

# 2016

## THE MASTER OF PHARMACY (M. PHARM.) COURSE REGULATION 2014

(BASED ON NOTIFICATION IN THE GAZETTE OF INDIA No. 362, DATED DECEMBER 11, 2014)

## SCHEME AND SYLLABUS



**PHARMACY COUNCIL OF INDIA**

Combined Council's Building, Kotla Road,  
Aiwan-E-Ghalib Marg, New Delhi-110 002.  
Website : [www.pci.nic](http://www.pci.nic).

## **Table of Contents**

<b>S.No.</b>	<b>Content</b>	<b>Page.No.</b>
	Regulations	01
1.	Short Title and Commencement	01
2.	Minimum qualification for admission	01
3.	Duration of the program	01
4.	Medium of instruction and examinations	01
5.	Working days in each semester	01
6.	Attendance and progress	02
7.	Program/Course credit structure	02
8.	Academic work	03
9.	Course of study	03
10.	Program Committee	15
11.	Examinations/Assessments	16
12.	Promotion and award of grades	32
13.	Carry forward of marks	32
14.	Improvement of internal assessment	33
15.	Reexamination of end semester examinations	33
16.	Allowed to keep terms (ATKT)	33
17.	Grading of performances	33
18.	The Semester grade point average (SGPA)	34
19.	Cumulative Grade Point Average (CGPA)	34
20.	Declaration of class	35
21.	Project work	35
22.	Award of Ranks	36
23.	Award of degree	36
24.	Duration for completion of the program of study	36
25.	Revaluation I Retotaling of answer papers	36
26.	Re-admission after break of study	36
27.	Pharmaceutics (MPH)	37
28.	Industrial Pharmacy (MIP)	55
29.	Pharmaceutical Chemistry (MPC)	73
30.	Pharmaceutical Analysis (MPA)	98
31.	Pharmaceutical Quality Assurance (MQA)	119
32.	Pharmaceutical Regulatory Affairs (MRA)	142
33.	Pharmaceutical Biotechnology (MPB)	165
34.	Pharmacy Practice (MPP)	188
35.	Pharmacology (MPL)	209
36.	Pharmacognosy (MPG)	232
37.	Research Methodology & Biostatistics (MRM)	252



# भारत का राजपत्र The Gazette of India

असाधारण

EXTRAORDINARY

भाग III—खण्ड 4

PART III—Section 4

प्राधिकार से प्रकाशित

PUBLISHED BY AUTHORITY

सं. 362]

नई दिल्ली, बृहस्पतिवार, दिसम्बर 11, 2014/अग्रहायण 20, 1936

No. 362]

NEW DELHI, THURSDAY, DECEMBER 11, 2014/AGRAHAYANA 20, 1936

PHARMACY COUNCIL OF INDIA

NOTIFICATION

New Delhi, the 10th December, 2014

**The Master of Pharmacy (M.Pharm) Course Regulations, 2014**

**No. 14-136/ 2014-PCI.**—In exercise of the powers conferred by Sections 10 and 18 of the Pharmacy Act, 1948 (8 of 1948), the Pharmacy Council of India, with the approval of the Central Government hereby makes the following regulations; namely—

## **CHAPTER – I: 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 2016-17. 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 instruction and examinations**

Medium of instruction and examination 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 semesters shall be conducted from the month of 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 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 instruction per week in that course, and is obtained by using a multiplier 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 1/2. 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, Discussions 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 indicates certain academic maturity on the part of the learners. Learners are expected to follow the semester-wise schedule 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 is given in Table 1.

**Table – 1: List of M.Pharm. Specializations and their Code**

S. No.	Specialization	Code
1.	Pharmaceutics	MPH
2.	Industrial Pharmacy	MIP
3.	Pharmaceutical Chemistry	MPC
4.	Pharmaceutical Analysis	MPA
5.	Pharmaceutical Quality Assurance	MQA
6.	Pharmaceutical Regulatory Affairs	MRA
7.	Pharmaceutical Biotechnology	MPB
8.	Pharmacy Practice	MPP
9.	Pharmacology	MPL
10.	Pharmacognosy	MPG

The course of study for M.Pharm specializations shall include Semester wise Theory & Practical as given in Table – 2 to 11. 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 11.

Table – 2: Course of study for M. Pharm. (Pharmaceutics)

Course Code	Course	Credit Hours	Credit Points	Hrs./week	Marks
<b>Semester I</b>					
<b>MPH101T</b>	Modern Pharmaceutical Analytical Techniques	4	4	4	100
<b>MPH102T</b>	Drug Delivery System	4	4	4	100
<b>MPH103T</b>	Modern Pharmaceutics	4	4	4	100
<b>MPH104T</b>	Regulatory Affair	4	4	4	100
<b>MPH105P</b>	Pharmaceutics Practical I	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>
<b>Semester II</b>					
<b>MPH201T</b>	Molecular Pharmaceutics (Nano Tech and Targeted DDS)	4	4	4	100
<b>MPH202T</b>	Advanced Biopharmaceutics & Pharmacokinetics	4	4	4	100
<b>MPH203T</b>	Computer Aided Drug Delivery System	4	4	4	100
<b>MPH204T</b>	Cosmetic and Cosmeceuticals	4	4	4	100
<b>MPH205P</b>	Pharmaceutics Practical II	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>

Table – 3: Course of study for M. Pharm. (Industrial Pharmacy)

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
<b>Semester I</b>					
<b>MIP101T</b>	Modern Pharmaceutical Analytical Techniques	4	4	4	100
<b>MIP102T</b>	Pharmaceutical Formulation Development	4	4	4	100
<b>MIP103T</b>	Novel drug delivery systems	4	4	4	100
<b>MIP104T</b>	Intellectual Property Rights	4	4	4	100
<b>MIP105P</b>	Industrial Pharmacy Practical I	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		35	26	35	650
<b>Semester II</b>					
<b>MIP201T</b>	Advanced Biopharmaceutics and Pharmacokinetics	4	4	4	100
<b>MIP202T</b>	Scale up and Technology Transfer	4	4	4	100
<b>MIP203T</b>	Pharmaceutical Production Technology	4	4	4	100
<b>MIP204T</b>	Entrepreneurship Management	4	4	4	100
<b>MIP205P</b>	Industrial Pharmacy Practical II	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		35	26	35	650



Table – 4: Course of study for M. Pharm. (Pharmaceutical Chemistry)

Course Code	Course	Credit Hours	Credit Points	Hrs./week	Marks
<b>Semester I</b>					
<b>MPC101T</b>	Modern Pharmaceutical Analytical Techniques	4	4	4	100
<b>MPC1012T</b>	Advanced Organic Chemistry -I	4	4	4	100
<b>MPC103T</b>	Advanced Medicinal chemistry	4	4	4	100
<b>MPC104T</b>	Chemistry of Natural Products	4	4	4	100
<b>MPC105P</b>	Pharmaceutical Chemistry Practical I	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>
<b>Semester II</b>					
<b>MPC201T</b>	Advanced Spectral Analysis	4	4	4	100
<b>MPC202T</b>	Advanced Organic Chemistry -II	4	4	4	100
<b>MPC203T</b>	Computer Aided Drug Design	4	4	4	100
<b>MPC204T</b>	Pharmaceutical Process Chemistry	4	4	4	100
<b>MPC205P</b>	Pharmaceutical Chemistry Practical II	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>

Table – 5: Course of study for M. Pharm. (Pharmaceutical Analysis)

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
<b>Semester I</b>					
<b>MPA101T</b>	Modern Pharmaceutical Analytical Techniques	4	4	4	100
<b>MPA102T</b>	Advanced Pharmaceutical Analysis	4	4	4	100
<b>MPA103T</b>	Pharmaceutical Validation	4	4	4	100
<b>MPA104T</b>	Food Analysis	4	4	4	100
<b>MPA105P</b>	Pharmaceutical Analysis Practical I	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>
<b>Semester II</b>					
<b>MPA201T</b>	Advanced Instrumental Analysis	4	4	4	100
<b>MPA202T</b>	Modern Bio-Analytical Techniques	4	4	4	100
<b>MPA203T</b>	Quality Control and Quality Assurance	4	4	4	100
<b>MPA204T</b>	Herbal and Cosmetic Analysis	4	4	4	100
<b>MPA205P</b>	Pharmaceutical Analysis Practical II	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>

Table – 6: Course of study for M. Pharm. (Pharmaceutical Quality Assurance)

Course Code	Course	Credit Hours	Credit Points	Hrs./week	Marks
<b>Semester I</b>					
<b>MQA101T</b>	Modern Pharmaceutical Analytical Techniques	4	4	4	100
<b>MQA102T</b>	Quality Management System	4	4	4	100
<b>MQA103T</b>	Quality Control and Quality Assurance	4	4	4	100
<b>MQA104T</b>	Product Development and Technology Transfer	4	4	4	100
<b>MQA105P</b>	Pharmaceutical Quality Assurance Practical I	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>
<b>Semester II</b>					
<b>MQA201T</b>	Hazards and Safety Management	4	4	4	100
<b>MQA202T</b>	Pharmaceutical Validation	4	4	4	100
<b>MQA203T</b>	Audits and Regulatory Compliance	4	4	4	100
<b>MQA204T</b>	Pharmaceutical Manufacturing Technology	4	4	4	100
<b>MQA205P</b>	Pharmaceutical Quality Assurance Practical II	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>

Table – 7: Course of study for M. Pharm. (Regulatory Affairs)

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
<b>Semester I</b>					
<b>MRA 101T</b>	Good Regulatory Practices	4	4	4	100
<b>MRA 102T</b>	Documentation and Regulatory Writing	4	4	4	100
<b>MRA 103T</b>	Clinical Research Regulations	4	4	4	100
<b>MRA 104T</b>	Regulations and Legislation for Drugs & Cosmetics, Medical Devices, Biologicals & Herbals, and Food & Nutraceuticals In India and Intellectual Property Rights	4	4	4	100
<b>MRA 105P</b>	Regulatory Affairs Practical I	12	6	12	150
	Seminar/Assignment	7	4	7	100
	<b>Total</b>	<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>
<b>Semester II</b>					
<b>MRA 201T</b>	Regulatory Aspects of Drugs & Cosmetics	4	4	4	100
<b>MRA 202T</b>	Regulatory Aspects of Herbal & Biologicals	4	4	4	100
<b>MRA 203T</b>	Regulatory Aspects of Medical Devices	4	4	4	100
<b>MRA 204T</b>	Regulatory Aspects of Food & Nutraceuticals	4	4	4	100
<b>MRA 205P</b>	Regulatory Affairs Practical II	12	6	12	150
	Seminar/Assignment	7	4	7	100
	<b>Total</b>	<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>

Table – 8: Course of study for M. Pharm. (Pharmaceutical Biotechnology)

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
<b>Semester I</b>					
<b>MPB 101T</b>	Modern Pharmaceutical Analytical Techniques	4	4	4	100
<b>MPB 102T</b>	Microbial And Cellular Biology	4	4	4	100
<b>MPB 103T</b>	Bioprocess Engineering and Technology	4	4	4	100
<b>MPB 104T</b>	Advanced Pharmaceutical Biotechnology	4	4	4	100
<b>MPB 105P</b>	Pharmaceutical Biotechnology Practical I	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>
<b>Semester II</b>					
<b>MPB 201T</b>	Proteins and protein Formulation	4	4	4	100
<b>MPB 202T</b>	Immunotechnology	4	4	4	100
<b>MPB 203T</b>	Bioinformatics and Computer Technology	4	4	4	100
<b>MPB 204T</b>	Biological Evaluation of Drug Therapy	4	4	4	100
<b>MPB 205P</b>	Pharmaceutical Biotechnology Practical II	12	6	12	150
-	Seminar/Assignment	7	4	7	100
	<b>Total</b>	<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>

Table – 9: Course of study for M. Pharm. (Pharmacy Practice)

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
<b>Semester I</b>					
<b>MPP 101T</b>	Clinical Pharmacy Practice	4	4	4	100
<b>MPP 102T</b>	Pharmacotherapeutics-I	4	4	4	100
<b>MPP 103T</b>	Hospital & Community Pharmacy	4	4	4	100
<b>MPP 104T</b>	Clinical Research	4	4	4	100
<b>MPP 105P</b>	Pharmacy Practice Practical I	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>
<b>Semester II</b>					
<b>MPP 201T</b>	Principles of Quality Use of Medicines	4	4	4	100
<b>MPP 102T</b>	Pharmacotherapeutics II	4	4	4	100
<b>MPP 203T</b>	Clinical Pharmacokinetics and Therapeutic Drug Monitoring	4	4	4	100
<b>MPP 204T</b>	Pharmacoepidemiology & Pharmacoeconomics	4	4	4	100
<b>MPP 205P</b>	Pharmacy Practice Practical II	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>

Table – 10: Course of study for (Pharmacology)

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
<b>Semester I</b>					
<b>MPL 101T</b>	Modern Pharmaceutical Analytical Techniques	4	4	4	100
<b>MPL 102T</b>	Advanced Pharmacology-I	4	4	4	100
<b>MPL 103T</b>	Pharmacological and Toxicological Screening Methods-I	4	4	4	100
<b>MPL 104T</b>	Cellular and Molecular Pharmacology	4	4	4	100
<b>MPL 105P</b>	Pharmacology Practical I	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>
<b>Semester II</b>					
<b>MPL 201T</b>	Advanced Pharmacology II	4	4	4	100
<b>MPL 102T</b>	Pharmacological and Toxicological Screening Methods-II	4	4	4	100
<b>MPL 203T</b>	Principles of Drug Discovery	4	4	4	100
<b>MPL 204T</b>	Experimental Pharmacology practical- II	4	4	4	100
<b>MPL 205P</b>	Pharmacology Practical II	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>

Table – 11: Course of study for M. Pharm. (Pharmacognosy)

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
<b>Semester I</b>					
<b>MPG101T</b>	Modern Pharmaceutical Analytical Techniques	4	4	4	100
<b>MPG102T</b>	Advanced Pharmacognosy-1	4	4	4	100
<b>MPG103T</b>	Phytochemistry	4	4	4	100
<b>MPG104T</b>	Industrial Pharmacognostical Technology	4	4	4	100
<b>MPG105P</b>	Pharmacognosy Practical I	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>
<b>Semester II</b>					
<b>MPG201T</b>	Medicinal Plant biotechnology	4	4	4	100
<b>MPG102T</b>	Advanced Pharmacognosy-II	4	4	4	100
<b>MPG203T</b>	Indian system of medicine	4	4	4	100
<b>MPG204T</b>	Herbal cosmetics	4	4	4	100
<b>MPG205P</b>	Pharmacognosy Practical II	12	6	12	150
-	Seminar/Assignment	7	4	7	100
<b>Total</b>		<b>35</b>	<b>26</b>	<b>35</b>	<b>650</b>



Table – 12: Course of study for M. Pharm. III Semester  
(Common for All Specializations)

Course Code	Course	Credit Hours	Credit Points
<b>MRM 301T</b>	Research Methodology and Biostatistics*	4	4
-	Journal club	1	1
-	Discussion / Presentation (Proposal Presentation)	2	2
-	Research Work	28	14
<b>Total</b>		<b>35</b>	<b>21</b>

\* Non University Exam

Table – 13: Course of study for M. Pharm. IV Semester  
(Common for All Specializations)

Course Code	Course	Credit Hours	Credit Points
-	Journal Club	1	1
-	Research Work	31	16
-	Discussion/Final Presentation	3	3
<b>Total</b>		<b>35</b>	<b>20</b>

Table – 14: Semester wise credits distribution

Semester	Credit Points
<b>I</b>	26
<b>II</b>	26
<b>III</b>	21
<b>IV</b>	20
<b>Co-curricular Activities (Attending Conference, Scientific Presentations and Other Scholarly Activities)</b>	Minimum=02 Maximum=07*
<b>Total Credit Points</b>	Minimum=95 Maximum=100*

\*Credit Points for Co-curricular Activities

Table – 15: Guidelines for Awarding Credit Points for Co-curricular Activities

<b>Name of the Activity</b>	<b>Maximum Credit Points Eligible / Activity</b>
<b>Participation in National Level Seminar/Conference/Workshop/Symposium/ Training Programs (related to the specialization of the student)</b>	01
<b>Participation in international Level Seminar/Conference/Workshop/Symposium/ Training Programs (related to the specialization of the student)</b>	02
<b>Academic Award/Research Award from State Level/National Agencies</b>	01
<b>Academic Award/Research Award from International Agencies</b>	02
<b>Research / Review Publication in National Journals (Indexed in Scopus / Web of Science)</b>	01
<b>Research / Review Publication in International Journals (Indexed in Scopus / Web of Science)</b>	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 Principals 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. programme 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 Programme 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. Communicating 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 sessionalexam and before the end semester exam.

## **11. Examinations/Assessments**

The schemes for internal assessment and end semester examinations are given in Table – 16.

### ***11.1. End semester examinations***

The End Semester Examinations for each theory and practical coursethrough semesters I to IVshall beconducted 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.

Tables – 16: Schemes for internal assessments and end semester examinations  
(Pharmaceutics- MPH)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MPH 101T	Modern Pharmaceutical Analytical Techniques	10	15	1 Hr	25	75	3 Hrs	100
MPH 102T	Drug Delivery System	10	15	1 Hr	25	75	3 Hrs	100
MPH 103T	Modern Pharmaceutics	10	15	1 Hr	25	75	3 Hrs	100
MPH 104T	Regulatory Affair	10	15	1 Hr	25	75	3 Hrs	100
MPH 105P	Pharmaceutics Practical I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MPH 201T	Molecular Pharmaceutics(Nano Tech and Targeted DDS)	10	15	1 Hr	25	75	3 Hrs	100
MPH 202T	Advanced Biopharmaceutics & Pharmacokinetics	10	15	1 Hr	25	75	3 Hrs	100
MPH 203T	Computer Aided Drug Delivery System	10	15	1 Hr	25	75	3 Hrs	100
MPH	Cosmetic	10	15	1 Hr	25	75	3 Hrs	100

<b>204T</b>	and Cosmeceutic als							
<b>MPH 205P</b>	Pharmaceuti cs Practical I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
<b>Total</b>								<b>650</b>

Tables – 17: Schemes for internal assessments and end semester examinations  
(Industrial Pharmacy- MIP)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MIP101T	Modern Pharmaceutical Analytical Techniques	10	15	1 Hr	25	75	3 Hrs	100
MIP102T	Pharmaceutical Formulation Development	10	15	1 Hr	25	75	3 Hrs	100
MIP103T	Novel drug delivery systems	10	15	1 Hr	25	75	3 Hrs	100
MIP104T	Intellectual Property Rights	10	15	1 Hr	25	75	3 Hrs	100
MIP105P	Industrial Pharmacy Practical I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MIP201T	Advanced Biopharmaceutics and Pharmacokinetics	10	15	1 Hr	25	75	3 Hrs	100
MIP202T	Scale up and Technology Transfer	10	15	1 Hr	25	75	3 Hrs	100
MIP203T	Pharmaceutical Production Technology	10	15	1 Hr	25	75	3 Hrs	100
MIP204T	Entrepreneurship Management	10	15	1 Hr	25	75	3 Hrs	100

<b>MIP205P</b>	Industrial Pharmacy Practical II	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
<b>Total</b>								<b>650</b>

Tables – 18: Schemes for internal assessments and end semester examinations  
(Pharmaceutical Chemistry-MPC)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continu- ous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MPC101T	Modern Pharmaceutical Analytical Techniques	10	15	1 Hr	25	75	3 Hrs	100
MPC102T	Advanced Organic Chemistry -I	10	15	1 Hr	25	75	3 Hrs	100
MPC103T	Advanced Medicinal chemistry	10	15	1 Hr	25	75	3 Hrs	100
MPC104T	Chemistry of Natural Products	10	15	1 Hr	25	75	3 Hrs	100
MPC105P	Pharmaceutical Chemistry Practical I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MPC201T	Advanced Spectral Analysis	10	15	1 Hr	25	75	3 Hrs	100
MPC202T	Advanced Organic Chemistry -II	10	15	1 Hr	25	75	3 Hrs	100
MPC203T	Computer Aided Drug Design	10	15	1 Hr	25	75	3 Hrs	100
MPC204T	Pharmaceutical Process Chemistry	10	15	1 Hr	25	75	3 Hrs	100
MPC205P	Pharmaceutic	20	30	6 Hrs	50	100	6	150



	al Chemistry Practical II						Hrs	
-	Seminar /Assignment	-	-	-	-	-	-	100
<b>Total</b>								<b>650</b>

Tables – 19: Schemes for internal assessments and end semester examinations  
(Pharmaceutical Analysis-MPA)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continu- ous Mode	Sessional Exams		Tot al	Mark s	Dura- tion	
			Mark s	Durati on				
SEMESTER I								
MPA101T	Modern Pharmaceutical Analysis	10	15	1 Hr	25	75	3 Hrs	100
MPA102T	Advanced Pharmaceutical Analysis	10	15	1 Hr	25	75	3 Hrs	100
MPA103T	Pharmaceuti- cal Validation	10	15	1 Hr	25	75	3 Hrs	100
MPA104T	Food Analysis	10	15	1 Hr	25	75	3 Hrs	100
MPA105P	Pharmaceuti- cal Analysis-I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MPA201T	Advanced Instrumental Analysis	10	15	1 Hr	25	75	3 Hrs	100
MPA202T	Modern Bio- Analytical Techniques	10	15	1 Hr	25	75	3 Hrs	100
MPA203T	Quality Control and Quality	10	15	1 Hr	25	75	3 Hrs	100

	Assurance							
<b>MPA204T</b>	Herbal and Cosmetic analysis	10	15	1 Hr	25	75	3 Hrs	100
<b>MPA205P</b>	Pharmaceutical Analysis-II	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
<b>Total</b>								<b>650</b>

Tables – 20: Schemes for internal assessments and end semester examinations  
(Pharmaceutical Quality Assurance-MQA)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MQA1 01T	Modern Pharmaceutical Analytical Techniques	10	15	1 Hr	25	75	3 Hrs	100
MQA1 02T	Quality Management System	10	15	1 Hr	25	75	3 Hrs	100
MQA1 03T	Quality Control and Quality Assurance	10	15	1 Hr	25	75	3 Hrs	100
MQA1 04T	Product Development and Technology Transfer	10	15	1 Hr	25	75	3 Hrs	100
MQA1 05P	Pharmaceutical Quality Assurance Practical I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MQA2 01T	Hazards and Safety Management	10	15	1 Hr	25	75	3 Hrs	100
MQA2 02T	Pharmaceutical Validation	10	15	1 Hr	25	75	3 Hrs	100
MQA2 03T	Audits and Regulatory Compliance	10	15	1 Hr	25	75	3 Hrs	100
MQA2 04T	Pharmaceutical Manufacturing Technology	10	15	1 Hr	25	75	3 Hrs	100
MQA2 05P	Pharmaceutical Quality Assurance Practical II	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650

Tables – 21: Schemes for internal assessments and end semester examinations  
(Pharmaceutical Regulatory Affairs-MRA)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuo us Mod e	Sessional Exams		Tot al	Mar ks	Dura tion	
			Mar ks	Durati on				
SEMESTER I								
MRA10 1T	Good Pharmaceutical Practices	10	15	1 Hr	25	75	3 Hrs	100
MRA10 2T	Documentation and Regulatory Writing	10	15	1 Hr	25	75	3 Hrs	100
MRA10 3T	Clinical Research Regulations	10	15	1 Hr	25	75	3 Hrs	100
MRA10 4T	Regulations and Legislation for Drugs & Cosmetics, Medical Devices, Biologicals & Herbals, and Food & Nutraceuticals In India and Intellectual Property Rights	10	15	1 Hr	25	75	3 Hrs	100
MRA10 5T	Pharmaceutical Regulatory Affairs Practical I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MRA20 1T	Regulatory Aspects of Drugs & Cosmetics	10	15	1 Hr	25	75	3 Hrs	100

<b>MRA20 2T</b>	Regulatory Aspects of Herbal & Biologicals	10	15	1 Hr	25	75	3 Hrs	100
<b>MRA20 3T</b>	Regulatory Aspects of Medical Devices	10	15	1 Hr	25	75	3 Hrs	100
<b>MRA20 4T</b>	Regulatory Aspects of Food & Nutraceuticals	10	15	1 Hr	25	75	3 Hrs	100
<b>MRA20 5P</b>	Pharmaceutical Regulatory Affairs Practical II	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
<b>Total</b>								<b>650</b>

Tables – 22: Schemes for internal assessments and end semester examinations  
(Pharmaceutical Biotechnology-MPB)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MPB10 1T	Modern Pharmaceutical Analytical Techniques	10	15	1 Hr	25	75	3 Hrs	100
MPB10 2T	Microbial And Cellular Biology	10	15	1 Hr	25	75	3 Hrs	100
MPB10 3T	Bioprocess Engineering and Technology	10	15	1 Hr	25	75	3 Hrs	100
MPB10 4T	Advanced Pharmaceutical Biotechnology	10	15	1 Hr	25	75	3 Hrs	100
MPB10 5P	Pharmaceutical Biotechnology Practical I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MPB20 1T	Proteins and protein Formulation	10	15	1 Hr	25	75	3 Hrs	100
MPB20 2T	Immunotechnology	10	15	1 Hr	25	75	3 Hrs	100
MPB20 3T	Bioinformatics and Computer Technology	10	15	1 Hr	25	75	3 Hrs	100
MPB20 4T	Biological Evaluation of Drug Therapy	10	15	1 Hr	25	75	3 Hrs	100
MPB20 5P	Pharmaceutical Biotechnology Practical II	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650

Tables – 23: Schemes for internal assessments and end semester examinations  
(Pharmacy Practice-MPP)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MPP10 1T	Clinical Pharmacy Practice	10	15	1 Hr	25	75	3 Hrs	100
MPP10 2T	Pharmacotherapeutics-I	10	15	1 Hr	25	75	3 Hrs	100
MPP10 3T	Hospital & Community Pharmacy	10	15	1 Hr	25	75	3 Hrs	100
MPP10 4T	Clinical Research	10	15	1 Hr	25	75	3 Hrs	100
MPP10 5P	Pharmacy Practice Practical I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MPP20 1T	Principles of Quality Use of Medicines	10	15	1 Hr	25	75	3 Hrs	100
MPP10 2T	Pharmacotherapeutics II	10	15	1 Hr	25	75	3 Hrs	100
MPP20 3T	Clinical Pharmacokinetics and Therapeutic Drug Monitoring	10	15	1 Hr	25	75	3 Hrs	100
MPP20 4T	Pharmacoepidemiology & Pharmacoeconomics	10	15	1 Hr	25	75	3 Hrs	100
MPP20 5P	Pharmacy Practice Practical II	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650

Tables – 24: Schemes for internal assessments and end semester examinations  
(Pharmacology-MPL)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MPL10 1T	Modern Pharmaceutical Analytical Techniques	10	15	1 Hr	25	75	3 Hrs	100
MPL10 2T	Advanced Pharmacology-I	10	15	1 Hr	25	75	3 Hrs	100
MPL10 3T	Pharmacological and Toxicological Screening Methods-I	10	15	1 Hr	25	75	3 Hrs	100
MPL10 4T	Cellular and Molecular Pharmacology	10	15	1 Hr	25	75	3 Hrs	100
MPL10 5P	Experimental Pharmacology - I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MPL20 1T	Advanced Pharmacology II	10	15	1 Hr	25	75	3 Hrs	100
MPL10 2T	Pharmacological and Toxicological Screening Methods-II	10	15	1 Hr	25	75	3 Hrs	100
MPL20 3T	Principles of Drug Discovery	10	15	1 Hr	25	75	3 Hrs	100
MPL20 4T	Clinical research and pharmacovigilance	10	15	1 Hr	25	75	3 Hrs	100
MPL20 5P	Experimental Pharmacology - II	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650



Tables – 25: Schemes for internal assessments and end semester examinations  
(Pharmacognosy-MPG)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER I								
MPG10 1T	Modern Pharmaceutics I Analytical Techniques	10	15	1 Hr	25	75	3 Hrs	100
MPG10 2T	Advanced Pharmacognosy-I	10	15	1 Hr	25	75	3 Hrs	100
MPG10 3T	Phytochemistry	10	15	1 Hr	25	75	3 Hrs	100
MPG10 4T	Industrial Pharmacognostical Technology	10	15	1 Hr	25	75	3 Hrs	100
MPG10 5P	Pharmacognosy Practical I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650
SEMESTER II								
MPG20 1T	Medicinal Plant biotechnology	10	15	1 Hr	25	75	3 Hrs	100
MPG10 2T	Advanced Pharmacognosy-II	10	15	1 Hr	25	75	3 Hrs	100
MPG20 3T	Indian system of medicine	10	15	1 Hr	25	75	3 Hrs	100
MPG20 4T	Herbal cosmetics	10	15	1 Hr	25	75	3 Hrs	100
MPG20 5P	Pharmacognosy Practical II	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650

Tables – 26: Schemes for internal assessments and end semester examinations  
(Semester III& IV)

Course Code	Course	Internal Assessment			End Semester Exams			Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
SEMESTER III								
MRM301T	Research Methodology and Biostatistics*	10	15	1 Hr	25	75	3 Hrs	100
-	Journal club	-	-	-	25	-	-	25
-	Discussion / Presentation (Proposal Presentation)	-	-	-	50	-	-	50
-	Research work*	-	-	-	-	350	1 Hr	350
Total								525
SEMESTER IV								
-	Journal club	-	-	-	25	-	-	25
-	Discussion / Presentation (Proposal Presentation)	-	-	-	75	-	-	75
-	Research work and Colloquium	-	-	-	-	400	1 Hr	400
Total								500

**\*Non University Examination**

### 11.2. Internal assessment: Continuous mode

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

Table – 27: Scheme for awarding internal assessment: Continuous mode

Theory	
Criteria	Maximum Marks
Attendance (Refer Table – 28)	8
Student – Teacher interaction	2
Total	10
Practical	
Attendance (Refer Table – 28)	10
Based on Practical Records, Regular viva voce, etc.	10
Total	20

Table – 28: 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.

### 12. Promotion and award of grades

A student shall be declared PASS and eligible for getting grade in a course of M.Pharm. programme if he/she secures at least 50% 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 examination shall be conducted as per the schedule given in table 29. The exact dates of examinations shall be notified from time to time.

Table – 29: Tentative schedule of end semester examinations

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

#### **16. Allowed to keep terms (ATKT):**

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 semesters 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 fail to register for examination(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 in Table – 30.