

KERALA UNIVERSITY OF HEALTH SCIENCES

THRISSUR – 680 596, KERALA



REGULATIONS, CURRICULUM, AND SYLLABUS OF

MASTER DEGREE COURSE IN

PHARMACY (M Pharm)

(With effect from 2011-12 admission)

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1. INTRODUCTION

1.1 Preamble

The regulation of the Master Degree courses in Pharmacy (M Pharm) being conducted by the Kerala University of Health Sciences is in accordance with the recommendations of the Pharmacy Council of India with an emphasis on the health needs of the Kerala State.

1.2 Nomenclature of the Degree

Specialization branches for M. Pharm Course are as follows:

Branch	Specialization
A	Pharmaceutical Analysis
B	Pharmaceutical Chemistry
C	Pharmacognosy and Phytochemistry
D	Pharmaceutics
E	Pharmacology
F	Pharmacy Practice

2. AIMS & OBJECTIVES OF COURSES

2.1 Goal

2.1.1 To generate Pharmacy Post Graduates with profound knowledge in various branches of Pharmaceutical Sciences to meet with the rapidly increasing demands put forward by-

- Pharmaceutical Manufacturing
- Pharmaceutical Research & Development
- Pharmacological research including preclinical & clinical studies.
- Herbal Drug Research
- Pharmaceutical & Herbal Drug Analysis
- Clinical Toxicology & Toxicological Analysis

2.1.2 To discover the potential to become faculty in Pharmaceutical Sciences with unmatched quality and excellence, so as to educate the future pharmacy generation (Undergraduate, Post graduate, and Doctoral).

2.2 Title of subject & hours of study

CODE No.	TITLE	Theory (hrs/wk)	Practical (Hrs/wk)
COMPULSORY SUBJECTS			
MCS-1	Modern Analytical and Research Methods	3	4
MCS-1	Modern Analytical and Research Methods		

SPECIALIZATION SUBJECTS			
BRANCH A	PHARMACEUTICAL ANALYSIS		
MPH.A-I	Advanced Pharmaceutical Analysis	3	4
MPH.A-II	Quality Control and Quality Assurance	3	4
MPH.A-III	Pharmaceutical and Clinical Analysis	3	4
BRANCH B	PHARMACEUTICAL CHEMISTRY		
MPH.B-I	Advanced Medicinal Chemistry	3	4
MPH.B-II	Advanced Organic Chemistry	3	4
MPH.B-III	Chemistry of Natural Products	3	4
BRANCH C	PHARMACOGNOSY & PHYTOCHEMISTRY		
MPH.C-I	Phytochemistry	3	4
MPH.C-II	Advanced Pharmacognosy	3	4
MPH.C-III	Applied Pharmacognosy & Plant Biotechnology	3	4
BRANCH D	PHARMACEUTICS		
MPH.D-I	Formulation Technology	3	4
MPH.D-II	Biopharmaceutics and Pharmacokinetics	3	4
MPH.D-III	Industrial Pharmacy	3	4
BRANCH E	PHARMACOLOGY		
MPH.E-I	Pharmacological Screening Methods and Clinical Evaluation	3	4
MPH.E-II	Biochemical & Molecular Pharmacology	3	4
MPH.E-III	Recent Advances in Pharmacology	3	4
BRANCH F	PHARMACY PRACTICE		
MPH.F-I	Clinical Pharmacy Practice and Hospital Pharmacy	3	4
MPH.F-II	Clinical Research and Community Pharmacy	3	4
MPH.F-III	Pharmacotherapeutics	3	4

3. REGULATIONS

3.1 Academic eligibility for admission

A candidate who has passed the B. Pharm degree examination from Kerala University of Health Sciences or an examination equivalent to of any other universities recognized by Kerala University of Health Sciences with not less than a total of 50% marks for the B. Pharm degree examination shall be eligible for admission to M. Pharm degree course. The candidate should have undergone B. Pharm degree course in an institution approved by AICTE and PCI.

3.2 Selection of students

The Selection of students for the M. Pharm course shall be made based strictly on merit as decided by the competent authority approved by the Government of Kerala/Kerala University of Health Sciences and as per guidelines of the Pharmacy Council of India.

3.3 Registration

A candidate on admission to the M. Pharm course shall apply to the University for Registration

- a. By making a formal application in the prescribed format.
- b. Original degree certificate and marklists of qualifying examination.
- c. Original council registration certificate.
- d. Allotment letter from the competent authority.
- e. Equivalency and migration certificate wherever needed.
- f. Original SSLC/equivalent certificate.
- g. The fees prescribed for the course.

3.4 Duration of course

The total academic duration of M. Pharm course including submission of dissertation is two years (24 months). The study of M. Pharm course shall be of annual system that includes M. Pharm part-I, extending for twelve months from the commencement of academic term and M. Pharm part-II of twelve months duration. Only candidates who have registered for all subjects of M. Pharm Part-I examination shall be eligible for admission to M. Pharm Part-II course. The thesis of M. Pharm Part II is to be submitted one month before examination. At the end of M. Pharm part-I, there shall be a university examination. At the end of M. Pharm Part-II, the candidate shall submit a dissertation on a research project.

3.5 Medium of Instruction

English shall be the medium of instruction for all the subjects of study for examinations of M. Pharm course.

3.6 Intake of students for P. G. course (Guide – Student ratio)

Post graduate in M. Pharm with minimum five years of experience can guide a maximum of 5 students in an academic year.

3.7 Course of study & attendance

a) **M. Pharm Part-1** course of study consists of two subjects namely *one compulsory* and *one optional*.

Course of study for each branch have been divided into *one compulsory* subject and *three specialization subjects*. *The compulsory subject* consist of two papers- a theory paper (Code No: MCS-I) and a practical paper (Code No: MCS-II). MCS- I and MCS- II shall be compulsory for the students of all branches.

The specialization subject consists of three theory papers (Paper I, Paper II and Paper III) with one practical paper for each respective theory paper. (See the following Table)

b) **M. Pharm Part-II** course of study consists of a thesis written on the basis of regular research work during the second year by the candidate. A certificate by the supervising

teacher (guide) stating that the candidate has worked under him/her during the M. Pharm Part-II course and has satisfactorily conducted the two seminars during this period shall be attached along with the thesis. Certificate from the co-guide, if any, is also necessary.

The candidates shall be eligible to submit their thesis only after passing M. Pharm Part-1 examination. Students of Pharmacy Practice have to undergo clerkship programme in various clinical departments during the first 3 months of M. Pharm Part II.

All M. Pharm Part II students have to present *two* seminars relevant to their subject specialization including recent advances before submission of thesis.

3.8 Examination

There shall be one annual examination at the end of the first academic year called M. Pharm Part-1 examination. There shall also be a supplementary examination of M. Pharm Part I after 6 months.

M. Pharm Part II examination shall consist of a thesis evaluation in any one of the respective branches.

3.8.1 Eligibility for appearing examination

a. Attendance, conduct and condonation option:

Candidates who have attended a minimum of 80% of the theory and practical classes separately in each prescribed subject shall be permitted to appear for the M. Pharm Part I examination.

Condonation of shortage of attendance (10%) shall be vested with a committee constituted by the Principal/Head of the respective college, with the Principal/Head as the Chairman and 5 members (senior teachers) in the Committee. Condonation applies only once to the student of M. Pharm during the course of study.

b. Internal assessment

Candidates obtaining minimum of 50% marks separately in both theory and practical shall be eligible for appearing in University examination

3.8.2 Scheme and schedule of examination

I. M. Pharm Part I Examination:-

(A) Sessional Examination:

i. Theory:

The Sessional marks for the compulsory subjects and for each specialization subjects are 50; out of which 40 marks are awarded for Sessional examination. 10 marks are assigned for seminars conducted for each subject. Seminars are evaluated on the basis

of coverage of topic, use of audio visual aids, confidence in the topic and defense performances.

There shall be minimum 3 Sessional examinations in each of the three papers of specialization M. Pharm part I during an academic year and aggregate of best two is computed out of 40. There shall be two evaluation seminars in each paper and aggregate of best two performances in seminar is computed out of 10.

Marks distribution for compulsory and specialization subjects in Theory

Theory	Marks
Written examination	40
Seminar	10
Total	50

ii. Practical:

Compulsory subject:

The Sessional marks for the compulsory subject are **25**, of which **20** are awarded for daily assessment and 5 marks for practical Sessional examination.

Specialization subjects:

The marks for practical in *each paper* of the specialization subject are **25**. **20** marks are awarded for daily assessment in each paper and **5** marks are awarded for the Sessional practical examination conducted towards the end of the academic year.

Marks distribution for compulsory and specialization subjects in Practical

Practical	Marks
Practical examination	05
Daily assessment	20
Total	25

The daily assessment is done on the basis of following criteria.

- Assembly of equipments
 - Use of instruments
 - Manipulative skills
 - Precision and Accuracy
 - Cleanliness
 - Interpretation of data and results
 - Preparation of protocols, case presentation, case study analysis
 - Record maintenance
- (Whichever applies)

(B) University Examination:**i) Theory:**

There shall be 4 theory papers (including compulsory paper) each of 3 hours duration each carrying 100marks.

ii) Practical:

There shall be practical examination for the compulsory subject (MCS-II) of 6 hours duration including viva voce. The marks for the practical examination are out of 100, which are distributed as follows:

Distribution of marks for Compulsory subject (MCS-II) practical examination

Synopsis	20
1 major experiment	40
1 minor experiment	25
(Basic spectral analysis)	15
Total	100
Viva voce	25

The practical examination of the 3 different papers in the specialization subject are to be conducted separately. Duration of the practical examination for the three different papers together is 3×6 hrs = 18hrs, including Viva-voce. Viva voce is also conducted separately for the three papers in specialization subject. The marks distribution is as follows in each paper.

Distribution of marks for specialization subject practical examination

Synopsis	20
Experiment/s	80
Total	100
Viva-voce	25

The marks awarded for the M Pharm Part-I examinations will be as follows:

Distribution of marks and hours for theory and practical examination

Subject	Theory				Practical					Total
	Duration	Exam	Sessional	Total	Duration	Exam	Sessional	Viva-voce	Total	
Compulsory subject										
Modern Analytical and Research Methods	3 hrs	100	50	150	6 hrs*	100	25	25	150	300
Specialization subjects										
Paper I	3 hrs	100	50	150	6 hrs*	100	25	25	150	300
Paper II	3 hrs	100	50	150	6 hrs*	100	25	25	150	300
Paper III	3 hrs	100	50	150	6 hrs*	100	25	25	150	300
TOTAL = 1200										

* including viva voce

3.8.3 Scheme of evaluation

Evaluation system for M. Pharm Part I is Centralized Double valuation by examiners from outside University and within University. The averages of marks of the two examinations are taken as the mark of the theory paper. If the variation in total marks obtained in two valuations is more than 15%, the paper should undergo a third valuation, and the average of aggregate of the nearest two will be counted. M. Pharm Part I practical and Oral examination shall be evaluated jointly by the examiners appointed by the University.

No re-evaluation is permitted, only re-totaling can be allowed on request by the candidate.

3.8.4 Criteria for pass & Re- appearance in case of failure

I. M. Pharm Part I Examination:-

i) For passing the university examination, a candidate shall be required to obtain 50% marks in each theory paper and in each practical examination individually and overall aggregate of 50% marks including Sessional marks in each theory paper and in the case of practical examination including viva-voce and Sessional marks.

ii) If a candidate fails in any of the theory papers or practical papers in the examination of compulsory subject or in the specialization subject, he/she has to appear again in the compulsory subject or in that paper/s of the specialization subjects including the theory and practical as the case may be.

II. M. Pharm Part II Examination:-

(A) Submission of thesis and Distribution of marks:

a) Head of the institution shall forward the list of candidates, names of supervising teachers and the title of the thesis work to the university within three months from the commencement of the M. Pharm Part -2 course. The candidate shall be eligible to submit their thesis only after passing M. Pharm Part-1 examination

b) Any changes in the dissertation topic, the same has to be informed within 6 months after commencement of 2nd year, after discussion in Institutional research committee.

c) The dissertation should be submitted one month in advance to the II year M. Pharm examinations duly signed by the respective guide and the same has to be forwarded to the Controller of Examinations through the Principal of the College

M. Pharm Part II Examination consists of evaluation of thesis, seminar on the thesis topic and oral examination. Four copies of the thesis duly certified by the supervising teacher shall be submitted to the University one month before by the candidate either in printed or type written form through the Head of the institution before the last date prescribed by the University.

The distributions of marks for evaluation of M. Pharm part II dissertation work are as follows:

M. Pharm part II examination is of total marks 500, which has been divided into as shown in the table

Distribution of marks for M. Pharm part II examination

Thesis	300
Oral	100
Seminar	100
Total	500

(B) Evaluation system:

The thesis, seminar and viva-voce shall be evaluated jointly by one external examiner and one internal examiner appointed by the University within examination centre. The internal examiner shall be the supervising teacher of the candidate. The candidates have to present the dissertation work using audio-visual aids with duration of about 30 minutes, which is followed by a viva voce.

(C) Evaluation of thesis and criteria for pass

Any candidate who secures less than 50% of total marks, he/she has to reappear based on the evaluation report of the examiners, before maximum duration of course (four years).

3.8.5 Rules for supplementary batch/additional batch (their training and eligibility for exam)

There will be a supplementary examination for M. Pharm in every 6 months.

3.9 Declaration of class

The grand total of marks for M. Pharm examination (M. Pharm Part I and M. Pharm Part II) is **1700**.

Class and Rank shall be declared on the basis of the aggregate of marks in M. Pharm Part I and Part II examinations (only for those candidates who pass in the first attempt).

Rank is awarded for individual branches.

Distinction means the aggregate is 75% and above

First Class means the aggregate is 60% and above

Second Class means the aggregate is less than 60%

3.10 Dissertation

3.10.1 Standard format of dissertation

i. Every candidate pursuing M. Pharm course is required to carry out work on a selected research project under the guidance of a recognized guide. The results of such a work shall be submitted in the form of a dissertation.

ii. The dissertation is aimed to train a postgraduate student in research methods and techniques. It includes identification of the problem, formulation of a hypothesis, review of literature, getting acquainted with recent advances, designing of a research study, collection of data, critical analysis, and comparison of results and drawing conclusions

The dissertation should be written under the following headings

1. Introduction
2. Aims or Objectives of study
3. Review of literature
4. Material and Methods
5. Results
6. Discussion
7. Conclusion
8. Summary
9. References
10. Tables
11. Annexure

The written text of dissertation shall be not less than 50 pages and shall not exceed 150 pages excluding references, tables, questionnaires and other annexure. It should be neatly typed conventional (Times New Roman) font, size 12-point, 10 to 12 characters per inch must be used with 1.5 line spacing on one side of the bond paper (A4 size, 8.27" x 11.69") All margins should be consistently 25mm in width and bound properly. Spiral binding should be avoided. The dissertation shall be certified by the guide and co-guide if any, Head of the Department and Head of the Institution. The dissertation shall be submitted at least one month before the end of M. Pharm Part II term.

3.10.2 Change of dissertation topic / guide – rules

The decision regarding change of title/guide shall be taken as per the Institute research committee recommendations and the same can be intimated to the University.

3.11 Eligibility for the award of Degree

In order to successfully qualify in M. Pharm degree course, a candidate should have obtained the following marks:

50% of marks in the University Theory examination
50% of marks in the University Practical examination.
50% of marks in aggregate in Theory, Practical IA & Oral taken together
50% of marks in aggregate in Dissertation, Seminar & Viva Voce taken together for the approval of the Dissertation

3.12 Question paper pattern

The Question paper pattern which shall be followed for uniform question paper in respect of all the subjects is given below:

2 Questions × 20 Marks
6 Questions × 10 Marks

There shall be no choice. Questions should be structured essay type.

3.13 Qualification of Teacher/ Examiner/ Guide

A post graduate (PG) degree in M. Pharm shall be eligible as teacher.

A post graduate degree in M. Pharm with 4 years after PG experience is eligible as internal examiner.

A post graduate degree in M. Pharm with 10 years after PG is eligible as external examiner.

A post graduate degree in M. Pharm with 5 years after PG is eligible to guide maximum of 5 candidates for M. Pharm dissertation.

3.14 Migration/ Transfer

Any requisition for Migration / Transfer of candidates during the course of study from one affiliated college to another affiliated college of this University or from another University is not permitted.

3.15 Break of course – rules/re-admission

Candidate registered for two years M. Pharmacy Post-Graduate Degree course must qualify in the Examinations within four years of the date of his / her admission.

Candidates, who due to unavoidable circumstances are unable to pursue the course, should readmit themselves within 3 years after the date of admission.

4. COURSE CONTENT

The syllabus, scheme of examination and model question papers of M Pharm courses is appended herewith.