

PROGRAM STRUCTURE AND SYLLABUS

M.PHARMACY

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**FOR
M.PHARMACY TWO YEAR DEGREE COURSE
[Choice Based Credit System (CBCS)]**

R22 Regulations

(Applicable for the batches admitted from 2022-2023 Onwards)



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REGULATIONS

1. Short Title and commencement

These regulations shall be called as "The Revised Regulations for the Master of Pharmacy (M.Pharm) Degree Program- Credit Based Semester System (CBSS) of the Pharmacy Council of India, New Delhi". They shall come into effect from the Academic Year 2016-2017. The regulations framed are subject to modifications from time to time by the authorities of the university.

2. Minimum qualification for admission

A pass in the following examinations

- a) B.Pharm Degree examination of an Indian university established by law in India from an institution approved by Pharmacy Council of India and has scored not less than 55% of the maximum marks (aggregate of 4 years of B.Pharm)
- b) Every student, selected for admission to post graduate pharmacy program in any PCI approved institution should have obtained registration with the State Pharmacy Council or should obtain the same within one month from the date of his/her admission, failing which the admission of the candidate shall be cancelled.

Note: it is mandatory to submit a migration certificate obtained from the respective university where the candidate had passed his/her qualifying degree (B.Pharm.)

3. Duration of the program

The program of study for M.Pharm shall extend over a period of four semesters (two academic years). The curricula and syllabi for the program shall be prescribed from time to time by Pharmacy Council of India, New Delhi.

4. Medium of instructions and examinations

Medium of instructions and examinations shall be in English.

5. Working days in each semester

Each semester shall consist of not less than 100 working days. The odd semesters shall be conducted from the month of June/July to November/December and the even semester shall be conducted from the month December/January to May/June in every calendar year.

6. Attendance and progress

A candidate is required to put in at least 80% attendance in individual courses considering theory and practical separately. The candidate shall complete the prescribed course satisfactorily to be eligible to appear for the respective examinations.

7. Program/Course credit structure

As per the philosophy of Credit Based Semester System, certain quantum of academic work viz. theory classes, practical classes, seminars, assignments, etc are measured in terms of credits. On satisfactory completion of the courses, a candidate earns credits. The amount of credit associated with a course is dependent upon the number of hours of hours of instruction per week in that course. Similarly the credit associated with any of the other academic, co/extra-curricular activities is dependent upon the quantum of work expected to be put in for each of these activities per week/ per activity.

7.1. Credit assignment

7.1.1. Theory and Laboratory courses

Courses are broadly classified as Theory and Practical. Theory courses consist of lecture (L) and Practical (P) courses consist of hours spent in the laboratory. Credits (C) for a course is dependent on the number of hours of one (1) for lecture and a multiplier of half (1/2) for practical (laboratory) hours. Thus, for example, a theory course having four lectures per week throughout the semester carries a credit of 4. Similarly, a practical having four laboratory hours per week throughout semester carries a credit of 2. The contact hours of seminars, assignments and research work shall be treated as that of practical courses for the purpose of calculating credits i.e., the contact hours shall be multiplied by ½. Similarly, the contact hours of journal club, research work presentations and discussions with the supervisor shall be considered as theory course and multiplied by 1.

7.2. Minimum credit requirements

The minimum credit points required for the award of M.Pharm degree is 95. However based on the credit points earned by the students under the head of co-curricular activities, a student shall earn a maximum of 100 credit points. These credits are divided into Theory courses, Practical, Seminars, Assignments, Research work, Discussion with the supervisor, Journal club and Co-Curricular activities over the duration of four semesters. The credits are distributed semester-wise as shown in Table 14. Courses generally progress in sequence, building competencies and their positioning indicated certain academic maturity on the part of the learners. Learners are expected to follow the semester-wise scheduled of courses given in the syllabus.

8. Academic work

A regular record of attendance both in Theory, Practical, Seminar, Assignment, Journal club, Discussion with the supervisor, Research work presentation and Dissertation shall be maintained by the department /teaching staff of respective courses.

9. Course of study

The specializations in M.Pharm program are given Table 1.

Table 1: List of M.Pharm specializations and their Code

Branch Code	Specialization
1	Pharmacology
2	Industrial Pharmacy
3	Pharmaceutics
4	Pharmaceutics Analysis

The course of study for M.Pharm specializations shall include Semester wise Theory & Practical as given in Table-2 to 09. The number of hours to be devoted to each theory and practical course in any semester shall not be less than that shown in Table-2 to 09.

Tablel-2: Course of study for M.Pharm (Pharmaceutics)

Course Code	Course	Credit Hours	Credit Points	Hrs/ Wk	Marks
Semester I					
A41001	Modern Pharmaceutics Analytical Techniques	4	4	4	100
A41005	Drug Delivery System	4	4	4	100
A41006	Modern Pharmaceutics	4	4	4	100
A41007	Regulatory Affairs	4	4	4	100
A41203	Pharmaceutical Practical I	12	6	12	150
A41204	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
A42005	Molecular Pharmaceutics (Nano Tech and Targeted DDS)	4	4	4	100
A42006	Advanced Biopharmaceutics & Pharmacokinetics	4	4	4	100
A42007	Computer Aided Drug Delivery System	4	4	4	100
A42008	Cosmetic and Cosmeceuticals	4	4	4	100
A42203	Pharmaceutical Practical II	12	6	12	150
A42204	Seminar/Assignment	7	4	7	100
	Total	35	26	35	650

Tablel-3: Course of study for M.Pharm (Industrial Pharmacy)

Course Code	Course	Credit Hours	Credit Points	Hrs/ Wk	Marks
Semester I					
A41001	Modern Pharmaceutics Analytical Techniques	4	4	4	100
A41011	Pharmaceutical Formulation Development	4	4	4	100
A41012	Novel Drug Delivery System	4	4	4	100
A41013	Intellectual Property System	4	4	4	100
A41207	Industrial Pharmacy Practical I	12	6	12	150
A41208	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
A42005	Advanced Biopharmaceutics & Pharmacokinetics	4	4	4	100
A42007	Scale up and Technology Transfer	4	4	4	100
A42014	Pharmaceutical Production Technology	4	4	4	100
A42015	Entrepreneurship Management	4	4	4	100
A42207	Industrial Pharmacy Practical II	12	6	12	150
A42208	Seminar/Assignment	7	4	7	100
	Total	35	26	35	650

Tablel-4: Course of study for M.Pharm (Pharmaceutical Analysis)

Course Code	Course	Credit Hours	Credit Points	Hrs/ Wk	Marks
Semester I					
A41001	Modern Pharmaceutics Analytical Techniques	4	4	4	100
A41008	Advanced Pharmaceutical Analysis	4	4	4	100
A41009	Pharmaceutical Validation	4	4	4	100
A41010	Food Analysis	4	4	4	100
A41205	Pharmaceutical Analysis Practical I	12	6	12	150
A41206	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
A42010	Advanced Instrumental Analysis	4	4	4	100
A42011	Modern Bio- Analytical Techniques	4	4	4	100
A42012	Quality Control and Quality Assurance	4	4	4	100
A42013	Herbal and Cosmetic Analysis	4	4	4	100
A42205	Pharmaceutical Analysis Practical II	12	6	12	150
A42206	Seminar/Assignment	7	4	7	100
	Total	35	26	35	650

Tablel-5: Course of study for M.Pharm (Pharmacology)

Course Code	Course	Credit Hours	Credit Points	Hrs/ Wk	Marks
Semester I					
A41001	Modern Pharmaceutical Analytical Techniques	4	4	4	100
A41002	Advanced Pharmacology-I	4	4	4	100
A41003	Pharmacological and Toxicological Screening Methods-I	4	4	4	100
A41004	Cellular and Molecular Pharmacology	4	4	4	100
A41201	Pharmacology Practical I	12	6	12	150
A41202	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
A42001	Advanced Pharmacology-II	4	4	4	100
A42002	Pharmacological and Toxicological Screening Methods-II	4	4	4	100
A42003	Principles of Drug Discovery	4	4	4	100
A42004	Clinical Research And Pharmacovigilance	4	4	4	100
A42201	Pharmacology Practical II	12	6	12	150
A42202	Seminar/Assignment	7	4	7	100
	Total	35	26	35	650

**Tablel-06: Course of study for M.Pharm III Semester
(Common for All Specializations)**

Course Code	Course	Credit Hours	Credit Points
A43001	Research Methodology and Biostatistics*	4	4
A43201	Journal Club	1	1
A43202	Discussion/ Presentation (Proposal Presentation)	2	2
A43203	Research Work	28	14
Total		35	21

*Non University Exam

**Tablel-07: Course of study for M.Pharm IV Semester
(Common for All Specializations)**

Course Code	Course	Credit Hours	Credit Points
A44201	Journal Club	1	1
A44202	Research Work	31	16
A44203	Discussion/ Final Presentation	3	3
Total		35	20

Tablel-08: Semester wise credits distribution

Course	Credit Points
I	26
II	26
III	21
IV	20
Co-curricular Activities (Attending Conferences, Scientific Presentations and Other Scholarly Activities)	Minimum =02 Maximum = 07*
Total Credit Points	Minimum =95 Maximum = 100*

*Credit Points for Co-curricular Activities

TableI-09: Guidelines for Awarding Credit Points for Co-curricular Activities

Name of the Activity	Maximum Credit Points Eligible/Activity
Participation in National Level Seminar/Conference/Workshop/Symposium/Training Programs(related to the specialization of the students)	01
Participation in international Level Seminar/Conference/Workshop/Symposium/Training Programs(related to the specialization of the students)	02
Academic Award/Research Award from State Level/National Agencies	01
Academic Award/Research Award from International Agencies	02
Research/Review Publication in National Journals (Indexed in Scopus/ Web of Sciences)	01
Research/Review Publication in International Journals (Indexed in Scopus/ Web of Sciences)	02

Note: International Conference: Held Outside India

International Journal: The Editorial Board outside India

*The credit points assigned for extracurricular and or co-curricular activities shall be given by the Principles of the colleges and the same shall be submitted to the University. The criteria to acquire this credit point shall be defined by the colleges from time to time.

10. Program Committee

1. The M.Pharm program shall have a Programme Committee constituted by the Head of the institution in consultation with all the Heads of the departments.

2. The composition of the Program Committee shall be as follows:

A teacher at the cadre of Professor shall be the Chairperson; One Teacher from each M.Pharm specialization and four student representatives (two from each academic year), nominated by the Head of the institution.

3. Duties of the Programme Committee:

- i. Periodically reviewing the progress of the classes.
- ii. Discussing the problems concerning curriculum, syllabus and the conduct of classes.
- iii. Discussing with the course teachers on the nature and scope of assessment for the course and the same shall be announced to the students at the beginning of respective semesters.
- iv. Communication its recommendation to the Head of the institution on academic matters.

v. The Programme Committee shall meet at least twice in a semester preferably at the end of each sessional exam and before the end semester exam.

11. Examinations/Assessments

The schemes for internal assessments and end semester examinations are given in Tables.

11.1. End semester examinations

The End Semester Examination for each theory and practical course through semesters I to IV shall be conducted by the respective university except for the subject with asterix symbol(*) in table I and II for which examinations shall be conducted by the subject experts at college level and the marks/grades shall be submitted to the university.

Tablel-10: Schemes for internal assessment and end semester examinations (Pharmaceutics-MPH)

Tablel-11: Schemes for internal assessment and end semester examinations
(Industrial Pharmacy)

Tablel-12: Schemes for internal assessment and end semester examinations
 (Pharmaceutical Analysis)

Tablel-13: Schemes for internal assessment and end semester examinations (Pharmacology

**Tablel-14: Schemes for internal assessment and end semester examinations
(Semester III & IV)**

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks	
		Contin uous Mode	Sessional Exams		Total				
			Marks	Duration	Marks Duration				
Semester III									
A43001	Research Methodology and Biostatics*	10	15	1 Hr	25	75	3 Hrs	100	
A43201	Journal Club	-	-	-	25	-	-	25	
A43202	Discussion/ Presentation (Proposal Presentation)	-	-	-	50	-	-	50	
A43203	Research Work	-	-	-	-	250	1 Hr	250	
Total								425	
Semester IV									
A44201	Journal Club	-	-	-	25	-	-	25	
A44202	Discussion Presentation (Proposal Presentation)	-	-	-	75	-	-	75	
A44203	Research Work and Colloquium	-	-	-	-	400	1 Hr	400	
Total								500	

*Non University Exam

11.2. Internal assessment: Continuous Mode

The marks allocated for continuous mode of Internal Assessment shall be awarded as per the scheme given below.

Tabel-15: Scheme for awarding internal assessment : Continuous mode

Theory	
Criteria	Maximum Marks
Attendance (Refer Table-16)	8
Student –Teacher interaction	2
Total	10
Practical	
Attendance (Refer Table-16)	10
Based on Practical Records, Regular viva voce,etc.	10
Total	20

Tabel-16: Guidelines for the allotment of marks for attendance

Percentage of attendance	Theory	Practical
95-100	8	10
90-94	6	7.5
85-89	4	5
80-84	2	2.5
Less than 80	0	0

11.2.1 Sessional Exams

Two sessional exams shall be conducted for each theory/ practical course as per the schedule fixed by the college(s). the scheme of question paper for theory and practical sessional examinations is given in the table. The average marks of two sessional exams shall be computed for internal assessment as per the requirements given in tables.

Sessional Exams

Minimum two sessional exams shall be conducted for each theory / practical course as per the schedule fixed by the college(s). The scheme of question paper for theory and practical sessional examinations is given in the table. The average marks of two sessional exams shall be computed for internal assessment as per the requirements given in tables.

Question paper pattern for sessional theory examinations

1. Long Answers (Answer 2 out of 3) - $5 \times 2 = 10$
2. Short Answers (Answer 5 out of 5) - $5 \times 1 = 05$

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Total = 15 Marks

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Question paper pattern for sessional Practical examinations

1. Synopsis - 05
2. Experiment – I - 15
3. Experiment – II - 05
4. Viva voce - 05

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Total = 30 Marks

Question paper pattern for External theory examinations

1. Long Answers (Internal choice a or b) - $5 \times 10 = 50$
2. Short Answers (Answer 5 out of 5) - $5 \times 5 = 25$

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Total = 75 Marks

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Question paper pattern for sessional Practical examinations

1. Synopsis - 20
2. Experiment – I (Major) - 40
3. Experiment – II (Minor) - 25
4. Viva voce - 15

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Total = 100 Marks

12. Promotion and award of grades

A student shall be declared PASS and eligible for getting grade in a course of M.Pharm. program if he/she secures at least 505 marks in that particular course including internal assessment.

13. Carry forward of marks

In case a student fails to secure the minimum 50% in any Theory or Practical course as specified in 12, then he/she shall reappear for the end semester examination of that course. However his/her marks of the Internal Assessment shall be carried over and he/she shall be entitled for grade obtained by him/her on passing.

14. Improvement of Internal assessment

A student shall have the opportunity to improve his/her performance only once in the sessional exam component of the internal assessment. The re-conduct of the sessional exam shall be completed before the commencement of next end semester theory examinations.

15. Reexamination of end semester examinations

Reexamination of end semester examinations shall be conducted as per the scheduled given in table 29. The exact dates of examinations shall be notified from time to time.

Table-17: Tentative schedule of end semester examinations

Semester	For Regular Candidates	For Failed Candidates
I and III	November/December	May/June
II and IV	May/June	November/December

16. Allowed to keep terms (ATKP)

No student shall be admitted to any examination unless he/she fulfills the norms given in 6. ATKT rules are applicable as follows:

A student shall be eligible to carry forward all the courses of I and II semesters till the III semester examinations. However, he/she shall not be eligible to attend the courses of IV semester until all the courses of I,II and III semesters are successfully completed.

A student shall be eligible to get his/her CGPA upon successful completion of the courses of I to IV semester within the stipulated time period as per the norms.

Note: Grade AB should be considered as failed and treated as one head for deciding ATKT. Such rules are also applicable for those students who fails to register for examinations (S) of any course in any semester.

17. Grading of Performances

17.1. Letter grades and grade points allocations:

Based on the performances, each student shall be awarded a final letter grade at the end of the semester for each course. The letter grades and their corresponding grade points are given Table-18

Table-18: Letter grades and grade points equivalent to Percentage of marks and performance

Percentage of Marks Obtained	Letter Grade	Grade Point	Performance
90.00-100	O	10	Outstanding
80.00-89.99	A	9	Excellent
70.00-79.99	B	8	Good
60.00-69.99	C	7	Fair
50.00-59.99	D	6	Average
Less than 50	F	0	Fail
Absent	AB	0	Fail

A learner who remains absent for any end semester examination shall be assigned a letter grade of AB and a corresponding grade point of zero. He /she should reappear for the said evaluation/ examination in due course.

18. The Semester grade point average (SGPA)

The performance of a student in a semester is indicated by a number called 'Semester Grade Point' (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester with credits C₁, C₂, C₃ and C₄ and the student's grade points in these courses are G₁, G₂, G₃ and G₄, respectively and then students SGPA is equal to

$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4G_4}{C_1 + C_2 + C_3 + C_4}$$

The SGPA is calculated to two decimal points. it should be noted that, the SGPA for any semester shall take into consideration the F and ABS grade awarded in that semester. For example if a learner has a F or ABS grade in course 4, the SGPA shall then be computed as:

$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4 * \text{ZERO}}{C_1 + C_2 + C_3 + C_4}$$

19. Cumulative Grade Point Average (CGPA)

The CGPA is calculated with SGPA of all the VIII semesters to two decimal points and is indicated in final grade report card/final transcript showing the grades of all VIII semesters and their courses. The CGPA shall reflect the failed status in case of F grades (s), till the course (s) is/are passed. When the courses(s) is/are passes by obtained a pass grade on subsequent

examinations(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. The CGPA is calculated as:

$$\text{CGPA} = \frac{C_1S_1 + C_2S_2 + C_3S_3 + C_4S_4}{C_1 + C_2 + C_3 + C_4}$$

Where C_1, C_2, C_3, \dots is the total number of credits for semester I, II, III, and S_1, S_2, S_3, \dots is the SGPA of semester, I, II, III,

20. Declaration of class

The class shall be awarded on the basis of CGPA as follows:

First Class with Distinction	= CGPA of 7.50 and above
First Class	= CGPA of 6.00 to 7.49
Second Class	= CGPA of 5.00 to 5.99

21. Project work

All the students shall undertake a project under the supervision of a teacher in semester III to IV and submit a report. 4 copies of the project report shall be submitted (type & bound copy not less than 75 pages).

The internal and external examiner appointed by the University shall evaluate the project at the time of the Practical examinations of other semester(s). The projects shall be evaluated as per the criteria given below.

Evaluation of Dissertation Book:

Objective(s) of the work done	50 Marks
Methodology adopted	150 Marks
Results and Discussions	250 Marks
Conclusions and Outcomes	50 Marks
Total	500 Marks

Evaluation of Presentation:

Presentation of the work	100 Marks
Communication Skills	50 Marks
Question and answer skills	100 Marks

Total	
	250 Marks

22. Award of Ranks

Ranks and Medals shall be awarded on the basis of final CGPA. However, candidates who fail in one or more courses during the M.Pharm, program shall not be eligible for award of ranks. Moreover, the candidates should have completed the M.Pharm program in minimum prescribed number of years, (two year) for the award of Ranks.

23. Award of degree

Candidate who fulfills the requirements mentioned above shall be eligible for award of degree during the ensuing convocation.

24. Duration for completion of the program of study

The duration for the completion of the program shall be fixed as double the actual duration of the program and the students have to pass within the said period, otherwise they have to get fresh Registration.

25. Revaluation / Retotaling of answer papers

There is no provision for revaluation of the answer papers in any examination. However, the candidates can apply for retotaling by paying prescribed fee.

26. Re-admission after break of study

Candidate who seeks re-admission to the program after break of study has to get the approval from the university by paying a condonation fee.

No condonation is allowed for the candidate who has more than 2 years of break up period and he/she has to rejoin the program by paying the required fees.