : Analyze,Apply,Understand **Course Outcome** : CO1
- 2.2 Classify Antiplatelet agents with suitable examples? Discuss in details pharmacology of Clopidogrel. **(6.00 Marks)**  
**Bloom's Level** : Create,Analyze,Understand **Course Outcome** : CO1
- 2.3 Classify Sulfonamides with suitable examples? Write in details pharmacology of Co-trimoxazole **(6.00 Marks)**  
**Bloom's Level** : Analyze,Understand,Remember **Course Outcome** : CO2
- 2.4 Define the term Antibiotic? Classify antimicrobial agents according to mechanism of action. **(6.00 Marks)**  
**Bloom's Level** : Analyze,Understand,Remember **Course Outcome** : CO2
- 2.5 Describe in detail pharmacological account of Penicillin. **(6.00 Marks)**  
**Bloom's Level** : Evaluate,Analyze,Apply,Understand,Remember **Course Outcome** : CO2



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## Sample M. Pharmacy Question Paper Linked with Course Outcomes

 <b>Channabasweshwar Pharmacy College ( Degree), Latur</b> Pharmaceutics [2022-23]		
<b>First Theory Sessional Examination - 2022-23</b>		
<b>Subject :</b> [ MPH103T ] Modern Pharmaceutics - Theory <b>Faculty :</b> DR. SHIVAPPA NARSING NAGOBA / PRIYA MUGAVE		
<b>Year :</b> First Year - M Pharm Sem I 2022-23 <b>Marks :</b> 15 <b>Date :</b> 15 February, 2023 <b>Duration :</b> 60 Minutes		
<b>Instructions:-</b> -Figures to the right indicate full marks. - Draw neat diagram wherever necessary. - Assume suitable data if necessary, stating it clearly.		
Question	Marks	Course Outcome
<b>Q.1: Solve the followings</b> <span style="float: right;"><b>2X2=04</b></span>		
a. Enlist evaluation tests of Parenteral.	2.00	CO1
b. Define Compaction and Compression.	2.00	CO4
<b>Q.2: Solve any TWO</b> <span style="float: right;"><b>3X2=06</b></span>		
a. Describe in detail the drug excipient interactions	3.00	CO1
b. Write in detail about the physics of tablet compression.	3.00	CO4
c. Explain Chi square test and ANOVA test.	3.00	CO5
<b>Q.3: Solve any ONE</b> <span style="float: right;"><b>5X1=05</b></span>		
a. Discuss the role of various Physico-Chemical characteristics of a new drug molecule in Preformulation studies.	5.00	CO1
b. Explain in detail diffusion and dissolution parameters.	5.00	CO5



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### Sample of Course Outcome-Program Outcome (CO-PO) Mapping Matrix

#### Pharm D

#### 2.2 Pharmaceutical Microbiology - Theory

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
PD2.2T_CO1	3	2	3	-	-	3	2	-	2	-	-
PD2.2T_CO2	3	-	3	-	-	2	1	-	3	-	1
PD2.2T_CO3	3	-	2	-	-	2	-	-	2	2	-
PD2.2T_CO4	3	2	3	-	-	2	2	-	2	-	-
PD2.2T_CO5	3	-	3	-	-	2	-	-	2	-	-
PD2.2T_CO6	3	-	3	-	-	2	-	-	2	-	-
Average	3	2	2.83	-	-	2.17	1.67	-	2.17	2	1
									<b>Desired attainment</b>		<b>=2.21</b>



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### Sample of Course Outcome-Program Outcome (CO-PO) Mapping Matrix

#### M. Pharmacy

#### MPH103T Modern Pharmaceutics - Theory

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
MPH103T_CO1	3	2	3	2	-	3	2	-	3	2	2
MPH103T_CO2	3	2	3	2	-	2	3	-	1	2	-
MPH103T_CO3	3	3	3	-	-	3	3	-	3	2	3
MPH103T_CO4	3	-	3	2	-	3	-	-	1	2	3
MPH103T_CO5	3	-	3	2	-	3	-	-	1	2	3
<b>Average</b>	3	2.33	3	2	-	2.8	2.67	-	1.8	2	2.75
								<b>Desired attainment</b>			<b>=2.48</b>



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