

## **B.PHARM (2013) SYLLABUS AND REGULATIONS**

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- 1.1 The degree of Bachelor of Pharmacy of Andhra University will be conferred on a candidate who has satisfied the following conditions.
  - 1.2 The candidate must have passed the (i) Intermediate examination of the Board of Intermediate Education, Government of Andhra Pradesh, or Diploma in Pharmacy examination of the Dept. of Technical Education, Govt. of Andhra Pradesh or any other examination recognized by the academic senate as equivalent thereto with Physics, Chemistry and Mathematics or Biology as group subjects and must have qualified in the Entrance Exams as prescribed by the University for being eligible to join I semester of B.Pharm course.
    - 1.3.1 The candidate must have, after passing the qualifying examination pursued a regular course of study for not less than four academic years(three academic years in the case of diploma in pharmacy holders who are admitted directly in to 2<sup>nd</sup> year(3<sup>rd</sup> semester) of B.Pharm) and satisfied the academic requirements as prescribed thereafter. The scope of subject matter in each course and periods of study shall be as indicated in the syllabus and the scheme of instruction.
    - 1.3.2 Instruction and examination in each academic year is spread over two semesters with a minimum of 90 working days in each semester (180 in any given academic year). However in the case of semesters I and II of B.Pharm the instruction and examination shall be organized simultaneously spread over the entire academic year of 180 days to save time that may be lost due to possible delays in the admission process.
  - 1.4 Each period of instruction is of 45 minutes duration. Eight periods of instruction are provided on each day and there are six working days in a week (Monday to Saturday).
  - 1.5 Attendance Requirements: A regular course of study during an academic semester means a minimum of average attendance of 75% of all the courses of the semester computed by totaling the number of periods of lectures and practicals, as the case may be, held in every course. In special cases where sufficient causes were shown, the Vice-Chancellor may on the recommendation of the Principal and Head of the Department concerned condone the deficiency in the average attendance to an extent of 9% for reasons such as ill health, if the application for condonation is submitted at the time of actual illness and is supported by certificate of; authorized Medical officer approved by the Principal. However, in the case of students, who participate in activities like N.S.S., N.C.C., Inter-Collegiate tournaments

conducted by Andhra University, Inter-University tournaments conducted by Inter-university Board and any such other activities involving the representation of the College/University with the prior approval of the principal, the candidate may be deemed to have attended the college during the period solely for the purpose of the examination.

- 1.6 A candidate who cannot satisfy the attendance requirements in clause 1.5 because of late admission under special circumstances reasonable and acceptable to the University on the basis of document, shall fulfill the following conditions; Average attendance: A candidate shall have attended at least a total of 90% of the periods-lectures/practicals as the case may be held from the date of admission and also shall attend at least 50% of the total working days during that academic semester (Late admission means, admissions made after 45 days from date of commencement of the academic semester for the course).
- 1.7 If any candidate fails to satisfy the regulation under 1.5 or 1.6 she/he shall not be allowed for the University Examinations at the end of the semester, and he/she shall not be allowed for promotion to the next higher class of study. He/she shall be required to repeat the regular course of study of that academic semester along with the next regular batch.
- 2.0 Assessment for the award of degree shall consists of (a) Internal evaluation for 20 marks in each of the theory and practical courses separately except in course 101 A and B Biology theory and practical (bridge course). For course 101A and B the sessional marks shall be 10 and 10 respectively as detailed in the scheme of examination. (b) Semester-end examination as detailed in the scheme of examination for 80 marks in each of the theory and practical, except for 101 A and B Biology theory and practical (bridge course) for which the semester-end examination marks shall be 40 and 40 respectively.
- 2.1 Regulations concerning sessional examination: (a) There shall be two sessional examinations in each theory course and the best of the two shall be taken; (b) the marks for the internal evaluation for the practical are awarded based on the continuous assessment of the performance of the candidate at the practical classes and the records. The marks certificate issued to the candidate by the University shall show separately the sessional marks, the semester-end examination marks and the aggregate of both; (c) The teacher who teaches the subject shall ordinarily to be internal examiner, (d) There shall be no provision for the improvement of the sessional marks.
- 2.2 Regulations concerning semester-end examination: (a) There shall be one semester-end examination in each theory course based on the question paper set by an external paper setter and it shall be evaluated by an internal examiner. There shall be one semester-end examination in each practical course and the setting and evaluation shall be done jointly by two examiners, one internal and one external. The duration of the practical examination may be of 4 to 6 hours as prescribed. There shall be no supplementary examination except for the final semester-end examinations. A candidate shall not be allowed to appear for the sixth semester end examination unless he passes in all the courses of the first and second semester end examinations and the eighth semester-end examinations unless he passes in all the courses of the third and fourth semester-end examinations.

- 3.1 A candidate shall be declared to have passed the examination in each semester if he obtains (i) not less than 40% marks in each theory and 50% in each practical of the semester-end examinations.
- 3.1a. A candidate may be permitted to improve his performance in semester-end examination of any semester only after completing the entire eight semester course of study by appearing again for the whole examinations of that semester only during four subsequent years after completion of the study of the entire course. Such an improvement can be availed only once for each one of the semester examinations of the entire course of study. When considered in its totality the better of the two performances as whole at the I, II, III, IV, V, VI, VII or VIII semesters as the case may be shall be taken into consideration for the purpose of awarding the grade.
- 3.1b. The courses 101 A Mathematics, 101 B Biology theory are bridge courses for candidates with only biology and with only mathematics background respectively at the intermediate level. Candidates with Diploma in Pharmacy have to take course 101 Mathematics. The respective candidates shall have to pass in these courses. The marks awarded in these courses shall not be considered for calculation of SGPA and CGPA.
- 3.2 Any candidate who carried a backlog at any stage will not be eligible for rank, medal or prizes to be awarded by the University. First attempt means appearance at the first examinations conducted for the particular batch.
- 4.0 Every candidate shall undergo practical training for at least one month in pharmaceutical factory at the end of the final semester of the course.

**Grading system:**

Appropriate letter grades are awarded in each theory and practical subject to only such candidates who have passed in the university examinations. Internal assessment marks and university examination marks put together will be taken into account for the letter grading system in each subject separately.

A candidate registered for the university examination but fails to appear or fails to score the minimum required 40% marks in the university examination will get a grade 'F', indicating failure or grade of incompleteness.

A subject successfully completed cannot be repeated. Final evaluation of each subject (theory and practical separately) will be carried out on a 10- point grading system corresponding to the marks obtained in that subject. Each subject letter grade is converted into a specific grade value associated with the letter grade as given below (Table).

**Table: 10-Point grading system:**

S. No.	Range of marks	Grade	Grade points
1.	≥75%	O	10.0
2.	65% - 74%	A	9.0
3.	60% - 64%	B	8.0
4.	55% - 59%	C	7.0
5.	50% - 54%	D	6.0
6.	40% - 49%	E	5.0
7.	< 40%	F(Fail)	0.0
8.	The grade W represents failure due to insufficient attendance in the semester or year	W	0.0
9.	Incomplete (subsequently to be changed into pass or E or O or F grade in the same semester)	I	0.0

**Semester Grade point average (SGPA):**

The grade points are weighted in accordance with the number of credits assigned to a theory or practical subject and it is a product of credit and grade value. The semester grade point average (SGPA) is the weighed average of grade points awarded to a candidate.

$$\text{SGPA} = \frac{\text{Total grade points of a particular semester}}{\text{Total number of credits of the semester}}$$

Performance in the non credit courses in which a pass (i.e., 35% or more) is sufficient will not be considered for calculation of SGPA.

SGPA (semester grade point average) for each semester will be calculated for those candidates who have passed all the subjects of that particular semester of the course.

D. Pharm holders, who take direct admission to third semester B.Pharm, are exempted from First and second semester B.Pharm credits.

**Cumulative Grade Point Average (CGPA):**

The weighed average of SGPA's of all Semesters that the student has completed at any point of time is the cumulative grade point average (CGAP) at that point of time.

CGAP up to a semester will be calculated only for those students who have passed all the subjects up to that semester. Generally, CGPA is calculated after the successful completion of the entire B.Pharm course.

$$\text{CGPA} = \frac{\sum (\text{SGAP of each semester} * \text{corresponding number of credits})}{\text{Sum of the entire course credits}}$$

After the results are declared, grade cards will be issued to each student, which will contain the list of subjects for that semester and grades obtained by the student.

For Diploma holders, who take direct admission to third semester of B.Pharm, only six semester course credits i.e., 3<sup>rd</sup> to 8<sup>th</sup> semesters of B.Pharm will be considered for CGPA calculation.

## **5. Guidelines for paper setting and model papers.**

### **5.1 Guidelines for paper setting:**

1. The semester end question paper in each theory course is to be set for a total of 80 marks by an external paper setter as per the general model given below.
- 2.1 The question paper in each theory course is to be divided into parts A and B.
- 2.2 Part A consists of 10 short answer questions each carrying 4 marks out of which 8 questions are to be answered by the candidate. Thus the total of part A is 32 marks.
- 2.3 Part B consists of six long answer questions each carrying 12 marks out of which 4 questions are to be answered by the candidate. Thus the total of part B is 48 marks.
- 2.4 The question given in parts A and B should be spread over the entire syllabus in an even manner.
- 2.5 The question paper in each semester and practical examination is to be set jointly by two examiners, one external and one internal as per the general model provided below.

## 5.2 MODEL PAPERS

### Model question paper for practical course:

Course No.

Title of the course

Date of examination:

1. Synopsis	10 marks
2. Major experiment	35 marks
3. Minor experiment	20 marks
4. Viva voce	15 marks
Total: 80 marks	

### Model question paper for theory course:

Course No.

Title of the course

Time: 3Hrs

Max.Marks:80

#### Part A

Answer any **eight** questions

8 X 4 = 32

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

#### Part B

Answer any **four** questions

4 X 12 = 48

- 11.
- 12.
- 13.
- 14.
- 15.
- 16.

## SCHEME OF INSTRUCTION AND EXAMINATION

Course No.	Subject	Periods per week		Exam. duration (Hrs.)	Marks		Total	Credits
		Theory	Practical		Sessional	Semester end		
<b>I/IV B.PHARM I SEMESTER</b>								
101A	Mathematics (Bridge course) For Bi.P.C.	4	...	3	20	80	100	N.C.
101B	Biology (Bridge course) For M.P.C.	4	...	3	20	80	100	N.C.
102	English	2	...	3	20	80	100	N.C.
103	Soft skills	---	6 (2 x 3)	3	20	80	100	N.C.
104	Pharm. Chemistry-I (Inorganic)	4	...	3	20	80	100	4
105	Pharm. Chemistry-II (Organic-1)	4	...	3	20	80	100	4
106	Pharm. Chemistry-II (Organic-I) Practical	...	6 (2 x 3)	4	20	80	100	2
107	Computer Applications	4	...	3	20	80	100	2
108	Computer Applications Practical	...	6 (2 x 3)	4	20	80	100	2
	<b>TOTAL</b>						<b>800</b>	<b>14</b>
<b>I/IV B.PHARM II SEMESTER</b>								
201	General & Dispensing Pharmacy	4	...	3	20	80	100	4
202	General & Dispensing Pharmacy Practical	...	6 (2 x 3)	4	20	80	100	2
203	Physical Pharmacy-I	4	...	3	20	80	100	4
204	Physical Pharmacy-I Practical	...	6 (2 x 3)	4	20	80	100	2
205	Human Physiology & Health Education-I	4	...	3	20	80	100	4
206	Environmental Sciences	4	...	3	20	80	100	2
	<b>TOTAL</b>						<b>600</b>	<b>18</b>

<b>II/IV B.PHARM III SEMESTER</b>								
301	Human Physiology & Health Education-II	4	...	3	20	80	100	4
302	Human Physiology & Health Education-II Practical	--	6 (2 x 3)	4	20	80	100	2
303	Pharm. Analysis-I	4	...	3	20	80	100	4
304	Pharm. Analysis-I Practical	...	6 (2 x 3)	4	20	80	100	2
305	Physical Pharmacy-II	4	...	3	20	80	100	4
306	Physical Pharmacy-II Practical	...	6 (2 x 3)	4	20	80	100	2
307	Pharm. Chemistry-III (Organic-II)	4	...	3	20	80	100	4
	<b>TOTAL</b>						<b>700</b>	<b>22</b>
<b>II/IV B.PHARM IV SEMESTER</b>								
401	Applied Statistics	4	...	3	20	80	100	2
402	Pharm. Engineering-I	4	...	3	20	80	100	4
403	Pharm. Microbiology	4	...	3	20	80	100	4
404	Pharm. Microbiology Practical	...	6 (2 x 3)	4	20	80	100	2
405	Applied Biochemistry	4	...	3	20	80	100	4
406	Applied Biochemistry Practical	...	6 (2 x 3)	4	20	80	100	2
407	Pharmacognosy & Phytochemistry-I	4	...	3	20	80	100	4
408	Pharmacognosy & Phytochemistry-I Practical	...	6 (2 x 3)	4	20	80	100	2
	<b>TOTAL</b>						<b>800</b>	<b>24</b>
<b>III/IV B.PHARM V SEMESTER</b>								
501	Pharm. Biotechnology	4	...	3	20	80	100	4
502	Pharm. Biotechnology Practical	...	6 (2 x 3)	6	20	80	100	2



503	Medicinal Chemistry-I	4	...	3	20	80	100	4
504	Medicinal Chemistry-I Practical	...	6 (2 x 3)	6	20	80	100	2
505	Pharm. Engineering-II	4	...	3	20	80	100	4
506	Pharm. Engineering-II Practical	...	6 (2 x 3)	6	20	80	100	2
507	Hospital & Community Pharmacy and Industrial Management	4	...	3	20	80	100	2
	<b>TOTAL</b>						<b>700</b>	<b>20</b>

### III/IV B.PHARM VI SEMESTER

601	Pharmacology-I	4	...	3	20	80	100	4
602	Pharmacology-I Practical	...	6 (2 x 3)	6	20	80	100	2
603	Medicinal Chemistry-II	4	...	3	20	80	100	4
604	Medicinal Chemistry-II Practical	...	6 (2 x 3)	6	20	80	100	2
605	Industrial Pharmacy & Cosmetic Technology	4	...	3	20	80	100	4
606	Industrial Pharmacy & Cosmetic Technology Practical	...	6 (2 x 3)	6	20	80	100	2
607	Pharmaceutical Jurisprudence	4	...	3	20	80	100	4
	<b>TOTAL</b>						<b>700</b>	<b>22</b>

### IV/IV B.PHARM VII SEMESTER

701	Pharm. Chemistry (Natural products)	4	...	3	20	80	100	4
702	Pharm. Chemistry-V (Natural products) Practical	...	6 (2 x 3)	6	20	80	100	2
703	Pharmacology-II	4	...	3	20	80	100	4
704	Pharmacology-II Practical	...	6 (2 x 3)	6	20	80	100	2

705	Pharmacognosy & Phytochemistry-II	4	...	3	20	80	100	4
706	Pharmacognosy & Phytochemistry-II Practical	...	6 (2 x 3)	6	20	80	100	2
707	GMP & Validation	4	...	3	20	80	100	4
708	Professional Training *	Viva-Voce and Project Report		One month	20	80	100	4
*Industrial or Hospital or Community Pharmacy								
<b>TOTAL</b>							<b>800</b>	<b>26</b>
<b>IV/IV B.PHARM VIII SEMESTER</b>								
801	Pharm. Analysis-II	4	...	3	20	80	100	4
802	Pharm. Analysis-II Practical	...	6 (2 x 3)	6	20	80	100	2
803	Biopharmaceutics& Pharmacokinetics	4	...	3	20	80	100	4
804	Biopharmaceutics& Pharmacokinetics Practical	...	6 (2 x 3)	6	20	80	100	2
805	Clinical Pharmacy & Therapeutics	4	...	3	20	80	100	4
806	Novel Drug Delivery Systems	4	...	3	20	80	100	4
<b>TOTAL</b>							<b>600</b>	<b>20</b>
<b>I SEMESTER</b>							<b>800</b>	<b>14</b>
<b>II SEMESTER</b>							<b>600</b>	<b>18</b>
<b>III SEMESTER</b>							<b>700</b>	<b>22</b>
<b>IV SEMESTER</b>							<b>800</b>	<b>24</b>
<b>V SEMESTER</b>							<b>700</b>	<b>20</b>
<b>VI SEMESTER</b>							<b>700</b>	<b>22</b>
<b>VI I SEMESTER</b>							<b>800</b>	<b>26</b>
<b>VIII SEMESTER</b>							<b>600</b>	<b>20</b>
<b>GRAND TOTAL</b>							<b>5700</b>	<b>164</b>