

UNIVERSITY OF PUNE

FACULTY OF PHARMACEUTICAL SCIENCES



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

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

Pune.

3. State Govt.: Govt. of Maharashtra

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

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

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

R.1. AIM & OBJECTIVES OF THE COURSE

AIM:

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

OBJECTIVES:

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

a. Knowledge and Understanding

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

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

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

b. Skills:

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

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

c. Attitudes:

A graduate should develop the following attitudes during the course.

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

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

R.2. ELIGIBILITY CRITERIA AND ADMISSION PROCEDURE

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

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

OR

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

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

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

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

R.3. SCHEME OF EXAMINATION:

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

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

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

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

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

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

- Candidates must appear for the examination at the place and time as decided by the admitting Institute/ the University as the case may be.
- Candidate who has failed in a particular Semester or has ATKT will be allowed to appear for the same examination on a new application being forwarded and a fresh fee paid.

Clarifications:

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

R.3.4. Sessional Examinations

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

Number of Sessional Examination:

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

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

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

Scheme for Practical Sessional Examination

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

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

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

Time Schedule:

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

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

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

R.4.:

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

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

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

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

R.4.2.

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

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

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

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

R.4.4. Promotion to subsequent academic year-

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

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

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

OR

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

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

OR

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

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

OR

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

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

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

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

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

R.5.1. Passing criteria for each subject head:

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

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

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

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

R.5.2. Passing of the semester.

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

R.5.3. Award of the degree and Class.

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

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

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

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

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

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

R.5.4. With holding of results.

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

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

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

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

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

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

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

R.5.5. Exemption to appear for the examination:

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

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

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

R.5.6. Industrial Training

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

R.5.7.

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

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

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

Note:

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

Scheme for University Practical Examination

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

R-6: ENVIRONMENTAL SCIENCES

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

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

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

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

The question paper shall include the questions as under

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

Total: 100 Marks Passing Marks: 40 Marks.

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

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

R-7: Rules for Carry Forward

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

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

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

Such students will have exemption for the following subjects:

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

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

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

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

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

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

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

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

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

Annexure I

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

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

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

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

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

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

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

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

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

Semester-V

Class- Third Yr. B. Pharmacy

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

Semester-VI

Class- Third Yr. B. Pharmacy

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

Semester-VII

Class- Final Yr. B. Pharmacy

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

Semester-VIII

Class- Final Yr. B. Pharmacy

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

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

Semester-I First Yr. B. Pharmacy

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

Semester-II First Yr. B. Pharmacy

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

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

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

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

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

Semester-V Third Yr. B. Pharmacy

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

Semester-VI Third Yr. B. Pharmacy

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

Semester-VII Final Yr. B. Pharmacy

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

Semester-VIII Final Yr. B. Pharmacy

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