

**MARATHWADA MITRA MANDAL'S COLLEGE OF PHARMACY,**

TERGAON, PUNE-411 033 (M.S)

**SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE**  
**SYLLABUS BOOK HIGHLIGHTING PROGRAMS AND COURSES**  
**OFFERED AT MMCOP**  
(A.Y. 2015-16 to A.Y. 2019-20)

**CONTENT**

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*\*in Year wise manner*




  
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**Programme- B. Pharm**  
**CBCS/Elective Course Structures**  
**(A.Y. 2015-16 to A.Y 2019-20)**



  
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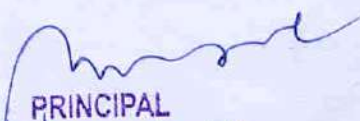
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# **Programme- B. Pharm**

## **2019 – Course Structure**



  
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**SAVITRIBAI PHULE PUNE UNIVERSITY**

**FACULTY OF SCIENCE AND TECHNOLOGY**



**RULES & SYLLABUS**

**FIRST YEAR BACHELOR OF PHARMACY (B. Pharm.) COURSE –  
2019 pattern (EFFECTIVE FROM ACADEMIC YEAR 2019-2020)**

  
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## CHAPTER- I: REGULATIONS

1. **Short Title and Commencement** These regulations shall be called as “The Revised Regulations for the B. Pharm. Degree Program (CBCS) 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 Pharmacy Council of India.
2. **Minimum qualification for admission**
  - 2.1 **First year B. Pharm:** Candidate shall have passed 10+2 examination conducted by the respective state/central government authorities recognized as equivalent to 10+2 examination by the Association of Indian Universities (AIU) with English as one of the subjects and Physics, Chemistry, Mathematics (P.C.M) and or Biology (P.C.B / P.C.M.B.) as optional subjects individually. Any other qualification approved by the Pharmacy Council of India as equivalent to any of the above examinations.
  - 2.2 **B. Pharm lateral entry (to third semester):** A pass in D. Pharm. course from an institution approved by the Pharmacy Council of India under section 12 of the Pharmacy Act.
3. **Duration of the program** The course of study for B.Pharm shall extend over a period of eight semesters (four academic years) and six semesters (three academic years) for lateral entry students. 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 90 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 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, tutorial hours, practical classes, 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.

## 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 /or tutorial (T) hours, 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 tutorial hours, and a multiplier of half (1/2) for practical (laboratory) hours. Thus, for example, a theory course having three lectures and one tutorial 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.

**7.2. Minimum credit requirements** The minimum credit points required for award of a B. Pharm. degree is 208. These credits are divided into Theory courses, Tutorials, Practical, Practice School and Project over the duration of eight semesters. The credits are distributed semester-wise as shown in Table IX. Courses generally progress in sequences, 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. The lateral entry students shall get 52 credit points transferred from their D. Pharm program. Such students shall take up additional remedial courses of 'Communication Skills' (Theory and Practical) and 'Computer Applications in Pharmacy' (Theory and Practical) equivalent to 3 and 4 credit points respectively, a total of 7 credit points to attain 59 credit points, the maximum of I and II semesters.

**8. Academic work** A regular record of attendance both in Theory and Practical shall be maintained by the teaching staff of respective courses.

**9. Course of study** The course of study for B. Pharm shall include Semester Wise Theory & Practical as given in Table – I to VIII. The number of hours to be devoted to each theory, tutorial and practical course in any semester shall not be less than that shown in Table – I to VIII.




**Table-I: Course of study for semester I**

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP101T	Human Anatomy and Physiology I- Theory	3/45	1	4
BP102T	Pharmaceutical Analysis I – Theory	3/45	1	4
BP103T	Pharmaceutics I – Theory	3/45	1	4
BP104T	Pharmaceutical Inorganic Chemistry – Theory	3/45	1	4
BP105T	Communication skills – Theory *	2/30	-	2
BP106RBT BP106RMT	Remedial Biology/ Remedial Mathematics – Theory*	2/30	-	D
BP107P	Human Anatomy and Physiology – Practical	4/60	-	2
BP108P	Pharmaceutical Analysis I – Practical	4/60	-	2
BP109P	Pharmaceutics I – Practical	4/60	-	2
BP110P	Pharmaceutical Inorganic Chemistry – Practical	4/60	-	2
BP111P	Communication skills – Practical*	2/30	-	1
BP112RBP	Remedial Biology – Practical*	2/30	-	D
<b>Total</b>		<b>32/34<sup>S</sup>/36<sup>#</sup>/4 80/510<sup>S</sup>/540<sup>#</sup></b>	<b>4</b>	<b>27</b>

#Applicable ONLY for the students who have studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB) course. However for Remedial biology and Mathematics no credits to be allotted only 50 % passing i.e D grade will be prerequisite.

\$Applicable ONLY for the students who have studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM) course.

\* Non University Examination (NUE)

  
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**Table-II: Course of study for semester II**

Course Code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP201T	Human Anatomy and Physiology II – Theory	3/45	1	4
BP202T	Pharmaceutical Organic Chemistry I – Theory	3/45	1	4
BP203T	Biochemistry – Theory	3/45	1	4
BP204T	Pathophysiology – Theory	3/45	1	4
BP205T	Computer Applications in Pharmacy Theory *	3/45	-	3
BP206T	Environmental sciences – Theory *	3/45	-	3
BP207P	Human Anatomy and Physiology II – Practical	4/60	-	2
BP208P	Pharmaceutical Organic Chemistry I – Practical	4/60	-	2
BP209P	Biochemistry – Practical	4/60	-	2
BP210P	Computer Applications in Pharmacy – Practical*	4/60	-	1
<b>Total</b>		<b>32/480</b>	<b>4</b>	<b>29</b>

\*Non University Examination (NUE)

**Table-III: Course of study for semester III**

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP301T	Pharmaceutical Organic Chemistry II – Theory	3/45	1	4
BP302T	Physical Pharmaceutics I – Theory	3/45	1	4
BP303T	Pharmaceutical Microbiology – Theory	3/45	1	4
BP304T	Pharmaceutical Engineering – Theory	3/45	1	4
BP305P	Pharmaceutical Organic Chemistry II – Practical	4/60	-	2
BP306P	Physical Pharmaceutics I – Practical	4/60	-	2
BP307P	Pharmaceutical Microbiology – Practical	4/60	-	2
BP 308P	Pharmaceutical Engineering – Practical	4/60	-	2
<b>Total</b>		<b>28/420</b>	<b>4</b>	<b>24</b>

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**Table-IV: Course of study for semester IV**

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP401T	Pharmaceutical Organic Chemistry III– Theory	3/45	1	4
BP402T	Medicinal Chemistry I – Theory	3/45	1	4
BP403T	Physical Pharmaceutics II – Theory	3/45	1	4
BP404T	Pharmacology I – Theory	3/45	1	4
BP405T	Pharmacognosy and Phytochemistry I– Theory	3/45	1	4
BP406P	Medicinal Chemistry I – Practical	4/60	-	2
BP407P	Physical Pharmaceutics II – Practical	4/60	-	2
BP408P	Pharmacology I – Practical	4/60	-	2
BP409P	Pharmacognosy and Phytochemistry I – Practical	4/60	-	2
<b>Total</b>		<b>31/465</b>	<b>5</b>	<b>28</b>

**Table-V: Course of study for semester V**

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP501T	Medicinal Chemistry II – Theory	3/45	1	4
BP502T	Formulative Pharmacy– Theory	3/45	1	4
BP503T	Pharmacology II – Theory	3/45	1	4
BP504T	Pharmacognosy and Phytochemistry II– Theory	3/45	1	4
BP505T	Pharmaceutical Jurisprudence – Theory	3/45	1	4
BP506P	Formulative Pharmacy – Practical	4/60	-	2
BP507P	Pharmacology II – Practical	4/60	-	2
BP508P	Pharmacognosy and Phytochemistry II – Practical	4/60	-	2
<b>Total</b>		<b>27/405</b>	<b>5</b>	<b>26</b>



**Table-VI: Course of study for semester VI**

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP601T	Medicinal Chemistry III – Theory	3/45	1	4
BP602T	Pharmacology III – Theory	3/45	1	4
BP603T	Herbal Drug Technology – Theory	3/45	1	4
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	3/45	1	4
BP605T	Pharmaceutical Biotechnology – Theory	3/45	1	4
BP606T	Quality Assurance – Theory	3/45	1	4
BP607P	Medicinal chemistry III – Practical	4/60	-	2
BP608P	Pharmacology III – Practical	4/60	-	2
BP609P	Herbal Drug Technology – Practical	4/60	-	2
<b>Total</b>		<b>30/450</b>	<b>6</b>	<b>30</b>

**Table-VII: Course of study for semester VII**

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP701T	Instrumental Methods of Analysis – Theory	3/45	1	4
BP702T	Industrial Pharmacy – Theory	3/45	1	4
BP703T	Pharmacy Practice – Theory	3/45	1	4
BP704T	Novel Drug Delivery System – Theory	3/45	1	4
BP705P	Instrumental Methods of Analysis – Practical	4/60	-	2
BP706PS	Practice School*	12/180	-	6
<b>Total</b>		<b>28/420</b>	<b>5</b>	<b>24</b>

\* Non University Examination (NUE)

  
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**Table-VIII: Course of study for semester VIII**

Course code	Name of the course	No. of Hours per week/Total no of hours	Tutorial	Credit points
BP801T	Biostatistics and Research Methodology	3/45	1	4
BP802T	Social and Preventive Pharmacy	3/45	1	4
BP803ET	Pharmaceutical Marketing	3 + 3 = 6/90	1 + 1 = 2	4 + 4 = 8
BP804ET	Pharmaceutical Regulatory Science			
BP805ET	Pharmacovigilance			
BP806ET	Quality Control and Standardizations of Herbals			
BP807ET	Computer Aided Drug Design			
BP808ET	Cell and Molecular Biology			
BP809ET	Cosmetic Science			
BP810ET	Experimental Pharmacology			
BP811ET	Advanced Instrumentation Techniques			
BP812PW	Project Work	12/180	-	6
<b>Total</b>		<b>24/360</b>	<b>4</b>	<b>22</b>


**Table-IX: Semester wise credits distribution**

Semester	Credit Points
I	27
II	29
III	26
IV	28
V	26
VI	26
VII	24
VIII	22
Extracurricular/ Co curricular activities	01*
<b>Total credit points for the program</b>	<b>209</b>

\* 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.

\$Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics course.

#Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology course.

  
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## 1. Program Committee

1. The B. Pharm. program shall have a Program 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 senior teacher shall be the Chairperson; One Teacher from each department handling B.Pharm courses; and four student representatives of the program (one from each academic year), nominated by the Head of the institution.

### 3. Duties of the Program 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 Program Committee shall meet at least thrice in a semester preferably at the end of each Sessionalexam (Internal Assessment) and before the end semester exam.

## 2. Examinations/Assessments

The scheme for internal assessment and end semester examinations is given in Table – X.

### 2.1. End semester examinations

The End Semester Examinations for each theory and practical course through semesters I to VIII shall be conducted by the university except for the subjects 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.

  
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Tables-X: Schemes for internal assessments and end semester examinations semester wise

**Semester I**

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP101T	Human Anatomy and Physiology I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP102T	Pharmaceutical Analysis I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP103T	Pharmaceutics I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP104T	Pharmaceutical Inorganic Chemistry – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP105T	Communication skills – Theory *	5	10	1 Hr	15	35	1.5 Hrs	50
BP106RBT BP106RMT	Remedial Biology/ Mathematics – Theory*	5	10	1 Hr	15	35	1.5 Hrs	50
BP107P	Human Anatomy and Physiology – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP108P	Pharmaceutical Analysis I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP109P	Pharmaceutics I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP110P	Pharmaceutical Inorganic Chemistry – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP111P	Communication skills – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
BP112RBP	Remedial Biology – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
<b>Total</b>		<b>70/75<sup>§</sup>/80<sup>#</sup></b>	<b>115/125<sup>§</sup>/130<sup>#</sup></b>	<b>23/24<sup>§</sup>/26<sup>#</sup> Hrs</b>	<b>185/200<sup>§</sup>/210<sup>#</sup></b>	<b>490/525<sup>§</sup>/ 540<sup>#</sup></b>	<b>31.5/33<sup>§</sup>/ 35<sup>#</sup> Hrs</b>	<b>675/725<sup>§</sup>/ 750<sup>#</sup></b>

# Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB)course.

§ Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM)course.

\* Non University Examination (NUE)


  
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### Semester II

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP201T	Human Anatomy and Physiology II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP202T	Pharmaceutical Organic Chemistry I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP203T	Biochemistry – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP204T	Pathophysiology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP205T	Computer Applications in Pharmacy – Theory*	10	15	1 Hr	25	50	2 Hrs	75
BP206T	Environmental sciences – Theory*	10	15	1 Hr	25	50	2 Hrs	75
BP207P	Human Anatomy and Physiology II – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP208P	Pharmaceutical Organic Chemistry I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP209P	Biochemistry – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP210P	Computer Applications in Pharmacy – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
<b>Total</b>		<b>80</b>	<b>125</b>	<b>20 Hrs</b>	<b>205</b>	<b>520</b>	<b>30 Hrs</b>	<b>725</b>

\* The subject experts at college level shall conduct examinations

  
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### Semester III


Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP301T	Pharmaceutical Organic Chemistry II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP302T	Physical Pharmaceutics I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP303T	Pharmaceutical Microbiology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP304T	Pharmaceutical Engineering – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP305P	Pharmaceutical Organic Chemistry II – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP306P	Physical Pharmaceutics I – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP307P	Pharmaceutical Microbiology – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP308P	Pharmaceutical Engineering – Practical	5	10	4 Hr	15	35	4 Hrs	50
<b>Total</b>		<b>60</b>	<b>100</b>	<b>20</b>	<b>160</b>	<b>440</b>	<b>28Hrs</b>	<b>600</b>

  
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### Semester IV

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP401T	Pharmaceutical Organic Chemistry III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP402T	Medicinal Chemistry I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP403T	Physical Pharmaceutics II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP404T	Pharmacology I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP405T	Pharmacognosy I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP406P	Medicinal Chemistry I – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP407P	Physical Pharmaceutics II – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP408P	Pharmacology I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP409P	Pharmacognosy I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
<b>Total</b>		<b>70</b>	<b>115</b>	<b>21 Hrs</b>	<b>185</b>	<b>515</b>	<b>31 Hrs</b>	<b>700</b>

  
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### Semester V


Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP501T	Medicinal Chemistry II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP502T	Formulative Pharmacy– Theory	10	15	1 Hr	25	75	3 Hrs	100
BP503T	Pharmacology II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP504T	Pharmacognosy II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP505T	Pharmaceutical Jurisprudence – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP506P	Formulative Pharmacy – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP507P	Pharmacology II – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP508P	Pharmacognosy II – Practical	5	10	4 Hr	15	35	4 Hrs	50
<b>Total</b>		<b>65</b>	<b>105</b>	<b>17 Hr</b>	<b>170</b>	<b>480</b>	<b>27 Hrs</b>	<b>650</b>

  
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**Semester VI**

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP601T	Medicinal Chemistry III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP602T	Pharmacology III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP603T	Herbal Drug Technology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP605T	Pharmaceutical Biotechnology– Theory	10	15	1 Hr	25	75	3 Hrs	100
BP606T	Quality Assurance– Theory	10	15	1 Hr	25	75	3 Hrs	100
BP607P	Medicinal chemistry III – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP608P	Pharmacology III – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP609P	Herbal Drug Technology – Practical	5	10	4 Hrs	15	35	4 Hrs	50
<b>Total</b>		<b>75</b>	<b>120</b>	<b>18 Hrs</b>	<b>195</b>	<b>555</b>	<b>30 Hrs</b>	<b>750</b>

  
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### Semester VII

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP701T	Instrumental Methods of Analysis – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP702T	Industrial Pharmacy – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP703T	Pharmacy Practice – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP704T	Novel Drug Delivery System – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP705 P	Instrumental Methods of Analysis – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP706 PS	Practice School*	25	-	-	25	125	5 Hrs	150
<b>Total</b>		<b>70</b>	<b>70</b>	<b>8Hrs</b>	<b>140</b>	<b>460</b>	<b>21 Hrs</b>	<b>600</b>

\* The subject experts at college level shall conduct examinations

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**Semester VIII**

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP801T	Biostatistics and Research Methodology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP802T	Social and Preventive Pharmacy – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP803ET	Pharmaceutical Marketing – Theory	10 + 10 = 20	15 + 15 = 30	1 + 1 = 2 Hrs	25 + 25 = 50	75 + 75 = 150	3 + 3 = 6 Hrs	100 + 100 = 200
BP804ET	Pharmaceutical Regulatory Science – Theory							
BP805ET	Pharmacovigilance – Theory							
BP806ET	Quality Control and Standardizations of Herbals – Theory							
BP807ET	Computer Aided Drug Design – Theory							
BP808ET	Cell and Molecular Biology – Theory							
BP809ET	Cosmetic Science – Theory							
BP810ET	Experimental Pharmacology – Theory	-	-	-	-	150	4 Hrs	150
BP811ET	Advanced Instrumentation Techniques – Theory							
BP812PW	Project Work	-	-	-	-	150	4 Hrs	150
<b>Total</b>		<b>40</b>	<b>60</b>	<b>4 Hrs</b>	<b>100</b>	<b>450</b>	<b>16 Hrs</b>	<b>550</b>

  
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## 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-XI: Scheme for awarding internal assessment: Continuous mode**

Theory		
Criteria	Maximum Marks	
Attendance (Refer Table – XII)	4	2
Academic activities (Average of any 2 activities e.g. quiz, assignment, open book test, field work, group discussion and seminar)	4	03
Student – Teacher interaction	2	
<b>Total</b>	<b>10</b>	<b>5</b>
Practical		
Attendance (Refer Table – XII)	2	
Based on Practical Records, Regular viva voce, etc.	3	
<b>Total</b>	<b>5</b>	

**Table- XII: Guidelines for the allotment of marks for attendance**

Percentage of Attendance	Theory	Practical
95 – 100	4	2
90 – 94	3	1.5
85 – 89	2	1
80 – 84	1	0.5
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 below. The average marks of two Sessional exams shall be computed for internal assessment as per the requirements given in tables – X.

Sessional exam shall be conducted for 30 marks for theory and shall be computed for 15 marks. Similarly Sessional exam for practical shall be conducted for 40 marks and shall be computed for 10 marks. The duration for the conduct of the exam is as below

Exam Type	Marks allotted	Duration
Theory	30	1.5 Hr
Practical	40	04 Hr



### Question paper pattern for theory Sessional

For subjects having University exams

I. Objective Type Questions (Answer 05 out of 7)	=5 x 2 = 10
II. Long Answers (Answer 1 out of 2)	=1 x 10 = 10
III. Short Answers (Answer 2 out of 3)	=2 x 5 = 10
<b>Total</b>	<b>30 marks</b>

For subjects having Non University Examination

I. Long Answers (Answer 1 out of 2)	=1 x 10 = 10
II. Short Answers (Answer 4 out of 6)	=4 x 5 = 20
<b>Total</b>	<b>30 marks</b>

### Question paper pattern for practical sessional examinations

I. Synopsis	= 10
II. Experiments	= 25
III. Viva voce	= 05
<b>Total</b>	<b>40 marks</b>

### 12 . Promotion and award of grades

A student shall be declared PASS and eligible for getting grade in a course of B.Pharm.program if he/she secures at least 50% marks in that particular course including internal assessment. For example, to be declared as PASS and to get grade, the student has to secure a minimum of 50 marks for the total of 100 including continuous mode of assessment and end semester theory examination and has to secure a minimum of 25 marks for the total 50 including internal assessment and end semester practical examination.

### 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 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. Re-examination of end semester examinations**

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

**Table-XIII: Tentative schedule of end semester examinations**

Semester	For Regular Candidates	For Failed Candidates
I, III, V and VII	November / December	May / June
II, IV, VI and VIII	May / June	November / December

**Question paper pattern for end semester theory examinations**

**For 75 marks paper**

I. Objective Type Questions (Answer 5 out of 7)	= 5 x 3 = 15
II. Long Answers (Answer 2 out of 4)	= 2 x 10 = 20
III. Short Answers (Answer 8 out of 10)	= 8 x 5 = 40
<b>Total</b>	<b>= 75 marks</b>

**For 50 marks paper**

I. Long Answers (Answer 2 out of 3)	= 2 x 10 = 20
II. Short Answers (Answer 6 out of 8)	= 6 x 5 = 30
<b>Total</b>	<b>= 50 marks</b>

**For 35 marks paper**

I. Long Answers (Answer 1 out of 2)	= 1 x 10 = 10
II. Short Answers (Answer 5 out of 7)	= 5 x 5 = 25
<b>Total</b>	<b>= 35 marks</b>

Question paper pattern for end semester practical examinations

I. Synopsis	= 05
II. Experiments	= 25
III. Viva voce	= 05
<b>Total</b>	<b>= 35marks</b>

**16. Academic Progression:**

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

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

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

A student shall be eligible to carry forward all the courses of V, VI and VII semesters till the VIII semester examinations. However, he/she shall not be eligible to get the course completion certificate until all the courses of I, II, III, IV, V and VI semesters are successfully completed.

A student shall be eligible to get his/her CGPA upon successful completion of the courses of I to VIII semesters within the stipulated time period as per the norms specified in 26.

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

A lateral entry student shall be eligible to carry forward all the courses of V, VI and VII semesters till the VIII semester examinations. However, he/she shall not be eligible to get the course completion certificate until all the courses of III, IV, V and VI semesters are successfully completed.

A lateral entry student shall be eligible to get his/her CGPA upon successful completion of the courses of III to VIII semesters within the stipulated time period as per the norms





specified in 26.

Any student who has given more than 4 chances for successful completion of I / III semester courses and more than 3 chances for successful completion of II / IV semester courses shall be permitted to attend V / VII semester classes ONLY during the subsequent academic year as the case may be. In simpler terms there shall NOT be any ODD BATCH for any semester.

Note: Grade AB should be considered as failed and treated as one head for deciding academic progression. Such rules are also applicable for those students who fail to register for examination(s) of any course in any semester.

#### Rules for Carry Forward:

The curriculum (including regulations, structure and syllabi) is in force from academic year 2018-19 and onwards for First Year B. Pharm, for academic year 2019- 20 onwards for Second Year B. Pharm., for academic year 2020-21 and onwards for Third Year B. Pharm., and for academic year 2021-22 and onwards for Final Year B. Pharm.

The learners who were admitted to First Year B. Pharm. of 2015 pattern during the academic year 2017-18 or before & failed in the First Year B.Pharm. of 2015 pattern examination will have to take admission to Semester-III of Second Year B. Pharm. of


2018 pattern in academic year 2019-20 or onwards, provided that

a. Their result of F. Y. B. Pharm of 2015 pattern is either pass or fails with A. T. K. T.

The said students will have to take up additional remedial courses as follows.

b) The learners who were admitted to S.Y B. Pharm. of 2015 pattern during the academic year 2018-19 or before and fail in the S.Y B.Pharm. of 2015 pattern examination will have to take admission to Semester-V of Third Year B. Pharm. of 2018 pattern in academic year 2020-21 or onwards, provided that Their result of S. Y. B. Pharm of 2015 pattern is either pass or fails with A. T. K. T. The said students will have to take up additional remedial course as follows.

Sr. No	Remedial courses for admission to S.Y.B.Pharm in Academic Year 2019-20 (Cleared F.Y. B. Pharm as per 2015 Pattern)		
	(Non University Examination )	Semester	Passing Criteria
1.	Biochemistry – Theory/Practicals	Semester III	Minimum 50% marks with D grade
2.	Pathophysiology- Theory		Minimum 50% marks with D grade
3.	Computer Applications in	Semester IV	Minimum 50% marks with D

  
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	Pharmacy – Theory/Practicals	grade
4.	Environmental sciences – Theory	Minimum 50% marks with D grade

Sr. No	Remedial courses for admission to T.Y. B.Pharm in Academic Year 2020-21 (Cleared S. Y.B. Pharm as per 2015 Pattern )		
	(Non University Examination with 50% passing.)	Semester	Passing Criteria
1.	Medicinal Chemistry I – Theory/ Practical	Semester V	Minimum 50% marks with D grade

## 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 – XII.

**Table – XII: Letter grades and grade points equivalent to Percentage of marks and performances**

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 Average' (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester. For example, if a student takes five courses(Theory/Practical) in a semester with credits C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> and C<sub>5</sub> and the student's grade points in these courses are G<sub>1</sub>, G<sub>2</sub>, G<sub>3</sub>, G<sub>4</sub> and G<sub>5</sub>, respectively, and then students' SGPA is equal to:

$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4G_4 + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

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:

$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4 * \text{ZERO} + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

#### 19. Cumulative Grade Point Average (CGPA)

The CGPA is calculated with the 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 grade(s), till the course(s) is/are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. The CGPA is calculated as:

$$\text{CGPA} = \frac{C_1S_1 + C_2S_2 + C_3S_3 + C_4S_4 + C_5S_5 + C_6S_6 + C_7S_7 + C_8S_8}{C_1 + C_2 + C_3 + C_4 + C_5 + C_6 + C_7 + C_8}$$

where C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, ... is the total number of credits for semester I, II, III, ... and S<sub>1</sub>, S<sub>2</sub>, S<sub>3</sub>, ... 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 and submit a report. The area of the project shall directly relate any one of the elective subject opted by the student in semester VIII. The project shall be carried out in group not exceeding 5 in number. The project report shall be submitted in triplicate (typed & bound copy not less than 25 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). Students shall be evaluated in groups for four hours (i.e., about half an hour for a group of five students). The projects shall be evaluated as per the criteria given below


**Evaluation of Dissertation Book:**

Objective(s) of the work done	15 Marks
Methodology adopted	20 Marks
Results and Discussions	20 Marks
Conclusions and Outcomes	20 Marks
<b>Total</b>	<b>75 Marks</b>

**Evaluation of Presentation:**

Presentation of work	25 Marks
Communication skills	20 Marks
Question and answer skills	30 Marks
<b>Total</b>	<b>75 Marks</b>

*Explanation:* The 75 marks assigned to the dissertation book shall be same for all the students in a group. However, the 75 marks assigned for presentation shall be awarded based on the performance of individual students in the given criteria.

  
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## 22. Industrial training (Desirable)

Every candidate shall be required to work for at least 150 hours spread over four weeks in a Pharmaceutical Industry/Hospital. It includes Production unit, Quality Control department, Quality Assurance department, Analytical laboratory, Chemical manufacturing unit, Pharmaceutical R&D, Hospital (Clinical Pharmacy), Clinical Research Organization, Community Pharmacy, etc. After the Semester – VI and before the commencement of Semester – VII, and shall submit satisfactory report of such work and certificate duly signed by the authority of training organization to the head of the institute.

### AND/OR

Every candidate shall be required to undergo any one of the Skill development modules mentioned below (**Duration – Min. 04 weeks**)

- a) Hands on Training (Central instrumentation lab/Machine room etc)
- b) UGC/AICTE recognized online courses (SWAYAM/NPTEL etc)

After the successful completion of the module the candidate shall submit satisfactory report and certificate duly signed by the authority of training organization/Head of the institute

## 23. Practice School

In the VII semester, every candidate shall undergo practice school for a period of 150 hours evenly distributed throughout the semester. The student shall opt any one of the domains for practice school declared by the program committee from time to time.

At the end of the practice school, every student shall submit a printed report (in triplicate) on the practice school he/she attended (not more than 25 pages). Along with the exams of semester VII, the report submitted by the student, knowledge and skills acquired by the student through practice school shall be evaluated by the subject experts at college level and grade point shall be awarded.

## 24. 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 B.Pharm program shall not be eligible for award of ranks. Moreover, the candidates should have completed the B. Pharm program in minimum prescribed number of years, (four years) for the award of Ranks.

## 25. Award of degree

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



**26. 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.

**27. 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.

  
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# **Programme- B. Pharm**

## **2018 – Course Structure**



  
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**SAVITRIBAI PHULE PUNE UNIVERSITY**

**FACULTY OF SCIENCE AND TECHNOLOGY**



**RULES & SYLLABUS**

**FIRST YEAR BACHELOR OF PHARMACY (B. Pharm.) COURSE**

**(EFFECTIVE FROM ACADEMIC YEAR 2018-2019)**

  
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## CHAPTER- I: REGULATIONS

### 1. Short Title and Commencement

These regulations shall be called as "The Revised Regulations for the B. Pharm. Degree Program (CBCS) 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 Pharmacy Council of India.

### 2. Minimum qualification for admission

#### 2.1 First year B. Pharm:

Candidate shall have passed 10+2 examination conducted by the respective state/central government authorities recognized as equivalent to 10+2 examination by the Association of Indian Universities (AIU) with English as one of the subjects and Physics, Chemistry, Mathematics (P.C.M) and or Biology (P.C.B / P.C.M.B.) as optional subjects individually. Any other qualification approved by the Pharmacy Council of India as equivalent to any of the above examinations.

#### 2.2. B. Pharm lateral entry (to third semester):

A pass in D. Pharm. course from an institution approved by the Pharmacy Council of India under section 12 of the Pharmacy Act.

### 3. Duration of the program

The course of study for B.Pharm shall extend over a period of eight semesters (four academic years) and six semesters (three academic years) for lateral entry students. 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 semestershall 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 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, tutorial hours, practical classes, 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.

### 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 /or tutorial (T) hours, 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 tutorial hours, and a multiplier of half (1/2) for practical (laboratory) hours. Thus, for example, a theory course having three lectures and one tutorial 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.

### 7.2. Minimum credit requirements

The minimum credit points required for award of a B. Pharm. degree is 208. These credits are divided into Theory courses, Tutorials, Practical, Practice School and Project over the duration of eight semesters. The credits are distributed semester-wise as shown in Table IX. Courses generally progress in sequences, 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.

The lateral entry students shall get 52 credit points transferred from their D. Pharm program. Such students shall take up additional remedial courses of 'Communication Skills' (Theory and Practical) and 'Computer Applications in Pharmacy' (Theory and Practical) equivalent to 3 and 4 credit points respectively, a total of 7 credit points to attain 59 credit points, the maximum of I and II semesters.

## 8. Academic work

A regular record of attendance both in Theory and Practical shall be maintained by the teaching staff of respective courses.



### 9. Course of study

The course of study for B. Pharm shall include Semester Wise Theory & Practical as given in Table – I to VIII. The number of hours to be devoted to each theory, tutorial and practical course in any semester shall not be less than that shown in Table – I to VIII.

**Table-I: Course of study for semester I**

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP101T	Human Anatomy and Physiology I– Theory	3	1	4
BP102T	Pharmaceutical Analysis I – Theory	3	1	4
BP103T	Pharmaceutics I – Theory	3	1	4
BP104T	Pharmaceutical Inorganic Chemistry – Theory	3	1	4
BP105T	Communication skills – Theory *	2	-	2
BP106RBT BP106RMT	Remedial Biology/ Remedial Mathematics – Theory*	2	-	2
BP107P	Human Anatomy and Physiology – Practical	4	-	2
BP108P	Pharmaceutical Analysis I – Practical	4	-	2
BP109P	Pharmaceutics I – Practical	4	-	2
BP110P	Pharmaceutical Inorganic Chemistry – Practical	4	-	2
BP111P	Communication skills – Practical*	2	-	1
BP112RBP	Remedial Biology – Practical*	2	-	1
<b>Total</b>		<b>32/34<sup>§</sup>/36<sup>#</sup></b>	<b>4</b>	<b>27/29<sup>§</sup>/30<sup>#</sup></b>

\*Applicable ONLY for the students who have studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB)course.

§Applicable ONLY for the students who have studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM)course.

# Non University Examination (NUE)

  
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**Table-II: Course of study for semester II**

Course Code	Name of the course	No. of hours	Tutorial	Credit points
BP201T	Human Anatomy and Physiology II – Theory	3	1	4
BP202T	Pharmaceutical Organic Chemistry I – Theory	3	1	4
BP203T	Biochemistry – Theory	3	1	4
BP204T	Pathophysiology – Theory	3	1	4
BP205T	Computer Applications in Pharmacy – Theory *	3	-	3
BP206T	Environmental sciences – Theory *	3	-	3
BP207P	Human Anatomy and Physiology II – Practical	4	-	2
BP208P	Pharmaceutical Organic Chemistry I – Practical	4	-	2
BP209P	Biochemistry – Practical	4	-	2
BP210P	Computer Applications in Pharmacy – Practical*	2	-	1
<b>Total</b>		<b>32</b>	<b>4</b>	<b>29</b>

\*Non University Examination (NUE)

**Table-III: Course of study for semester III**

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP301T	Pharmaceutical Organic Chemistry II – Theory	3	1	4
BP302T	Physical Pharmaceutics I – Theory	3	1	4
BP303T	Pharmaceutical Microbiology – Theory	3	1	4
BP304T	Pharmaceutical Engineering – Theory	3	1	4
BP305P	Pharmaceutical Organic Chemistry II – Practical	4	-	2
BP306P	Physical Pharmaceutics I – Practical	4	-	2
BP307P	Pharmaceutical Microbiology – Practical	4	-	2
BP 308P	Pharmaceutical Engineering – Practical	4	-	2
<b>Total</b>		<b>28</b>	<b>4</b>	<b>24</b>



**Table-IV: Course of study for semester IV**

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP401T	Pharmaceutical Organic Chemistry III– Theory	3	1	4
BP402T	Medicinal Chemistry I – Theory	3	1	4
BP403T	Physical Pharmaceutics II – Theory	3	1	4
BP404T	Pharmacology I – Theory	3	1	4
BP405T	Pharmacognosy and Phytochemistry I– Theory	3	1	4
BP406P	Medicinal Chemistry I – Practical	4	-	2
BP407P	Physical Pharmaceutics II – Practical	4	-	2
BP408P	Pharmacology I – Practical	4	-	2
BP409P	Pharmacognosy and Phytochemistry I – Practical	4	-	2
<b>Total</b>		<b>31</b>	<b>5</b>	<b>28</b>

**Table-V: Course of study for semester V**

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP501T	Medicinal Chemistry II – Theory	3	1	4
BP502T	Industrial PharmacyI– Theory	3	1	4
BP503T	Pharmacology II – Theory	3	1	4
BP504T	Pharmacognosy and Phytochemistry II– Theory	3	1	4
BP505T	Pharmaceutical Jurisprudence – Theory	3	1	4
BP506P	Industrial PharmacyI – Practical	4	-	2
BP507P	Pharmacology II – Practical	4	-	2
BP508P	Pharmacognosy and Phytochemistry II – Practical	4	-	2
<b>Total</b>		<b>27</b>	<b>5</b>	<b>26</b>

  
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**Table-VI: Course of study for semester VI**

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP601T	Medicinal Chemistry III – Theory	3	1	4
BP602T	Pharmacology III – Theory	3	1	4
BP603T	Herbal Drug Technology – Theory	3	1	4
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	3	1	4
BP605T	Pharmaceutical Biotechnology – Theory	3	1	4
BP606T	Quality Assurance – Theory	3	1	4
BP607P	Medicinal chemistry III – Practical	4	-	2
BP608P	Pharmacology III – Practical	4	-	2
BP609P	Herbal Drug Technology – Practical	4	-	2
<b>Total</b>		<b>30</b>	<b>6</b>	<b>30</b>

**Table-VII: Course of study for semester VII**

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP701T	Instrumental Methods of Analysis – Theory	3	1	4
BP702T	Industrial PharmacyII – Theory	3	1	4
BP703T	Pharmacy Practice – Theory	3	1	4
BP704T	Novel Drug Delivery System – Theory	3	1	4
BP705P	Instrumental Methods of Analysis – Practical	4	-	2
BP706PS	Practice School*	12	-	6
<b>Total</b>		<b>28</b>	<b>5</b>	<b>24</b>

\* Non University Examination (NUE)



**Table-VIII: Course of study for semester VIII**

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP801T	Biostatistics and Research Methodology	3	1	4
BP802T	Social and Preventive Pharmacy	3	1	4
BP803ET	Pharma Marketing Management	3 + 3 = 6	1 + 1 = 2	4 + 4 = 8
BP804ET	Pharmaceutical Regulatory Science			
BP805ET	Pharmacovigilance			
BP806ET	Quality Control and Standardization of Herbals			
BP807ET	Computer Aided Drug Design			
BP808ET	Cell and Molecular Biology			
BP809ET	Cosmetic Science			
BP810ET	Experimental Pharmacology			
BP811ET	Advanced Instrumentation Techniques			
BP812ET	Dietary Supplements and Nutraceuticals			
BP813PW	Project Work	12	-	6
<b>Total</b>		<b>24</b>	<b>4</b>	<b>22</b>

**Table-IX: Semester wise credits distribution**

Semester	Credit Points
I	27/29 <sup>§</sup> /30 <sup>#</sup>
II	29
III	26
IV	28
V	26
VI	26
VII	24
VIII	22
Extracurricular/ Co curricular activities	01*
<b>Total credit points for the program</b>	<b>209/211<sup>§</sup>/212<sup>#</sup></b>

\* 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.

<sup>§</sup>Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics course.

<sup>#</sup>Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology course.

## 10. Program Committee

1. The B. Pharm. program shall have a Program 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 senior teacher shall be the Chairperson; One Teacher from each department handling B.Pharm courses; and four student representatives of the program (one from each academic year), nominated by the Head of the institution.

3. Duties of the Program 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 Program Committee shall meet at least thrice in a semester preferably at the end of each Sessionalexam (Internal Assessment) and before the end semester exam.

## 11. Examinations/Assessments

The scheme for internal assessment and end semester examinations is given in Table – X.

### 11.1. End semester examinations

The End Semester Examinations for each theory and practical course through semesters I to VIII shall be conducted by the university except for the subjects 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-X: Schemes for internal assessments and end semester examinations semester wise

**Semester I**

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP101T	Human Anatomy and Physiology I- Theory	10	15	1 Hr	25	75	3 Hrs	100
BP102T	Pharmaceutical Analysis I - Theory	10	15	1 Hr	25	75	3 Hrs	100
BP103T	Pharmaceutics I - Theory	10	15	1 Hr	25	75	3 Hrs	100
BP104T	Pharmaceutical Inorganic Chemistry - Theory	10	15	1 Hr	25	75	3 Hrs	100
BP105T	Communication skills - Theory*	5	10	1 Hr	15	35	1.5 Hrs	50
BP106RBT BP106RMT	Remedial Biology/ Mathematics - Theory*	5	10	1 Hr	15	35	1.5 Hrs	50
BP107P	Human Anatomy and Physiology - Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP108P	Pharmaceutical Analysis I - Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP109P	Pharmaceutics I - Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP110P	Pharmaceutical Inorganic Chemistry - Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP111P	Communication skills - Practical*	5	5	2 Hrs	10	15	2 Hrs	25
BP112RBP	Remedial Biology - Practical*	5	5	2 Hrs	10	15	2 Hrs	25
<b>Total</b>		<b>70/75<sup>§</sup>/80<sup>†</sup></b>	<b>115/125<sup>§</sup>/130<sup>†</sup></b>	<b>23/24<sup>§</sup>/26<sup>†</sup> Hrs</b>	<b>185/200<sup>§</sup>/210<sup>†</sup></b>	<b>490/525<sup>§</sup>/ 540<sup>†</sup></b>	<b>31.5/33<sup>§</sup>/ 35<sup>†</sup> Hrs</b>	<b>675/725<sup>§</sup>/ 750<sup>†</sup></b>

<sup>†</sup>Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB)course.

<sup>§</sup>Applicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM)course.

\* Non University Examination (NUE)

  
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### Semester II

Course code	Name of the course	Internal Assessment			End Semester Exams		Total Marks	
		Continuous Mode	Sessional Exams Marks	Duration	Total	Marks		Duration
BP201T	Human Anatomy and Physiology II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP202T	Pharmaceutical Organic Chemistry I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP203T	Biochemistry – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP204T	Pathophysiology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP205T	Computer Applications in Pharmacy – Theory*	10	15	1 Hr	25	50	2 Hrs	75
BP206T	Environmental sciences – Theory*	10	15	1 Hr	25	50	2 Hrs	75
BP207P	Human Anatomy and Physiology II – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP208P	Pharmaceutical Organic Chemistry I – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP209P	Biochemistry – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP210P	Computer Applications in Pharmacy – Practical*	5	5	2 Hrs	10	15	2 Hrs	25
<b>Total</b>		<b>80</b>	<b>125</b>	<b>20 Hrs</b>	<b>205</b>	<b>520</b>	<b>30 Hrs</b>	<b>725</b>

\* The subject experts at college level shall conduct examinations

  
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### Semester III


Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP301T	Pharmaceutical Organic Chemistry II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP302T	Physical Pharmaceutics I – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP303T	Pharmaceutical Microbiology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP304T	Pharmaceutical Engineering – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP305P	Pharmaceutical Organic Chemistry II – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP306P	Physical Pharmaceutics I – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP307P	Pharmaceutical Microbiology – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP308P	Pharmaceutical Engineering – Practical	5	10	4 Hr	15	35	4 Hrs	50
<b>Total</b>		<b>60</b>	<b>100</b>	<b>20</b>	<b>160</b>	<b>440</b>	<b>28Hrs</b>	<b>600</b>

  
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**Semester IV**

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP401T	Pharmaceutical Organic Chemistry III- Theory	10	15	1 Hr	25	75	3 Hrs	100
BP402T	Medicinal Chemistry I - Theory	10	15	1 Hr	25	75	3 Hrs	100
BP403T	Physical Pharmaceutics II - Theory	10	15	1 Hr	25	75	3 Hrs	100
BP404T	Pharmacology I - Theory	10	15	1 Hr	25	75	3 Hrs	100
BP405T	Pharmacognosy I - Theory	10	15	1 Hr	25	75	3 Hrs	100
BP406P	Medicinal Chemistry I - Practical	5	10	4 Hr	15	35	4 Hrs	50
BP407P	Physical Pharmaceutics II - Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP408P	Pharmacology I - Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP409P	Pharmacognosy I - Practical	5	10	4 Hrs	15	35	4 Hrs	50
<b>Total</b>		<b>70</b>	<b>115</b>	<b>21 Hrs</b>	<b>185</b>	<b>515</b>	<b>31 Hrs</b>	<b>700</b>

  
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### Semester V

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP501T	Medicinal Chemistry II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP502T	Industrial PharmacyI– Theory	10	15	1 Hr	25	75	3 Hrs	100
BP503T	Pharmacology II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP504T	Pharmacognosy II – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP505T	Pharmaceutical Jurisprudence – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP506P	Industrial PharmacyI– Practical	5	10	4 Hr	15	35	4 Hrs	50
BP507P	Pharmacology II – Practical	5	10	4 Hr	15	35	4 Hrs	50
BP508P	Pharmacognosy II – Practical	5	10	4 Hr	15	35	4 Hrs	50
<b>Total</b>		<b>65</b>	<b>105</b>	<b>17 Hr</b>	<b>170</b>	<b>480</b>	<b>27 Hrs</b>	<b>650</b>

  
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### Semester VI

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP601T	Medicinal Chemistry III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP602T	Pharmacology III – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP603T	Herbal Drug Technology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP604T	Biopharmaceutics and Pharmacokinetics – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP605T	Pharmaceutical Biotechnology– Theory	10	15	1 Hr	25	75	3 Hrs	100
BP606T	Quality Assurance– Theory	10	15	1 Hr	25	75	3 Hrs	100
BP607P	Medicinal chemistry III – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP608P	Pharmacology III – Practical	5	10	4 Hrs	15	35	4 Hrs	50
BP609P	Herbal Drug Technology – Practical	5	10	4 Hrs	15	35	4 Hrs	50
<b>Total</b>		<b>75</b>	<b>120</b>	<b>18 Hrs</b>	<b>195</b>	<b>555</b>	<b>30 Hrs</b>	<b>750</b>

  
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### Semester VII

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP701T	Instrumental Methods of Analysis – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP702T	Industrial Pharmacy – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP703T	Pharmacy Practice – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP704T	Novel Drug Delivery System – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP705 P	Instrumental Methods of Analysis – Practical.	5	10	4 Hrs	15	35	4 Hrs	50
BP706 PS	Practice School*	25	-	-	25	125	5 Hrs	150
<b>Total</b>		<b>70</b>	<b>70</b>	<b>8Hrs</b>	<b>140</b>	<b>460</b>	<b>21 Hrs</b>	<b>600</b>

\* The subject experts at college level shall conduct examinations



**Semester VIII**

Course code	Name of the course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
BP801T	Biostatistics and Research Methodology – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP802T	Social and Preventive Pharmacy – Theory	10	15	1 Hr	25	75	3 Hrs	100
BP803ET	Pharmaceutical Marketing – Theory	10 + 10 = 20	15 + 15 = 30	1 + 1 = 2 Hrs	25 + 25 = 50	75 + 75 = 150	3 + 3 = 6 Hrs	100 + 100 = 200
BP804ET	Pharmaceutical Regulatory Science – Theory							
BP805ET	Pharmacovigilance – Theory							
BP806ET	Quality Control and Standardization of Herbals – Theory							
BP807ET	Computer Aided Drug Design – Theory							
BP808ET	Cell and Molecular Biology – Theory							
BP809ET	Cosmetic Science – Theory							
BP810ET	Experimental Pharmacology – Theory							
BP811ET	Advanced Instrumentation Techniques – Theory							
BP812PW	Project Work							
<b>Total</b>		<b>40</b>	<b>60</b>	<b>4 Hrs</b>	<b>100</b>	<b>450</b>	<b>16 Hrs</b>	<b>550</b>

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### 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-XI: Scheme for awarding internal assessment: Continuous mode**

Theory		
Criteria	Maximum Marks	
Attendance (Refer Table – XII)	4	2
Academic activities (Average of any 3 activities e.g. quiz, assignment, open book test, field work, group discussion and seminar)	3	1.5
Student – Teacher interaction	3	1.5
<b>Total</b>	<b>10</b>	<b>5</b>
Practical		
Attendance (Refer Table – XII)	2	
Based on Practical Records, Regular viva voce, etc.	3	
<b>Total</b>	<b>5</b>	

**Table- XII: Guidelines for the allotment of marks for attendance**

Percentage of Attendance	Theory	Practical
95 – 100	4	2
90 – 94	3	1.5
85 – 89	2	1
80 – 84	1	0.5
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 below. The average marks of two Sessional exams shall be computed for internal assessment as per the requirements given in tables – X.

Sessional exam shall be conducted for 30 marks for theory and shall be computed for 15 marks. Similarly Sessional exam for practical shall be conducted for 40 marks and shall be computed for 10 marks.

#### Question paper pattern for theory Sessional examinations

##### For subjects having University examination

I. Multiple Choice Questions (MCQs)	=	10 x 1 = 10
OR		OR
Objective Type Questions (5 x 2)	=	05 x 2 = 10
(Answer all the questions)		
I. Long Answers (Answer 1 out of 2)	=	1 x 10 = 10
II. Short Answers (Answer 2 out of 3)	=	2 x 5 = 10
		-----
Total	=	30 marks



#### For subjects having Non University Examination

I. Long Answers (Answer 1 out of 2)	=	1 x 10 = 10
II. Short Answers (Answer 4 out of 6)	=	4 x 5 = 20

Total = 30 marks

#### Question paper pattern for practical sessional examinations

I. Synopsis	=	10
II. Experiments	=	25
III. Viva voce	=	05

Total = 40 marks

#### 12. Promotion and award of grades

A student shall be declared PASS and eligible for getting grade in a course of B.Pharm. program if he/she secures at least 50% marks in that particular course including internal assessment. For example, to be declared as PASS and to get grade, the student has to secure a minimum of 50 marks for the total of 100 including continuous mode of assessment and end semester theory examination and has to secure a minimum of 25 marks for the total 50 including internal assessment and end semester practical examination.

#### 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. Re-examination of end semester examinations

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



Table-XIII: Tentative schedule of end semester examinations

Semester	For Regular Candidates	For Failed Candidates
I, III, V and VII	November / December	May / June
II, IV, VI and VIII	May / June	November / December

**Question paper pattern for end semester theory examinations**

**For 75 marks paper**

- I. Multiple Choice Questions(MCQs) = 20 x 1 = 20  
OR  
Objective Type Questions (10 x 2) = 10 x 2 = 20  
(Answer all the questions)
- II. Long Answers (Answer 2 out of 3) = 2 x 10 = 20  
III. Short Answers (Answer 7 out of 9) = 7 x 5 = 35

Total = 75 marks

**For 50 marks paper**

- I. Long Answers (Answer 2 out of 3) = 2 x 10 = 20  
II. Short Answers (Answer 6 out of 8) = 6 x 5 = 30

Total = 50 marks

**For 35 marks paper**

- I. Long Answers (Answer 1 out of 2) = 1 x 10 = 10  
II. Short Answers (Answer 5 out of 7) = 5 x 5 = 25

Total = 35 marks

**Question paper pattern for end semester practical examinations**

- I. Synopsis = 5  
II. Experiments = 25  
III. Viva voce = 5

Total = 35 marks



#### 16. Academic Progression:

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

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

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

A student shall be eligible to carry forward all the courses of V, VI and VII semesters till the VIII semester examinations. However, he/she shall not be eligible to get the course completion certificate until all the courses of I, II, III, IV, V and VI semesters are successfully completed.

A student shall be eligible to get his/her CGPA upon successful completion of the courses of I to VIII semesters within the stipulated time period as per the norms specified in 26.

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

A lateral entry student shall be eligible to carry forward all the courses of V, VI and VII semesters till the VIII semester examinations. However, he/she shall not be eligible to get the course completion certificate until all the courses of III, IV, V and VI semesters are successfully completed.

A lateral entry student shall be eligible to get his/her CGPA upon successful completion of the courses of III to VIII semesters within the stipulated time period as per the norms specified in 26.

Any student who has given more than 4 chances for successful completion of I / III semester courses and more than 3 chances for successful completion of II / IV semester courses shall be permitted to attend V / VII semester classes ONLY during the subsequent academic year as the case may be. In simpler terms there shall NOT be any ODD BATCH for any semester.

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Note: Grade AB should be considered as failed and treated as one head for deciding academic progression. 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 – XII.

**Table – XII: Letter grades and grade points equivalent to Percentage of marks and performances**

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 Average' (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester. For example, if a student takes five courses (Theory/Practical) in a semester with credits C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub>, C<sub>4</sub> and C<sub>5</sub> and the student's grade points in these courses are G<sub>1</sub>, G<sub>2</sub>, G<sub>3</sub>, G<sub>4</sub> and G<sub>5</sub>, respectively, and then students' SGPA is equal to:

$$\text{SGPA} = \frac{C_1G_1 + C_2G_2 + C_3G_3 + C_4G_4 + C_5G_5}{C_1 + C_2 + C_3 + C_4 + C_5}$$

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 AB grade awarded in that semester. For example if a learner has a F or AB grade in course 4, the SGPA shall then be computed as:



$$C_1G_1 + C_2G_2 + C_3G_3 + C_4 * ZERO + C_5G_5$$
$$SGPA = \frac{\text{-----}}{C_1 + C_2 + C_3 + C_4 + C_5}$$

### 19. Cumulative Grade Point Average (CGPA)

The CGPA is calculated with the 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 grade(s), till the course(s) is/are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. The CGPA is calculated as:

$$CGPA = \frac{C_1S_1 + C_2S_2 + C_3S_3 + C_4S_4 + C_5S_5 + C_6S_6 + C_7S_7 + C_8S_8}{C_1 + C_2 + C_3 + C_4 + C_5 + C_6 + C_7 + C_8}$$

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

### 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 and submit a report. The area of the project shall directly relate any one of the elective subject opted by the student in semester VIII. The project shall be carried out in group not exceeding 5 in number. The project report shall be submitted in triplicate (typed & bound copy not less than 25 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). Students shall be evaluated in groups for four hours (i.e., about half an hour for a group of five students). The projects shall be evaluated as per the criteria given below.

  
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**Evaluation of Dissertation Book:**

Objective(s) of the work done	15 Marks
Methodology adopted	20 Marks
Results and Discussions	20 Marks
Conclusions and Outcomes	20 Marks

**Total** 75 Marks

**Evaluation of Presentation:**

Presentation of work	25 Marks
Communication skills	20 Marks
Question and answer skills	30 Marks

**Total** 75 Marks

*Explanation:* The 75 marks assigned to the dissertation book shall be same for all the students in a group. However, the 75 marks assigned for presentation shall be awarded based on the performance of individual students in the given criteria.

**22. Industrial training (Desirable)**

Every candidate shall be required to work for at least 150 hours spread over four weeks in a Pharmaceutical Industry/Hospital. It includes Production unit, Quality Control department, Quality Assurance department, Analytical laboratory, Chemical manufacturing unit, Pharmaceutical R&D, Hospital (Clinical Pharmacy), Clinical Research Organization, Community Pharmacy, etc. After the Semester – VI and before the commencement of Semester – VII, and shall submit satisfactory report of such work and certificate duly signed by the authority of training organization to the head of the institute.

**23. Practice School**

In the VII semester, every candidate shall undergo practice school for a period of 150 hours evenly distributed throughout the semester. The student shall opt any one of the domains for practice school declared by the program committee from time to time.

At the end of the practice school, every student shall submit a printed report (in triplicate) on the practice school he/she attended (not more than 25 pages). Along with the exams of semester VII, the report submitted by the student, knowledge and skills acquired by the student through practice school shall be evaluated by the subject experts at college level and grade point shall be awarded.

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#### **24. 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 B.Pharm program shall not be eligible for award of ranks. Moreover, the candidates should have completed the B. Pharm program in minimum prescribed number of years, (four years) for the award of Ranks.

#### **25. Award of degree**

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

#### **26. 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.

#### **27. 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.

  
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# **Programme- B. Pharm**

## **2015 – Course Structure**



  
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**SAVITRIBAI PHULE PUNE UNIVERSITY**

**FACULTY OF PHARMACEUTICAL SCIENCES**



**COURSE STRUCTURE & SYLLABI**

**BACHELOR OF PHARMACY (B. Pharm.) COURSE**  
**(EFFECTIVE FROM ACADEMIC YEAR 2015-16)**

*Credit and Grading Based Semester System*

  
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**Course Title:** Bachelor of Pharmacy

**Abbreviation:** B. Pharm.

**Medium of Instruction And**

**Examination:** English

**Type of Course:** A four year degree course divided into eight Semesters.

**Pattern:** Semester.


**Number of Years and Semester:** Four Years divided into eight semesters with two semesters per year.

**Nomenclature of Semesters :**

Semester-I & Semester-II	First Year B. Pharm.
Semester-III & Semester-IV	Second Year B. Pharm.
Semester-V & Semester-VI	Third Year B. Pharm.
Semester-VII & Semester-VIII	Final Year B. Pharm.

**Award of the Degree :** Degree will be awarded to those passing in all the eight semesters as per the rules and regulations.


**Duration of Semester :** Each Semester will be normally of 15 weeks duration for class room teaching and practicals and internal evaluation.

  
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### Definitions:


1. **University** means Savitribai Phule Pune University until and otherwise specified.
2. **The college/Institute** is any college conducting B. Pharmacy course affiliated to Savitribai Phule Pune University.
3. **State Govt.:** Govt. of Maharashtra
4. **Admission Authority:** An authority responsible for effecting admissions to B. Pharm course as prescribed by Govt. of Maharashtra
5. **DTE** – Directorate of Technical Education, Maharashtra State.
6. **AICTE** – All India Council for Technical Education, New Delhi
7. **Academic Year:** Two consecutive (one odd + one even) semesters constitute one academic year.
8. **Course:** Usually referred to, as 'papers' is a component of a programme. All courses need not carry the same weight. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures/ tutorials/laboratory work/ field work/ outreach activities/ project work/ vocational training/viva/ seminars/term papers/assignments/ presentations/ self-study etc. or a combination of some of these.
9. **Credit Based Semester System (CBSS):** Under the CBSS, the requirement for awarding a degree or diploma or certificate is prescribed in terms of number of credits to be completed by the learners.
10. **Credit Point:** It is the product of grade point and number of credits for a course.
11. **Credit:** A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week.
12. **Cumulative Grade Point Average (CGPA):** It is a measure of overall cumulative performance of a learner over all semesters. The CGPA is the ratio of total credit points secured by a learner in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal points.
13. **Grade Point:** It is a numerical weight allotted to each letter grade on a 10-point scale.
14. **Letter Grade:** It is an index of the performance of learners in a said course. Grades

  
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are denoted by letters O, A+, A, B+, B, C, P and F.

15. **Programme:** An educational programme leading to award of a Degree, diploma or certificate.
16. **Semester Grade Point Average (SGPA):** It is a measure of performance of work done in a semester. It is ratio of total credit points secured by a learner in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal points.
17. **Semester:** Each semester will consist of 15 weeks of academic work equivalent to 90 actual teaching days. The odd semester may be scheduled from July to December and even semester from January to June.
18. **Transcript or Grade Card or Certificate:** Based on the grades earned, a grade certificate shall be issued to all the registered learners after every semester. The grade certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester and CGPA earned till that semester.

  
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## R.1. AIM & OBJECTIVES OF THE COURSE

### AIM:

The Pharmacy graduates are required to learn and acquire adequate knowledge, necessary skills to practice the profession of pharmacy. The graduate should have adequate knowledge of synthesis & analysis of medicinal agents, their mode and mechanism of action, drug interactions, patient counselling and adequate technical information to be exchanged with the physician and other health professionals. The graduates are required to acquire in depth knowledge of formulation, quality assurance and storage of various pharmaceutical dosage forms including herbal medicines. The graduates should also understand the concept of community pharmacy and be able to participate in health care programmes of Government and private sector. They are also required to detail the physicians and market the medicinal agents for diagnosis, prevention and therapeutic purposes. The graduate pharmacist should also act as bridge between the Physician and Patients for achieving better health of community.

### OBJECTIVES:

The following objectives of the course should be achieved by acquiring an in-depth knowledge & thorough understanding, necessary skills and developing the right attitude. Therefore they are categorized into following heads.

#### a. Knowledge and Understanding

The graduates should acquire the following during their B. Pharm. Course.

1. Adequate knowledge and scientific information regarding basic principles of Pharmaceutical & Medicinal Chemistry, Pharmaceutics including Cosmeticology, Pharmacology, Pharmacognosy including herbal medicines.
2. Adequate knowledge of practical aspects of
  - Synthesis of APIs & its intermediates and analysis of various pharmaceutical dosage forms



- Formulation developments & quality assurance of various pharmaceutical dosage forms including those of herbal origin as per standards of official books, WHO and other regulatory agencies like USFDA, MHRA etc.
- Pharmacological screening and biological standardization and *in-vivo* drug interactions.
- Preparation & analysis of suitable plants material/extracts of medicinal importance for various herbal formulations.
- Clinical studies, patient counseling leading to physical and social well being of the patients.
- Product detailing, marketing, distribution and selling of pharmaceutical products.

**b. Skills:**


A graduate should be able to demonstrate following skills necessary for practice of a Pharmacy

- Able to synthesize, purify, identify and analyze medicinal agents.
- Able to formulate, store, dispense, manufacture the pharmaceutical products and analyze the prescriptions.
- Able to learn and apply the quality assurance principles in regulatory and ethical aspects
- Able to extract, purify, identify and understand the therapeutic value of herbal/crude/natural products
- Able to screen various medicinal agents using animal models for pharmacological activity.

**c. Attitudes:**

A graduate should develop the following attitudes during the course.

- Willing to apply the current knowledge of Pharmacy in the best interest of the patients and the community.
- Maintain high standards of professional ethics in discharging professional obligations.
- Continuously upgrade professional information and be conversant with latest advances in the field of pharmacy to serve community better.

  
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- Willing to participate in continuing education programmes of PCI/AICTE/ Savitribai Phule Pune University to upgrade the knowledge and professional skills.
- To help and participate in the implementation of National Health Programmes.

## **R.2. ELIGIBILITY CRITERIA**

**A. In order to secure admission to Semester –I of the Four year Degree Course in Pharmacy, the candidate should fulfil the following eligibility criteria;**

Candidate should be an Indian National and should have passed the HSC (Std.XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination with subjects English, Physics, Chemistry and Mathematics/Biology /Biotechnology/Technical Vocational subject

**AND**

Secured minimum 45 % marks (minimum 40 % marks in case of candidates of Backward class categories and Persons with Disability belonging only to Maharashtra State) in the subjects Physics, Chemistry and Mathematics/ Biology/Biotechnology/Technical Vocational subject added together (Maximum of marks obtained in Mathematics/ Biology/Biotechnology/Technical Vocational subject shall be considered for the purpose of addition)

**AND**

Obtained a non zero score in subjects Physics, Chemistry and Mathematics/ Biology added together at MT-CET 2015.

**AND**

Any other eligibility criteria decided by competent authority time to time.

**B. Eligibility Criteria for Admission at the entry level of Semester-III. (i.e. the first semester of Second Year B. Pharm.)** Diploma holders who have passed the Diploma course in Pharmacy with minimum of 45% marks and medium of instruction as English from AICTE approved Polytechnics.

  
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NOTE: In case of eligibility criterion decided by the Govt. of Maharashtra differs from above, University authorities shall decide the eligibility criterion from time to time. In case of foreign national learners eligibility criteria for admission to F. Y. B. Pharm should be decided by University authorities.

### R.3. SCHEME OF EXAMINATION:

R.3.1. Examination conducting authority: Savitribai Phule Pune University, Pune.

R.3.2. Regular and Supplementary Examinations and time: (Tentative schedule) The University will decide exact schedule on the basis of prevailing situation.

Semester	Odd Semester Examination	Even Semester Examination
I, III, V & VII	(November/December)	(April/May)
II, IV, VI & VIII		

Duration of Examination, Marks etc See Examination scheme at *Annexure I*

### R.3.3. Criteria for admitting the learner for examinations irrespective of regular or supplementary examinations:

- Learner must have been admitted to the respective Semester as per the criteria for continuation into the respective Semesters given in R-4 and has kept the term for the Semester for which he is examined.
- The learner must submit prescribed application form along with fees.
- Learner must appear for the examination at the place and time as decided by the admitting Institute/ the University as the case may be.
- Learner who has failed in a particular Semester or has ATKT will be allowed to appear for the same examination on filing new application being forwarded and after paying requisite fee.



*Clarifications:*

- Learner having ATKT will appear for examinations in only those subject heads in which the learner has failed except stated below.
- The learner who has passed in all the subjects but failed due to not getting overall CGPA 5 will be allowed to appear in any number of subject heads (theory) desired by the learner.
- For all the remaining cases, the learner has to appear for examination in all those subject heads in which the learner failed.

**R.3.4. Sessional Examinations**

- Each Semester will consist of a minimum of 15 weeks instructions.  
\*i.e.  $15 \times 6 = 90$  instructional days (minimum instructional days)
- 75% attendance for both theory and practical classes separately shall be mandatory to appear for sessional examination and end semester examination.
- Conducting authority shall be Institutes where learner is admitted.
- In- semester assessment will be of 40 marks which includes 20 marks for theory and practical sessional and 20 marks for continuous assessment for theory and practical.  
In-semester assessment of 20 marks should be continuous, procedures and marks for theory and practical examination are as follows –
  - i. For theory and practical Examination – In-semester assessment for 20 marks should be continuous and at least two tests should be conducted for full course of 3 credits for theory and 2 credits for practical and the teacher must select a variety of procedures for examination such as :
    - a) Written test and / or midterm test (not more than one or two for each course)
    - b) Term paper
    - c) Journal / Lecture / Library notes
    - d) Seminar presentation
    - e) Short Quizzes
    - f) Assignments
    - g) Extension work



h) An open book test (with the concern teacher deciding what books are to be allowed for this purpose)

or

i) Mini research project by individual learner or group of learners

The concern teacher in consultation with the head of Department shall decide the nature of question for the unit test.

*Number of Sessional Examination:*

- There will be a minimum of one sessional examination of 20 marks conducted in each semester after minimum eight weeks of teaching from the date of commencement of that semester in each of the theory subjects during the semester.
- One Sessional Examination will be conducted as per the examination scheme (See Annexure no. I) for each semester. The learner who will secure less than 40% mark in the Sessional Examination or unable to appear for the scheduled Sessional Examination may be permitted for the Sessional Examination in the same semester only if approved by institutional examination committee and paying fees as prescribed by the institution. The institutional examination committee shall consist of Principal (Chairman), & four teachers nominated by the Principal.
- Practical sessional examination of 20 marks will be based on internal assessment of practical (Experimental work), viva, synopsis and laboratory record. The distribution of marks for practical examination will be as follows –

**Scheme for Practical Sessional Examination**

Sr. No.	Head	Marks distribution
1	Experimental work	10
2	Synopsis & Viva	06
3	Lab Record	04
	Total Marks	20
	Duration	03 Hrs.

- Daily assessment of practicals will be based on day to day attendance, learners' skills (performance), viva, laboratory record, etc.
- Theory sessional examination of 20 marks will be conducted after completion of at least two thirds syllabus of the semester.
- The distribution of marks for theory sessional examination will be as given below-

  
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Sr. No.	Head	Marks distribution
Q. 1	2 marks X 3 questions (out of five)	= 6 marks
Q. 2	4 marks X 2 questions (out of three)	= 8 marks
Q. 3	6 marks X 1 questions (out of two)	= 6 marks
	Total	= 20 marks

*Time Schedule:*

**The time schedule for theory sessional examination will be 1 hour.**

- The Retest/ Improvement test/ or supplementary test for the Sessional Examinations will be allowed for the failed learners in the University examination, if he/she is appearing for the University exam of that subject head.
- The Retest/ Improvement test/ or supplementary test shall be carried by the respective institution and the marks obtained by the learner shall be forwarded to the University.
- The institute conducting the course must submit the Sessional Examination marks of the respective semester to the Controller of Examinations in soft copy and print before the commencement of theory or practical examination whichever is later.

**R.3.5. Scaling Down the Marks Obtained by the Learner at the Internal Examination as Compared to the Marks Obtained by the Learner in the Semester End Theory and Practical Examination in the Course Concerned**

- Concept of scaling shall be applicable only for the marks obtained by the learners at all the individual courses.
- Marks obtained by the learner at the Internal Assessment and Semester End Examinations should be converted to the percentage marks course wise.
- Concept of scaling shall be applicable only in cases where the marks obtained by the learner in the Internal Assessment and Semester End Assessment Examinations differ by more than 20% in the course concerned i.e. percentage marks of the learner at a course in the Internal Assessment is 20% more than the percentage of marks

  
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scored by the learner concerned in the Semester End Examination in the course concerned.

- Learner at the course concerned in the Internal Assessment should be scaled down to 20% plus the percentage score of the learner at the Semester End Examination.
- The concept of scaling shall be applicable only in course/s where the learner has passed the course. In case if a learner fails in one or more courses at an attempt then the concept of scaling shall be applied to the courses that the learner has passed at the attempt concerned and for the remaining courses where the learner has failed, the concept of scaling will be applicable as and when the learner passes the course or earns the credit for the course.
- The scaled marks can thus be used to calculate the Credits, Grades, Credit points earned by the learner can then be used to calculate the SGPA and CGPA.
- Concept of scaling shall not be applicable where the percentage of the marks scored by the learner at the Semester End Examination is more than the percentage marks scored by the learner in the Internal Assessment at the course concerned. One of the reasons for the learner scoring low marks at the Internal Assessment could be nonappearance for one of the components of the Internal Assessment.

**Sample Case of a Learner at F.Y.B.Pharm. Semester I of B.Pharm. Programme**

Marks Obtained	Max. Marks	1.1.1 T	1.1.1 P	1.1.2 T	1.1.2 P	1.1.3 T	1.1.3 P	1.1.4 T	1.1.4 P	1.1.5 T	1.1.5 P	1.1.6 T
Internal Assessment	40	28	39	38	37	40	36	37	35	31	34	32
Semester End Examination	60	33	27	24	51	25	32	45	36	26	58	55

Marks Obtained	Max. Marks	1.1.1 T	1.1.1 P	1.1.2 T	1.1.2 P	1.1.3 T	1.1.3 P	1.1.4 T	1.1.4 P	1.1.5 T	1.1.5 P	1.1.6 T
Internal Assessment	40	70%	97.5%	95%	92.5%	100%	90%	92.5%	87.5%	77.5%	85%	80%
Semester End Examination	60%	54.78%	44.82%	39.84%	84.66%	41.5%	53.12%	74.7%	59.76%	43.16%	96.28%	91.3%



Marks Obtained	Max. Marks	1.1.1 T	1.1.1 P	1.1.2 T	1.1.2 P	1.1.3 T	1.1.3 P	1.1.4 T	1.1.4 P	1.1.5 T	1.1.5 P	1.1.6 T
Revised Internal Assessment Score	40	28*	25.92	23.93	37*	24.60	29.24	37*	31.90	25.26	34*	32*
Semester End Examination	60	33	27	24	51	25	32	45	36	26	58	55

\*In these cases the percentage difference in the marks of Internal Assessment and Semester End Examination is less than 20% hence the original marks are retained.

#### R.4.:

Continuation into the subsequent semesters after the entry level semesters. The admitting authority will be the individual institutes where the learner has been admitted into the course, and the continuation will be as per the criteria decided by the University for each semester.

The following criteria are applicable to all the learners for continuation.

R.4.1. A learner, to be eligible for the Degree will be required to pass examinations, as under:-

First year B. Pharm.	Semester-I & Semester-II
Second year B. Pharm.	Semester-III & Semester-IV
Third year B. Pharm.	Semester-V & Semester-VI
Fourth year B. Pharm.	Semester-VII & Semester-VIII

#### R.4.2.

No learner will be admitted to any examination unless he/she keeps term at a College affiliated to the University and produces from the Principal of the College, testimonials of satisfactory attendance at the theory, Practical and term work classes as prescribed.



#### **R.4.3. Promotion from odd semester to even semester in the same academic year**

- A Learner who fails in Semester - I examination of First Year B. Pharm. will be allowed to keep term for his/her Semester –II Examination, of First Year B. Pharm.
- A Learner who fails in Semester – III examination of Second Year B. Pharm. will be allowed to keep term for his/ her Semester – IV Examination of Second Year B. Pharm.
- A Learner who fails in Semester – V examination of Third Year B. Pharm. will be allowed to keep term for his/her Semester – VI Examination of Third Year B. Pharm.
- A Learner who fails in Semester – VII examination of Fourth Year B. Pharm. will be allowed to keep term for his Semester – VIII Examination of Fourth Year B. Pharm.


#### **R.4.4. Promotion to subsequent academic year-**

- A learner who fails in more than 7 heads (Theory & practical) of total number of subjects taken together at Semester I and Semester II /Semester III & Semester IV course examination will not be permitted to keep terms in the higher class viz. Semester III / Semester V of B. Pharm. Course examination respectively.
- A learner who fails in more than 8 heads (Theory & practical) of total number of subjects taken together at Semester V and Semester VI course examination will not be permitted to keep terms in the higher class viz. Semester VII of B. Pharm. Course examination.

#### **R.4.5. Clarification of R.4.3. and R.4.4.**

1. No learner will be admitted to the Semester III course unless he/she passes his/her Semester I and Semester II examination of B. Pharm.

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Fails in not more than 7 heads (Theory and Practical) at the Semester I and Semester II examination of B.Pharm.

2. No learner will be admitted to the Semester V course unless he/she passes his/her Semester I & Semester II., Semester III & Semester IV Examinations of B.Pharm.

**OR**

passes his/her Semester I and Semester II examination of B. Pharm. and fails in not more than 7 of total number of heads (Theory and Practical) at the Semester III & Semester IV Examinations of B. Pharm.

3. No learner will be admitted to the Semester VII course of B. Pharm. unless he/she Passes his/her Semester I & Semester II., Semester III & Semester IV., Semester V & Semester VI Examinations of B. Pharm. examinations,

**OR**

passes his/her Semester I & Semester II., Semester III & Semester IV Examinations of B. Pharm. and fails in not more than 8 of total number of heads (Theory and Practical) at the Semester V & Semester VI Examinations of B. Pharm.

#### **R.4.6. Allowed to Keep Terms (ATKT) rules.**

Number of subjects: ATKT will be awarded to those who have failed in 1/3 subject head (33%) as described in table given below

At the end of academic Year		Total subject heads at the end of academic year.	33 % of total subjects (To nearest full digit)
First	Theory	06+06=12	4
	Practical	05+05=10	3
Second	Theory	06+06=12	4
	Practical	05+05=10	3
Third	Theory	07+07=14	5
	Practical	05+05=10	3



## **R.5. Marks, Criteria for passing and other conditions.**

### **R.5.1. Passing criteria for each subject head:**

Maximum marks for each subject head and the minimum marks for passing in each of the subject head –See Examination scheme given in *Annexure I*.

No separate passing is required for sessional examination and if the learner remains absent for the test, the learner will be just treated as not appeared for the test securing zero marks. What so ever mark obtained by the learner will be added to the marks obtained by the learner in University examination as shown in scheme of examination given in *Annexure I*.


In no circumstances previous marks will be considered. If a learner's application form for reappearing in the examination in a subject head is accepted, and the learner appears in the examination (Sessional examination & Semester examination) fresh marks will be considered.

### **R.5.2. Passing of the semester.**

Learner will be considered as passed the semester only when the learner passes in the entire subject heads and obtains overall a minimum CGPA of 5 as prescribed for the semester see Annexure I.

### **R 5.3. Letter Grades and Grade Points:**

1. The marks are converted to grades based on pre-determined class intervals. As per recommendations of UGC. A 10-point grading system with the following letter grades as given below:

  
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**Table 1: Grades and Grade Points**

Marks Obtained	Letter Grade	Grade Point
90 above	O (Outstanding)	10
80 to 89	A+(Excellent)	9
70 to 79	A(Very Good)	8
60 to 69	B+(Good)	7
50 to 59	B(Above Average)	6
46 to 49	C(Average)	5
40 to 45	P (Pass)	4
0 to 39	F(Fail)	0
N. A	Ab (Absent)	0

2. A learner obtaining Grade F shall be considered failed and will be required to reappear in the examination.
3. For non credit courses 'Satisfactory' or "Unsatisfactory' shall be indicated instead of the letter grade and this will not be counted for the computation of SGPA/CGPA.

#### **R 5.4. Computation of SGPA and CGPA:**

As per recommendation of UGC the following procedure is adopted to compute the Semester Grade Point

Average (SGPA) and Cumulative Grade Point Average (CGPA):

- i. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a learner in all the courses taken by a learner and the sum of the number of credits of all the courses undergone by a learner, i.e

$$\text{SGPA (Si)} = \frac{\sum(C_i \times G_i)}{\sum C_i}$$

where  $C_i$  is the number of credits of the  $i$ th course and  $G_i$  is the grade point scored by the learner in the  $i$ th course.

- ii. The CGPA is also calculated in the same manner taking into account all the courses undergone by a learner over all the semesters of a programme, i.e.

$$\text{CGPA} = \frac{\sum(C_i \times S_i)}{\sum C_i}$$



where  $S_i$  is the SGPA of the  $i$ th semester and  $C_i$  is the total number of credits in that semester.

- iii. The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.

#### R.5.5. Illustration of Computation of SGPA and CGPA and Format for Transcripts

- i. Computation of SGPA and CGPA

Illustration for SGPA

	Course	Credit	Grade letter	Grade point	Credit Point (Credit x Grade)
1.1.1 T	Pharmaceutics- I	3	A	8	3 X 8 = 24
1.1.1 P	Pharmaceutics- I	2	A	8	2 X 8 = 16
1.1.2 T	Modern Dispensing Practices	3	B+	7	3 X 7 = 21
1.1.2 P	Modern Dispensing Practices	2	A	8	2 X 8 = 16
1.1.3 T	Pharmaceutical Inorganic Chemistry	3	O	10	3 X 10 = 30
1.1.3 P	Pharmaceutical Inorganic Chemistry	2	O	10	2 X 10 = 20
1.1.4 T	Pharmaceutical Organic Chemistry-I	3	A	8	3 X 8 = 24
1.1.4 P	Pharmaceutical Organic Chemistry-I	2	A	8	2 X 8 = 16
1.1.5 T	Human Anatomy & Physiology-I	3	B+	7	3 X 7 = 21
1.1.5 P	Human Anatomy & Physiology-I	2	B+	7	2 X 7 = 14
1.1.6 T	Communication and soft skill development	3	B	6	3 X 6 = 18
		28			220

Thus,  $SGPA = 220/28 = 7.85$

Illustration for CGPA

Semester 1	Semester 2	Semester 3	Semester 4
Credit : 28	Credit : 28	Credit : 28	Credit : 28
SGPA:7.86	SGPA:7.04	SGPA: 6.42	SGPA:7.21



Semester 5	Semester 6	Semester 7	Semester 8
Credit : 31 SGPA:8.42	Credit : 31 SGPA:7.24	Credit : 31 SGPA: 6.74	Credit : 31 SGPA:8.44

Thus,

$$\text{CGPA} = \frac{28 \times 7.89 + 28 \times 7.04 + 28 \times 6.42 + 28 \times 7.21 + 31 \times 8.42 + 31 \times 7.24 + 31 \times 6.74 + 31 \times 8.44}{236} = 7.46$$

- ii. Transcript (Format): Based on the above recommendations on Letter grades, grade points and SGPA and CGPA, the Higher Educational Institutes may issue the transcript for each semester and a consolidated transcript indicating the performance in all semesters.

**Table indicating Final Grade**

CGPA	Final Grade
9.10 – 10.00	O (Outstanding)
8.10 – 9.00	A+(Excellent)
7.10 – 8.00	A(Very Good)
6.51 – 7.00	B+(Good)
6.10 – 6.50	B(Above Average)
5.51 – 6.00	C(Average)
5.00 – 5.50	P (Pass)
0 – 4.99	F(Fail)
N. A	Ab (Absent)

#### **R.5.6. Award of the degree and Grade.**

Degree will be awarded to the learners who have passed all the eight semesters. Final grade will be awarded on the basis of combined CGPA at the Semester-I to Semester VIII.

  
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A learner will be allowed to improve his/her class at B. Pharm. by reappearing for the subjects (maximum 3 theory subjects of that examination) from V to VIII Semesters of B. Pharm. Course as per prevalent policy of University.

#### **R.5.7. With holding of results.**

A learner's result will be withheld under the following situations and of the respective Semester.

1. Withholding of result for not fulfilling passing criteria for advancement to subsequent classes-

Result of Semester IV will be with held if the learner has not passed Semester-I and Semester II.

Result of Semester VI will be with held if the learner has not passed Semester-III and Semester - IV.

Result of Semester VIII will be with held if the learner has not passed Semester- V & Semester-VI.

2. Withholding of result for failure to comply University rules-

The result of learner shall be withheld if the learner is found guilty in malpractices during examinations and any other failure to comply University rules and regulation as confirmed by appropriate body of University.

#### **R.5.8. Exemption to appear for the examination:**

If a learner has got ATKT, the learner will be exempted from appearing the examination for those subject heads in which the learner has passed.

Any learner who has passed in any subject head is exempted for appearing the examination in that subject head.


Notwithstanding above if a learner has passed in all the subjects but failed due to not getting CGPA or SGPA of '5', may appear for the examination in any three theory subject heads so as to get over all CGPA or SGPA of '5'. In such cases, best



of performance will be considered. For example if the learner gets over all CGPA or SGPA of '5' but fails in one of the subject heads in which the learner had passed earlier, the learner will be treated as passed in that subject head as per previous examination and result will be declared as per the rules applicable to the passed learners. The marks of the subject head in which the learner has not appeared for the examination will be carried forward.

#### **R.5.9. Professional/Industrial Training**

Every learner shall be required to work for at least four weeks in a Pharmaceutical Industry it includes Production unit, Q. C department, Q. A department, analytical laboratory, chemical manufacturing unit, pharmaceutical R & D, hospital (Clinical Pharmacy), clinical research organization and wholesale drug store etc after the Semester- IV of the course of study, and shall submit satisfactory report of such work form industry to the head of the institute. The learner should also submit one copy to the University for the Award of Degree along with convocation form. The learner may undergo practical training in parts, each constituting not less than two weeks.

  
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R.5.10.

The pattern for University theory examination question paper shall be as given below:

Scheme for theory Examination: - Each Theory paper should be divided in 2 sections which should be attempted in separate answer sheet.

Sr. No.	Head	Marks distribution
<b>Section – I</b>		
Q.1.	Long answers question	10 marks (10 mark x 1 Qs, out of 2 Qs.)
Q.2	Small answers questions – 3 marks ( word limit 75 to 100 words)	12 marks (3 mark x 4 Qs, out of 7 Qs.)
Q.3	Short answers questions – 5 marks ( word limit 125 to 150 words)	8 marks (4 mark x 2 Qs, out of 4 Qs.)
<b>Section – II</b>		
Q.4	Long answers question	10 marks (10 mark x 1 Qs, out of 2 Qs.)
Q.5	Small answers questions – 3 marks ( word limit 75 to 100 words)	12 marks (3 mark x 4 Qs, out of 7 Qs)
Q.6	Short answers questions – 5 marks ( word limit 125 to 150 words)	8 marks (4 mark x 2 Qs, out of 4 Qs.)
<b>Total maximum marks of section I and</b>		<b>60 marks</b>
<b>Duration of examination</b>		<b>3 Hrs.</b>

**Note:**

1. There shall be no word limit set for long answer questions.
2. Paper setters should cover entire syllabus while setting the question paper.
3. The detailed guidelines with respect to these instructions shall be given to all paper setters by the University.

**Scheme for University Practical Examination**

Sr. No.	Head	Marks distribution
1	Synopsis	10
2	Major experiment	25
3	Minor experiment	15
4	Viva	10
Total Marks		60
Duration		04 Hrs.





#### R-6: ENVIRONMENTAL SCIENCES

An additional course in environmental sciences shall be conducted as per following guidelines.

1. A course in Environmental Awareness with duration of six months (30 lectures of one hour duration & field work of 10 hours duration.) shall be introduced at the semester III of second year of degree course B.Pharm as a compulsory course.
2. An additional course fee of Rs. 1000 per learner shall be charged to meet the expenditure on the conduct of the course.
3. A course Coordinator shall be appointed to organize teaching and evaluation by the Principal.
4. Qualifications of a Teacher.

University approved teacher (minimum Asst. Prof.) or expert in Environmental Sciences possessing substantial knowledge to teach a course on environmental studies shall be eligible to teach the course. Principal of the College shall be authorized to determine the eligibility of the teacher on environmental studies. This course is to be introduced from the second year B. Pharm.

5. The college on behalf of the University shall conduct the examination of this subject immediately before or after Semester examinations of S.Y./T.Y./Final Year B.Pharm.
6. The learner should clear this subject before passing the Final Year B. Pharm examination.
7. A learner has to pass in this course in order to obtain degree certificate. If the learner passes in all subjects of degree course but fails in this paper, he will not be eligible to obtain degree certificate.
8. Examination: the College shall organize the evaluation as per pattern suggested below.

The Principal shall submit the result sheet to the Controller of Examination, Savitribai Phule Pune University, Pune on or before the end of the final year University Examinations of B. Pharm. course. The results of University examination of the learner who fail to get Minimum 'C' Grade in this course shall be kept in

  
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reserve till the concerned learner complete the course and secure to require Minimum C Grade.

The question paper shall include the questions as under

- A. Multiple choice questions :50 Marks
- B. Essay type questions :25 Marks
- C. Field works :25 Marks

Total: 100 Marks Passing Marks: 40 Marks.

Following Grades shall be awarded to the learners based on their marks obtained.

**Grade-O:** above 75    **Grade-A:** 61 to 75    **Grade-B:** 51 to 60    **Grade-C:** 40 to 50

#### **R-7: Rules for Carry Forward**

This revised curriculum (including regulations, structure and syllabi) will be in force from academic year 2015-16 and onwards for First Year B. Pharm, for academic year 2016-17 onwards for Second Year B. Pharm., for academic year 2017-18 and onwards for Third Year B. Pharm., and for academic year 2018-19 and onwards for Final Year B. Pharm.

1. The learners who were admitted to First Year B. Pharm. of 2013 pattern during the academic year 2014-15 or before & would fail or have failed in the First Year B. Pharm. of 2013 pattern examination will have to take admission to Semester-III of Second Year B. Pharm. of 2015 pattern in academic year 2016-17 or onwards, provided that
  - a. Their result of F. Y. B. Pharm of 2013 pattern is either pass or fails with A. T. K. T.
2. The learners who will be admitted to Second Year B. Pharm. of 2013 pattern during academic year 2015-16 and who will fail in the Second Year B. Pharm. 2013 pattern



examination will have to take admission to Semester- V of T. Y. B. Pharm. of 2015 pattern in academic year 2017-18 or onwards, provided that

- a. They have passed in all subjects of F. Y. B. Pharm. of 2013 syllabus.
- b. Their result for S. Y. B. Pharm. of 2013 pattern is either Pass or Fail with A. T. K. T.

Such learners will have to pass in all the subjects of S. Y. B. Pharm. 2013 pattern before taking admission to Semester- VII of Final Year B. Pharm. 2015 pattern.

3. The learners who will be admitted to Third Year B. Pharm. of 2013 pattern during the academic year 2016-17 and who would fail in T. Y. B. Pharm. 2013 pattern examination will have to take admission to Semester- VII of Final year B. Pharm. of 2015 pattern, provided that

- a. They have passed in all subjects of S. Y. B. Pharm. of 2013 pattern
- b. Their result for T. Y. B. Pharm. 2013 pattern is Pass or Fail with A. T. K. T.

  
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### Annexure I

Scheme of Examination for eight semesters of B. Pharm. Course Name and number of heads of passing, number of paper, duration of examination, maximum marks, minimum marks for passing, Sessional Examination, duration, maximum marks.

#### Semester-I

#### Class- First Yr. B. Pharmacy

Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination			Internal Examination			Total Maximum Marks for subject	Minimum marks for passing subject
				Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Sessional Maximum marks	Continuous Assessment marks		
1.1.1 T	Pharmaceutics- I	3	3	3	60	24	1.5	20	20	100	40
1.1.1 P	Pharmaceutics- I	3	2	4	60	24	3	20	20	100	40
1.1.2 T	Modern Dispensing Practices	3	3	3	60	24	1.5	20	20	100	40
1.1.2 P	Modern Dispensing Practices	3	2	4	60	24	3	20	20	100	40
1.1.3 T	Pharmaceutical Inorganic Chemistry	3	3	3	60	24	1.5	20	20	100	40
1.1.3 P	Pharmaceutical Inorganic Chemistry	3	2	4	60	24	3	20	20	100	40
1.1.4 T	Pharmaceutical Organic Chemistry-I	3	3	3	60	24	1.5	20	20	100	40
1.1.4 P	Pharmaceutical Organic Chemistry-I	3	2	4	60	24	3	20	20	100	40
1.1.5 T	Human Anatomy & Physiology-I	3	3	3	60	24	1.5	20	20	100	40
1.1.5 P	Human Anatomy & Physiology-I	3	2	4	60	24	3	20	20	100	40
1.1.6 T	Communication and soft skill development	3	3	3	60	24	1.5	20	20	100	40

Total Credits = 28

  
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Semester-II

Class- First Yr. B. Pharmacy

Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination			Internal Examination			Total Maximum Marks for subject	Minimum marks for passing subject
				Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks	Continuous Assessment marks		
1.2.1 T	Pharmaceutics- II	3	3	3	60	24	1.5	20	20	100	40
1.2.1 T	Dosage form design	3	3	3	60	24	1.5	20	20	100	40
1.2.2 P	Dosage form design	3	2	4	60	24	3	20	20	100	40
1.2.3 T	Pharmaceutical Organic Chemistry-II	3	3	3	60	24	1.5	20	20	100	40
1.2.3 P	Pharmaceutical Organic Chemistry-II	3	2	4	60	24	3	20	20	100	40
1.2.4 T	Human Anatomy & Physiology-II	3	3	3	60	24	1.5	20	20	100	40
1.2.4 P	Human Anatomy & Physiology-II	3	2	4	60	24	3	20	20	100	40
1.2.5 T	Pharmacognosy	3	3	3	60	24	1.5	20	20	100	40
1.2.5 P	Pharmacognosy	3	2	4	60	24	3	20	20	100	40
1.2.6 T	Pharmaceutical Analysis I	3	3	3	60	24	1.5	20	20	100	40
1.2.6 P	Pharmaceutical Analysis I	3	2	4	60	24	3	20	20	100	40

Total Credits = 28

  
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**Semester-III**

**Class- Second Yr. B. Pharmacy**

Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination			Internal Examination			Total Maximum Marks for subject	Minimum marks for passing subject
				Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks	Continuous Assessment marks		
2.3.1 T	Physical Pharmaceutics- I	3	3	3	60	24	1.5	20	20	100	40
2.3.1 P	Physical Pharmaceutics- I	3	2	4	60	24	3	20	20	100	40
2.3.2 T	Pharmaceutical Microbiology	3	3	3	60	24	1.5	20	20	100	40
2.3.2 P	Pharmaceutical Microbiology	3	2	4	60	24	3	20	20	100	40
2.3.3 T	Pharmaceutical Biochemistry	3	3	3	60	24	1.5	20	20	100	40
2.3.3 P	Pharmaceutical Biochemistry	3	2	4	60	24	3	20	20	100	40
2.3.4 T	Pharmaceutical Organic Chemistry-III	3	3	3	60	24	1.5	20	20	100	40
2.3.4 P	Pharmaceutical Organic Chemistry-III	3	2	4	60	24	3	20	20	100	40
2.3.5 T	Pharmacology-I	3	3	3	60	24	1.5	20	20	100	40
2.3.6 T	Pharmacognosy & Phytochemistry - I	3	3	3	60	24	1.5	20	20	100	40
2.3.6 P	Pharmacognosy & Phytochemistry - I	3	2	4	60	24	3	20	20	100	40

**Total Credits = 28**

  
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Semester-IV

Class- Second Yr. B. Pharmacy

Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination			Internal Examination			Total Maximum Marks for subject	Minimum marks for passing subject
				Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks	Continuous Assessment marks		
2.4.1 T	Physical Pharmaceutics-II	3	3	3	60	24	1.5	20	20	100	40
2.4.1 P	Physical Pharmaceutics-II	3	2	4	60	24	3	20	20	100	40
2.4.2 T	Pathophysiology & Clinical Biochemistry	3	3	3	60	24	1.5	20	20	100	40
2.4.2 P	Pathophysiology & Clinical Biochemistry	3	2	4	60	24	3	20	20	100	40
2.4.3 T	Pharmaceutical Organic Chemistry-IV	3	3	3	60	24	1.5	20	20	100	40
2.4.3 P	Pharmaceutical Organic Chemistry-IV	3	2	4	60	24	3	20	20	100	40
2.4.4 T	Pharmaceutical Analysis-II	3	3	3	60	24	1.5	20	20	100	40
2.4.4 P	Pharmaceutical Analysis-II	3	2	4	60	24	3	20	20	100	40
2.4.5 T	Pharmacognosy & Phytochemistry - II	3	3	3	60	24	1.5	20	20	100	40
2.4.5 P	Pharmacognosy & Phytochemistry - II	3	2	4	60	24	3	20	20	100	40
2.4.6 T	Pharmaceutical Engineering	3	3	3	60	24	1.5	20	20	100	40

Total Credits = 28

  
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Semester-V

Class- Third Yr. B. Pharmacy

Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination			Internal Examination			Total Maximum Marks for subject	Minimum marks for passing subject
				Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks	Continuous Assessment marks		
3.5.1 T	Industrial Pharmacy-I	3	3	3	60	24	1.5	20	20	100	40
3.5.1 P	Industrial Pharmacy-I	3	2	4	60	24	3	20	20	100	40
3.5.2 T	Pharmaceutical Analysis-III	3	3	3	60	24	1.5	20	20	100	40
3.5.2 P	Pharmaceutical Analysis-III	3	2	4	60	24	3	20	20	100	40
3.5.3 T	Medicinal Chemistry-I	3	3	3	60	24	1.5	20	20	100	40
3.5.3 P	Medicinal Chemistry-I	3	2	4	60	24	3	20	20	100	40
3.5.4 T	Pharmacology-II	3	3	3	60	24	1.5	20	20	100	40
3.5.4 P	Pharmacology-II	3	2	4	60	24	3	20	20	100	40
3.5.5 T	Analytical Pharmacognosy & Extraction Technology	3	3	3	60	24	1.5	20	20	100	40
3.5.5 P	Analytical Pharmacognosy & Extraction Technology	3	2	4	60	24	3	20	20	100	40
3.5.6 T	Pharmaceutical Business Management & Disaster Management	3	3	3	60	24	1.5	20	20	100	40
3.5.7 T	Active Pharmaceutical Ingredients Technology	3	3	3	60	24	1.5	20	20	100	40

Total Credits = 31

  
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**Semester-VI**

**Class- Third Yr. B. Pharmacy**

Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination			Internal Examination			Total Maximum Marks for subject	Minimum marks for passing subject
				Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks	Continuous Assessment marks		
3.6.1 T	Industrial Pharmacy-II	3	3	3	60	24	1.5	20	20	100	40
3.6.1 P	Industrial Pharmacy-II	3	2	4	60	24	3	20	20	100	40
3.6.2 T	Pharmaceutical Analysis-IV	3	3	3	60	24	1.5	20	20	100	40
3.6.2 P	Pharmaceutical Analysis-IV	3	2	4	60	24	3	20	20	100	40
3.6.3 T	Medicinal Chemistry-II	3	3	3	60	24	1.5	20	20	100	40
3.6.3 P	Medicinal Chemistry-II	3	2	4	60	24	3	20	20	100	40
3.6.4 T	Pharmacology-III	3	3	3	60	24	1.5	20	20	100	40
3.6.4 P	Pharmacology-III	3	2	4	60	24	3	20	20	100	40
3.6.5 T	Natural Product Chemistry	3	3	3	60	24	1.5	20	20	100	40
3.6.5 P	Natural Product Chemistry	3	2	4	60	24	3	20	20	100	40
3.6.6 T	Bioorganic Chemistry & Drug Design	3	3	3	60	24	1.5	20	20	100	40
3.6.7 T	Pharmaceutical Biotechnology	3	3	3	60	24	1.5	20	20	100	40

**Total Credits = 31**

  
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**Semester-VII**

**Class- Final Yr. B. Pharmacy**

Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination			Internal Examination			Total Maximum Marks for subject	Minimum marks for passing subject
				Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks	Continuous Assessment marks		
4.7.1 T	Sterile Products	3	3	3	60	24	1.5	20	20	100	40
4.7.1 P	Sterile Products	3	2	4	60	24	3	20	20	100	40
4.7.2 T	Pharmaceutical Analysis-V	3	3	3	60	24	1.5	20	20	100	40
4.7.2 P	Pharmaceutical Analysis-V	3	2	4	60	24	3	20	20	100	40
4.7.3 T	Medicinal Chemistry-III	3	3	3	60	24	1.5	20	20	100	40
4.7.3 P	Medicinal Chemistry-III	3	2	4	60	24	3	20	20	100	40
4.7.4 T	Pharmacology-IV	3	3	3	60	24	1.5	20	20	100	40
4.7.4 P	Pharmacology-IV	3	2	4	60	24	3	20	20	100	40
4.7.5 T	Natural Drug Technology	3	3	3	60	24	1.5	20	20	100	40
4.7.5 P	Natural Drug Technology	3	2	4	60	24	3	20	20	100	40
4.7.6 T	Bio-pharmaceutics & Pharmacokinetics	3	3	3	60	24	1.5	20	20	100	40
4.7.7 T	Pharmaceutical Jurisprudence	3	3	3	60	24	1.5	20	20	100	40

**Total Credits = 31**

  
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**Semester-VIII**

**Class- Final Yr. B. Pharmacy**


Subject Code	Subject	Scheme of Teaching Hrs/Weeks	Scheme of Credit	End Semester Examination			Internal Examination			Total Maximum Marks for subject	Minimum marks for passing subject
				Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks	Continuous Assessment marks		
4.8.1 T	Advanced Drug Delivery System	3	3	3	60	24	1.5	20	20	100	40
4.8.1 P	Advanced Drug Delivery System	3	2	4	60	24	3	20	20	100	40
4.8.2 T	Cosmetic science	3	3	3	60	24	1.5	20	20	100	40
4.8.2 P	Cosmetic science	3	2	4	60	24	3	20	20	100	40
4.8.3 T	Pharmaceutical Analysis-VI	3	3	3	60	24	1.5	20	20	100	40
4.8.3 P	Pharmaceutical Analysis-VI	3	2	4	60	24	3	20	20	100	40
4.8.4 T	Medicinal Chemistry-IV	3	3	3	60	24	1.5	20	20	100	40
4.8.4 P	Medicinal Chemistry-IV	3	2	4	60	24	3	20	20	100	40
4.8.5 T	Pharmacology-V(Including Biostatistics)	3	3	3	60	24	1.5	20	20	100	40
4.8.5 P	Pharmacology-V(Including Biostatistics)	3	2	4	60	24	3	20	20	100	40
4.8.6 T	Natural Products: Commerce, Industry & Regulations	3	3	3	60	24	1.5	20	20	100	40
4.8.7 T	Quality Assurance Tech.	3	3	3	60	24	1	20	20	100	40

**Total Credits = 31**

  
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# Programme- B. Pharm 2013 – Course Structure



  
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**UNIVERSITY OF PUNE**

**FACULTY OF PHARMACEUTICAL SCIENCES**



**COURSE STRUCTURE & SYLLABI**

**BACHELOR OF PHARMACY (B. Pharm.) COURSE  
(EFFECTIVE FROM ACADEMIC YEAR 2013-14)**

  
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<b>Course Title:</b>	Bachelor of Pharmacy
<b>Abbreviation:</b>	B. Pharm.
<b>Medium of Instruction And Examination:</b>	English
<b>Type of Course:</b>	A four year degree course divided into eight Semesters.
<b>Pattern:</b>	Semester.
<b>Number of Years and Semester:</b>	Four Years divided into eight semesters with two semesters per year.
<b>Nomenclature of Semesters :</b>	Semester-I & Semester-II First Year B. Pharm. Semester-III & Semester-IV Second Year B. Pharm. Semester-V & Semester-VI Third Year B. Pharm. Semester-VII & Semester-VIII Final Year B. Pharm.
<b>Award of the Degree :</b>	Degree will be awarded for those passing in all the eight semesters as per the rules and regulations.
<b>Duration of Semester :</b>	Each Semester will be normally of 15 weeks duration for class room teaching/ lecture and internal evaluation.
<b>Definitions:</b>	1. University means University of Pune until and otherwise specified. 2. The college/Institute is any college conducting B. Pharmacy course and affiliated to University of



Pune.

3. State Govt.: Govt. of Maharashtra

4. Admission Authority: An authority responsible for effecting admissions to B. Pharm course as prescribed by Govt. of Maharashtra

5. DTE – Directorate of Technical Education, Maharashtra State.

6. AICTE – All India Council for Technical Education, New Delhi

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## R.1. AIM & OBJECTIVES OF THE COURSE

### AIM:

The Pharmacy graduates are required to learn and acquire adequate knowledge, necessary skills to practice the profession of pharmacy. The graduate should have thorough knowledge of synthesis & analysis of medicinal agents, their mode and mechanism of action, drug interactions, patient counselling and adequate technical information to be exchanged with the physician and other health professionals. The graduates are required to acquire in depth knowledge of formulation, quality assurance and storage of various pharmaceutical dosage forms including herbal medicines. The graduates should also understand the concept of community pharmacy and be able to participate in health care programmes of Government and private sector. They are also required to detail the physicians and market the medicinal agents for diagnosis, prevention and therapeutic purposes. The graduate pharmacist should also act as bridge between the Physician and Patients for achieving better health of community.

### OBJECTIVES:

The following objectives of the course should be achieved by acquiring an in-depth knowledge & thorough understanding, necessary skills and developing the right attitude. Therefore they are categorized into following heads.

#### a. Knowledge and Understanding

The graduates should acquire the following during their B. Pharm. Course.

1. Adequate knowledge and scientific information regarding basic principles of Pharmaceutical & Medicinal Chemistry, Pharmaceutics including Cosmeticology, Pharmacology, Pharmacognosy including herbal medicines.
2. Adequate knowledge of practical aspects of
  - Synthesis of APIs & its intermediates and analysis of various pharmaceutical dosage forms





- Formulation developments & quality assurance of various pharmaceutical dosage forms including those of herbal origin as per standards of official books, WHO and other regulatory agencies like USFDA, MHRA, UK etc.
- Pharmacological screening and biological standardization and *in-vivo* drug interactions.
- Preparation & analysis of suitable plants material/extracts of medicinal importance for various herbal formulations.
- Clinical studies, patient counseling leading to physical and social well being of the patients.
- Product detailing, marketing, distribution and selling of pharmaceutical products.

**b. Skills:**

A graduate should be able to demonstrate following skills necessary for practice of a Pharmacy

- Able to synthesize, purify, identify and analyze medicinal agents.
- Able to formulate, store, dispense, analyze the prescriptions and manufacture the pharmaceutical products.
- Able to learn and apply the quality assurance principles in regulatory and ethical aspects
- Able to extract, purify, identify and understand the therapeutic value of herbal/crude/natural products
- Able to screen various medicinal agents using animal models for pharmacological activity.

**c. Attitudes:**

A graduate should develop the following attitudes during the course.

- Willing to apply the current knowledge of Pharmacy in the best interest of the patients and the community.
- Maintain high standards of professional ethics in discharging professional obligations.
- Continuously upgrade professional information and be conversant with latest advances in the field of pharmacy to serve community better.



- Willing to participate in continuing education programmes PCI/AICTE/ University of Pune to upgrade the knowledge and professional skills.
- To help and participate in the implementation of National Health Programmes.

## R.2. ELIGIBILITY CRITERIA AND ADMISSION PROCEDURE

A. In order to secure admission to Semester –I of the Four year Degree Course in Pharmacy, the candidate should fulfil the following eligibility criteria;

1. Candidate should be an Indian National and should have passed the HSC (Std.XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination with subjects English, Physics, Chemistry and Mathematics/Biology AND Secured minimum **45 % marks** (minimum **40 % marks** in case of candidates of Backward class categories and Physically Handicapped belonging only to Maharashtra State) in **the subjects Physics, Chemistry and Biology/Mathematics** added together (Maximum of marks obtained in Biology/Mathematics shall be considered for the purpose of addition)

OR

2. Passed the Diploma in Pharmacy examination from an institution in Maharashtra or outside Maharashtra affiliated to Maharashtra State Board of Technical Education (MSBTE) or any other examining authority approved by Pharmacy Council of India with minimum **50 % marks** in aggregate after (10+2) Science i.e. HSC or its equivalent examination.

B. Eligibility Criteria for Admission at the entry level of Semester-III. (i.e. the first semester of Second Year B. Pharm.) The candidate who has passed the final examination leading to the Diploma in Pharmacy conducted by the Board of Technical Education,

  
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Maharashtra State or equivalent examination from the institute approved by the Pharmacy Council of India and with a minimum **50%** at part-II examination for the Diploma in Pharmacy Course (**45%** for backward class candidates from Maharashtra) as per ER-91 (i.e. Post H.S.C. two year Diploma Course) be held eligible for admission to semester-III.

**NOTE:** In case of eligibility criterion decided by the Govt. of Maharashtra differs from above, university authorities shall decide the eligibility criterion from time to time.

### **R.3. SCHEME OF EXAMINATION:**

**R.3.1. Examination conducting authority:** University of Pune, Pune.

**R.3.2. Regular and Supplementary Examinations and time:** (Tentative schedule) The University will decide exact schedule on the basis of prevailing situation.

<b>Semester</b>	<b>Regular Examination</b>	<b>Supplementary Examination</b>
I, III, V & VII	(November/December)	(April/May)
II, IV, VI & VIII	(April/May)	(November/December)

Duration of Examination, Marks etc See Examination scheme at *Annexure I*

### **R.3.3. Criteria for admitting the candidate for examinations irrespective of regular or supplementary examinations:**

- Candidate must have been admitted to the respective Semester as per the criteria for continuation into the respective Semesters given in R-4 and has kept the term for the Semester for which he is examined.
- The candidate must submit prescribed application form along with fees.



Candidates must appear for the examination at the place and time as decided by the admitting Institute/ the University as the case may be.

- Candidate who has failed in a particular Semester or has ATKT will be allowed to appear for the same examination on a new application being forwarded and a fresh fee paid.

*Clarifications:*

- Candidate who has ATKT will appear for examinations in only those subject heads in which the candidate has failed except stated below.
- The candidate who has passed in all the subjects but failed due to not getting overall 50% marks will be allowed to appear in any number of subject heads (theory) the candidate desires.
- For all the remaining cases, the candidate has to appear for examination in all those subject heads in which the candidate has failed.

**R.3.4. Sessional Examinations**

- Each Semester will consist of a minimum of 15 weeks instructions.  
\*i.e.  $15 \times 6 = 90$  instructional days (minimum instructional days)
- 75% attendance for both theory and practical classes separately shall be mandatory to appear for sessional examination.
- Conducting authority shall be Institutes where candidate is admitted.

*Number of Sessional Examination:*

- There will be a minimum of one sessional examination of 30 marks conducted in each semester after minimum eight weeks of teaching from the date of commencement of that semester in each of the theory subjects during each semester.
- One Sessional Examination will be conducted as per the examination scheme (See Annexure) for each semester. The students who will secure less than 40% mark in the Sessional Examination or unable to appear for the scheduled Sessional Examination



may be permitted for the Sessional Examination in the same semester only if approved by institutional examination committee and paying fees as prescribed by the institution.

- Practical sessional examination of 30 marks will be based on internal assessment of practical, day to day attendance, viva and laboratory record. The distribution of marks for practical examination will be as follows –

#### Scheme for Practical Sessional Examination

Sr. No.	Head	Marks distribution
1	Performance	15
2	Synopsis & Viva	09
3	Lab Record and Attendance	06
	Total Marks	30
	Duration	03 Hrs.


- Internal assessment of practicals will be based on day to day attendance, viva, laboratory record, etc.
- The institutional examination committee shall consist of Principal (Chairman), & four teachers nominated by the Principal.
  - Theory sessional examination of 30 marks will be conducted after completion of at least two thirds syllabus of the semester.
  - The distribution of marks for theory sessional examination will be as given below-

Sr. No.	Head	Marks distribution
Q. 1	2marks X 5 questions (out of seven)	= 10 marks
Q. 2	5marks X 2 questions (out of three)	= 10 marks
Q. 3	10marks X 1 questions (out of two)	= 10 marks
	Total	= 30 marks

#### Time Schedule:

The time schedule for theory sessional examination will be 1 hour 30 minutes.

- The Retest/ Improvement test/ or supplementary test for the Sessional Examinations will be allowed for the failed candidates in the University examination, if he/she is appearing for the University exam of that subject head.

  
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- The Retest/ Improvement test/ or supplementary test shall be carried by the respective institution and the marks obtained by the candidate shall be forwarded to the University.
- The institute conducting the course must submit the Sessional Examination marks of the respective semester to the Controller of Examinations in soft copy and print before the commencement of theory or practical examination whichever is later.
- Scaling down technique will be implemented for the periodic test.

#### R.4.:

Continuation into the subsequent semesters after the entry level semesters. The admitting authority will be the individual institutes where the candidate has been admitted into the course, and the continuation will be as per the criteria decided by the University for each semester.

The following criteria are applicable to all the candidates for continuation.

**R.4.1.** A candidate, to be eligible for the Degree will be required to pass examinations, as under:-

<b>First year B. Pharm.</b>	Semester-I & Semester-II
<b>Second year B. Pharm.</b>	Semester-III & Semester-IV
<b>Third year B. Pharm.</b>	Semester-V & Semester-VI
<b>Fourth year B. Pharm.</b>	Semester-VII & Semester-VIII

#### R.4.2.

No candidate will be admitted to any examination unless he/she keeps term at a College affiliated to the University, and produces, from the Principal of the College, testimonials of: Satisfactory attendance at the theory, Practical and term work classes as prescribed.

#### R.4.3. Promotion from odd semester to even semester in the same academic year

- A Candidate who fails in Semester - I examination of First Year B. Pharm. will be allowed to keep term for his/her Semester –II Examination, of First Year B. Pharm.



- A Candidate who fails in Semester – III examination of Second Year B. Pharm. will be allowed to keep term for his/ her Semester – IV Examination of Second Year B. Pharm.
- A Candidate who fails in Semester – V examination of Third Year B. Pharm. will be allowed to keep term for his/her Semester – VI Examination of Third Year B. Pharm.
- A Candidate who fails in Semester – VII examination of Fourth Year B. Pharm. will be allowed to keep term for his Semester – VIII Examination of Fourth Year B. Pharm.

#### **R.4.4. Promotion to subsequent academic year-**

- A candidate who fails in more than 7 heads (Theory & practical) of total number of subjects taken together at Semester I and Semester II /Semester III & Semester IV course examination will not be permitted to keep terms in the higher class viz. Semester III / Semester V of B. Pharm. Course examination respectively.
- A candidate who fails in more than 8 heads (Theory & practical) of total number of subjects taken together at Semester V and Semester VI course examination will not be permitted to keep terms in the higher class viz. Semester VII of B. Pharm. Course examination.

#### **R.4.5. Clarification of R.4.3. and R.4.4.**

1. No candidate will be admitted to the Semester III course unless he/she passes his/her Semester I and Semester II examination of B. Pharm.

**OR**

Fails in not more than 7 heads (Theory and Practical) at the Semester I and Semester II examination of B.Pharm.

2. No candidate will be admitted to the Semester V course unless he/she passes his/her Semester I & Semester II., Semester III & Semester IV Examinations of B.Pharm.

  
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OR

passes his/her Semester I and Semester II examination of B. Pharm. and fails in not more than 7 of total number of heads (Theory and Practical) at the Semester III & Semester IV Examinations of B. Pharm.

3. No candidate will be admitted to the Semester VII course of B. Pharm. unless he/she Passes his/her Semester I & Semester II., Semester III & Semester IV., Semester V & Semester VI Examinations of B. Pharm. examinations,

OR

passes his/her Semester I & Semester II., Semester III & Semester IV Examinations of B. Pharm. and fails in not more than 8 of total number of heads (Theory and Practical) at the Semester V & Semester VI Examinations of B. Pharm.

#### R.4.6. Allowed to Keep Terms (ATKT) rules.

Number of subjects: ATKT will be awarded to those who have failed in 1/3 subject head (33%) as described in table **given** below


At the end of academic Year		Total subject heads at the end of academic year.	33 % of total subjects (To nearest
First	Theory	06+06=12	4
	Practical	05+05=10	3
Second	Theory	06+06=12	4
	Practical	05+05=10	3
Third	Theory	07+07=14	5
	Practical	05+05=10	3

#### R.5. Marks, Criteria for passing and other conditions.

##### R.5.1. Passing criteria for each subject head:

Maximum marks for each subject head and the minimum marks for passing in each of the subject head –See Examination scheme given in *Annexure I*.

No separate passing is required for sessional examination and if the candidate remains absent for the test, the candidate will be just treated as not appeared for

  
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the test securing zero marks. What so ever mark obtained by the candidate will be added to the marks obtained by the candidate in University examination as shown in scheme of examination given in *Annexure I*.

In no circumstance previous marks will be considered. If a candidate's application form for reappearing in the examination in a subject head is accepted, and the candidate appear in the examination (Sessional examination & Semester examination) fresh marks will be considered.

#### **R.5.2. Passing of the semester.**

Candidate will be considered as passed the semester only when the candidate passes in the entire subject heads and obtains overall a minimum of 50% of the total aggregate marks prescribed for the semester see Annexure.

#### **R.5.3. Award of the degree and Class.**

Class will be awarded for each semester of B. Pharm course.

1. Candidates obtaining 70% or more of Grand Total: First Class with Distinction.
2. Candidates obtaining 60% or more but less than 70 % of Grand Total; First Class.
3. Candidates obtaining 50 % or more but less than 60% of Grand Total: Second Class.

Class of Bachelors of Pharmacy Degree shall be awarded to the candidate based on his/her marks obtained at Sem – V to Sem- VIII examination taken together.

The subject or subjects in whom a successful candidate may have secured distinction will be shown on his mark-sheet. In order to obtain distinction in a subject at an examination, the candidate should pass the examination in the first attempt and should obtain 70% of the full marks in that subject. Only those candidates who have passed an examination in one attempt will be eligible for any prize or scholarship to be awarded for that examination.

Degree will be awarded to the candidates who have passed all the eight semesters. Class will be awarded on the basis of combined marks at the Semester-V to Semester VIII.



A student will be allowed to improve his/her class at B. Pharm. by reappearing for the subjects (maximum 3 theory subjects of that examination) from V to VIII Semesters of B. Pharm. Course as per prevalent policy of University.

#### **R.5.4. With holding of results.**

A candidate's result will be withheld under the following situations and of the respective Semester.

1. Withholding of result for not fulfilling passing criteria for advancement to subsequent classes-

Result of Semester IV will be with held if the candidate has not passed Semester-I and Semester II.

Result of Semester VI will be with held if the candidate has not passed Semester-III and Semester - IV.

Result of Semester VIII will be with held if the candidate has not passed Semester- V & Semester-VI.

2. Withholding of result for failure to comply University rules-

The result of candidate shall be withheld if the candidate is found guilty in malpractices during examinations and any other failure to comply University rules and regulation as confirmed by appropriate body of University.

#### **R.5.5. Exemption to appear for the examination:**

If a candidate has got ATKT, the candidate will be exempted for appearing the examination for those subject heads in which the candidate has passed.

Any candidate who has passed in any subject head is exempted for appearing the examination in that subject head.



Notwithstanding above if a candidate has passed in all the subjects but failed due to not getting 50% of the aggregate marks may appear for the examination in any three theory subject heads so as to get over all 50% marks. In such cases, Higher marks obtained in the subject heads, the candidate has appeared for the fresh examination and the marks obtained in the previous examination of the same subject will only be considered irrespective of the examination and fresh result will be declared. For example if the candidate gets over all 50% marks but fails in one of the subject heads in which the candidate had passed earlier, the candidate will be treated as passed in that subject head as per previous examination and result will be declared as per the rules applicable to the passed candidates. The marks in which the candidate has not appeared for the examination will be carried forward.

#### **R.5.6. Industrial Training**

Every candidate shall be required to work for at least four weeks in a Pharmaceutical Industry it includes Production unit, Q. C department, Q. A department, analytical laboratory, chemical manufacturing unit, pharmaceutical R & D, hospital (Clinical Pharmacy), clinical research organization and wholesale drug store etc after the Semester- IV of the course of study, and shall submit satisfactory report of such work to the head of the institute. The candidate should also submit one copy to the University for the Award of Degree along with convocation form. The candidate may undergo practical training in parts, each constituting not less than two weeks.

#### **R.5.7.**

**The pattern for University theory examination question paper shall be as given below:**

Scheme for theory Examination: - Each Theory paper should be divided in 2 sections which should be attempted in separate answer sheet.

  
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Sr. No.	Head	Marks distribution
<b>Section – I</b>		
Q.1.	Long answers question ( word limit 350 to 400 words)	10 marks (10 mark x 1 Qs, out of 2 Qs.)
Q.2	Small answers questions – 3 marks ( word limit 75 to 100 words)	15 marks (3 mark x 5 Qs, out of 7 Qs.)
Q.3	Short answers questions – 5 marks ( word limit 125 to 150 words)	10 marks (5 mark x 2 Qs, out of 4 Qs.)
<b>Section – II</b>		
Q.4	Long answers question ( word limit 350 to 400 words)	10 marks (10 mark x 1 Qs, out of 2 Qs.)
Q.5	Small answers questions – 3 marks ( word limit 75 to 100 words)	15 marks (3 mark x 5 Qs, out of 7 Qs)
Q.6	Short answers questions – 5 marks ( word limit 125 to 150 words)	10 marks (5 mark x 2 Qs, out of 4 Qs.)
<b>Total maximum marks of section I and</b>		<b>70 marks</b>
<b>Duration of examination</b>		<b>3 Hrs.</b>

**Note:**

1. There shall be no word limit set for long answer questions.
2. Paper setters should cover entire syllabus while setting the question paper.
3. The detailed guidelines with respect these changes shall be given to all paper setters by the university.

**Scheme for University Practical Examination**

Sr. No.	Head	Marks distribution
1	Synopsis	10
2	Major experiment	30
3	Minor experiment	20
4	Viva	10
	Total Marks	70
	Duration	04 Hrs.




## R-6: ENVIRONMENTAL SCIENCES

An additional course in environmental sciences shall be conducted as per following guidelines.

1. A course in Environmental Awareness with duration of six months (30 lectures of one hour duration & field work of 10 hours duration.) shall be introduced at the semester III of second year of degree course B.Pharm as a compulsory course.
2. An additional course fee of Rs. 1000 per student shall be charged to meet the expenditure on the conduct of the course.
3. A course Coordinator shall be appointed to organize teaching and evaluation by the Principal.
4. Qualifications of a Teacher.  
University approved teacher (minimum Asst. Prof.) or expert in Environmental Sciences possessing substantial knowledge to teach a course on environmental studies shall be eligible to teach the course. Principal of the College shall be authorized to determine the eligibility of the teacher on environmental studies
5. This course is to be introduced from the second year B. Pharm with 40 clock hours teaching including field visit.
6. The college on behalf of the University shall conduct the examination of this subject immediately before or after Semester examinations of S.Y./T.Y./Final Year B.Pharm.
7. The student should clear this subject before passing the Final Year B. Pharm examination.
8. A candidate has to pass in this course in order to obtain degree certificate. If the candidate passes in all subjects of degree course but fails in this paper, he will not be eligible to obtain degree certificate.
9. Examination: the College shall organize the evaluation as per pattern suggested below.

The Principal shall submit the result sheet to the Controller of Examination, University of Pune on or before the end of the final year University Examinations of B. Pharm. course. The result shall reflect on the final Mark statement of each student. The results of University examination of the student who fail to get

  
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Minimum 'C' Grade in this course shall be kept in reserve till the concerned student complete the course and secure to require Minimum C Grade.

The question paper shall include the questions as under

- A. Multiple choice questions :50 Marks
- B. Essay type questions :25 Marks
- C. Field works :25 Marks

Total: 100 Marks Passing Marks: 40 Marks.

Following Grades shall be awarded to the candidates based on their marks obtained.

**Grade-O:** above 75    **Grade-A:** 61 to 75    **Grade-B:** 51 to 60    **Grade-C:** 40 to 50

#### **R-7: Rules for Carry Forward**

This revised curriculum (including regulations, structure and syllabi) will be in force from academic year 2013-14 and onwards for First Year B. Pharm, for academic year 2014-15 onwards for Second Year B. Pharm., for academic year 2015-16 and onwards for Third Year B. Pharm., and for academic year 2016-17 and onwards for Final Year B. Pharm.

1. The students who were admitted to First Year B. Pharm. of 2008 pattern during the academic year 2012-13 or before & would fail or have failed in the First Year B. Pharm. of 2008 pattern examination will have to take admission to Semester-III of Second Year B. Pharm. of 2013 pattern in academic year 2014-15 or onwards, provided that
  - a. They have passed in all subjects of F. Y. B. Pharm. of 2008 pattern
  - b. These students will have to additionally pass following subjects with minimum 40 marks in theory and 45 marks in practicals



- i. Dosage Form Design of Semester II of First year B. Pharm. 2013 pattern
- ii. Pharmaceutical Analysis-I of Semester II of First Year B. Pharm. 2013 pattern

Such students will have exemption for the following subjects:

- i. Pharmaceutical Engineering of Semester- IV of Second Year B. Pharm. 2013 pattern

2. The students who will be admitted to Second Year B. Pharm. of 2008 pattern during academic year 2013-14 and who will fail the Second Year B. Pharm. 2008 pattern examination will have to take admission to Semester- V of T. Y. B. Pharm. of 2013 pattern in academic year 2015-16 or onwards, provided that

- a. They have passed all subjects of F. Y. B. Pharm. of 2008 syllabus.
- b. They have passed in at least 5 subjects of S. Y. B. Pharmacy of 2008 syllabus i.e. their result for S. Y. B. Pharm. of 2008 pattern is either Pass or Fail with A. T. K. T.

Such students will have to pass in all the subjects of S. Y. B. Pharm. 2008 pattern before taking admission to Semester- VII of Final Year B. Pharm. 2013 pattern.

3. The students who will be admitted to Third Year B. Pharm. of 2008 pattern during the academic year 2014-15 and who would fail in T. Y. B. Pharm. 2008 pattern examination will have to take admission to Semester- VII of Final year B. Pharm. of 2013 pattern, provided that 0020


- a. They have passed all subjects of S. Y. B. Pharm. of 2008 pattern



- b. They have passed in at least 5 subjects of T. Y. B. Pharm. of 2008 pattern i. e. their result for T. Y. B. Pharm. 2008 pattern is Pass or Fail with A. T. K. T.

4. The students who will be admitted to Direct S. Y. B. Pharm. of 2008 pattern through lateral entry in academic year 2013-14 will have to additionally pass separately with minimum 40 marks in theory and 45 marks in practical in following subjects

- i. Dosage Form Design of semester- II of F. Y. B. Pharm. of 2013 patten.

  
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### Annexure I

Scheme of Examination for eight semesters of B. Pharm. Course Name and number of heads of passing, number of paper, duration of examination, maximum marks, minimum marks for passing, Sessional Examination, duration, maximum marks.

#### Semester-I

#### Class- First Yr. B. Pharmacy

Subject Code	Subject	Semester Examination			Sessional Examination		Total Maximum Marks for subject	Minimum marks for passing subject
		Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks		
1.1.1 T	Pharmaceutics- I	3	70	28	1.5	30	100	40
1.1.1 P	Pharmaceutics-I	4	70	32	3	30	100	40
1.1.2 T	Modern Dispensing Practices	3	70	28	1.5	30	100	40
1.1.2 P	Modern Dispensing Practices	4	70	32	3	30	100	40
1.1.3 T	Pharmaceutical Inorganic Chemistry	3	70	28	1.5	30	100	40
1.1.3 P	Pharmaceutical Inorganic Chemistry	4	70	32	3	30	100	40
1.1.4 T	Pharmaceutical Organic Chemistry-I	3	70	28	1.5	30	100	40
1.1.4 P	Pharmaceutical Organic Chemistry-I	4	70	32	3	30	100	40
1.1.5 T	Human Anatomy & Physiology-I	3	70	28	1.5	30	100	40
1.1.5 P	Human Anatomy & Physiology-I	4	70	32	3	30	100	40
1.1.6 T	Communication and soft skill development	3	70	28	1.5	30	100	40



**Semester-II**

**Class- First Yr. B. Pharmacy**

Subject Code	Subject	Semester Examination			Sessional Examination		Total Maximum Marks for subject	Minimum marks for passing subject
		Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks		
1.2.1 T	Pharmaceutics- II	3	70	28	1.5	30	100	40
1.2.1 T	Dosage form design	3	70	28	1.5	30	100	40
1.2.2 P	Dosage form design	4	70	32	3	30	100	40
1.2.3 T	Pharmaceutical Organic Chemistry-II	3	70	28	1.5	30	100	40
1.2.3 P	Pharmaceutical Organic Chemistry-II	4	70	32	3	30	100	40
1.2.4 T	Human Anatomy & Physiology-II	3	70	28	1.5	30	100	40
1.2.4 P	Human Anatomy & Physiology-II	4	70	32	3	30	100	40
1.2.5 T	Pharmacognosy	3	70	28	1.5	30	100	40
1.2.5 P	Pharmacognosy	4	70	32	3	30	100	40
1.2.6 T	Pharmaceutical Analysis I	3	70	28	1.5	30	100	40
1.2.6 P	Pharmaceutical Analysis I	4	70	32	3	30	100	40

  
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**Semester-III**

**Class- Second Yr. B. Pharmacy**

Subject Code	Subject	Semester Examination			Sessional Examination		Total Maximum Marks for subject	Minimum marks for passing subject
		Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks		
2.3.1 T	Physical Pharmaceutics- I	3	70	28	1.5	30	100	40
2.3.1 P	Physical Pharmaceutics- I	4	70	32	3	30	100	40
2.3.2 T	Pharmaceutical Microbiology	3	70	28	1.5	30	100	40
2.3.2 P	Pharmaceutical Microbiology	4	70	32	3	30	100	40
2.3.3 T	Pharmaceutical Biochemistry	3	70	28	1.5	30	100	40
2.3.3 P	Pharmaceutical Biochemistry	4	70	32	3	30	100	40
2.3.4 T	Pharmaceutical Organic Chemistry-III	3	70	28	1.5	30	100	40
2.3.4 P	Pharmaceutical Organic Chemistry-III	4	70	32	3	30	100	40
2.3.5 T	Pharmacology-I	3	70	28	1.5	30	100	40
2.3.6 T	Pharmacognosy & Phytochemistry - I	3	70	28	1.5	30	100	40
2.3.6 P	Pharmacognosy & Phytochemistry - I	4	70	32	3	30	100	40

  
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**Semester-IV**

**Class- Second Yr. B. Pharmacy**

Subject Code	Subject	Semester Examination			Sessional Examination		Total Maximum Marks for subject	Minimum marks for passing subject
		Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks		
2.4.1 T	Physical Pharmaceutics- II	3	70	28	1.5	30	100	40
2.4.1 P	Physical Pharmaceutics- II	4	70	32	3	30	100	40
2.4.2 T	Pathophysiology & Clinical Biochemistry	3	70	28	1.5	30	100	40
2.4.2 P	Pathophysiology & Clinical Biochemistry	4	70	32	3	30	100	40
2.4.3 T	Pharmaceutical Organic Chemistry-IV	3	70	28	1.5	30	100	40
2.4.3 P	Pharmaceutical Organic Chemistry-IV	4	70	32	3	30	100	40
2.4.4 T	Pharmaceutical Analysis-II	3	70	28	1.5	30	100	40
2.4.4 P	Pharmaceutical Analysis-II	4	70	32	3	30	100	40
2.4.5 T	Pharmacognosy & Phytochemistry - II	3	70	28	1.5	30	100	40
2.4.5 P	Pharmacognosy & Phytochemistry - II	4	70	32	3	30	100	40
2.4.6 T	Pharmaceutical Engineering	3	70	28	1.5	30	100	40

  
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**Semester-V**

**Class- Third Yr. B. Pharmacy**

Subject Code	Subject	Semester Examination			Sessional Examination		Total Maximum Marks for subject	Minimum marks for passing subject
		Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks		
3.5.1 T	Industrial Pharmacy-I	3	70	28	1.5	30	100	40
3.5.1 P	Industrial Pharmacy-I	4	70	32	3	30	100	40
3.5.2 T	Pharmaceutical Analysis-III	3	70	28	1.5	30	100	40
3.5.2 P	Pharmaceutical Analysis-III	4	70	32	3	30	100	40
3.5.3 T	Medicinal Chemistry-I	3	70	28	1.5	30	100	40
3.5.3 P	Medicinal Chemistry-I	4	70	32	3	30	100	40
3.5.4 T	Pharmacology-II	3	70	28	1.5	30	100	40
3.5.4 P	Pharmacology-II	4	70	32	3	30	100	40
3.5.5 T	Analytical Pharmacognosy & Extraction Technology	3	70	28	1.5	30	100	40
3.5.5 P	Analytical Pharmacognosy & Extraction Technology	4	70	32	3	30	100	40
3.5.6 T	Pharmaceutical Business Management & Disaster Management	3	70	28	1.5	30	100	40
3.5.7 T	Active Pharmaceutical Ingredients Technology	3	70	28	1.5	30	100	40



**Semester-VI**

**Class- Third Yr. B. Pharmacy**

Subject Code	Subject	Semester Examination			Sessional Examination		Total Maximum Marks for subject	Minimum marks for passing subject
		Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks		
3.6.1 T	Industrial Pharmacy-II	3	70	28	1.5	30	100	40
3.6.1 P	Industrial Pharmacy-II	4	70	32	3	30	100	40
3.6.2 T	Pharmaceutical Analysis-IV	3	70	28	1.5	30	100	40
3.6.2 P	Pharmaceutical Analysis-IV	4	70	32	3	30	100	40
3.6.3 T	Medicinal Chemistry-II	3	70	28	1.5	30	100	40
3.6.3 P	Medicinal Chemistry-II	4	70	32	3	30	100	40
3.6.4 T	Pharmacology-III	3	70	28	1.5	30	100	40
3.6.4 P	Pharmacology-III	4	70	32	3	30	100	40
3.6.5 T	Natural Product Chemistry	3	70	28	1.5	30	100	40
3.6.5 P	Natural Product Chemistry	4	70	32	3	30	100	40
3.6.6 T	Bioorganic Chemistry & Drug Design	3	70	28	1.5	30	100	40
3.6.7 T	Pharmaceutical Biotechnology	3	70	28	1.5	30	100	40


  
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**Semester-VII**

**Class- Final Yr. B. Pharmacy**

Subject Code	Subject	Semester Examination			Sessional Examination		Total Maximum Marks for subject	Minimum marks for passing subject
		Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks		
4.7.1 T	Sterile Products	3	70	28	1.5	30	100	40
4.7.1 P	Sterile Products	4	70	32	3	30	100	40
4.7.2 T	Pharmaceutical Analysis-V	3	70	28	1.5	30	100	40
4.7.2 P	Pharmaceutical Analysis-V	4	70	32	3	30	100	40
4.7.3 T	Medicinal Chemistry-III	3	70	28	1.5	30	100	40
4.7.3 P	Medicinal Chemistry-III	4	70	32	3	30	100	40
4.7.4 T	Pharmacology-IV	3	70	28	1.5	30	100	40
4.7.4 P	Pharmacology-IV	4	70	32	3	30	100	40
4.7.5 T	Natural Drug Technology	3	70	28	1.5	30	100	40
4.7.5 P	Natural Drug Technology	4	70	32	3	30	100	40
4.7.6 T	Bio-pharmaceutics & Pharmacokinetics	3	70	28	1.5	30	100	40
4.7.7 T	Pharmaceutical Jurisprudence	3	70	28	1.5	30	100	40


  
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**Semester-VIII**

**Class- Final Yr. B. Pharmacy**

Subject Code	Subject	Semester Examination			Sessional Examination		Total Maximum Marks for subject	Minimum marks for passing subject
		Duration (Hours)	Maximum marks	Min for passing	Duration (Hours)	Maximum marks		
4.8.1 T	Advanced Drug Delivery System	3	70	28	1.5	30	100	40
4.8.1 P	Advanced Drug Delivery System	4	70	32	3	30	100	40
4.8.2 T	Cosmetic science	3	70	28	1.5	30	100	40
4.8.2 P	Cosmetic science	4	70	32	3	30	100	40
4.8.3 T	Pharmaceutical Analysis-VI	3	70	28	1.5	30	100	40
4.8.3 P	Pharmaceutical Analysis-V I	4	70	32	3	30	100	40
4.8.4 T	Medicinal Chemistry-IV	3	70	28	1.5	30	100	40
4.8.4 P	Medicinal Chemistry-IV	4	70	32	3	30	100	40
4.8.5 T	Pharmacology-V(Including Biostatistics)	3	70	28	1.5	30	100	40
4.8.5 P	Pharmacology-V(Including Biostatistics)	4	70	32	3	30	100	40
4.8.6 T	Natural Products: Commerce, Industry & Regulations	3	70	28	1.5	30	100	40
4.8.7 T	Quality Assurance Tech.	3	70	28	1	30	100	40

  
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Following will be the course structure of First Semester, Second Semester, Third Semester, Fourth Semester, Fifth Semester, Sixth Semester, Seventh Semester, and Eighth Semester.

**Semester-I**      **First Yr. B. Pharmacy**

Sr. no.	Subject	Hours per week
1.1.1 T	Pharmaceutics- I	3
1.1.1 P	Pharmaceutics- I	3
1.1.2 T	Modern Dispensing Practices	3
1.1.2 P	Modern Dispensing Practices	3
1.1.3 T	Pharmaceutical Inorganic Chemistry	3
1.1.3 P	Pharmaceutical Inorganic Chemistry	3
1.1.4 T	Pharmaceutical Organic Chemistry-I	3
1.1.4 P	Pharmaceutical Organic Chemistry-I	3
1.1.5 T	Human Anatomy & Physiology-I	3
1.1.5 P	Human Anatomy & Physiology-I	3
1.1.6 T	Communication and soft skill development	3

**Semester-II**      **First Yr. B. Pharmacy**

Sr. no.	Subject	Hours per week
1.2.1 T	Pharmaceutics- II	3
1.2.1 T	Dosage form design	3
1.2.2 P	Dosage form design	3
1.2.3 T	Pharmaceutical Organic Chemistry-II	3
1.2.3 P	Pharmaceutical Organic Chemistry-II	3
1.2.4 T	Human Anatomy & Physiology-II	3
1.2.4 P	Human Anatomy & Physiology-II	3
1.2.5 T	Pharmacognosy	3
1.2.5 P	Pharmacognosy	3
1.2.6 T	Pharmaceutical Analysis I	3
1.2.6 P	Pharmaceutical Analysis I	3

  
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**Semester-III Second Yr. B. Pharmacy**

Sr. no.	Subject	Hours per week
2.3.1 T	Physical Pharmaceutics- I	3
2.3.1 P	Physical Pharmaceutics- I	3
2.3.2 T	Pharmaceutical Microbiology	3
2.3.2 P	Pharmaceutical Microbiology	3
2.3.3 T	Pharmaceutical Biochemistry	3
2.3.3 P	Pharmaceutical Biochemistry	3
2.3.4 T	Pharmaceutical Organic Chemistry-III	3
2.3.4 P	Pharmaceutical Organic Chemistry-III	3
2.3.5 T	Pharmacology-I	3
2.3.6 T	Pharmacognosy & Phytochemistry - I	3
2.3.6 P	Pharmacognosy & Phytochemistry - I	3
2.3.7 T	Environmental Science	2

**Semester-IV Second Yr. B. Pharmacy**

Sr. no.	Subject	Hours per week
2.4.1 T	Physical Pharmaceutics- II	3
2.4.1 P	Physical Pharmaceutics- II	3
2.4.2 T	Pathophysiology & Clinical Biochemistry	3
2.4.2 P	Pathophysiology & Clinical Biochemistry	3
2.4.3 T	Pharmaceutical Organic Chemistry-IV	3
2.4.3 P	Pharmaceutical Organic Chemistry-IV	3
2.4.4 T	Pharmaceutical Analysis-II	3
2.4.4 P	Pharmaceutical Analysis-II	3
2.4.5 T	Pharmacognosy & Phytochemistry - II	3
2.4.5 P	Pharmacognosy & Phytochemistry - II	3
2.4.6 T	Pharmaceutical Engineering	3

**Semester-V Third Yr. B. Pharmacy**

Sr. no.	Subject	Hours per week
3.5.1 T	Industrial Pharmacy-I	3
3.5.1 P	Industrial Pharmacy-I	3
3.5.2 T	Pharmaceutical Analysis-III	3
3.5.2 P	Pharmaceutical Analysis-III	3
3.5.3 T	Medicinal Chemistry-I	3
3.5.3 P	Medicinal Chemistry-I	3
3.5.4 T	Pharmacology-II	3
3.5.4 P	Pharmacology-II	3
3.5.5 T	Analytical Pharmacognosy & Extraction Technology	3
3.5.5 P	Analytical Pharmacognosy & Extraction Technology	3
3.5.6 T	Pharmaceutical Business Management & Disaster Management	3
3.5.7 T	Active Pharmaceutical Ingredients Technology	3

**Semester-VI Third Yr. B. Pharmacy**

Sr. no.	Subject	Hours per week
3.6.1 T	Industrial Pharmacy-II	3
3.6.1 P	Industrial Pharmacy-II	3
3.6.2 T	Pharmaceutical Analysis-IV	3
3.6.2 P	Pharmaceutical Analysis-IV	3
3.6.3 T	Medicinal Chemistry-II	3
3.6.3 P	Medicinal Chemistry-II	3
3.6.4 T	Pharmacology-III	3
3.6.4 P	Pharmacology-III	3
3.6.5 T	Natural Product Chemistry	3
3.6.5 P	Natural Product Chemistry	3
3.6.6 T	Bioorganic Chemistry & Drug Design	3
3.6.7 T	Pharmaceutical Biotechnology	3

  
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**Semester-VII Final Yr. B. Pharmacy**

Sr. no.	Subject	Hours per week
4.7.1 T	Sterile Products	3
4.7.1 P	Sterile Products	3
4.7.2 T	Pharmaceutical Analysis-V	3
4.7.2 P	Pharmaceutical Analysis-V	3
4.7.3 T	Medicinal Chemistry-III	3
4.7.3 P	Medicinal Chemistry-III	3
4.7.4 T	Pharmacology-IV	3
4.7.4 P	Pharmacology-IV	3
4.7.5 T	Natural Drug Technology	3
4.7.5 P	Natural Drug Technology	3
4.7.6 T	Bio-pharmaceutics & Pharmacokinetics	2
4.7.7 T	Pharmaceutical Jurisprudence	3

**Semester-VIII Final Yr. B. Pharmacy**

Sr. no.	Subject	Hours per week
4.8.1 T	Advanced Drug Delivery System	3
4.8.1 P	Advanced Drug Delivery System	3
4.8.2 T	Cosmetic science	3
4.8.2 P	Cosmetic science	3
4.8.3 T	Pharmaceutical Analysis-VI	3
4.8.3 P	Pharmaceutical Analysis-V I	3
4.8.4 T	Medicinal Chemistry-IV	3
4.8.4 P	Medicinal Chemistry-IV	3
4.8.5 T	Pharmacology-V (Including Biostatistics)	3
4.8.5 P	Pharmacology-V (Including Biostatistics)	3
4.8.6 T	Natural Products: Commerce, Industry & Regulations	3
4.8.7 T	Quality Assurance Techniques	3

  
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# **Programme- B. Pharm 2008 – Course Structure**



  
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B. Ph - 2008 pattern



**UNIVERSITY OF PUNE**

**FACULTY OF PHARMACEUTICAL SCIENCES**



**COURSE STRUCTURE & SYLLABI**

**BACHELOR OF PHARMACY (B. Pharm.) COURSE**

**(EFFECTIVE FROM ACADEMIC YEAR 2008-09)**

  
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## R-I: AIMS & OBJECTIVES OF THE COURSE

### AIMS:

The Pharmacy graduates are required to learn and acquire adequate knowledge, necessary skills to practice the profession of pharmacy. The graduate should have thorough knowledge of synthesis & analysis of medicinal agents, their mode and mechanism of action, drug interactions, patient counseling and adequate technical information to be exchanged with the physician and other health professionals. The graduates are required to acquire in depth knowledge of formulation, quality assurance and storage of various pharmaceutical dosage forms including herbal medicines. The graduates should also understand the concept of community pharmacy and be able to participate in health care programmes of Government and private sector. They are also required to detail the physicians and market the medicinal agents for diagnosis, prevention and therapeutic purposes. The graduate pharmacist should also act as bridge between the Physician and Patients for achieving better health of community.

### OBJECTIVES:

The following objectives of the course should be achieved by acquiring an in-depth knowledge & thorough understanding, necessary skills and developing the right attitude. Therefore they are categorized into following heads.

#### a. Knowledge and Understanding

The graduates should acquire the following during their B. Pharm. Course.

1. Adequate knowledge and scientific information regarding basic principles of Pharmaceutical & Medicinal Chemistry, Pharmaceutics including Cosmeticology, Pharmacology, Pharmacognosy including herbal medicines.
2. Adequate knowledge of practical aspects of
  - a. Synthesis of APIs & its intermediates and analysis of various pharmaceutical dosage forms
  - b. Formulation developments & quality assurance of various pharmaceutical dosage forms including those of herbal origin as per standards of official books, WHO and other regulatory agencies like USFDA, MHRA, UK etc.
  - c. Pharmacological screening and biological standardization and *in-vivo* drug interactions.
  - d. Preparation & analysis of suitable plants material/extracts of medicinal importance for various herbal formulations.
  - e. Clinical studies for patient counseling leading to physical and social well being of the patients.
  - f. Product detailing, marketing, distribution and selling of pharmaceutical products.

#### b. Skills:

A graduate should be able to demonstrate following skills necessary for practice of a Pharmacy

- a. Able to synthesize, purify, identify and analyze medicinal agents.



- b. Able to formulate, store, dispense, analyze the prescriptions and manufacture the pharmaceutical products.
- c. Able to learn and apply the quality assurance principles in regulatory and ethical aspects
- d. Able to extract, purify, identify and understand the therapeutic value of herbal/crude/natural products
- e. Able to screen various medicinal agents using animal models for pharmacological activity.

**c. Attitudes:**

A graduate should develop the following attitudes during the course.

- a. Willing to apply the current knowledge of Pharmacy in the best interest of the patients and the community.
- b. Maintain high standards of professional ethics in discharging professional obligations.
- c. Continuously upgrade professional information and be conversant with latest advances in the field of pharmacy to serve community better.
- d. Willing to participate in continuing education programmes PCI/AICTE/ University of Pune to upgrade the knowledge and professional skills.
- e. To help and participate in the implementation of National Health Programmes.

**R-II: DURATION AND PATTERN**

The Bachelor of Pharmacy (B. Pharm.) degree course shall be of four years duration as annual pattern of examination.

**R-III: ADMISSIONS:**

Admissions to the Course shall be made as per the admission rules made by Govt. of Maharashtra from time to time as per the eligibility criterion mentioned hereunder in R-IV.

**R-IV: ELIGIBILITY CRITERIA**


A. In order to be eligible for admission to First Year B. Pharm. course, a candidate should have

1. Passed the HSC (Std. XII) examination of Maharashtra State Board of Secondary and Higher Secondary Education or its equivalent examination with:
  - > English as one of the subjects
  - > Both subjects mentioned under Group -I and
  - > Any one of the subjects mentioned under Group-II

Group-I	1. Physics	2. Chemistry	
Group-II	1. Mathematics	2. Biology	3. Biotechnology
	4. Computer Science		

AND

3

  
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Secured minimum 50% marks (45% for backward class candidates from Maharashtra State only) in Physics, Chemistry and the subject of maximum marks amongst the 4 subjects of Group-II, added together.

OR

2. Passed the Diploma in Pharmacy examination from an institution in Maharashtra or outside Maharashtra affiliated to Maharashtra State Board of Technical Education (MSBTE) or any other examining authority approved by Pharmacy Council of India with minimum 50 % marks in aggregate after (10+2) Science i.e. HSC or its equivalent examination.

B. In order to be eligible for admission to Direct Second Year of B. Pharm. (lateral entry), a candidate should have passed the Diploma in Pharmacy examination from an institution in Maharashtra or outside Maharashtra affiliated to Maharashtra State Board of Technical Education (MSBTE) or any other examining authority approved by Pharmacy Council of India with minimum 60 % marks in aggregate after (10+2) Science i.e. HSC or its equivalent examination.

**NOTE:** In case of eligibility criterion decided by the Govt. of Maharashtra differs from above, university authorities shall decide the eligibility criterion from time to time.

#### R-V: MEDIUM OF INSTRUCTION AND EXAMINATION

The medium of instruction and examination shall be English.

#### R-VI: STRUCTURE OF B. PHARM. COURSE

The following will be the course structure of First Year, Second Year, Third Year and Final Year B. Pharm.

#### FIRST YEAR B. PHARM.

Sr. No.	Subject	Theory Hours Per Week	Practical Hours Per Week
1.1	Pharmaceutics-I	3	3
1.2	Modern Dispensing Practices	2	3
1.3	Pharmaceutical Inorganic Chemistry	3	3
1.4	Pharmaceutical Organic Chemistry – I	3	3
1.5	Anatomy Physiology & Health Education	3	3
1.6	Pharmaceutical Engineering	2	-
1.7	Computer Applications & Bio-statistics	2	1 Hr. Demo
	<b>TOTAL</b>	<b>18</b>	<b>16</b>



### SECOND YEAR B. PHARM.

Sr. No.	Subject	Theory Hours per Week	Practical Hours Per Week
2.1	Physical Pharmacy	3	3
2.2	Pharmaceutical Microbiology & Immunology	3	3
2.3	Pharmaceutical Biochemistry	3	3
2.4	Pharmaceutical Organic Chemistry –II	3	3
2.5	Pharmaceutical Analysis-I	2	3
2.6	Pharmacognosy-I	3	--
2.7	Pharmacology-I	3	--
2.8	Environmental Sciences	40 hrs / Year	
	<b>TOTAL</b>	<b>20</b>	<b>15</b>

### THIRD YEAR B. PHARM.

Sr. No.	Subject	Theory Hours per Week	Practical Hours Per Week
3.1	Pharmaceutics -II	3	3
3.2	Pharmaceutical Biotechnology	2	--
3.3	Medicinal Chemistry –I	3	3
3.4	Pharmaceutical Analysis-II	3	3
3.5	Pharmacology-II	3	3
3.6	Pharmacognosy-II	3	3
3.7	Pharmaceutical Business Management	2	--
3.8	Project Work		
	<b>TOTAL</b>	<b>19</b>	<b>15</b>

### FINAL YEAR B. PHARM.

Sr. No.	Subject	Theory Hours per Week	Practical Hours Per Week
4.1	Pharmaceutics-III	3	3
4.2	Bio-pharmaceutics & Pharmacokinetics	2	--
4.3	Medicinal Chemistry – II	3	3
4.4	Pharmaceutical Analysis-III	3	3
4.5	Pharmacology -III	3	3
4.6	Pharmacognosy-III	3	3
4.7	Pharmaceutical Jurisprudence	2	--
	<b>TOTAL</b>	<b>19</b>	<b>15</b>

### R-VII: DEPARTMENTS AND THEIR SUBJECT HEADS:

For the purpose of calculation of departmental workload, appointments of examiners by 32(5) committees and specialization of teachers at master degree level for teaching various subjects, there shall following four departments based on four boards of studies. The subjects have been grouped under each department as under.



Sr. No	Pharmaceutics	Pharmaceutical Chemistry	Pharmacology	Pharmacognosy
1	Pharmaceutics-I	Pharmaceutical Inorganic Chemistry	Anatomy Physiology & Health Education	Pharmacognosy-I
2	Modern Dispensing Practices	Pharmaceutical Organic Chemistry – I	Pharmacology-I	Pharmacognosy-II
3	Physical Pharmacy	Pharmaceutical Biochemistry	Pharmacology-II	Pharmacognosy-III
4	Pharmaceutical Microbiology & Immunology	Pharmaceutical Organic Chemistry –II	Pharmacology -III	-
5	Pharmaceutical Engineering	Pharmaceutical Analysis-I	-	-
6	Pharmaceutics -II	Medicinal Chemistry –I	-	-
7	Pharmaceutical Business Management	Pharmaceutical Analysis-II	-	-
8	Pharmaceutical Biotechnology	Medicinal Chemistry – II	-	-
9	Pharmaceutics-III	Pharmaceutical Analysis-III	-	-
10	Bio-pharmaceutics & Pharmacokinetics	-	-	-
11	Computer Applications & Bio-statistics	-	-	-
12	Pharmaceutical Jurisprudence	-	-	-

#### R-VIII: SCHEME OF EXAMINATION

##### FIRST YEAR B. PHARM.

Sr. No	Subject	Theory Examination				Practical Examination			
		University		Sessional	Total Marks	University		Sessional	Total Marks
		Hrs	Marks	Marks		Hrs	Marks	Marks	
1.1	Pharmaceutics-I	3	80	20	100	4	80	20	100
1.2	Modern Dispensing Practices	3	80	20	100	4	80	20	100
1.3	Pharmaceutical Inorganic Chemistry	3	80	20	100	4	80	20	100
1.4	Pharmaceutical Organic Chemistry – I	3	80	20	100	4	80	20	100
1.5	Anatomy Physiology & Health Education	3	80	20	100	4	80	20	100
1.6	Pharmaceutical Engineering	3	80	20	100	-	-	-	-
1.7	Computer Applications & Bio-statistics	3	80	20	100	-	-	-	-



**SECOND YEAR B. PHARM.**

Sr. No	Subject	Theory Examination				Practical Examination			
		University		Sessional	Total Marks	University		Sessional	Total Marks
		Hrs	Marks	Marks		Hrs	Marks	Marks	
2.1	Physical Pharmacy	3	80	20	100	4	80	20	100
2.2	Pharmaceutical Microbiology & Immunology	3	80	20	100	4	80	20	100
2.3	Pharmaceutical Biochemistry	3	80	20	100	4	80	20	100
2.4	Pharmaceutical Organic Chemistry -II	3	80	20	100	4	80	20	100
2.5	Pharmaceutical Analysis-I	3	80	20	100	4	80	20	100
2.6	Pharmacognosy-I	3	80	20	100	-	-	-	-
2.7	Pharmacology-I	3	80	20	100	-	-	-	-

**THIRD YEAR B. PHARM.**

Sr. No	Subject	Theory Examination				Practical Examination			
		University		Sessional	Total Marks	University		Sessional	Total Marks
		Hrs	Marks	Marks		Hrs	Marks	Marks	
3.1	Pharmaceutics - II	3	80	20	100	4	80	20	100
3.2	Pharmaceutical Biotechnology	3	80	20	100	-	-	-	-
3.3	Medicinal Chemistry -I	3	80	20	100	4	80	20	100
3.4	Pharmaceutical Analysis-II	3	80	20	100	4	80	20	100
3.5	Pharmacology-II	3	80	20	100	4	80	20	100
3.6	Pharmacognosy - II	3	80	20	100	4	80	20	100
3.7	Pharmaceutical Business Management	3	80	20	100	-	-	-	-

**FINAL YEAR B. PHARM.**

Sr. No	Subject	Theory Examination				Practical Examination			
		University		Sessional	Total Marks	University		Sessional	Total Marks
		Hrs	Marks	Marks		Hrs	Marks	Marks	
4.1	Pharmaceutics-III	3	80	20	100	4	80	20	100
4.2	Bio-pharmaceutics & Pharmacokinetics	3	80	20	100	-	-	-	-
4.3	Medicinal Chemistry - II	3	80	20	100	4	80	20	100
4.4	Pharmaceutical Analysis-III	3	80	20	100	4	80	20	100
4.5	Pharmacology -III	3	80	20	100	4	80	20	100
4.6	Pharmacognosy-III	3	80	20	100	4	80	20	100
4.7	Pharmaceutical Jurisprudence	3	80	20	100	-	-	-	-

*[Handwritten Signature]*

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#### R-IX: THE NATURE OF QUESTION PAPERS

The question paper for theory university examination for all subjects shall have two sections each carrying 40 marks. The question paper for theory sessional examination in all subjects shall be of 20 marks. The pattern of question paper for each section shall be as under:

Sr. No	Type of question	Marks/Question	No of Question	Total marks	Options (If any)
1	Long Answer question	10	01	10	Any 01 out of 02
2	Short answer question	03	05	15	Any 05 out of 07
3	Short notes	05	03	15	Any 03 out of 05
	<b>Total</b>			<b>40</b>	

#### Note:

1. There shall be no word limit set for long answer questions.
2. Paper setters should cover entire syllabus while setting the question paper. The relative weightage of marks for the topics is clearly mentioned in the syllabus.
3. The detailed guidelines with respect these changes shall be given to all paper setters by the university.

#### R-X: GRANT OF TERMS

1. The course of study in each subject will be not less than 30 weeks ie. 180 days in a year.
2. No student shall be allowed to appear for the University Examination unless he/she has attended 75% of theory lectures and practicals separately of each subject.

**Note:** Regular record of attendance both in Theory and Practical shall be maintained by the teaching staff of the respective subject and Principal of the institute shall certify the attendance for the purpose of grant of terms.

#### R-XI: INTERNAL ASSESSMENT:

The teaching institute will hold at least three sessional examinations for Theory and Practical evenly spread over a year for the purpose of internal assessment. Sessional marks will be calculated as the average of the best two performances at these examinations. These marks will be submitted to University before commencement of the University Examinations. A candidate failing in any of the University examinations will have a chance to improve sessional marks.

#### R-XII: EXAMINATIONS:

The University will conduct the examinations at the end of every academic year. The nomenclature of these examinations shall be as follows:



1. First Year B. Pharm. Examination
2. Second Year B. Pharm Examination
3. Third Year B. Pharm Examination
4. Final Year B. Pharm Examination

University will also conduct Supplementary examinations in the month of November/December every year.

In each paper of the theory examination, there will be two sections and each section will have three questions compulsory with internal options. In the practical examination, the candidate will also be examined orally.

### **R-XIII: STANDARDS OF PASSING**

There shall be separate head of passing in each subject of theory and practical of a B. Pharm course. For example a candidate passing in practical examination of the said subject need not reappear for practical examination even if he is failed in the respective subject of theory and vice versa.

To pass in each examination of B. Pharm. Course the candidate should have obtained

- a. at least 40% of the marks in Theory (excluding Sessional Marks i.e. 32 out of 80 & 40 out of 100) and 45% of the marks in Practical (excluding Sessional Marks i.e. 36 out of 80 & 45 out of 100) separately in each subject and
- b. at least 50% of the total marks assigned to that examination.

### **R-XIV: ATKT/BACKLOG**

- a. A candidate failing in an examination will be allowed to carry a backlog of any two-theory heads & any two practical heads next year. The candidate must pass these four subjects independently or simultaneously at the next exam. The term 'subject' means separate for both theory and practical.
- b. A failing/ATKT candidate who has passed in a particular subject may, at his/her option, be exempted from appearing in that subject at a subsequent examination.
- c. No candidate will be admitted to Third Year B. Pharm unless he/she has passed in all subjects of First Year B. Pharm. examination.
- d. No candidate will be admitted to Final Year B. Pharm unless he/she has passed in all subjects of Second Year B. Pharm examination.

### **R-XV: AWARD OF CLASS/DECLARATION OF RESULTS**

Class of Bachelors of Pharmacy Degree shall be awarded to the candidate based on his/her marks obtained at Third & Final year examination taken together. The subject or subjects in whom a successful candidate may have secured distinction will be shown on his mark-sheet. In order to obtain distinction in a subject at an examination, the candidate should pass the examination in the first attempt and should obtain 70% of the full marks in that subject. Only those candidates who have passed an examination in one attempt will be eligible for any prize or scholarship to be awarded for that examination.



The following shall be the mode of Award of Class at an examination.

1. Candidates obtaining 70% or more of Grand Total: First Class with Distinction.
2. Candidates obtaining 60% or more but less than 70 % of Grand Total; First Class.
3. Candidates obtaining 50 % or more but less than 60% of Grand Total: Second Class.

The names of first five merit candidates from the list of successful candidates will be shown in the notification of result of the examination published by the University. Every candidate shall be required to undergo at least one months Practical training (continuous or in parts) at any time after the end of the Second Year B Pharm Examination, in a Recognized Pharmaceutical Manufacturing Concern or in an Analytical Laboratory or in a Chemical Manufacturing Unit or Pharmaceutical Research Organization or Hospital (Clinical Pharmacy), failing which, he/she will not be eligible for conferment of degree by the University.

#### **R-XVI: ENVIRONMENTAL SCIENCES**

An additional course in environmental sciences shall be conducted as per following guidelines.

1. A course in Environmental Awareness with duration of six months (30 lectures of one hour duration & field work of 10 hours duration.) shall be introduced at the second year of degree course B.Pharm as a compulsory course.
2. An additional course fee of Rs. 500 per student shall be charged to meet the expenditure on the conduct of the course.
3. A course Coordinator shall be appointed to organize teaching and evaluation by the Principal.
4. Qualifications of a Teacher.  
University approved teacher (minimum lecturer) in any subject possessing substantial knowledge to teach a course on environmental studies shall be eligible to teach the course. Principal of the College shall be authorized to determine the eligibility of the teacher on environmental studies
5. This course is to be introduced from the second year B.Pharm with 40 clock hours teaching including field visit.
6. The college on behalf of the University shall conduct the examination of this subject immediately before or after annual examinations of S.Y./T.Y./Final Year B.Pharm.
7. The student should clear this subject before passing the Final Year B.Pharm examination.
8. A candidate has to pass in this course in order to obtain degree certificate. If the candidate passes in all subjects of degree course but fails in this paper, he will not be eligible to obtain degree certificate.
9. Examination: the College shall organize the evaluation as per pattern suggested below.

The Principal shall submit the result sheet to the Controller of Examination, University of Pune on or before the end of the final year University Examinations of B. Pharm. course. The result shall reflect on the final Mark statement of each student. The results of University examination of the student who fail to get Minimum 'C' Grade in this course shall be kept in reserve till the concerned student complete the course and secure to required Minimum C Grade.



The question paper shall include the questions as under

- |                              |           |
|------------------------------|-----------|
| A. Multiple choice questions | :50 Marks |
| B. Essay type questions      | :25 Marks |
| C. Field works               | :25 Marks |

Total: 100 Marks

Passing Marks: 40 Marks.

Following Grades shall be awarded to the candidates based on their marks obtained.

**Grade-O:** above 75    **Grade-A:** 61 to 75    **Grade-B:** 51 to 60    **Grade-C:** 40 to 50

### **R-XVII: PROJECT WORK**

The project work shall be introduced at third year B.Pharm as per the following guidelines.

#### **1. Objectives:**

The objectives of the project work are to

1. Develop research aptitude.
2. Sharpen communication & presentation skills.
3. Provide exposure to literature survey as well as research methodology.
4. Develop and improve logical, creative, Interpretational and analytical abilities

#### **2. Duration of the work & Dates of submission**

Project shall be completed in one academic year (i.e. on Holidays, Sunday, Diwali Vacation etc. i.e. 10 months from June to March/April

- a. The topic and selection of guide shall be done in months of June-July.
- b. The Synopsis shall be submitted on and before 15<sup>th</sup> October.
- c. Final project / dissertation submission on and before 31 March
- d. Final presentation and viva-voce on and before 30 April.

#### **3. Selection of the Project Topic**

Topic should be Lab oriented, Study oriented or survey oriented or Computer oriented. These may be from field relevant to pharmacy like Pharmaceutics, Pharmaceutical Chemistry, Medicinal Chemistry, Pharmacognosy, Bio-pharmaceutics, Pharmacokinetics, Pharmaceutical Analysis, Formulation Development, Chemical Process Development, Drug Design, Clinical and Hospital Pharmacy, Community Pharmacy, Biotechnology, Bioinformatics, Cheminformatics, Ayurveda, Cosmeticology, Regulatory Affairs, Intellectual Property Rights, Patents, Forensic and Jurisprudence, Mining of information from literature as well as electronic database, Reviews, Pharmaceutical sales & marketing, Pharma Packaging, etc.





*Note: - The above list is comprehensive, but not limiting. Any other topics relevant to Pharmacy can also be chosen.*

Separate topic to be assigned to each student. Wherever, the broad area is same, the aspects to be researched by an individual candidate should be clearly focused and spelt out in the title itself.

Topics allotment can be done in the end of second year itself so students can utilize their vacation and do more meaningful and comprehensive work.

#### **4. Allocation of Guides and Students**

- a. On an average each of the staff members (Whose minimum qualification is M. Pharm.) should be involved as a Guide (Supervisor).
- b. Per guide, on an average 5 students can be allocated.
- c. A judicious balance of selection *vis-a-vis* guide and students should be maintained, without imposing on either side.
- d. In a few cases a co-guide (Outside the college, but related with the topic) can also be involved.
- e. In case of any anomaly or disagreement, the final basis of allocation/selection shall be based on the S.Y. B. Pharm merit (internal) of the students.

#### **5. The project Coordinator**

One of the Staff members shall be assigned as the Project coordinator for a given Academic Year.

#### **6. Duties of the Coordinator**

- a. Overall co-ordination
- b. Facilitator in Guide-Student allotment.
- c. Preparation of schedules and Time – tables.
- d. Arrangement of Seminars & Multimedia (A/V) facilities, Classrooms, Labs, etc.
- e. Helping the guide in the arrangement for availing external help for the project work, like Workplace, Literature survey permission, Analytical facility, Biological survey, Data analysis, etc. However, mainly have to make such arrangements.
- f. All relevant documentation and filing
- g. Submission of marks to and communication with College and University exam sections.

#### **7. Role of the Project Guide**

- a. Allocation and Definition of the Topic for the Project.
- b. Providing internal facilities as well as arranging external facilities that are necessary for the successful completion of the Project Work.
- c. Guiding, Supervising and monitoring the Progress of the Work.



- d. Helping in compilation of results, their analysis and interpretation as well as final compilation of the entire project work and its submission and presentation in the most appropriate manner.

### 8. Evaluation and Marking Pattern

Total marks shall be out of 100, of which minimum 50% i.e., 50 marks are required for passing in the subject. The marks obtained by a candidate shall be converted in to grades as follow and grades shall appear on the mark sheet of the third year B. Pham.

1. Grade O: 75 and above marks out of 100
2. Grade A: 60 and less than 75 marks out of 100
3. Grade B: 50 and less than 60 marks out of 100

Marks can be split up into two major portions/ allocations as follows:

- A. Project work and Report (Dissertation) : 50 marks  
B. Presentation (Seminar) & Viva-voce : 50 marks

**A. Project Report (Dissertation)-** It shall be submitted in a hardbound form neatly typewritten document on good quality paper (Executive Bond paper). ---- 50 marks

#### A.1 Actual project Report

Breakup of Marks for the actual Report: Total 50 marks

- |  |    |
|--|----|
| a. Definition of aim / clarity of objectives | 10 |
| b. Results and Discussion                    | 20 |
| c. Literature                                | 10 |
| d. Overall Quality & Regularity              | 10 |

**(Overall quality includes –** typographical, grammatical, organizational qualities, numbering of figures, references, pages, etc

**Regularity includes:** day-to-day work involvement and punctuality of the student)

**B. Presentation (Seminar) & Viva-voce:** 50 marks

**B.1** The Presentation / Seminar shall have maximum 30 marks with following breakup.

- |                                    |    |
|------------------------------------|----|
| a. Communication skills            | 10 |
| b. Quality of Slides (PowerPoint)  | 10 |
| c. Duration (within time allotted) | 10 |

#### B.2 Viva-voce/Question- Answers

Viva-voce/Question-Answers shall have maximum 20 marks with breakup as under

- |  |    |
|--|----|
| a. Mannerism (Confidence & Expression) | 10 |
| b. Quality of Answers                  | 10 |



## 9. Size and number of reports

Synopsis: 4- 20 pages, 3 Hardbound copies

Project: 50-75 pages, 3 Hardbound copies (Guide, Examiner College)

Besides these also, one soft copy (Print ready) as 2 continuous files – Synopsis and Project, to be submitted by the candidate.

## 10. Remuneration:

The University shall pay the remuneration to Guide, Examiner and Project Co-ordinator as may be decided by the University authorities.

Note: Any publication (or its acceptance proof) related to the Project Work in a reputed journal, shall be given due weightage in the marks allocation to the Project.

### Check List for the Items of the Final Report (Dissertation)

1	Is the Report "Cover / Title page in proper format?	Yes/No
2	Is 'Supervisor's Certificate' in proper format? Has it been signed?	Yes/No
3	Is 'Abstract' included in the report? Is it in the proper format?	Yes/No
4	Does the 'Contents' page include the chapter page numbers?	Yes/No
5	Does the report contain the summary of the literature survey?	Yes/No
6	Is the 'Aim of the Work properly defined with clarity of thoughts?	Yes/No
7	Are the pages numbered properly?	Yes/No
8	Are the figures numbered properly?	Yes/No
9	Are the tables numbered properly?	Yes/No
10	Are the tables & figures titled properly?	Yes/No
11	Are the tables & figures numbers referred in the text?	Yes/No
12	Are the appendices numbered properly?	Yes/No
13	Does the report contain "Conclusion" of the work?	Yes/No
14	Are references/bibliography given?	Yes/No
15	Have the references been cited in the report?	Yes/No
16	Is the citation of the references done in a standard format?	Yes/No

## R-XVIII: MISCELLANEOUS

This revised curriculum (including regulations, structure and syllabi) will be in force for academic year 2008-09 and onwards for First Year B. Pharm, for academic year 2009-10 onwards for Second Year B. Pharm., for academic year 2010-11 and onwards for Third Year B. Pharm., and for academic year 2011-12 and onwards for Final Year B. Pharm.

A candidate failing in an examination with old course will have to clear that examination with old course only. However, he/she will have to take the subsequent higher examinations with new courses. The University will decide the equivalence of old and new syllabus for such students from time to time.

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**Programme- M. Pharm**  
**CBCS/Elective Course Structures**  
**(A.Y. 2015-16 to A.Y 2019-20)**



  
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# Programmes

**M. Pharm - Pharmaceutics**

**M. Pharm - Pharmacognosy**

**M. Pharm - Pharmaceutical Quality Assurance**

## 2019 - Course Structure



  
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**SAVITRIBAI PHULE PUNE UNIVERSITY**

**FACULTY OF SCIENCE AND TECHNOLOGY**



**RULES & SYLLABUS**


**FIRST YEAR MASTER OF PHARMACY (M. Pharm.) COURSE**  
**(EFFECTIVE FROM ACADEMIC YEAR 2019-2020)**

  
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## 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) 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.

  
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## 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

#### 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.

#### 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 and Assignment and 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.


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

Sr. 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.

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

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
<b>SEMESTER I</b>					
MPAT101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPH102T	Drug Delivery System	4	4	4	100
MPH103T	Modern Pharmaceutics	4	4	4	100
MPH104T	Regulatory Affair	4	4	4	100
MPH105P	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>					
MPH201T	Molecular Pharmaceutics (Nano Tech and Targeted DDS)	4	4	4	100
MPH202T	Advanced Biopharmaceutics & Pharmacokinetics	4	4	4	100
MPH203T	Computer Aided Drug Development	4	4	4	100
MPH204T	Cosmetic & Cosmeceuticals	4	4	4	100
MPH205P	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./week	Marks
<b>SEMESTER I</b>					
MPAT101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MIP102T	Pharmaceutical Formulation Development	4	4	4	100
MIP103T	Novel drug delivery systems	4	4	4	100
MIP104T	Intellectual Property Rights	4	4	4	100
MIP105P	Industrial Pharmacy 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>					
MIP201T	Advanced Biopharmaceutics and Pharmacokinetics	4	4	4	100
MIP202T	Scale up and Technology Transfer	4	4	4	100
MIP203T	Pharmaceutical Production Technology	4	4	4	100
MIP204T	Entrepreneurship Management	4	4	4	100
MIP205P	Industrial Pharmacy 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 - 4: Course of study for M. Pharm. (Pharmaceutical Chemistry)

Course Code	Course	Credit Hours	Credit Points	Hrs./week	Marks
<b>SEMESTER I</b>					
MPAT101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPC1012T	Advanced Organic Chemistry – I	4	4	4	100
MPC103T	Advanced Medicinal Chemistry	4	4	4	100
MPC104T	Chemistry of Natural Products	4	4	4	100
MPC105P	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>					
MPC201T	Advanced Spectral Analysis	4	4	4	100
MPC202T	Advanced Organic Chemistry –II	4	4	4	100
MPC203T	Computer Aided Drug Design	4	4	4	100
MPC204T	Pharmaceutical Process Chemistry	4	4	4	100
MPC205P	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>					
MPAT101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPA102T	Advanced Pharmaceutical Analysis	4	4	4	100
MPA103T	Pharmaceutical Validation	4	4	4	100
MPA104T	Food Analysis	4	4	4	100
MPA105P	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>					
MPA201T	Advanced Instrumental Analysis	4	4	4	100
MPA202T	Modern Bio-Analytical Techniques	4	4	4	100
MPA203T	Quality Control and Quality Assurance	4	4	4	100
MPA204T	Herbal and Cosmetic Analysis	4	4	4	100
MPA205P	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>

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

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
<b>SEMESTER I</b>					
MPAT101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MQA102T	Quality Management System	4	4	4	100
MQA103T	Quality Control and Quality Assurance	4	4	4	100
MQA104T	Product Development and Technology Transfer	4	4	4	100
MQA105P	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>					
MQA201T	Hazards and Safety Management	4	4	4	100
MQA202T	Pharmaceutical Validation	4	4	4	100
MQA203T	Audits and Regulatory Compliance	4	4	4	100
MQA204T	Pharmaceutical Manufacturing Technology	4	4	4	100
MQA205P	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>					
MRA101T	Good Regulatory Practices	4	4	4	100
MRA102T	Documentation and Regulatory Writing	4	4	4	100
MRA103T	Clinical Research Regulations	4	4	4	100
MRA 104T	Regulations and Legislation for Drugs & Cosmetics, Medical Devices, Biologicals & Herbals, and Food & Nutraceuticals In India and Intellectual Property Rights	4	4	4	100
MRA105P	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>					
MRA201T	Regulatory Aspects of Drugs & Cosmetics	4	4	4	100
MRA202T	Regulatory Aspects of Herbal & Biologicals	4	4	4	100
MRA203T	Regulatory Aspects of Medical Devices	4	4	4	100
MRA204T	Regulatory Aspects of Food & Nutraceuticals	4	4	4	100
MRA205P	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./w k	Marks
<b>SEMESTER I</b>					
MPAT101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPB 102T	Microbial And Cellular Biology	4	4	4	100
MPB 103T	Bioprocess Engineering and Technology	4	4	4	100
MPB 104T	Advanced Pharmaceutical Biotechnology	4	4	4	100
MPB 105P	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>					
MPB 201T	Proteins and protein Formulation	4	4	4	100
MPB 202T	Immunotechnology	4	4	4	100
MPB 203T	Bioinformatics and Computer Technology	4	4	4	100
MPB 204T	Biological Evaluation of Drug Therapy	4	4	4	100
MPB 205P	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>


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

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
<b>SEMESTER I</b>					
MPP 101T	Clinical Pharmacy Practice	4	4	4	100
MPP 102T	Pharmacotherapeutics-I	4	4	4	100
MPP 103T	Hospital & Community Pharmacy	4	4	4	100
MPP 104T	Clinical Research	4	4	4	100
MPP 105P	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>					
MPP 201T	Principles of Quality Use of Medicines	4	4	4	100
MPP 102T	Pharmacotherapeutics II	4	4	4	100
MPP 203T	Clinical Pharmacokinetics and Therapeutic Drug Monitoring	4	4	4	100
MPP 204T	Pharmacoepidemiology & Pharmacoconomics	4	4	4	100
MPP 205P	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>

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Table - 10: Course of study for (Pharmacology)

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
<b>SEMESTER I</b>					
MPAT101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPL102T	Advanced Pharmacology - I	4	4	4	100
MPL 103T	Pharmacological and Toxicological Screening Methods-I	4	4	4	100
MPL104T	Cellular and Molecular Pharmacology	4	4	4	100
MPL105P	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>					
MPL201T	Advanced Pharmacology II	4	4	4	100
MPL 202T	Pharmacological and Toxicological Screening Methods-II	4	4	4	100
MPL203T	Principles of Drug Discovery	4	4	4	100
MPL204T	Clinical Research and Pharmacovigilance	4	4	4	100
MPL205P	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>

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

Course Code	Course	Credit Hours	Credit Points	Hrs./week	Marks
<b>SEMESTER I</b>					
MPAT101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPG102T	Advanced Pharmacognosy-1	4	4	4	100
MPG103T	Phytochemistry	4	4	4	100
MPG104T	Industrial Pharmacognostical Technology	4	4	4	100
MPG105P	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>					
MPG201T	Medicinal Plant biotechnology	4	4	4	100
MPG102T	Advanced Pharmacognosy - II	4	4	4	100
MPG203T	Indian system of medicine	4	4	4	100
MPG204T	Herbal cosmetics	4	4	4	100
MPG205P	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>

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

Course Code	Course	Credit Hours	Credit Points
MRM 301T	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
I	26
II	26
III	21
IV	20
Co-curricular Activities (Attending Conference, Scientific Presentations and Other Scholarly Activities)	Minimum=02 Maximum=07*
Total Credit Points	Minimum=95 Maximum=100*

\*Credit Points for Co-curricular Activities

Table – 15 : 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 student)	01
Participation in international Level Seminar/Conference/Workshop/Symposium/ Training Programs (related to the specialization of the student)	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 Science)	01
Research / Review Publication in International Journals (Indexed in Scopus / Web of Science)	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 course through semesters I to IV shall be conducted by the respective university except for the subject with asterisk 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.

#### Question paper pattern for end semester theory examination

I.	Long answer questions (solve 1 out of 2)	1 X 15=15
II.	Medium Length answers (Solve 2 out of 4)	2 X 7.5=15
III.	Short answer questions (solve 3 out of 5)	3 X 5=15
IV.	Long answer questions (solve 1 out of 2)	1 X 15=15
V.	Short notes (Solve 3 out of 5)	3 X 5= 15
		<b>Total Marks= 75</b>

#### Question paper pattern for end semester practical examination

I.	Synopsis	15
II.	Experiment(s)	70
III.	Viva voce	15
		<b>Total Marks = 100</b>

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

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continu- ous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
<b>SEMESTER I</b>								
MPAT101T	Modern Pharmaceu- tical 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 Pharmaceu- tics	10	15	1 Hr	25	75	3 Hrs	100
MPH104T	Regulatory Affair	10	15	1 Hr	25	75	3 Hrs	100
MPH105P	Pharmaceuti- cs Practical I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
<b>Total</b>								<b>650</b>
<b>SEMESTER II</b>								
MPH 201T	Molecular Pharmaceu- tics(Nano Tech and Targeted DDS)	10	15	1 Hr	25	75	3 Hrs	100
MPH 202T	Advanced Biopharmac- eutics & Pharmacokin- etics	10	15	1 Hr	25	75	3 Hrs	100
MPH 203T	Computer Aided Drug Development	10	15	1 Hr	25	75	3 Hrs	100
MPH204T	Cosmetic and Cosmeceuti- cals	10	15	1 Hr	25	75	3 Hrs	100
MPH205P	Pharmaceutics Practical II	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  
(Industrial Pharmacy-MIP)

Course Code	Course	Internal Assessment				End Se. Exams		Total Marks
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
<b>SEMESTER I</b>								
MPAT101T	Modern Pharmaceutical Analytical Techniques	10	15	1 Hr	25	75	3Hrs	100
MIP102T	Pharmaceutical Formulation Development	10	15	1 Hr	25	75	3Hrs	100
MIP103T	Novel drug delivery systems	10	15	1 Hr	25	75	3Hrs	100
MIP104T	Intellectual Property Rights	10	15	1 Hr	25	75	3Hrs	100
MIP105P	Industrial Pharmacy Practical I	20	30	6 Hrs	50	100	6Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
<b>Total</b>								<b>650</b>
<b>SEMESTER II</b>								
MIP201T	Advanced Biopharmaceutics and Pharmacokinetics	10	15	1 Hr	25	75	3Hrs	100
MIP202T	Scale up and Technology Transfer	10	15	1 Hr	25	75	3Hrs	100
MIP203T	Pharmaceutical Production Technology	10	15	1 Hr	25	75	3Hrs	100
MIP204T	Entrepreneurship Management	10	15	1 Hr	25	75	3Hrs	100
MIP205P	Industrial Pharmacy Practical II	20	30	6 Hrs	50	100	6Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
<b>Total</b>								<b>650</b>



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

Course Code	Course	Internal Assessment				End Semester Exams		Total Mark
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
<b>SEMESTER I</b>								
MPAT101T	Modern Pharmaceutical Analytical Techniques	10	15	1 Hr	25	75	3Hrs	100
MPC102T	Advanced Organic Chemistry -I	10	15	1 Hr	25	75	3Hrs	100
MPC103T	Advanced Medicinal chemistry	10	15	1 Hr	25	75	3Hrs	100
MPC104T	Chemistry of Natural Products	10	15	1 Hr	25	75	3Hrs	100
MPC105P	Pharmaceutical Chemistry Practical I	20	30	6 Hrs	50	100	6Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
<b>Total</b>								<b>650</b>
<b>SEMESTER II</b>								
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	Pharmaceutical Chemistry Practical II	20	30	6 Hrs	50	100	6 Hrs	150
-	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
		Continuous Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
<b>SEMESTER I</b>								
MPAT101T	Modern Pharmaceutical Analysis Techniques	10	15	1 Hr	25	75	3 Hrs	100
MPA102T	Advanced Pharmaceutical Analysis	10	15	1 Hr	25	75	3 Hrs	100
MPA103T	Pharmaceutical Validation	10	15	1 Hr	25	75	3 Hrs	100
MPA104T	Food Analysis	10	15	1 Hr	25	75	3 Hrs	100
MPA105P	Pharmaceutical Analysis Practical-I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
<b>Total</b>								<b>650</b>
<b>SEMESTER II</b>								
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 Assurance	10	15	1 Hr	25	75	3 Hrs	100
MPA204T	Herbal and Cosmetic analysis	10	15	1 Hr	25	75	3 Hrs	100
MPA205P	Pharmaceutical Analysis Practical- 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				
<b>SEMESTER I</b>								
MPAT101T	Modern Pharmaceutical Analytical Techniques	10	15	1 Hr	25	75	3 Hrs	100
MQA102T	Quality Management System	10	15	1 Hr	25	75	3 Hrs	100
MQA103T	Quality Control and Quality Assurance	10	15	1 Hr	25	75	3 Hrs	100
MQA104T	Product Development and Technology Transfer	10	15	1 Hr	25	75	3 Hrs	100
MQA105P	Pharmaceutical Quality Assurance Practical I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
<b>Total</b>								<b>650</b>
<b>SEMESTER II</b>								
MQA201T	Hazards and Safety Management	10	15	1 Hr	25	75	3 Hrs	100
MQA202T	Pharmaceutical Validation	10	15	1 Hr	25	75	3 Hrs	100
MQA203T	Audits and Regulatory Compliance	10	15	1 Hr	25	75	3 Hrs	100
MQA204T	Pharmaceutical Manufacturing Technology	10	15	1 Hr	25	75	3 Hrs	100
MQA205P	Pharmaceutical Quality Assurance Practical II	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
<b>Total</b>								<b>650</b>



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

Course Code	Course	Internal Assessment				End Semester Exams		
		Continuo Sessional Exams			Total	Marks	Duration	Total Marks
		Continuous Mode	Marks	Duration				
<b>SEMESTER I</b>								
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
<b>Total</b>								<b>650</b>
<b>SEMESTER II</b>								
MRA20 1T	Regulatory Aspects of Drugs & Cosmetics	10	15	1 Hr	25	75	3 Hrs	100
MRA20 2T	Regulatory Aspects of Herbal & Biologicals	10	15	1 Hr	25	75	3 Hrs	100
MRA20 3T	Regulatory Aspects of Medical Devices	10	15	1 Hr	25	75	3 Hrs	100
MRA20 4T	Regulatory Aspects of Food & Nutraceuticals	10	15	1 Hr	25	75	3 Hrs	100
MRA20 5P	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				
<b>SEMESTER I</b>								
MPAT101T	Modern Pharmaceutical Analytical Techniques	10	15	1 Hr	25	75	3 Hrs	100
MPB102T	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
<b>Total</b>								<b>650</b>
<b>SEMESTER II</b>								
MPB20 1T	Proteins and protein Formulation	10	15	1 Hr	25	75	3 Hrs	100
MPB202T	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	10
MPB20 5P	Pharmaceutical Biotechnology Practical II	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
<b>Total</b>								<b>650</b>

  
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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				
<b>SEMESTER I</b>								
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
<b>Total</b>								<b>650</b>
<b>SEMESTER II</b>								
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
<b>Total</b>								<b>650</b>



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

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuous Mode	Session Exams		Total	Marks	Duration	
			Marks	Duration				
<b>SEMESTER I</b>								
MPAT101T	Modern Pharmaceutical Analytical Techniques	10	15	1 Hr	25	75	3Hrs	100
MPL102T	Advanced Pharmacology-I	10	15	1 Hr	25	75	3Hrs	100
MPL10 3T	Pharmacological and Toxicological Screening Methods-I	10	15	1 Hr	25	75	3Hrs	100
MPL10 4T	Cellular and Molecular Pharmacology	10	15	1 Hr	25	75	3Hrs	100
MPL105P	Experimental Pharmacology - I	20	30	6 Hrs	50	100	6Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
<b>Total</b>								<b>650</b>
<b>SEMESTER II</b>								
MPL201T	Advanced Pharmacology II	10	15	1 Hr	25	75	3 Hrs	100
MPL102T	Pharmacological and Toxicological Screening Methods-II	10	15	1 Hr	25	75	3 Hrs	100
MPL203T	Principles of Drug Discovery	10	15	1 Hr	25	75	3 Hrs	100
MPL204T	Clinical research and pharmacovigilance	10	15	1 Hr	25	75	3 Hrs	100
MPL205P	Experimental Pharmacology-II	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
<b>Total</b>								<b>650</b>



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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				
<b>SEMESTER I</b>								
MPAT101T	Modern Pharmaceutical 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
MPG103T	Phytochemistry	10	15	1 Hr	25	75	3 Hrs	100
MPG104T	Industrial Pharmacognostical Technology	10	15	1 Hr	25	75	3 Hrs	100
MPG105P	Pharmacognosy Practical I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
							<b>Total</b>	<b>650</b>
<b>SEMESTER II</b>								
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
MPG203T	Indian system of medicine	10	15	1 Hr	25	75	3 Hrs	100
MPG204T	Herbal cosmetics	10	15	1 Hr	25	75	3 Hrs	100
MPG205P	Pharmacognosy Practical II	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
							<b>Total</b>	<b>650</b>



### Seminar/Assignment

1. **Seminar:** The evaluation of seminar for semester I & II shall be carried out as per following scheme.
 

a. Reference work and scientific contents	----- 10 marks
b. Communication skill	----- 05 marks
c. Discussion/defense	----- 05 marks
d. Presentation	----- 30 marks
<b>Total</b>	<b>----- 50 marks</b>
  
2. **Assignment:** one assignment related to any topic from the specialization shall be conducted in semester I and II.  
 Evaluation criteria for assignment are as follows:
 

a. Structure, organization and content	----- 20 marks
b. Creativity and originality	----- 05 marks
c. Compilation of information	----- 10 marks
d. Literature resources	----- 10 marks
e. Reference style	----- 05 marks
<b>Total</b>	<b>----- 50 marks</b>

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				
<b>SEMESTER III</b>								
MRM30 1T	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
<b>Total</b>								<b>525</b>
<b>SEMESTER IV</b>								
-	Journal club	-	-	-	25	-	-	25
-	Discussion / Presentation (Proposal Presentation)	-	-	-	75	-	-	75
-	Research work and Colloquium	-	-	-	-	400	1 Hr	400
<b>Total</b>								<b>500</b>

\*Non University Examination

  
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### 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
<b>Total</b>	<b>10</b>
Practical	
Attendance (Refer Table – 28)	10
Based on Practical Records, Regular viva voce, etc.	10
<b>Total</b>	<b>20</b>

**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

### 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 sessional exam will be conducted for 30 marks and computed for 15 marks. The average marks of two sessional exams shall be computed for internal assessment as per the requirements given in tables.

#### Scheme for theory Sessional examination

I. Objective Type questions (solve 5 out of 7)	5 X 2=10
II. Short answer questions (solve 2 out of 3)	2 X 5=10
III. Long answer questions (solve 1 out of 2)	1 X 10=10
<b>Total Marks= 30</b>	

#### Scheme for Practical Sessional examination

I. Synopsis	05
II. Experiment(s)	20
III. Viva voce	05
<b>Total Marks= 30</b>	

**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 in each semester sessional exam component of the internal assessment. The re-conduct of the sessional exam shall be completed before the commencement of end semester theory examinations.

**15. Re examination of end semester examinations**

Re examination 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**

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 (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**

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.



Table – 30: Letter grades and grade points equivalent to Percentage of marks and performances

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 Average' (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester.

For example, if a student takes five courses (Theory/Practical) in a 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:

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

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:

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

**19. Cumulative Grade Point Average (CGPA)**

The CGPA is calculated with the SGPA of all the IV semesters to two decimal points and is indicated in final grade report card/final transcript showing the grades of all IV semesters and their courses. The CGPA shall reflect the failed status in case of F grade(s), till the course(s) is/are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA shall only reflect the new grade and not the fail grades earned earlier. The CGPA is calculated as:

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

  
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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 (typed & 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 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 years) for the award of Ranks.

**23. Award of degree**

Candidates who fulfill 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 and retotaling of answer papers**



There is provision for re-totaling and revaluation of the answer papers in any examination. The candidates can apply for revaluation/ re-totaling 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.

  
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# Programmes


**M. Pharm - Pharmaceutics**

**M. Pharm - Pharmacognosy**

**M. Pharm - Pharmaceutical Quality Assurance**

## 2018 - Course Structure



  
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**SAVITRIBAI PHULE PUNE UNIVERSITY**

**FACULTY OF SCIENCE AND TECHNOLOGY**



**RULES & SYLLABUS**

**FIRST YEAR MASTER OF PHARMACY (M. Pharm.) COURSE  
(EFFECTIVE FROM ACADEMIC YEAR 2018-2019)**




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## 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

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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
Semester I					
MPH101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPH102T	Drug Delivery System	4	4	4	100
MPH103T	Modern Pharmaceutics	4	4	4	100
MPH104T	Regulatory Affairs	4	4	4	100
MPH105P	Pharmaceutics Practical I	12	6	12	150
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
MPH201T	Molecular Pharmaceutics (Nano Tech and Targeted DDS)	4	4	4	100
MPH202T	Advanced Biopharmaceutics & Pharmacokinetics	4	4	4	100
MPH203T	Computer Aided Drug Delivery System	4	4	4	100
MPH204T	Cosmetic and Cosmeceuticals	4	4	4	100
MPH205P	Pharmaceutics Practical II	12	6	12	150
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650

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

Course Code	Course	Credit Hours	Credit Points	Hrs./week	Marks
<b>Semester I</b>					
MIP101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MIP102T	Pharmaceutical Formulation Development	4	4	4	100
MIP103T	Novel drug delivery systems	4	4	4	100
MIP104T	Intellectual Property Rights	4	4	4	100
MIP105P	Industrial Pharmacy 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>					
MIP201T	Advanced Biopharmaceutics and Pharmacokinetics	4	4	4	100
MIP202T	Scale up and Technology Transfer	4	4	4	100
MIP203T	Pharmaceutical Production Technology	4	4	4	100
MIP204T	Entrepreneurship Management	4	4	4	100
MIP205P	Industrial Pharmacy 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 - 4: Course of study for M. Pharm. (Pharmaceutical Chemistry)

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

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

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



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

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


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

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



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

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

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

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
<b>Semester I</b>					
MPP 101T	Clinical Pharmacy Practice	4	4	4	100
MPP 102T	Pharmacotherapeutics-I	4	4	4	100
MPP 103T	Hospital & Community Pharmacy	4	4	4	100
MPP 104T	Clinical Research	4	4	4	100
MPP 105P	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>					
MPP 201T	Principles of Quality Use of Medicines	4	4	4	100
MPP 102T	Pharmacotherapeutics II	4	4	4	100
MPP 203T	Clinical Pharmacokinetics and Therapeutic Drug Monitoring	4	4	4	100
MPP 204T	Pharmacoepidemiology & Pharmacoeconomics	4	4	4	100
MPP 205P	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
Semester I					
MPL 101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPL 102T	Advanced Pharmacology-I	4	4	4	100
MPL 103T	Pharmacological and Toxicological Screening Methods-I	4	4	4	100
MPL 104T	Cellular and Molecular Pharmacology	4	4	4	100
MPL 105P	Pharmacology Practical I	12	6	12	150
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
MPL 201T	Advanced Pharmacology II	4	4	4	100
MPL 202T	Pharmacological and Toxicological Screening Methods-II	4	4	4	100
MPL 203T	Principles of Drug Discovery	4	4	4	100
MPL 204T	Experimental Pharmacology practical- II	4	4	4	100
MPL 205P	Pharmacology Practical II	12	6	12	150
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650

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

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



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

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

\* 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
Total		35	20

**Table - 14: Semester wise credits distribution**

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

\*Credit Points for Co-curricular Activities

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Table - 15: 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 student)	01
Participation in international Level Seminar/Conference/Workshop/Symposium/ Training Programs (related to the specialization of the student)	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 Science)	01
Research / Review Publication in International Journals (Indexed in Scopus / Web of Science)	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.

  
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Tables - 1616 : Schemes for internal assessments and end semester

(Pharmaceutics- MPH)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continu- ous Mode	Sessional Exams		Total	Marks	Durati- on	
			Marks	Durati- on				
<b>SEMESTER I</b>								
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 Affairs	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
<b>SEMESTER II</b>								
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



204T	and Cosmeceuticals							
MPH 205P	Pharmaceutics Practical I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar /Assignment	-	-	-	-	-	-	100
Total								650

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Tables – 1717 : Schemes for internal assessments and end semester  
(Industrial Pharmacy- MIP)

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuou s Mode	Sessional Exams		Tot al	Mar ks	Dura tion	
			Mar ks	Durati on				
<b>SEMESTER I</b>								
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
<b>Total</b>								650
<b>SEMESTER II</b>								
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



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

  
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(Pharmaceutical Chemistry-MPC)


Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continuo us Mod e	Sessional Exams		Tot al	Mar ks	Du rati on	
			Mar ks	Durati on				
<b>SEMESTER I</b>								
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
<b>SEMESTER II</b>								
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
Total								650

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 Pharmaceuti- cal Analysis	10	15	1 Hr	25	75	3 Hrs	100
MPA102T	Advanced Pharmaceuti- cal 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							
MPA204T	Herbal and Cosmetic analysis	10	15	1 Hr	25	75	3 Hrs	100
MPA205P	Pharmaceuti cal Analysis- II	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar Assignment	-	-	-	-	-	-	100
Total								650

  
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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				
<b>SEMESTER I</b>								
MQA101T	Modern Pharmaceutical Analytical Techniques	10	15	1 Hr	25	75	3 Hrs	100
MQA102T	Quality Management System	10	15	1 Hr	25	75	3 Hrs	100
MQA103T	Quality Control and Quality Assurance	10	15	1 Hr	25	75	3 Hrs	100
MQA104T	Product Development and Technology Transfer	10	15	1 Hr	25	75	3 Hrs	100
MQA105P	Pharmaceutical Quality Assurance Practical I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar/Assignment	-	-	-	-	-	-	100
Total								650
<b>SEMESTER II</b>								
MQA201T	Hazards and Safety Management	10	15	1 Hr	25	75	3 Hrs	100
MQA202T	Pharmaceutical Validation	10	15	1 Hr	25	75	3 Hrs	100
MQA203T	Audits and Regulatory Compliance	10	15	1 Hr	25	75	3 Hrs	100
MQA204T	Pharmaceutical Manufacturing Technology	10	15	1 Hr	25	75	3 Hrs	100
MQA205P	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
		Continuos Mode	Sessional Exams		Total	Marks	Duration	
			Marks	Duration				
<b>SEMESTER I</b>								
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
<b>Total</b>								650
<b>SEMESTER II</b>								
MRA20 1T	Regulatory Aspects of Drugs & Cosmetics	10	15	1 Hr	25	75	3 Hrs	100



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

  
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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				
<b>SEMESTER I</b>								
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
<b>Total</b>								650
<b>SEMESTER II</b>								
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
<b>Total</b>								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				
<b>SEMESTER I</b>								
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
<b>SEMESTER II</b>								
MPP20 1T	Principles of Quality Use of Medicines	10	15	1 Hr	25	75	3 Hrs	100
MPP20 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				
<b>SEMESTER I</b>								
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
<b>Total</b>								650
<b>SEMESTER II</b>								
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
<b>Total</b>								650



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

Course Code	Course	Internal Assessment				End Semester Exams		Total Marks
		Continu- ous Mode	Sessional Exams		Total	Marks	Durati- on	
			Marks	Durati- on				
<b>SEMESTER I</b>								
MPG10 1T	Modern Pharmaceutica l Analytical Techniques	10	15	1 Hr	25	75	3 Hrs	100
MPG10 2T	Advanced Pharmacognos y-I	10	15	1 Hr	25	75	3 Hrs	100
MPG10 3T	Phytochemistr y	10	15	1 Hr	25	75	3 Hrs	100
MPG10 4T	Industrial Pharmacognos tical Technology	10	15	1 Hr	25	75	3 Hrs	100
MPG10 5P	Pharmacognos y Practical I	20	30	6 Hrs	50	100	6 Hrs	150
-	Seminar Assignment	-	-	-	-	-	-	100
Total								650
<b>SEMESTER II</b>								
MPG20 1T	Medicinal Plant biotechnology	10	15	1 Hr	25	75	3 Hrs	100
MPG10 2T	Advanced Pharmacognos y-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	Pharmacognos y 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
		Continuou s Mode	Sessional Exams		Total	Mark s	Durati on	
			Mark s	Durati on				
<b>SEMESTER III</b>								
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
<b>Total</b>								525
<b>SEMESTER IV</b>								
-	Journal club	-	-	-	25	-	-	25
-	Discussion / Presentation (Proposal Presentation)	-	-	-	75	-	-	75
-	Research work and Colloquium	-	-	-	-	400	1 Hr	400
<b>Total</b>								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

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 (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.



Table – 30: Letter grades and grade points equivalent to Percentage of marks and performances

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 Average' (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester. For example, if a student takes five courses (Theory/Practical) in a semester with credits C<sub>1</sub>, C<sub>2</sub>, C<sub>3</sub> and C<sub>4</sub> and the student's grade points in these courses are G<sub>1</sub>, G<sub>2</sub>, G<sub>3</sub> and G<sub>4</sub>, 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 the SGPA of all the IV semesters to two decimal points and is indicated in final grade report card/final transcript showing the grades of all IV semesters and their courses. The CGPA shall reflect the failed status in case of F grade(s), till the course(s) is/are passed. When the course(s) is/are passed by obtaining a pass grade on subsequent examination(s) the CGPA

# **Programmes**


**M. Pharm - Pharmaceutics**

**M. Pharm - Pharmacognosy**

**M. Pharm - Pharmaceutical Quality Assurance**

## **2013 – Course Structure**



  
**PRINCIPAL**  
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COLLEGE OF PHARMACY  
Thergaon (Kalewadi), Pune-411 033



**UNIVERSITY OF PUNE**

**FACULTY OF PHARMACEUTICAL SCIENCES**



**MASTER OF PHARMACY (M.PHARM.) in**

- 1. Pharmaceutics**
2. Pharmaceutical chemistry
3. Pharmacology
- 4. Pharmacognosy**
- 5. Quality assurance techniques**

**COURSE STRUCTURE & SYLLABI**

**(EFFECTIVE FROM ACADEMIC YEAR 2013-2014)**

**PRINCIPAL**  
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**I. NOMENCLATURE:**

University of Pune offers Master of Pharmacy (M. Pharm) course of two years (four semesters) duration in the following specialization.

1. Pharmaceutics
2. Pharmaceutical Chemistry
3. Pharmacology
4. Pharmacognosy
5. Quality Assurance Techniques

**II. ELIGIBILITY:**

The eligibility for admission to the M Pharm course is as under:

The candidate who has passed the examination for the degree of B. Pharm of University of Pune or any other statutory University, recognized as equivalent thereto by this university, with at least 50 % marks (at least 45% marks in case of SC/ST category & Physically Handicapped candidates belonging to Maharashtra State only) will be eligible for admission to any specializations of pharmacy mentioned above.

The post-graduate student in the faculty of Pharmaceutical Sciences will not be permitted to register his/her name simultaneously for any Diploma or Degree Course of University of Pune or any other College / Institution.

**NOTE:** In case of eligibility criterion decided by the Govt. of Maharashtra differs from above, university authorities shall decide the eligibility criterion from time to time.

**III. FEES:**

The Fees and deposits shall be as prescribed by the competent Authority appointed by Govt of Maharashtra.

**IV. SCHEME OF TEACHING AND EXAMINATION:**

The scheme of Teaching and Examination for M. Pharm. First, Second, Third and Fourth Semester shall be as follows:



#### V. DURATION:

The duration of M. Pharm: Course shall be of two years consisting of four semesters. Each semester shall of six months duration.

#### VI. SEMINAR:

The candidate for M. Pharm. course shall have to give seminar in each semester. The topics for the seminar during First, Second, Third Semester & Fourth Semester shall be as under:

**First Semester:** Seminar topics to be selected from the papers of specialization.

**Second Semester:** Seminar topics to be selected from the papers of specialization.

**Third Semester:** 1. Seminar on Research work Envisaged for dissertation.  
(Evaluation by External Examiner)

2. Seminar on Recent trends in Pharmaceutical Sciences

**Fourth Semester:** Seminar shall be on entire work of dissertation.

#### \*Note:

- Seminar on Research work Envisaged for dissertation will be evaluated jointly by Guide (internal) and External Examiner appointed by Principal of the respective institute.
- Maximum number of students to be evaluated by single examiner should not exceed FIVE.

The candidate will have to give seminar with the help of audio visual aids.

**Evaluation of Seminar:** The seminar will be evaluated by two recognized Post-graduate teachers of the subject of specialization, ordinarily one of whom will be the guide of the student. The two examiners will jointly award the Marks for the seminar out of 50.

The candidate securing less than 50 % marks shall be treated as failed. If the candidate fails to secure minimum '50%' marks in the seminar, he/she will have to give the seminar in the next semester. The marks secured by the candidate in the seminar shall be communicated to the University for showing in the statement of marks of the





concerned semester.

## VII. DISSERTATION:

The topics for the dissertation shall be assigned by the Guide, a recognized Post-graduate Teacher, within one month of the beginning of second semester. Every candidate presenting himself/herself for the M. Pharm. fourth semester examination is required to submit four typewritten copies of the dissertation duly certified by the Guide. Out of four copies of dissertation, one copy is to be submitted in the college Library. The dissertation also needs to be certified by the Principal of the college.

The candidate should submit the dissertation carried out during his 3<sup>rd</sup> and 4<sup>th</sup> Semester before 31<sup>st</sup> May of the calendar year. If candidate fails to submit his/her dissertation before 31<sup>st</sup> May of the calendar year, he/she will have to submit dissertation in subsequent semester i.e. before 31<sup>st</sup> December of the calendar year. The Principal of the concerned College/Institute will forward the dissertation to the University office.

There shall be not more than EIGHT submissions of dissertations in one academic year under each fulltime recognized PG guide of institute.

If the subject of dissertation entails collaboration with other departments or specialties, the collaborative portion of the work will be supervised by Co-Guide, appointed by the Principal of the College/Institute in consultation with the Guide. Where a Co-Guide is involved, the dissertation will be certified jointly by the Guide & Co-guide.

The Guide or any other Recognized Post-graduate teacher in the subject (Internal Examiner) and an External Examiner appointed by the University will examine the dissertation. The Examiners shall jointly assign the marks for dissertation out of 300 which includes Seminar of 50 marks, Research work of 150 marks and viva-voce of 100 marks. The allotment of marks of the dissertation shall be as under.

### A. Seminar on Dissertation

Contents	Marks
1. Presentation and communication	25
2. Quality of Research work	25
<b>Total</b>	<b>50</b>



#### B. Research work

Contents	Marks
1. Literature Survey	10
2. Experimental Work	50
3. Scientific Contents	25
4. Result/ Conclusion	25
5. Organization of scientific material, thesis, dissertation and references	20
6. Patent or Publication on thesis work	20
<b>Total</b>	<b>150</b>

#### VIII. VIVA-VOCE:

The candidates will have to appear for Viva-Voce on dissertation. This test will be of 100 marks. The student will have to defend the dissertation. The examiners will jointly assign the marks for Viva voce. The allotment of marks for Viva-voce shall be as under:

#### C. Dissertation & Defense (viva/voce)

Contents	Marks
i. Depth of knowledge on research work done	50
ii. Result and Discussion	25
iii. Defence	25
<b>Total</b>	<b>100</b>

#### IX. EXAMINATION RULES:

Assessment shall consist of A) In – semester continuous assessment and B) end semester assessment. Both shall have an equal weightage of 50% each.

##### a. In- semester assessment –

An in-semester assessment of 50 marks should be continuous, procedures and marks for theory and practical examination are as follows –



i. For theory Examination –

An In-semester assessment for 50% marks should be continuous and at least five tests should be conducted for full course ( 1 written test for 30 marks and any four test of 5 marks i.e 4 X 5 = 20 marks should be conducted ) and the teacher must select a variety of procedures for examination such as :

- i. Term Paper
- ii. Seminar Presentation
- iii. Short Quizzes
- iv. Assignments
- v. Extension work
- vi. An open book test (with the concern teacher deciding what books are to be allowed for this purpose)
- vii. Mini research project by individual student or group of students
- viii. Case Study

The concern teacher in consultation with the head of PG Department shall decide the nature of question for the written test.

ii. For practical Examination –

Day to Day Assessment of Journal (Individual Practical's will be evaluated)	20 marks
(Evaluation includes Journal, Day to day Performance, Viva etc.)	
Sessional Exam	30 marks
(Evaluation of sessional exam includes Experiment, Viva, Synopsis etc.)	
Total	50 marks

If a student misses an internal assessment examination he/she will have a second chance with the permission of the Principal in consultation with concern teacher. Such a second chance shall not be the right of the student.

In case he/she wants to repeat internal assessment he/she can do only by registering for the said courses during the 3<sup>rd</sup> and 4<sup>th</sup> Semester.



b. End- semester assessment –

End Semester examination will be conducted by University of Pune.

Student who have failed semester end exam may reappear for semester end exam only twice in subsequent period. The student will be finally declared as failed if he/ she do not pass in all credits within a total period of 2 years. After that such students will have to seek fresh admission as per the admission rules prevailing at that time, if wish to complete the course.

The student has to obtain 50 % marks in the combined examination of in-semester assessment and semester end assessment with minimum passing of 40% in both these separately.

To pass the degree course a student shall have to get minimum aggregate 50% marks (E and above on grade point scale) in each course. Their shall be separate head of passing for theory and practical for each subject.

A student cannot register for the third semester if he/she fails to complete 50% credits of the total credits expected to be ordinarily completed within two semesters.

There shall be revaluation of answer scripts of semester end examination but not of internal assessment papers as per ordinance number 134 A & B.

While marks will be given for all examinations, they will be converted into grades. The semester end grade sheets will have only grade and final grade sheets and transcripts shall have grade points average and total % of marks (up to two decimal points). The final grade sheet will also indicate the PG Center to which the candidate belongs.

**X. ASSESSMENT AND GRADE POINT AVERAGE:**

a. The system of evaluation will be as follows:

Each assignment / test shall be evaluated in terms of grades. The grades for separate assignments and the final (Semester end) examination will be added together and then converted into a grade and later a grade point average. Results shall be declared for each semester and the final examination will have total grades and grade point average.

  
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Marks / Grade/ Grade point

Grade	Marks out of 100	Marks out of 50	Grade Points
O: Outstanding	100 to 75	50 to 38	6
A: Very Good	74 to 65	37 to 33	5
B: Good	64 to 55	32 to 28	4
C: Average	54 to 50	27 to 25	3
D: Satisfactory	49 to 45	24 to 22	2
E: Pass	44 to 40	21 to 20	1
F: Fail	39 to 0	19 to 0	0

Final Grade Points

Grade Points	Grade
05.00 – 6.00	O
04.50 – 04.99	A
03.50 – 04.49	B
02.50 – 03.49	C
01.50 – 02.49	D
00.50 – 01.49	E
0.00 – 00.49	F

The formula for GPA will be based on weighted average. The final GPA will not be printed unless a student passes courses equivalent to 100 credits.

(i) Semester Grade Point Average (SGPA) =

$$\text{SGPA} = \frac{\sum_{i=1}^p C_i G_i}{\sum_{i=1}^p C_i}$$

  
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$$\text{SGPA} = \frac{\sum \text{Grade Points Earn} \times \text{Credits for each course}}{\text{Total Credits}}$$

(ii) Cumulative Grade Point Average (CGPA) =

$$\text{CGPA} = \frac{\sum_{i=1}^p C_i G_i}{\sum_{i=1}^p C_i}$$

$$\text{SGPA} = \frac{\sum \text{Total Points Earn} \times \text{Credits for each course}}{\text{Total Credits}}$$

If the GPA is higher than the indicated upper limit in the three decimal digit then the student be awarded higher final grade (e.g. a student getting GPA of 4.492 may be awarded 'A')

There will be only final compilation and moderation at GPA (Final) level done at the department. While declaring the result the existing relent ordinances are applicable. There is also a provision for verification and revaluation. In case of verification, the existing rules will be applicable. The revaluation result will be adopted if there is a change of at least 10 % marks and in the grade of course.

b. The description for each of the grades will be as follows –

**Grade proposed norms**

**O : Outstanding : Excellent analysis of Topic, (75 % to 100%)**

Accurate Knowledge of primary material, wide range of reading, logical development of ideas, originality in approaching the subject, neat and systematic organization of content, elegant and lucid style.



**A : Very Good : Excellent analysis of Topic, (65% to 74%)**

Accurate Knowledge of primary material, acquaintance with seminal publications, logical development of ideas, neat and systematic organization of content, effective and clear expression.

**B : Good : Good analysis and treatment of topic (55% to 64%)**

Basic Knowledge of primary material, logical development of ideas, neat and systematic organization of content, effective and clear expression

**C : Average : Some important points covered (50% to 54%)**

Basic Knowledge of primary material, logical development of ideas, neat and systematic organization of content, effective and clear expression


**D : Satisfactory : Some Points Discussed (45% to 49%)**

Basic Knowledge of primary material, Sum organization, acceptable language or expression

#### **XI. FEATURES OF THE CREDIT SYSTEM**

- 1) Master's degree would be of 100 credits each.
- 2) Four credit course of theory will be of four clock hour per week running for 15 weeks.
- 3) Four credit course of practicals will consist of 8 hours of laboratory exercise for 15 weeks.
- 4) Every student shall have to complete minimum 75% credits in all semesters.
- 5) First year may divide into two semesters (Semester-I & II) and shall have

6 Theory courses x 4 credits	= 24 credits
2 Theory courses x 3 credits	= 06 credits
3 Practical courses x 4 credits	= 12 credits
2 Seminar	= 04 credit
Research work	= 06 credits
Total	= 52 credits

  
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- 6) Second year may divide into two semesters (Semester-III & IV) i.e.:-
- |  |              |
|--|--------------|
| Third Semester – 1) Seminar on Research Envisaged for Dissertation | } 4 Credits  |
| 2) Seminar on Recent Trends in Pharmaceutical Sciences             | } 4 Credits  |
| 3) Research work   | } 18 Credits |
| Fourth Semester -1) Seminar on Dissertation                        | } 04 Credits |
| 2) Research work   | } 18 Credits |

- 7) Scheme for mark distribution of semester III should be as follows :

The topic for the **research envisage for dissertation** and **seminar on recent trends in Pharmaceutical science** shall be assigned to him/her by the Guide within one month from the date of the commencement of the third semester.

**A. Seminar on Research Envisaged for Dissertation**

Contents	Marks
1. Selection of research topic and their applicability	15
2. Introduction and information retrieval systems	10
3. Reading research papers	10
4. Skill in oral presentation	15
<b>Total</b>	<b>50</b>

- 8) SCHEME OF SYLLABUS AND CREDIT SYSTEM : The syllabus for the first semester is as per the course structure of respective specialization subjects.
- 9) Academic calendar showing dates of commencement and end of teaching, internal assessment tests and term end examination shall be duly notified before commencement of each semester every year by the affiliated colleges.
- 10) The term end examination, however, shall be conducted by University of Pune, Pune in the allotted centers.
- 11) The research project shall be compulsory.





## XII. GRADE IMPROVEMENT PROGRAM:

For grade improvement a student must reappear for semester end examination for a minimum 30 credits. These courses will be from the parent department. Grade improvement program will be implemented at the end of the academic year. A student can opt for the grade improvement program only after the declaration of final semester examination.

If candidate wish to improve the class, he/she shall be allowed to do so in maximum three consecutive attempts in university theory examination within maximum five years from date of declaration of his final result.

## XIII. ACADEMIC CALENDAR AND TERMS

The terms and academic activities of the college affiliated to University of Pune, Pune under SGPA shall be as per the dates given below, only the years shall be changed i.e. the dates shall remain same as given below irrespective of the year.

Beginning of First Term (Semester I, and III)	: As per University academic calendar
Vacation	: As per University academic calendar
Beginning of Second Term (Semester II, and IV)	: As per University academic calendar

  
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**MASTER OF PHARMACY COURSE STRUCTURE**  
**SPECIALIZATION : PHARMACEUTICS**


Sem. No	Paper	Scheme of Teaching Hrs/Weeks		Scheme of Credit		Scheme of Examination Theory			Practical			Total (Including 50 marks of internal assessment)
		Theory	Practical	Theory	Practical	Hrs. Marks			Hrs. Marks			
						UE	UE	IE	UE	UE	IE	
I	M Advanced Analytical Techniques	4	8	4	4	3	50	50	8	50	50	200
	M-2 Research Methodology	4		4		3	50	50				100
	M-I-1 Advanced Pharmaceutics	4	8	4	4	3	50	50	8	50	50	200
	M-I-2 Elective-I	3		3		3	50	50				100
	Seminar				2			50				50
II	M-I-3 Formulations & Development	4	8	4	4	3	50	50	8	50	50	200
	M-3 Drug Regulatory Affairs	4		4		3	50	50				100
	M-I-4 Novel Drug Delivery Systems	4		4		3	50	50				100
	M-I-5 Elective-II	3		3		3	50	50				100
	Seminar		4		2			50				50
	Research work		12		6			50				50
III	Seminar on Research Envisaged for Dissertation				4		50					50
	Seminar on recent trends in Pharmaceutical Sciences				4		50					50
	Research work		36		18		150					150
IV	Seminar on Dissertation				4		50					50
	Research work		36		18		150					150
	Dissertation & Defense (viva/voce)						100					100
			Total	30	70						Grant Total	1800
			Total Credits = 100									



MASTER OF PHARMACY COURSE STRUCTURE  
SPECIALIZATION : PHARMACEUTICAL CHEMISTRY

Sem. No	Paper	Scheme of Teaching Hrs/Weeks		Scheme of Credit		Scheme of Examination Theory			Practical			Total (Including 50 marks of Internal assessment)
		Theory	Practical	Theory	Practical	Hrs.			Marks			
						UE	UE	IE	UE	UE	IE	
I	M Advanced Analytical Techniques	4	8	4	4	3	50	50	8	50	50	200
	M-2 Research Methodology	4		4		3	50	50				100
	M-I-1 Advanced Pharmaceutical Chemistry	4	8	4	4	3	50	50	8	50	50	200
	M-I-2 Elective-I	3		3		3	50	50				100
	Seminar				2			50				50
II	M-I-3 Advanced Medicinal Chemistry	4	8	4	4	3	50	50	8	50	50	200
	M-3 Drug Regulatory Affairs	4		4		3	50	50				100
	M-I-4 Drug Design	4		4		3	50	50				100
	M-I-5 Elective-II	3		3		3	50	50				100
	Seminar		4		2			50				50
	Research work		12		6			50				50
III	Seminar on Research Envisaged for Dissertation				4			50				50
	Seminar on recent trends in Pharmaceutical Chemistry				4			50				50
	Research work		36		18			150				150
IV	Seminar on Dissertation				4			50				50
	Research work		36		18			150				150
	Dissertation & Defense (viva/voce)											100
			<b>Total</b>	<b>30</b>	<b>70</b>			<b>100</b>			<b>Grant Total</b>	<b>1800</b>

Total Credits = 100

  
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MASTER OF PHARMACY COURSE STRUCTURE  
SPECIALIZATION : PHARMACOLOGY

Sem. No	Paper	Scheme of Teaching Hrs/Weeks		Scheme of Credit		Scheme of Examination Theory			Practical			Total (Including 50 marks of Internal assessment)
		Theory	Practical	Theory	Practical	Hrs. Marks			Hrs. Marks			
						UE	UE	IE	UE	UE	IE	
I	M Advanced Analytical Techniques	4	8	4	4	3	50	50	8	50	50	200
	M-2 Research Methodology	4		4		3	50	50				100
II	M-I-1 Advanced Pharmacology (Preclinical Evaluation of Drugs)	4	8	4	4	3	50	50	8	50	50	200
	M-I-2 Elective-I	3		3		3	50	50				100
	Seminar				2			50				50
	M-I-3 Clinical Pharmacology	4	8	4	4	3	50	50	8	50	50	200
	M-3 Drug Regulatory Affairs	4		4		3	50	50				100
III	M-I-4 Molecular Pharmacology	4		4		3	50	50				100
	M-I-5 Elective-II	3		3		3	50	50				100
	Seminar		4		2			50				50
	Research work		12		6			50				50
	Seminar on Research Envisaged for Dissertation				4		50					50
IV	Seminar on recent trends in Pharmacology				4			50				50
	Research work		36		18			150				150
	Seminar on Dissertation				4		50					50
	Research work		36		18		150					150
	Dissertation & Defense (viva/voce)						100					100
	<b>Total</b>			<b>30</b>	<b>70</b>						<b>Grant Total</b>	<b>1800</b>
	<b>Total Credits = 100</b>											


  
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**MASTER OF PHARMACY COURSE STRUCTURE**  
**SPECIALIZATION : PHARMACOGNOSY**

Sem. No	Paper	Scheme of Teaching Hrs/Weeks		Scheme of Credit		Scheme of Examination Theory			Practical			Total (Including 50 marks of Internal assessment)
		Theory	Practical	Theory	Practical	Hrs. Marks			Hrs. Marks			
						UE	UE	IE	UE	UE	IE	
I	M Advanced Analytical Techniques	4	8	4	4	3	50	50	8	50	50	200
	M-2 Research Methodology	4		4		3	50	50				100
	M-I-1 Advanced Pharmacognosy	4	8	4	4	3	50	50	8	50	50	200
	M-I-2 Elective-I	3		3		3	50	50				100
	Seminar				2			50				50
II	M-I-3 Phytochemistry & Phytopharmaceuticals	4	8	4	4	3	50	50	8	50	50	200
	M-3 Drug Regulatory Affairs	4		4		3	50	50				100
	M-I-4 Industrial Pharmacognosy	4		4		3	50	50				100
	M-I-5 Elective-II	3		3		3	50	50				100
	Seminar		4		2			50				50
	Research work		12		6			50				50
III	Seminar on Research Envisaged for Dissertation				4		50					50
	Seminar on recent trends in Pharmacognosy				4		50					50
	Research work		36		18		150					150
IV	Seminar on Dissertation				4		50					50
	Research work		36		18		150					150
	Dissertation & Defense (viva/voce)						100					100
			<b>Total</b>	<b>30</b>	<b>70</b>						<b>Grant Total</b>	<b>1800</b>

Total Credits = 100


  
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**MASTER OF PHARMACY COURSE STRUCTURE  
SPECIALIZATION : QUALITY ASSURANCE  
TECHNIQUES**

Sem. No	Paper	Scheme of Teaching Hrs/Weeks		Scheme of Credit		Scheme of Examination Theory			Practical			Total (Including 50 marks of Internal assessment)
		Theory	Practical	Theory	Practical	Hrs.			Marks			
						UE	UE	IE	UE	UE	IE	
I	M Advanced Analytical Techniques	4	8	4	4	3	50	50	8	50	50	200
	M-2 Research Methodology	4		4		3	50	50				100
	M-I-1 Advanced Quality Assurance Techniques (CGMP & Documentation )	4	8	4	4	3	50	50	8	50	50	200
	M-I-2 Elective-I	3		3		3	50	50				100
	Seminar				2			50				50
	M-I-3 Pharmaceutical Validation	4	8	4	4	3	50	50	8	50	50	200
	M-3 Drug Regulatory Affairs	4		4		3	50	50				100
	M-I-4 Quality Planning and Analysis	4		4		3	50	50				100
	M-I-5 Elective-II	3		3		3	50	50				100
	Seminar		4		2			50				50
	Research work		12		6			50				50
	Seminar on Research Envisaged for Dissertation				4		50					50
	Seminar on recent trends in Quality Assurance Techniques				4			50				50
	Research work		36		18			150				150
	Seminar on Dissertation				4		50					50
IV	Research work		36		18		150				150	
	Dissertation & Defense (viva/voce)						100					100
	<b>Total</b>			<b>30</b>	<b>70</b>						<b>Grant Total</b>	<b>1800</b>

Total Credits = 100

  
**PRINCIPAL**  
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