

**SYLLABUS**

**For Courses affiliated to the  
KERALA UNIVERSITY OF HEALTH  
SCIENCES**

**Thrissur 680596**



**BACHELOR OF PHARMACY**

**Course Code: 009**

**BACHELOR OF PHARMACY (B. Pharm)  
(2017-18 Academic year onwards)**

**2017**



## 2. COURSE CONTENT

### 2.1. Title of course:

Bachelor of Pharmacy – B. Pharm

### 2.2. Objectives of course

The objective of the course is to mold the student to suit the varied requirements of

1. Pharmaceutical industry –Research & Development, Manufacturing, Formulation, Quality Control, Quality assurance, Packaging, Marketing.
2. Practice settings in –Hospital Pharmacy, Clinical Pharmacy and Community Pharmacy.
3. Academics.
4. Regulatory affairs.
5. Clinical Research.
6. Drug discovery and development

### 2.3. Medium of instruction:

Medium of instruction and examinations shall be English

### 2.4. Course Outline

#### 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.

#### 2.4.1. Theory and Laboratory courses

##### a. Credit assignment

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.

##### b. Minimum credit requirements

The minimum credit points required for award of a B. Pharm degree is 210. 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.

#### 2.4.2. Academic work

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

#### 2.4.3. 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	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	Remedial Biology – Theory *	2	-	2
BP106RMT	Remedial Mathematics – Theory*			
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)

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

Course	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	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	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	Name of the Course	No. of hours	Tutorial	Credit points
BP501T	Medicinal Chemistry II – Theory	3	1	4
BP502T	Formulative Pharmacy– 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	Formulative Pharmacy – 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>

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

Course	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	Name of the Course	No. of hours	Tutorial	Credit points
BP701T	Instrumental Methods of Analysis – Theory	3	1	4
BP702T	Industrial Pharmacy – 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>4</b>	<b>24</b>

\* Non University Examination (NUE)

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

Course	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	Pharmaceutical Marketing	3 + 3 = 6	1 + 1 = 2	4 + 4 = 8
BP804ET	Pharmaceutical Regulatory Science			
BP805ET	Pharmacovigilance			
BP806ET	Quality Control and Standardization of Herbs			
BP807ET	Computer Aided Drug Designing			
BP808ET	Cell and Molecular Biology			
BP809ET	Cosmetic Science			
BP810ET	Experimental Pharmacology			
BP811ET	Advanced Instrumentation Techniques			
BP812PW	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	24
IV	28
V	26
VI	30
VII	24
VIII	22
Extracurricular/ Co curricular activities	01*
<b>Total credit points for the program</b>	<b>211/213<sup>§</sup>/214<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.

§ 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.

#### 2.4.4. Examinations/Assessments

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

#### 2.4.5. 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	1Hr	25	75	3Hrs	100
BP102T	Pharmaceutical Analysis I–Theory	10	15	1Hr	25	75	3Hrs	100
BP103T	Pharmaceutics I– Theory	10	15	1Hr	25	75	3Hrs	100
BP104T	Pharmaceutical Inorganic Chemistry–Theory	10	15	1Hr	25	75	3Hrs	100
BP105T	Communication skills–Theory*	5	10	1Hr	15	35	1.5Hrs	50
BP106RBT BP106RMT	Remedial Biology/ Mathematics–Theory*	5	10	1Hr	15	35	1.5Hrs	50
BP107P	Human Anatomy and Physiology–Practical	5	10	4Hrs	15	35	4Hrs	50
BP108P	Pharmaceutical Analysis I–Practical	5	10	4Hrs	15	35	4Hrs	50
BP109P	Pharmaceutics I–Practical	5	10	4Hrs	15	35	4Hrs	50
BP110P	Pharmaceutical Inorganic Chemistry–Practical	5	10	4Hrs	15	35	4Hrs	50
BP111P	Communication skills–Practical*	5	5	2Hrs	10	15	2Hrs	25
BP112RBP	Remedial Biology–Practical*	5	5	2Hrs	10	15	2Hrs	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>

**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	1Hr	25	75	3Hrs	100
BP202T	Pharmaceutical Organic Chemistry I – Theory	10	15	1Hr	25	75	3Hrs	100
BP203T	Biochemistry –Theory	10	15	1Hr	25	75	3Hrs	100
BP204T	Pathophysiology –Theory	10	15	1Hr	25	75	3Hrs	100
BP205T	Computer Applications in Pharmacy– Theory*	10	15	1Hr	25	50	2Hrs	75
BP206T	Environmental sciences –Theory*	10	15	1Hr	25	50	2Hrs	75
BP207P	Human Anatomy and Physiology II –Practical	5	10	4Hrs	15	35	4Hrs	50
BP208P	Pharmaceutical Organic Chemistry I– Practical	5	10	4Hrs	15	35	4Hrs	50
BP209P	Biochemistry – Practical	5	10	4Hrs	15	35	4Hrs	50
BP210P	Computer Applications in Pharmacy– Practical*	5	5	2Hrs	10	15	2Hrs	25
<b>Total</b>		<b>80</b>	<b>125</b>	<b>20Hrs</b>	<b>205</b>	<b>520</b>	<b>30Hrs</b>	<b>725</b>

\* The subject experts at college level shall conduct examinations

**Semester III**

Course	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	1Hr	25	75	3Hrs	100
BP302T	Physical Pharmaceutics I – Theory	10	15	1Hr	25	75	3Hrs	100
BP303T	Pharmaceutical Microbiology – Theory	10	15	1Hr	25	75	3Hrs	100
BP304T	Pharmaceutical Engineering – Theory	10	15	1Hr	25	75	3Hrs	100
BP305P	Pharmaceutical Organic Chemistry II – Practical	5	10	4Hr	15	35	4Hrs	50
BP306P	Physical Pharmaceutics I – Practical	5	10	4Hr	15	35	4Hrs	50
BP307P	Pharmaceutical Microbiology – Practical	5	10	4Hr	15	35	4Hrs	50
BP308P	Pharmaceutical Engineering – Practical	5	10	4Hr	15	35	4Hrs	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>

**Semester IV**

Course	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	1Hr	25	75	3Hrs	100
BP402T	Medicinal Chemistry I–Theory	10	15	1Hr	25	75	3Hrs	100
BP403T	Physical Pharmaceutics II–Theory	10	15	1Hr	25	75	3Hrs	100
BP404T	Pharmacology I–Theory	10	15	1Hr	25	75	3Hrs	100
BP405T	Pharmacognosy I–Theory	10	15	1Hr	25	75	3Hrs	100
BP406P	Medicinal Chemistry I–Practical	5	10	4Hr	15	35	4Hrs	50
BP407P	Physical Pharmaceutics II–Practical	5	10	4Hrs	15	35	4Hrs	50
BP408P	Pharmacology I–Practical	5	10	4Hrs	15	35	4Hrs	50
BP409P	Pharmacognosy I–Practical	5	10	4Hrs	15	35	4Hrs	50
<b>Total</b>		<b>70</b>	<b>115</b>	<b>21Hrs</b>	<b>185</b>	<b>515</b>	<b>31Hrs</b>	<b>700</b>

**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	1Hr	25	75	3Hrs	100
BP502T	Formulative Pharmacy–Theory	10	15	1Hr	25	75	3Hrs	100
BP503T	Pharmacology II–Theory	10	15	1Hr	25	75	3Hrs	100
BP504T	Pharmacognosy II–Theory	10	15	1Hr	25	75	3Hrs	100
BP505T	Pharmaceutical Jurisprudence – Theory	10	15	1Hr	25	75	3Hrs	100
BP506P	Formulative Pharmacy –Practical	5	10	4Hr	15	35	4Hrs	50
BP507P	Pharmacology II–Practical	5	10	4Hr	15	35	4Hrs	50
BP508P	Pharmacognosy II–Practical	5	10	4Hr	15	35	4Hrs	50
<b>Total</b>		<b>65</b>	<b>105</b>	<b>17Hr</b>	<b>170</b>	<b>480</b>	<b>27Hrs</b>	<b>650</b>

**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	1Hr	25	75	3Hrs	100
BP602T	Pharmacology III–Theory	10	15	1Hr	25	75	3Hrs	100
BP603T	Herbal Drug Technology –Theory	10	15	1Hr	25	75	3Hrs	100
BP604T	Biopharmaceutics and Pharmacokinetics–Theory	10	15	1Hr	25	75	3Hrs	100
BP605T	Pharmaceutical Biotechnology– Theory	10	15	1Hr	25	75	3Hrs	100
BP606T	Quality Assurance–Theory	10	15	1Hr	25	75	3Hrs	100
BP607P	Medicinal chemistry III –Practical	5	10	4Hrs	15	35	4Hrs	50
BP608P	Pharmacology III–Practical	5	10	4Hrs	15	35	4Hrs	50
BP609P	Herbal Drug Technology – Practical	5	10	4Hrs	15	35	4Hrs	50
<b>Total</b>		<b>75</b>	<b>120</b>	<b>18Hrs</b>	<b>195</b>	<b>555</b>	<b>30Hrs</b>	<b>750</b>

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	1Hr	25	75	3Hrs	100
BP702T	Industrial Pharmacy –Theory	10	15	1Hr	25	75	3Hrs	100
BP703T	Pharmacy Practice –Theory	10	15	1Hr	25	75	3Hrs	100
BP704T	Novel Drug Delivery System–Theory	10	15	1Hr	25	75	3Hrs	100
BP705P	Instrumental Methods of Analysis –Practical	5	10	4Hrs	15	35	4Hrs	50
BP706PS	Practice School*	25	-	-	25	125	5Hrs	150
<b>Total</b>		<b>70</b>	<b>70</b>	<b>8Hrs</b>	<b>140</b>	<b>460</b>	<b>21Hrs</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	1Hr	25	75	3Hrs	100
BP802T	Social and Preventive Pharmacy– Theory	10	15	1Hr	25	75	3Hrs	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							
BP811ET	Advanced Instrumentation Techniques–Theory							
BP812PW	Project Work	-	-	-	-	150	4Hrs	150
<b>Total</b>		40	60	4hrs	100	450	16	550



#### 2.4.6. 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**

<b>Theory</b>		
<b>Criteria</b>	<b>Maximum Marks</b>	
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>
<b>Practical</b>		
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**

<b>Percentage of Attendance</b>	<b>Theory</b>	<b>Practical</b>
95–100	4	2
90–94	3	1.5
85–89	2	1
80–84	1	0.5
Less than 80	0	0

#### 2.4.7. 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

(Answer all the questions)

I. Long Answers	=	01 x 10 = 10
II. Short Answers	=	02 x 05 = 10
III. Objective type questions	=	<u>05 x 02 = 10</u>
Total	=	30 Marks

### For subject shaving Non University Examination

I. Long Answers	=	01 x 10 = 10
II. Short Answers	=	<u>04 x 05 = 20</u>
Total	=	30 Marks

### Question paper pattern for practical Sessional examinations

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

#### 2.4.8. 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. For example, to be declared as PASS and to get grade, the student has to secure a minimum of 50marks for the total of 100 and has to secure a minimum of 25 marks for the total 50 in End semester practical examination.

#### 2.4.9. Carry forward of marks

In case a student fails to secure the minimum 50% in any Theory or Practical course, 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.

#### 2.4.10. 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.

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

Re-examination of end semester examination 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**

(Answer all the questions)

I. Long Answers	=	02 x 10 = 20
II. Short Answers	=	07 x 05 = 35
III. Objective type questions	=	10 x 02 = 20
Total	=	75 Marks

**For 50 marks paper**

I. Long Answers	=	02 x 10 = 20
II. Short Answers	=	06 x 05 = 30
Total	=	50 Marks

**For 35 marks paper**

I. Long Answers	=	01 x 10 = 10
II. Short Answers	=	05 x 05 = 25
Total	=	35 Marks

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

I. Synopsis	=	05
II. Experiments	=	25
III. Viva voce	=	05
Total	=	35 Marks

**2.4.12. Academic Progression:**

No student shall be admitted to any examination unless he/she fulfills the norms given. 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 success fully 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 semesters till the VII semester examinations. However, he/she shall not be eligible to get the course completion certificate

Until all the courses of I to VIII 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 semesters till the VII semester examinations. However, he/she shall not be eligible to get the course completion certificate until all the courses of all 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.

#### **2.4.13. 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–XIV.

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

<b>Percentage of Marks Obtained</b>	<b>Letter Grade</b>	<b>Grade Point</b>	<b>Performance</b>
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.

**2.4.14. 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,C4 and C5 and the student’s grade points in these courses are G1, G2,G3,G4 and G5,respectively, and then students’ SGPA is equal to:

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

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 For ABS grade in course 4, the SGPA shall then be computed as:

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

**2.4.15. 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<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,..... .

**2.4.16. 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

#### 2.4.17. 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.

Objective(s) of the work done	15Marks
Methodology adopted	20Marks
Results and Discussions	20Marks
Conclusions and Outcomes	20Marks
	-----
<b>Total</b>	<b>75Marks</b>
<b><i>Evaluation of Presentation:</i></b>	
Presentation of work	25Marks
Communication skills	20Marks
Question and answer skills	30Marks
	-----
<b>Total</b>	<b>75Marks</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.

#### 2.4.18. Industrial training

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.

#### 2.4.19. 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.

#### **2.4.20. 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.

#### **2.4.21. Award of degree**

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

#### **2.5. 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.

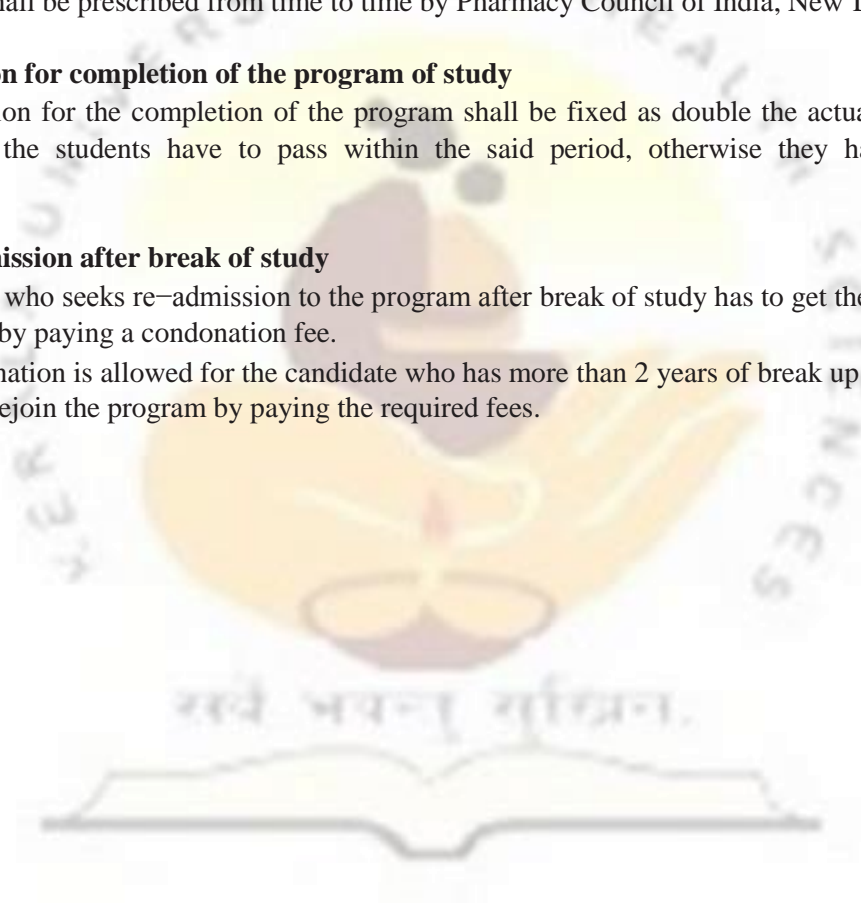
##### **2.5.1. Duration for completion of the program of study**

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.

##### **2.5.2. 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.



**KERALA UNIVERSITY OF HEALTH SCIENCES**  
**Thrissur - 680596**

**SYLLABUS**

**POST GRADUATE COURSE IN PHARMACY**  
**Master of Pharmacy (M.Pharm.)**

<b>PHARMACOLOGY</b>	<b>MPL</b>
<b>KUHS Course Code</b>	<b>280</b>

(2019-20 Academic year onwards)

**2019**



**Course of study for M.Pharm. I & II Semester**

MPL	PHARMACOLOGY				
Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
<b>Semester I</b>					
MPT101T	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	4	4	4	100
-	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>					
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	Clinical research and Pharmacovigilance	4	4	4	100
MPL 205P	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>

**Course of study for M. Pharm. III & IV Semester**

Course Code	Course	Credit Hours	Credit Points	Marks
<b>Semester III</b>				
MRM 301T	Research Methodology and Biostatistics	4	4	100
-	Journal Club	1	1	25
-	Discussion / Presentation(proposal presentation)	2	2	25
-	Research Work	28	14	350
<b>Total</b>		<b>35</b>	<b>21</b>	<b>500</b>
<b>Semester IV</b>				
-	Journal Club	1	1	25
-	Presubmission Discussion / Presentation	3	3	75
-	Research Work	31	16	400
<b>Total</b>		<b>35</b>	<b>20</b>	<b>500</b>

**KERALA UNIVERSITY OF HEALTH SCIENCES**  
**Thrissur - 680596**

**SYLLABUS**

**POST GRADUATE COURSE IN PHARMACY**  
**Master of Pharmacy (M.Pharm.)**

<b>PHARMACY PRACTICE</b>	<b>MPP</b>
<b>KUHS Course Code</b>	<b>281</b>

(2019-20 Academic year onwards)

**2019**

**Table – 2: Course of study for M.Pharm. I & II Semester**

<b>Course Code</b>	<b>Course</b>	<b>Credit Hours</b>	<b>Credit Points</b>	<b>Hrs./wk</b>	<b>Marks</b>
<b>Semester I</b>					
MPP101T	Clinical Pharmacy Practice	4	4	4	100
MPP102T	Pharmacotherapeutics – I	4	4	4	100
MPP103T	Hospital & Community Pharmacy	4	4	4	100
MPP104T	Clinical Research	4	4	4	100
MPP105P	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>					
MPP201T	Principles of Quality use of Medicines	4	4	4	100
MPP202T	Pharmacotherapeutics II	4	4	4	100
MPP203T	Clinical Pharmacokinetics and therapeutic Drug Monitoring	4	4	4	100
MPP204T	Pharmacoepidemiology & Pharmacoeconomics	4	4	4	100
MPP205P	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>

**Course of study for M. Pharm. III & IV Semester**

<b>Course Code</b>	<b>Course</b>	<b>Credit Hours</b>	<b>Credit Points</b>	<b>Marks</b>
<b>Semester III</b>				
MRM 301T	Research Methodology and Biostatistics	4	4	100
-	Journal Club	1	1	25
-	Discussion / Presentation(proposal presentation)	2	2	25
-	Research Work	28	14	350
<b>Total</b>		<b>35</b>	<b>21</b>	<b>500</b>
<b>Semester IV</b>				
-	Journal Club	1	1	25
-	Presubmission Discussion / Presentation	3	3	75
-	Research Work	31	16	400
<b>Total</b>		<b>35</b>	<b>20</b>	<b>500</b>

**KERALA UNIVERSITY OF HEALTH SCIENCES**  
**Thrissur - 680596**

**SYLLABUS**

**POST GRADUATE COURSE IN PHARMACY**  
**Master of Pharmacy (M.Pharm.)**

<b>PHARMACEUTICAL CHEMISTRY</b>	<b>MPC</b>
<b>KUHS Course Code</b>	<b>277</b>

(2019-20 Academic year onwards)

**2019**

## Course of study for M.Pharm. I & II Semester

MPC	Pharmaceutical Chemistry				
Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
<b>Semester I</b>					
MPT 101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPC 102T	Advanced Organic Chemistry –I	4	4	4	100
MPC 103T	Advanced Medicinal Chemistry	4	4	4	100
MPC 104T	Chemistry of Natural Products	4	4	4	100
MPC 105P	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>					
MPC 201T	Advanced Spectral Analysis	4	4	4	100
MPC 202T	Advanced Organic Chemistry –II	4	4	4	100
MPC 203T	Computer Aided Drug Design	4	4	4	100
MPC 204T	Pharmaceutical Process Chemistry	4	4	4	100
MPC 205P	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>

## Course of study for M. Pharm. III & IV Semester

Course Code	Course	Credit Hours	Credit Points	Marks
<b>Semester III</b>				
MRM 301T	Research Methodology and Biostatistics	4	4	100
-	Journal Club	1	1	25
-	Discussion / Presentation (proposal presentation)	2	2	25
-	Research Work	28	14	350
<b>Total</b>		<b>35</b>	<b>21</b>	<b>500</b>
<b>Semester IV</b>				
-	Journal Club	1	1	25
-	Pre submission Discussion / Presentation	3	3	75
-	Research Work	31	16	400
<b>Total</b>		<b>35</b>	<b>20</b>	<b>500</b>