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# UNIVERSITY OF MUMBAI



**Manual on**  
**CREDIT and GRADING SYSTEM**  
for  
**B. Pharm. Programme**  
under  
**FACULTY OF TECHNOLOGY**

(with effect from the academic year 2012–2013)

# 1 INTRODUCTION

## 1.1 Recommendations of National Regulatory Authorities

**The University Grants Commission (UGC), the National Assessment and Accreditation Council (NAAC), the Distance Education Council (DEC) and even the National Knowledge Commission (NKC)** have time and again come out with recommendations for improving the quality and effectiveness of Higher education provisions in the country. The ministry of Human Resource Development at the Central level and the Ministry of Higher & Technical Education, Govt. of Maharashtra have also repeatedly stressed on the need for universities to pay prompt attention to improve the quality of education.

An important concern voiced more strongly in recent times, is the need to develop a Choice-Based Credit System (CBCS) in tune with global trends and the adoption of a sound grading system for reflecting learner performance. To quote Shri S. K. Tripathi, former Secretary, Dept. of Secondary and Higher Education, Ministry of Human Resource Development, Govt. of India, “..... *The demand for socially relevant, economically productive, globally competitive, culturally sustaining and individually satisfying programmes that cater to the needs of the present times is fast growing. The constraints of pursuing programmes and participation in pre-determined combination of Courses pose rigidities not in keeping with the demands of the changing times...*”. ***There is a need for a fully convertible credit-based system acceptable to other universities.***

**Recommendation of the UGC** in its *Action Plan for Academic and Administrative Reforms* (Ref. UGC letters January 2008; March 2009) “..... *Curricular flexibility and learners’ mobility is an issue that warrants our urgent attention. These can be addressed by introducing credit based courses and credit accumulation. In order to provide with some degree of flexibility to learners, we need to provide flexibility in course selection and also a minimum as well as a maximum permissible span of time in which a course can be completed by a learner... The Choice-Based Credit System (CBCS) imminently fits into the emerging socioeconomic milieu, and could effectively respond to the educational and occupational aspirations of the upcoming generations. In view of this, institutions of higher education in India would do well to invest thought and resources into introducing CBCS. Aided by modern communication and information*

*technology, CBCS has a high probability to be operationalised efficiently and effectively — elevating learners, institutions and higher education system in the country to newer heights... ”.*

**The National Knowledge Commission (NKC)** under the chairmanship of Mr. Sam Pitroda, in its report to the Prime Minister on 29<sup>th</sup> November 2006) has also reiterated the importance of higher education and the contribution it has made to economic development, social progress and political democracy in independent India. However, the Commission has also pointed out to a “serious cause for concern” at this juncture. According to Mr. Pitroda, “ .... *it is important for us to recognize that there is a quiet crisis in higher education in India which runs deep. And the time has come to address this crisis in a systematic, forthright manner. .... There is a need for a transition to a course credit system where degrees are granted on the basis of completing a requisite number of credits from different courses, which provides learners with choices*”.

## **1.2 Rationale for introduction of Credit and Grading System**

The UGC while outlining the several unique features of the Choice-Based Credit System (CBCS) has, in fact, given in a nutshell, the rationale for its introduction. Among the features highlighted by the UGC are: *Enhanced learning opportunities, ability to match learners’ scholastic needs and aspirations, inter-institution transferability of learners (following the completion of a semester), part-completion of an academic program in the institution of enrolment and part-completion in a specialized (and recognized) institution, improvement in educational quality and excellence, flexibility for working learners to complete the program over an extended period of time, standardization and comparability of educational programs across the country, etc.*

This credit and grading based system enables a much-required shift in focus from teacher-centric to learner-centric education since the workload estimated is based on the investment of time in learning, not in teaching. It also focuses on continuous evaluation which will enhance the quality of education. It can be concluded from the above discussion that it is very much essential to implement the credit and grading based higher education in India and University of Mumbai has taken a lead in implementing the system at University level through its many affiliated Institutes. In this regard it is very much essential to train and educate the faculty and staff in the new approach of education system for successful implementation of credit and Grading based education. The easily accessible information is essential and same will be provided through the credit and grading manual. In this manual focus is mainly on two aspects, one is course credit structure and another is examination/assessment and grading as discussed in the next chapters.

## 2. ADMISSION

### 2.1 Admission Criteria

Admission to the B. Pharm. program of Mumbai University is governed by the rules and regulations of Mumbai University and is as per norms of the Govt. of Maharashtra through the Directorate of Technical Education (DTE) and the All India Council for Technical Education (AICTE, New Delhi).

Learner 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 Biology/Mathematics 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)

Minimum qualification for admission into Bachelor of Pharmacy program would be according to the rules and regulations of AICTE, DTE and Mumbai University in force at the time of admission.

### 2.2 Minimum qualification for admission into Semester III of Bachelor of Pharmacy (Lateral Entry to Second Year B. Pharm.)

A learner with an aggregate of 50% marks at the Diploma of Pharmacy (ER 91) Examinations, conducted by any Pharmacy college established in India by law and duly approved by PCI u/s 12 of the Pharmacy Act 1948, is eligible for admission to Semester III of Second Year B. Pharm. The rules/regulations and qualifications for admission will be those in effect at the day and time of admission. However, such a learner with Diploma in Pharmacy must keep terms for the following subject heads (only theory papers) of 'Physical Pharmacy I of Semester I and Physical Pharmacy II of Semester II, henceforth referred to as 'Remedial Subjects'. They will be assessed both by Internal Assessment and by the End Semester Examination in the Remedial Subjects.

Learners would attend classes for Physical Pharmacy - I and would normally be evaluated (both Continuous evaluation and End Semester Evaluation- refer infra) while studying in Semester III of the B. Pharm. program and they would attend classes for Physical Pharmacy – II and would normally be evaluated (both Continuous Evaluation and End Semester Evaluation) while studying in Semester IV of the B. Pharm. program.

### 3. COURSE CREDIT STRUCTURE

As the requirements for a particular degree (undergraduate or postgraduate), a certain quantum of academic work measured in terms of credits is laid down in general. Every semester by satisfactorily clearing courses/other academic activities a learner 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 activities is dependent upon the quantum of work expected to be put in for each of the other activity per week.

#### 3.1 Credit Assignment

##### 3.1.1 Theory and Laboratory Courses:

Courses are broadly classified as *Theory Courses* and *Practicals*. Theory courses consist of lecture (**L**) and /or tutorial (**T**) hours, and Practical (**P**) are 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 **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**.

#### 3.2 Minimum Credit Requirements

The minimum credit required for award of a B. Pharm. degree is **206**. This is normally divided into Theory courses and Practical over the duration of eight semesters. The credits are distributed semester-wise as shown in the syllabus manual. 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 manual of the respective programmes.

#### 4. EXAMINATION / ASSESSMENT AND GRADING

Semester wise performance assessment of every registered learner is to be carried out through various modes of examinations. These include Internal Assessment and End Semester Examination. Normally weighting of Internal Assessment and End Semester Examination is 30 and 70 percentage, respectively, in both Theory Courses and Practicals. Internal Assessment includes Mid-Term assessments *i.e.*, Periodic Tests and Continuous mode of evaluation as given in Tables 1 and 2 for Theory Courses and Practicals.

Table 1: Scheme of assessment for Theory Courses of the B. Pharm. program.

| Internal assessment |                                   | End Semester examination | Total for each Theory Course |
|---------------------|-----------------------------------|--------------------------|------------------------------|
| Continuous mode     | Mid-Semester Exam (Periodic Test) |                          |                              |
| 15 marks            | 15 marks                          | 70 marks                 | 100 marks                    |

Table 2. Scheme of assessment for Practicals in the B.Pharm. program

| Internal assessment           |                                   | End Semester Examination | Total for each Practical |
|-------------------------------|-----------------------------------|--------------------------|--------------------------|
| Continuous mode of evaluation | Mid-Semester Exam (Periodic test) |                          |                          |
| 7 marks                       | 8 marks                           | 35 marks                 | 50 marks                 |

##### 4.1 Conduct of End Semester Examinations

The End Semester Examinations in Semesters I, II, III, IV, V and VI of the B. Pharm. Degree course will be conducted by the respective institutions/colleges where the learner has been admitted following rules and regulations. The examinations in Semesters VII and VIII will be conducted by the university.

- 4.1.1. A common time-table and common question papers for all the theory examinations of different semesters will be prepared/set by the university as per the procedure.
- 4.1.2. The question papers for the Theory courses in Semesters I, II, III, IV, V, VI, VII, VIII will be set by examiners and paper-setters appointed by the University.

**4.1.3.** The assessment and moderation of the answer booklets for the examinations in Theory courses in Semesters I to VI will be carried out by respective institutions/colleges by the examiners and moderators appointed by the principals of the institutions/colleges for each paper from the panel approved by the ad-hoc Board of Studies in Pharmacy.

**4.1.4.** Principals of the respective institutions/colleges are authorized to appoint examiners in the Practical examinations at Semesters I to VI on behalf of the university, only from the panel of suitable persons for appointment as examiners prepared by the competent authority as per the procedure laid down by the university.

**4.1.5.** The assessment and moderation of the answer booklets of the Theory courses in Semesters VII and VIII will be conducted by the University through Central Assessment Programme (CAP).

**4.1.6.** Non University Exam System (NUES) subjects

The question papers for NUES courses will be set by examiners and paper-setters appointed by principals of the institutions/colleges and will be evaluated at the institutional level following the same pattern as that for other theory subjects and marks and grade will be forwarded to the university.

## **4.2 Modes of Assessment/Evaluation**

### **4.2.1 Modes of Evaluation for Theory Courses**

Of the 15 marks reserved for Continuous mode of Internal Assessment (Table 1), 5 marks are to be reserved for attendance, 5 marks for 5 quizzes to be taken randomly over the semester without prior notice to learners and 5 marks for learner-teacher interaction during lecture hours.

For attendance the allotment of marks are as follows: For 90% or more attendance the complete 5 marks may be given, for 85-89% attendance 4 marks, for 80-84% 3 marks and 75-79% 2 marks and below 75% zero mark.

Learners will not be given a second chance to reappear for any quiz for which they have been absent.

Marks for learner-teacher interaction may be given based on the learner's drive to ask questions in class, be ready to be part of discussions raised in class, actively participating in class projects and other activities that are part of the lecture class.

For the theory subjects, there will be one mid-semester test (Periodic Test) which will be held as per the schedule fixed in the Academic Calendar of the institutions. The Periodic Test will be of 1 hour duration.

Details of the internal assessment of all learners (which is a combination of both continuous mode of evaluation and mid semester (periodic test)) should be sent to the academic office of the University by the Principal/Director of the college/institution at least 15 days before the End Semester examination

The End Semester Examination will be held as per the university schedule and would be of 70 marks. The paper will be of 3 hours duration and will cover the full syllabus of the course. The End Semester Examination is mandatory. The grade for courses can be awarded only after successful completion of both Internal Assessment and End Semester Examination of the respective course.

#### **4.2.2 Modes of Evaluation for Practicals**

For the Practicals, continuous assessment should be carried out and appropriate weighting should be given to each practical/assignment/course project and proper record of the same to be preserved by the concerned faculty for the purpose of inspection as and when required. The assessment in Practicals will be based on regular supervision of the learner's work during the practicals, her/his performance in *viva-voce* examinations, and the quality of their work as prescribed through laboratory journals and an End Semester Examination. It is obligatory to maintain a laboratory journal as prescribed by the course instructor.

Of the 15 marks reserved for internal assessment (Table 2), the 7 marks for Continuous evaluation would be given to the learner's work/performance at the practical classes, and a mid-semester periodic test would be conducted for 8 marks.

The End Semester Examination for Practicals for Semesters I to VI would be done at the institutional level by a pair of examiners appointed by the institution.

For Semesters VII and VIII, the University would appoint two examiners for each Practical prescribed in Semesters VII and VIII. Evaluation would be done by the examiners appointed by the University at the place and time announced by the University. The examination in each Practical would be of 4 hours duration and would be for a total of 35 marks.

### **4.3. Attendance**

Attendance for all Theory courses and Practicals is compulsory. As per the University Ordinance 119, 75% attendance is compulsory for **keeping the term**.

### **4.4. Heads of Passing**

The End Semester Examination (ESE) and the **Combined** End Semester and Internal Assessment for both Theory and Practicals are defined as the Heads of Passing.

### **4.5. Promotion of Learner and Award of Grades**

A learner will be declared **PASS** and eligible for **grade** in a particular course of **undergraduate** programme if a learner secures **at least 40% marks in each head of passing** mentioned above. In simple words, to pass, the learner has to secure a minimum of 28 marks out of 70 marks in the End Semester Exam in each Theory course and a minimum of 14 marks out of 35 marks in the End Semester Exam in each Practical and **further**, a minimum of 40 marks out of 100 in the Combined End Semester Exam and Internal Assessment in each Theory Course and a minimum of 20 marks out of 50 in the combined End Semester Exam and Internal Assessment in each Practical.

### **4.6. Carry Forward of Marks**

In case a learner **FAILS** in the **End Semester Examination** or fails to secure the minimum 40% in Theory and Practicals as specified in Section 4.4, then s/he 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.

### **4.7. Reexamination of Internal Assessment**

A learner will have the opportunity to **improve** his/her performance **only once** in the Periodic Test component of the Internal Assessment. The marks obtained by the learner for attendance and quizzes/learner-teacher interaction will be carried over. The re-conduct of the periodic test should be completed before the commencement of next semester theory examination.

**Reexamination of End Semester Examination** will be conducted as per the schedule planned by University of Mumbai

#### **4.8 Allowed to Keep Terms (ATKT):**

No learner will be admitted to any examination unless he/she keeps term at the institution/college affiliated to the University.

ATKT rules are applicable only to those learners who have appeared for the examination in all the subject heads.

- 4.8.1 A learner who is admitted to the Odd Semesters i.e. Semester I / III / V / VII shall be eligible to the next even Semester i.e. Semester II / IV / VI / VIII even if the learner fails in all the courses at the Odd Semester.
- 4.8.2. A learner failing in not more than two Theory courses and one practical of Semester I and II taken together shall be promoted to Semester III. However, if he/she fails in more than two Theory courses and one Practical of Semesters I and II taken together he/she will **not** be promoted to Semester III, until the number of failure subject heads is less than two Theory courses and one Practical in Semesters I and II taken together.
- 4.8.3. A learner failing in not more than two Theory courses and one Practical of Semester III and IV taken together shall be promoted to Semester V provided he/she has cleared all the subjects (Theory courses and Practicals) of Semesters I and II. However, if he/she fails in more than two Theory courses and one Practical of Semesters III and IV taken together, he/she will not be promoted to Semester V, until the number of failure subject heads is less than two Theory courses and one Practical in Semesters III and IV taken together
- 4.8.4. A learner failing in not more than two Theory courses and one Practical of Semesters V and VI taken together shall be promoted to Semester VII provided he/she has cleared all the subjects of Semesters I to IV
- 4.8.5. A lateral entry learner will be allowed for the Third Year B. Pharm. Semesters V and VI provided he/she should have passed Semester III and Semester IV **or** passed Semester III and ATKT for Semester IV **or** ATKT for Semester III and passed Semester IV **or** ATKT for Semester III and Semester IV and passed/failed in the Remedial Subjects for Semesters I and II.
- 4.8.6. A lateral entry learner failing in the Remedial Subjects of Semesters I and II shall be allowed to keep terms to the higher semester upto Semester VI irrespective of the number of subject heads failed in Semester I and II.

However, for admission for Semester VII of the course, the learner must pass the specified Remedial subject heads of Semesters I and II.

Note: **Grade ABS** should be considered as **failed** and treated as one head for deciding **ATKT**.

## 5. GRADING OF PERFORMANCE

### 5.1 Letter Grade and Grade Point Allocation

The credit and grading system will be effective from the academic year 2012-2013 for Faculty of Technology of University of Mumbai. In every course, based on the combined performance in all assessments in a particular semester as per the curriculum/syllabus, the learner is awarded a letter grade. These letter grades not only indicate a qualitative assessment of the learner's performance but also carry a quantitative (numeric) equivalent called the Grade Point. The letter grades and their equivalent grade point applicable for **undergraduate** program are given below:

| Percentage of Marks Obtained | Letter Grade | Grade Points | Performance |
|------------------------------|--------------|--------------|-------------|
| 90.00 to 100.00              | O+           | 10           | Brilliant   |
| 80.00 – 89.99                | O            | 9            | Outstanding |
| 70.00 – 79.99                | A            | 8            | Excellent   |
| 60.00 – 69.99                | B            | 7            | Good        |
| 50.00 – 59.99                | C            | 6            | Average     |
| 40.00 – 49.99                | D            | 5            | Pass        |
| Less than 40.00              | F            | 0            | Fail        |

A learner who remains **absent** in any form of **evaluation/examination**, **letter grade** allocated to him/her should be **assigned a letter grade of ABS** and a corresponding **grade point of zero**. S/he should reappear for the said evaluation/examination in due course.

## 5.2 SGPA/ CGPA Calculation

### 5.2.1 Semester Grade Performance Average (SGPA)

The performance of a learner in a semester is indicated by a number called Semester Grade Performance Average (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the learner during the semester. For example, if a learner takes five courses (Theory/Practicals) in a semester with credits  $C_1, C_2, C_3, C_4$  and  $C_5$  and the learner's grade points in these courses are  $G_1, G_2, G_3, G_4$  and  $G_5$ , respectively, then learners' 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 places.

It should be noted that, the SGPA for any semester will 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 will then be computed as:

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

### 5.2.2 Cumulative Grade Performance Average (CGPA)

The CGPA is calculated for Semesters VII and VIII to two decimal places and is indicated in final grade report card and is the weighted average of the grade points obtained in all the courses by the learner during Semesters VII and VIII.

The CGPA will 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** will only reflect the **new grade** and not the **fail grades** earned earlier.

The CGPA is calculated as:

$$CGPA = \frac{C_1G_1 + C_2G_2 + C_3G_3 + \dots + C_i * ZERO + \dots + C_nG_n}{C_1 + C_2 + C_3 + \dots + C_i + \dots + C_n}$$

where  $C_i$  is the Credits for course  $i$  and  $G_i$  is the grade for course  $i$ . Even if a learner has **failed** in a course **more than once**, the course will figure **only once** in the **numerator** as well as the **denominator**. At the end of semester VIII s/he has appeared for examination for  $n$  number of

courses including the **backlog course i** and has cleared all the courses including the **backlog course**, the CGPA at the end of semester VIII is calculated as,

$$CGPA = \frac{C_1G_1 + C_2G_2 + C_3G_3 + \dots + C_i * G_i + \dots + C_nG_n}{C_1 + C_2 + C_3 + \dots + C_i + \dots + C_n}$$

### 5.3 Semester Grade Report

At the end of each semester, the current semester grade report, which reflects the performance of the learner in that semester, is prepared and issued to the learner.

The Grade Card will reflect the letter grade obtained by the learner, credit points of the individual courses of a particular semester, calculation of SGPA for each semester. The CGPA will be calculated for all the successfully completed courses of B. Pharm. Programme.

This report includes the fail grades as awarded. SGPA will be calculated and reflected in the current semester grade report only if the learner has passed in all heads. SGPA will not be calculated and reflected in the current semester grade report if the learner does not pass in all heads of passing. When the learner obtains a grade of D or higher on subsequent attempts a new semester grade report will be issued to the learner. The existing system of displaying the carried forward marks/grades and the marks/grades obtained in the current attempt must be used. The abbreviations for the same shall be displayed in the Grade Card as a footnote. (Refer to circular no. UG/181 of 2002 dated 24.04.2002).

The Grade Card for Lateral entry learners of the Second Year (Semesters III and IV) B. Pharm. Course must indicate the results of the Remedial subjects of F. Y. B. Pharm. Semesters I and II respectively i.e. the Grade Card for Semester III will indicate the result for Physical Pharmacy I (subject in Sem. I) and the Grade Card for Semester IV will indicate the result for Physical Pharmacy II (subject in Sem. II)

**S. Y. B. Pharm.**

**Syllabus Framework**

| No                         | Semester- III                                   | Credits   | Contact<br>hrs/week | Weightage                            |                                | Marks      |
|----------------------------|---|-----------|---------------------|--------------------------------------|--------------------------------|------------|
|                            |   |           |                     | Continuous<br>internal<br>assessment | End<br>Semester<br>Examination |            |
| 1                          | Organic Chemistry - I                           | 4         | 4                   | 30                                   | 70                             | 100        |
| 2                          | Biochemistry-II                                 | 4         | 4                   | 30                                   | 70                             | 100        |
| 3                          | Dispensing Pharmacy                             | 3         | 3                   | 30                                   | 70                             | 100        |
| 4                          | Pharmaceutical Engineering                      | 3         | 3                   | 30                                   | 70                             | 100        |
| 5                          | Anatomy, Physiology and<br>Pathophysiology- III | 3         | 3                   | 30                                   | 70                             | 100        |
| 6                          | Mathematics                                     | 3         | 3                   | 30                                   | 70                             | 100        |
| <b>Total</b>               |   | <b>20</b> | <b>20</b>           | <b>180</b>                           | <b>420</b>                     | <b>600</b> |
| <b>Practicals</b>          |   |           |                     |                                      |                                |            |
| 7                          | Organic Chemistry Lab - I                       | 2         | 4                   | 15                                   | 35                             | 50         |
| 8                          | Biochemistry Lab                                | 2         | 4                   | 15                                   | 35                             | 50         |
| 9                          | Dispensing Lab                                  | 2         | 4                   | 15                                   | 35                             | 50         |
| <b>Total</b>               |   | <b>6</b>  | <b>12</b>           | <b>45</b>                            | <b>105</b>                     | <b>150</b> |
| <b>Total Teaching Hrs.</b> |   |           | <b>32</b>           |                                      |                                |            |
| <b>Total Credits</b>       |   | <b>26</b> |                     |                                      |                                |            |
| <b>Total Marks</b>         |   |           |                     | <b>225</b>                           | <b>525</b>                     | <b>750</b> |

| <b>No.</b>                 |                                | <b>Semester IV</b> |           |            |            |            |
|----------------------------|--------------------------------|--------------------|-----------|------------|------------|------------|
| 1                          | Organic Chemistry-II           | 3                  | 3         | 30         | 70         | 100        |
| 2                          | Pharmaceutical Analysis- I     | 3                  | 3         | 30         | 70         | 100        |
| 3                          | Pharmaceutics -II              | 3                  | 3         | 30         | 70         | 100        |
| 4                          | Microbiology                   | 3                  | 3         | 30         | 70         | 100        |
| 5                          | Pharmacology - I               | 3                  | 3         | 30         | 70         | 100        |
| 6                          | Mathematics and Statistics     | 3                  | 3         | 30         | 70         | 100        |
| <b>Total</b>               |                                | <b>18</b>          | <b>18</b> | <b>180</b> | <b>420</b> | <b>600</b> |
| <b>Practicals</b>          |                                |                    |           |            |            |            |
| 7                          | Pharmaceutical Analysis Lab- I | 2                  | 4         | 15         | 35         | 50         |
| 8                          | Pharmaceutics Lab- II          | 2                  | 4         | 15         | 35         | 50         |
| 9                          | Pharmacology Lab- I            | 2                  | 4         | 15         | 35         | 50         |
| 10                         | Microbiology Lab               | 2                  | 4         | 15         | 35         | 50         |
| <b>Total</b>               |                                | <b>8</b>           | <b>16</b> | <b>60</b>  | <b>140</b> | <b>200</b> |
| <b>Total Teaching Hrs.</b> |                                |                    | <b>34</b> |            |            |            |
| <b>Total Credits</b>       |                                | <b>26</b>          |           |            |            |            |
| <b>Total Marks</b>         |                                |                    |           | <b>240</b> | <b>560</b> | <b>800</b> |

## S. Y. B. Pharm.

### Scheme of Examination

| No | Semester- III                                 | No of papers | End Semester Examination |               |                     | Internal Assessment |                       | Maximum marks | Minimum marks for passing the subject |    |
|----|---|--------------|--------------------------|---------------|---------------------|---------------------|-----------------------|---------------|---------------------------------------|----|
|    |   |              | Duration (hrs)           | Maximum marks | Minimum for passing | Periodic Test       | Continuous Evaluation |               |                                       |    |
|    | <b>Subject - Theory</b>                       |              |                          |               |                     |                     |                       |               |                                       |    |
| 1  | Organic Chemistry - I                         | 1            | 3                        | 70            | 28                  | 1                   | 15                    | 15            | 100                                   | 40 |
| 2  | Biochemistry - II                             | 1            | 3                        | 70            | 28                  | 1                   | 15                    | 15            | 100                                   | 40 |
| 3  | Dispensing Pharmacy                           | 1            | 3                        | 70            | 28                  | 1                   | 15                    | 15            | 100                                   | 40 |
| 4  | Pharmaceutical Engineering                    | 1            | 3                        | 70            | 28                  | 1                   | 15                    | 15            | 100                                   | 40 |
| 5  | Anatomy, Physiology and Pathophysiology - III | 1            | 3                        | 70            | 28                  | 1                   | 15                    | 15            | 100                                   | 40 |
| 6  | Mathematics                                   | 1            | 3                        | 70            | 28                  | 1                   | 15                    | 15            | 100                                   | 40 |
|    | <b>Practicals</b>                             |              |                          |               |                     |                     |                       |               |                                       |    |
| 7  | Organic Chemistry Lab - I                     | 1            | 4                        | 35            | 14                  | 4                   | 8                     | 7             | 50                                    | 20 |
| 8  | Biochemistry Lab                              | 1            | 4                        | 35            | 14                  | 4                   | 8                     | 7             | 50                                    | 20 |
| 9  | Dispensing Lab                                | 1            | 4                        | 35            | 14                  | 4                   | 8                     | 7             | 50                                    | 20 |

| No                      | Semester- IV                    | No of papers | End Semester Examination |               |                     | Internal Assessment |               |                       | Maximum marks | Minimum marks for passing the subject |
|-------------------------|---------------------------------|--------------|--------------------------|---------------|---------------------|---------------------|---------------|-----------------------|---------------|---------------------------------------|
|                         |                                 |              | Duration (hrs)           | Maximum marks | Minimum for passing | Periodic Test       |               | Continuous Evaluation |               |                                       |
|                         |                                 |              |                          |               |                     | Duration (hrs)      | Maximum marks |                       |               |                                       |
| <b>Subject - Theory</b> |                                 |              |                          |               |                     |                     |               |                       |               |                                       |
| 1                       | Organic Chemistry-II            | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| 2                       | Pharmaceutical Analysis - I     | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| 3                       | Pharmaceutics - II              | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| 4                       | Microbiology                    | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| 5                       | Pharmacology - I                | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| 6                       | Mathematics and Statistics      | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| <b>Practicals</b>       |                                 |              |                          |               |                     |                     |               |                       |               |                                       |
| 7                       | Pharmaceutical Analysis Lab - I | 1            | 4                        | 35            | 14                  | 4                   | 8             | 7                     | 50            | 20                                    |
| 8                       | Pharmaceutics Lab - II          | 1            | 4                        | 35            | 14                  | 4                   | 8             | 7                     | 50            | 20                                    |
| 9                       | Pharmacology Lab - I            | 1            | 4                        | 35            | 14                  | 4                   | 8             | 7                     | 50            | 20                                    |
| 10                      | Microbiology Lab                | 1            | 4                        | 35            | 14                  | 4                   | 8             | 7                     | 50            | 20                                    |

## Framework for the Third Year B. Pharm. (Credit Based System)

### Syllabus Framework

| No                         | Semester- V<br>Subject              | Credits   | Contact<br>hrs/week | Weightage                            |                                | Marks      |
|----------------------------|-------------------------------------|-----------|---------------------|--------------------------------------|--------------------------------|------------|
|                            |                                     |           |                     | Continuous<br>internal<br>assessment | End<br>Semester<br>Examination |            |
| 1                          | Organic Chemistry - III             | 4         | 4                   | 30                                   | 70                             | 100        |
| 2                          | Cosmeticology                       | 3         | 3                   | 30                                   | 70                             | 100        |
| 3                          | Pharmaceutical Biotechnology        | 4         | 4                   | 30                                   | 70                             | 100        |
| 4                          | Pharmacology-II                     | 4         | 4                   | 30                                   | 70                             | 100        |
| 5                          | Pharmaceutical Management           | 3         | 3                   | 30                                   | 70                             | 100        |
| <b>Total</b>               |                                     | <b>18</b> | <b>18</b>           | <b>150</b>                           | <b>350</b>                     | <b>500</b> |
| <b>Practicals</b>          |                                     |           |                     |                                      |                                |            |
| 6                          | Organic Chemistry Lab - II          | 2         | 4                   | 15                                   | 35                             | 50         |
| 7                          | Pharmaceutical Biotechnology<br>Lab | 2         | 4                   | 15                                   | 35                             | 50         |
| 8                          | Cosmeticology Lab                   | 2         | 4                   | 15                                   | 35                             | 50         |
| <b>Total</b>               |                                     | <b>6</b>  | <b>12</b>           | <b>45</b>                            | <b>105</b>                     | <b>150</b> |
| <b>Total Teaching Hrs.</b> |                                     |           | <b>30</b>           |                                      |                                |            |
| <b>Total Credits</b>       |                                     | <b>24</b> |                     |                                      |                                |            |
| <b>Total Marks</b>         |                                     |           |                     | <b>195</b>                           | <b>455</b>                     | <b>650</b> |

| <b>Semester -VI</b> |   |           |           |            |            |            |
|---------------------|---|-----------|-----------|------------|------------|------------|
| <b>No.</b>          |   |           |           |            |            |            |
| 1                   | Pharmaceutical Chemistry-II                 | 3         | 3         | 30         | 70         | 100        |
| 2                   | Pharmaceutical Analysis- II                 | 3         | 3         | 30         | 70         | 100        |
| 3                   | Pharmaceutics -III                          | 3         | 3         | 30         | 70         | 100        |
| 4                   | Pharmacognosy & Phytochemistry-I            | 4         | 4         | 30         | 70         | 100        |
| 5                   | Hospital Pharmacy and Drug Store Management | 3         | 3         | 30         | 70         | 100        |
|                     | <b>Total</b>                                | <b>16</b> | <b>16</b> | <b>150</b> | <b>350</b> | <b>500</b> |
| <b>Practicals</b>   |   |           |           |            |            |            |
| 6                   | Pharmaceutical Chemistry Lab - II           | 2         | 4         | 15         | 35         | 50         |
| 7                   | Pharmaceutical Analysis Lab - II            | 2         | 4         | 15         | 35         | 50         |
| 8                   | Pharmaceutics Lab - III                     | 2         | 4         | 15         | 35         | 50         |
| 9                   | Pharmacognosy & Phytochemistry Lab - I      | 2         | 4         | 15         | 35         | 50         |
|                     | <b>Total</b>                                | <b>8</b>  | <b>16</b> | <b>60</b>  | <b>140</b> | <b>200</b> |
|                     | <b>Total Teaching Hrs.</b>                  |           | <b>32</b> |            |            |            |
|                     | <b>Total Credits</b>                        | <b>24</b> |           |            |            |            |
|                     | <b>Total Marks</b>                          |           |           | <b>210</b> | <b>490</b> | <b>700</b> |
|                     | <b>Credits Sem V plus Sem VI</b>            | <b>48</b> |           |            |            |            |

### Scheme of Examination

| No                      | Semester- V                      | No of papers | End Semester Examination |               |                     | Internal Assessment |               |                       | Maximum marks | Minimum marks for passing the subject |
|-------------------------|----------------------------------|--------------|--------------------------|---------------|---------------------|---------------------|---------------|-----------------------|---------------|---------------------------------------|
|                         |                                  |              | Duration (hrs)           | Maximum marks | Minimum for passing | Duration (hrs)      | Maximum marks | Continuous Evaluation |               |                                       |
| <b>Subject - Theory</b> |                                  |              |                          |               |                     |                     |               |                       |               |                                       |
| 1                       | Organic Chemistry - III          | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| 2                       | Cosmeticology                    | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| 3                       | Pharmaceutical Biotechnology     | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| 4                       | Pharmacology-II                  | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| 5                       | Pharmaceutical Management        | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| <b>Practicals</b>       |                                  |              |                          |               |                     |                     |               |                       |               |                                       |
| 7                       | Organic Chemistry Lab - II       | 1            | 4                        | 35            | 14                  | 4                   | 8             | 7                     | 50            | 20                                    |
| 8                       | Pharmaceutical Biotechnology Lab | 1            | 4                        | 35            | 14                  | 4                   | 8             | 7                     | 50            | 20                                    |
| 9                       | Cosmeticology Lab                | 1            | 4                        | 35            | 14                  | 4                   | 8             | 7                     | 50            | 20                                    |

| No                | Semester- VI                                | No of papers | End Semester Examination |                |               | Internal Assessment |                |               | Maximum marks | Minimum marks for passing the subject |                       |
|-------------------|---|--------------|--------------------------|----------------|---------------|---------------------|----------------|---------------|---------------|---------------------------------------|-----------------------|
|                   |   |              | Subject - Theory         | Duration (hrs) | Maximum marks | Minimum for passing | Periodic Test  |               |               |                                       | Continuous Evaluation |
|                   |   |              |                          |                |               |                     | Duration (hrs) | Maximum marks |               |                                       |                       |
| 1                 | Pharmaceutical Chemistry-II                 | 1            | 3                        | 70             | 28            | 1                   | 15             | 15            | 100           | 40                                    |                       |
| 2                 | Pharmaceutical Analysis- II                 | 1            | 3                        | 70             | 28            | 1                   | 15             | 15            | 100           | 40                                    |                       |
| 3                 | Pharmaceutics -III                          | 1            | 3                        | 70             | 28            | 1                   | 15             | 15            | 100           | 40                                    |                       |
| 4                 | Pharmacognosy & Phytochemistry-I            | 1            | 3                        | 70             | 28            | 1                   | 15             | 15            | 100           | 40                                    |                       |
| 5                 | Hospital Pharmacy and Drug Store Management | 1            | 3                        | 70             | 28            | 1                   | 15             | 15            | 100           | 40                                    |                       |
| <b>Practicals</b> |   |              |                          |                |               |                     |                |               |               |                                       |                       |
| 6                 | Pharmaceutical Chemistry Lab - II           | 1            | 4                        | 35             | 14            | 4                   | 8              | 7             | 50            | 20                                    |                       |
| 7                 | Pharmaceutical Analysis Lab - II            | 1            | 4                        | 35             | 14            | 4                   | 8              | 7             | 50            | 20                                    |                       |
| 8                 | Pharmaceutics Lab - III                     | 1            | 4                        | 35             | 14            | 4                   | 8              | 7             | 50            | 20                                    |                       |
| 9                 | Pharmacognosy & Phytochemistry Lab - I      | 1            | 4                        | 35             | 14            | 4                   | 8              | 7             | 50            | 20                                    |                       |

**Framework for the Final Year B. Pharm. (Credit Based System)**

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| No | Semester- VII<br>Subject                   | Credits   | Contact<br>hrs/week | Weightage                            |                                | Marks      |
|----|--|-----------|---------------------|--------------------------------------|--------------------------------|------------|
|    |  |           |                     | Continuous<br>internal<br>assessment | End<br>Semester<br>Examination |            |
| 1  | Pharmaceutical Chemistry - III             | 3         | 3                   | 30                                   | 70                             | 100        |
| 2  | Pharmaceutical Analysis- III               | 3         | 3                   | 30                                   | 70                             | 100        |
| 3  | Pharmacology-III                           | 3         | 3                   | 30                                   | 70                             | 100        |
| 4  | Pharmaceutics - IV                         | 3         | 3                   | 30                                   | 70                             | 100        |
| 5  | Pharmacognosy & Phytochemistry -II         | 3         | 3                   | 30                                   | 70                             | 100        |
| 6  | Pharmaceutical Jurisprudence               | 3         | 3                   | 30                                   | 70                             | 100        |
|    | <b>Total</b>                               | <b>18</b> | <b>18</b>           | <b>180</b>                           | <b>420</b>                     | <b>600</b> |
|    | <b>Practicals</b>                          |           |                     |                                      |                                |            |
| 7  | Pharmaceutical Analysis Lab - III          | 2         | 4                   | 15                                   | 35                             | 50         |
| 8  | Pharmaceutics Lab - IV                     | 2         | 4                   | 15                                   | 35                             | 50         |
| 9  | Pharmacology Lab - II                      | 2         | 4                   | 15                                   | 35                             | 50         |
| 10 | Pharmacognosy & Phytochemistry Lab -<br>II | 2         | 4                   | 15                                   | 35                             | 50         |
|    | <b>Total</b>                               | <b>8</b>  | <b>16</b>           | <b>60</b>                            | <b>140</b>                     | <b>200</b> |
|    | <b>Total Teaching Hours.</b>               |           | <b>34</b>           |                                      |                                |            |
|    | <b>Total Credits</b>                       | <b>26</b> |                     |                                      |                                |            |
|    | <b>Total Marks</b>                         |           |                     | <b>240</b>                           | <b>560</b>                     | <b>800</b> |

| <b>Semester -VIII</b> |  |           |           |            |            |            |
|-----------------------|--|-----------|-----------|------------|------------|------------|
| No.                   |  |           |           |            |            |            |
| 1                     | Pharmaceutical Chemistry-IV              | 4         | 4         | 30         | 70         | 100        |
| 2                     | Pharmaceutics-V                          | 4         | 4         | 30         | 70         | 100        |
| 3                     | Biopharmaceutics & Pharmacokinetics      | 4         | 4         | 30         | 70         | 100        |
| 4                     | Pharmacognosy & Phytochemistry-III       | 4         | 4         | 30         | 70         | 100        |
| 5                     | Clinical Pharmacy                        | 2         | 2         | 15         | 35         | 50         |
|                       | <b>Total</b>                             | <b>18</b> | <b>18</b> | <b>135</b> | <b>315</b> | <b>450</b> |
| <b>Practicals</b>     |  |           |           |            |            |            |
| 6                     | Pharmaceutical Chemistry Lab - III       | 2         | 4         | 15         | 35         | 50         |
| 7                     | Pharmaceutics Lab - V                    | 2         | 4         | 15         | 35         | 50         |
| 8                     | Pharmacognosy & Phytochemistry Lab - III | 2         | 4         | 15         | 35         | 50         |
|                       | <b>Total</b>                             | <b>6</b>  | <b>12</b> | <b>45</b>  | <b>105</b> | <b>150</b> |
|                       | <b>Total Teaching Hours.</b>             |           | <b>30</b> |            |            |            |
|                       | <b>Total Credits</b>                     | <b>24</b> |           |            |            |            |
|                       | <b>Total Marks</b>                       |           |           | <b>180</b> | <b>420</b> | <b>600</b> |

**The revised total number of credits for the B. Pharm. Course from Semester I to Semester VIII is 198**

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### Scheme of Examination

| No                | Semester-VII                            | No of papers | End Semester Examination |               |                     | Internal Assessment |               |                       | Maximum marks | Minimum marks for passing the subject |
|-------------------|---|--------------|--------------------------|---------------|---------------------|---------------------|---------------|-----------------------|---------------|---------------------------------------|
|                   |   |              |                          |               |                     | Periodic Test       |               | Continuous Evaluation |               |                                       |
|                   | Subject - Theory                        |              | Duration (hrs)           | Maximum marks | Minimum for passing | Duration (hrs)      | Maximum marks | Maximum marks         |               |                                       |
| 1                 | Pharmaceutical Chemistry - III          | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| 2                 | Pharmaceutical Analysis - III           | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| 3                 | Pharmacology - III                      | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| 4                 | Pharmaceutics - IV                      | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| 5                 | Pharmacognosy & Phytochemistry - II     | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| 6                 | Pharmaceutical Jurisprudence            | 1            | 3                        | 70            | 28                  | 1                   | 15            | 15                    | 100           | 40                                    |
| <b>Practicals</b> |   |              |                          |               |                     |                     |               |                       |               |                                       |
| 7                 | Pharmaceutical Analysis Lab - III       | 1            | 4                        | 35            | 14                  | 4                   | 8             | 7                     | 50            | 20                                    |
| 8                 | Pharmaceutics Lab - IV                  | 1            | 4                        | 35            | 14                  | 4                   | 8             | 7                     | 50            | 20                                    |
| 9                 | Pharmacology Lab -II                    | 1            | 4                        | 35            | 14                  | 4                   | 8             | 7                     | 50            | 20                                    |
| 10                | Pharmacognosy & Phytochemistry Lab - II | 1            | 4                        | 35            | 14                  | 4                   | 8             | 7                     | 50            | 20                                    |

| No | Semester-VIII                           | No of papers | End Semester Examination |                |               | Internal Assessment |                |                       | Maximum marks | Minimum marks for passing the subject |
|----|---|--------------|--------------------------|----------------|---------------|---------------------|----------------|-----------------------|---------------|---------------------------------------|
|    |   |              |                          |                |               | Periodic Test       |                | Continuous Evaluation |               |                                       |
|    |   |              | Subject - Theory         | Duration (hrs) | Maximum marks | Minimum for passing | Duration (hrs) | Maximum marks         |               |                                       |
| 1  | Pharmaceutical Chemistry-IV             | 1            | 3                        | 70             | 28            | 1                   | 15             | 15                    | 100           | 40                                    |
| 2  | Pharmaceutics- V                        | 1            | 3                        | 70             | 28            | 1                   | 15             | 15                    | 100           | 40                                    |
| 3  | Biopharmaceutics and Pharmacokinetics   | 1            | 3                        | 70             | 28            | 1                   | 15             | 15                    | 100           | 40                                    |
| 4  | Pharmacognosy & Phytochemistry - III    | 1            | 3                        | 70             | 28            | 1                   | 15             | 15                    | 100           | 40                                    |
| 5  | Clinical Pharmacy                       | 1            | 2                        | 35             | 14            | 1                   | 8              | 7                     | 50            | 20                                    |
|    |   |              |                          |                |               |                     |                |                       |               |                                       |
|    | <b>Practicals</b>                       |              |                          |                |               |                     |                |                       |               |                                       |
| 6  | Pharmaceutical Chemistry Lab-III        | 1            | 4                        | 35             | 14            | 4                   | 8              | 7                     | 50            | 20                                    |
| 7  | Pharmaceutics Lab- V                    | 1            | 4                        | 35             | 14            | 4                   | 8              | 7                     | 50            | 20                                    |
| 8  | Pharmacognosy & Phytochemistry Lab- III | 1            | 4                        | 35             | 14            | 4                   | 8              | 7                     | 50            | 20                                    |