



JNTUK KAKINADA

Rules & Syllabus for the Bachelor
of Pharmacy (B. Pharm) Course

as approved by
Pharmacy Council of India
New Delhi

[Framed under Regulation 6, 7 & 8 of the Bachelor of
Pharmacy (B. Pharm) course regulations 2014]

PF
NARASARAOPETA INSTITUTE OF
PHARMACEUTICAL SCIENCES
Kotappakonda Road, Yellamanda (PO),
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Guntur Dt, A.P.

CHAPTER- I: REGULATIONS

1. Short Title and Commencement

These regulations shall be called as “The Revised Regulations for the B. Pharm. Degree Program (CBCS) of the Pharmacy Council of India, New Delhi”. They shall come into effect from the Academic Year 2016-17. The regulations framed are subject to modifications from time to time by Pharmacy Council of India.

2. Minimum qualification for admission

2.1 First year B. Pharm:

Candidate shall have passed 10+2 examination conducted by the respective state/central government authorities recognized as equivalent to 10+2 examination by the Association of Indian Universities (AIU) with English as one of the subjects and Physics, Chemistry, Mathematics (P.C.M) and or Biology (P.C.B / P.C.M.B.) as optional subjects individually. Any other qualification approved by the Pharmacy Council of India as equivalent to any of the above examinations.

2.2. B. Pharm lateral entry (to third semester):

A pass in D. Pharm. course from an institution approved by the Pharmacy Council of India under section 12 of the Pharmacy Act.

3. Duration of the program

The course of study for B.Pharm shall extend over a period of eight semesters (four academic years) and six semesters (three academic years) for lateral entry students. The curricula and syllabi for the program shall be prescribed from time to time by Pharmacy Council of India, New Delhi.

4. Medium of instruction and examinations

Medium of instruction and examination shall be in English.

5. Working days in each semester

Each semester shall consist of not less than 100 working days. The odd semesters shall be conducted from the month of June/July to November/December and the even semesters shall be conducted from December/January to May/June in every calendar year.

6. Attendance and progress

A candidate is required to put in at least 80% attendance in individual courses considering theory and practical separately. The candidate shall complete the prescribed course satisfactorily to be eligible to appear for the respective examinations.

7. Program/Course credit structure

As per the philosophy of Credit Based Semester System, certain quantum of academic work viz. theory classes, tutorial hours, practical classes, etc. are measured in terms of credits. On satisfactory completion of the courses, a candidate earns credits. The amount of credit associated with a course is dependent upon the number of hours of instruction per week in that course. Similarly, the credit associated with any of the other academic, co/extra-curricular activities is dependent upon the quantum of work expected to be put in for each of these activities per week.

7.1. Credit assignment

7.1.1. Theory and Laboratory courses

Courses are broadly classified as Theory and Practical. Theory courses consist of lecture (L) and /or tutorial (T) hours, and Practical (P) courses consist of hours spent in the laboratory. Credits (C) for a course is dependent on the number of hours of instruction per week in that course, and is obtained by using a multiplier of one (1) for lecture and tutorial hours, and a multiplier of half (1/2) for practical (laboratory) hours. Thus, for example, a theory course having three lectures and one tutorial per week throughout the semester carries a credit of 4. Similarly, a practical having four laboratory hours per week throughout semester carries a credit of 2.

7.2. Minimum credit requirements

The minimum credit points required for award of a B. Pharm. degree is 208. These credits are divided into Theory courses, Tutorials, Practical, Practice School and Project over the duration of eight semesters. The credits are distributed semester-wise as shown in Table IX. Courses generally progress in sequences, building competencies and their positioning indicates certain academic maturity on the part of the learners. Learners are expected to follow the semester-wise schedule of courses given in the syllabus.

The lateral entry students shall get 52 credit points transferred from their D. Pharm program. Such students shall take up additional remedial courses of 'Communication Skills' (Theory and Practical) and 'Computer Applications in Pharmacy' (Theory and Practical) equivalent to 3 and 4 credit points respectively, a total of 7 credit points to attain 59 credit points, the maximum of I and II semesters.

8. Academic work

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

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9. Course of study

The course of study for B. Pharm shall include Semester Wise Theory & Practical as given in Table - I to VIII. The number of hours to be devoted to each theory, tutorial and practical course in any semester shall not be less than that shown in Table - I to VIII.

Table-I: Course of study for semester I

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP101T	Human Anatomy and Physiology I-Theory	3	1	4
BP102T	Pharmaceutical Analysis I - Theory	3	1	4
BP103T	Pharmaceutics I - Theory	3	1	4
BP104T	Pharmaceutical Inorganic Chemistry - Theory	3	1	4
BP105T	Communication skills - Theory *	2	-	2
BP106RBT BP106RMT	Remedial Biology/ Remedial Mathematics - Theory*	2	-	2
BP107P	Human Anatomy and Physiology - Practical	4	-	2
BP108P	Pharmaceutical Analysis I - Practical	4	-	2
BP109P	Pharmaceutics I - Practical	4	-	2
BP110P	Pharmaceutical Inorganic Chemistry - Practical	4	-	2
BP111P	Communication skills - Practical*	2	-	1
BP112RBP	Remedial Biology - Practical*	2	-	1
Total		32/34^{s/36}#	4	27/29s/30[#]

Applicable ONLY for the students who have studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology (RB)course.

^sApplicable ONLY for the students who have studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics(RM)course.

* Non University Examination (NUE)

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Table-II: Course of study for semester II

Course Code	Name of the course	No. of hours	Tutorial	Credit points
BP201T	Human Anatomy and Physiology II - Theory	3	1	4
BP202T	Pharmaceutical Organic Chemistry I - Theory	3	1	4
BP203T	Biochemistry - Theory	3	1	4
BP204T	Pathophysiology - Theory	3	1	4
BP205T	Computer Applications in Pharmacy - Theory *	3	-	3
BP206T	Environmental sciences - Theory *	3	-	3
BP207P	Human Anatomy and Physiology II -Practical	4	-	2
BP208P	Pharmaceutical Organic Chemistry I- Practical	4	-	2
BP209P	Biochemistry - Practical	4	-	2
BP210P	Computer Applications in Pharmacy - Practical*	2	-	1
Total		32	4	29

*Non University Examination (NUE)

Table-III: Course of study for semester III

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP301T	Pharmaceutical Organic Chemistry II - Theory	3	1	4
BP302T	Physical Pharmaceutics I - Theory	3	1	4
BP303T	Pharmaceutical Microbiology - Theory	3	1	4
BP304T	Pharmaceutical Engineering - Theory	3	1	4
BP305P	Pharmaceutical Organic Chemistry II - Practical	4	-	2
BP306P	Physical Pharmaceutics I - Practical	4	-	2
BP307P	Pharmaceutical Microbiology - Practical	4	-	2
BP 308P	Pharmaceutical Engineering -Practical	4	-	2
Total		28	4	24

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Table-IV: Course of study for semester IV

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP401T	Pharmaceutical Organic Chemistry III- Theory	3	1	4
BP402T	Medicinal Chemistry I - Theory	3	1	4
BP403T	Physical Pharmaceutics II - Theory	3	1	4
BP404T	Pharmacology I - Theory	3	1	4
BP405T	Pharmacognosy and Phytochemistry I- Theory	3	1	4
BP406P	Medicinal Chemistry I - Practical	4	-	2
BP407P	Physical Pharmaceutics II - Practical	4	-	2
BP408P	Pharmacology I - Practical	4	-	2
BP409P	Pharmacognosy and Phytochemistry I - Practical	4	-	2
Total		31	5	28

Table-V: Course of study for semester V

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP501T	Medicinal Chemistry II - Theory	3	1	4
BP502T	Industrial PharmacyI- Theory	3	1	4
BP503T	Pharmacology II - Theory	3	1	4
BP504T	Pharmacognosy and Phytochemistry II- Theory	3	1	4
BP505T	Pharmaceutical Jurisprudence - Theory	3	1	4
BP506P	Industrial PharmacyI - Practical	4	-	2
BP507P	Pharmacology II - Practical	4	-	2
BP508P	Pharmacognosy and Phytochemistry II - Practical	4	-	2
Total		27	5	26


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Table-VI: Course of study for semester VI

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP601T	Medicinal Chemistry III - Theory	3	1	4
BP602T	Pharmacology III - Theory	3	1	4
BP603T	Herbal Drug Technology - Theory	3	1	4
BP604T	Biopharmaceutics and Pharmacokinetics - Theory	3	1	4
BP605T	Pharmaceutical Biotechnology - Theory	3	1	4
BP606T	Quality Assurance -Theory	3	1	4
BP607P	Medicinal chemistry III - Practical	4	-	2
BP608P	Pharmacology III - Practical	4	-	2
BP609P	Herbal Drug Technology - Practical	4	-	2
Total		30	6	30

Table-VII: Course of study for semester VII

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP701T	Instrumental Methods of Analysis - Theory	3	1	4
BP702T	Industrial PharmacyII - Theory	3	1	4
BP703T	Pharmacy Practice - Theory	3	1	4
BP704T	Novel Drug Delivery System - Theory	3	1	4
BP705P	Instrumental Methods of Analysis - Practical	4	-	2
BP706PS	Practice School*	12	-	6
Total		28	5	24

* Non University Examination (NUE)

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Table-VIII: Course of study for semester VIII

Course code	Name of the course	No. of hours	Tutorial	Credit points
BP801T	Biostatistics and Research Methodology	3	1	4
BP802T	Social and Preventive Pharmacy	3	1	4
BP803ET	Pharma Marketing Management	3 + 3 = 6	1 + 1 = 2	4 + 4 = 8
BP804ET	Pharmaceutical Regulatory Science			
BP805ET	Pharmacovigilance			
BP806ET	Quality Control and Standardization of Herbs			
BP807ET	Computer Aided Drug Design			
BP808ET	Cell and Molecular Biology			
BP809ET	Cosmetic Science			
BP810ET	Experimental Pharmacology			
BP811ET	Advanced Instrumentation Techniques			
BP812ET	Dietary Supplements and Nutraceuticals			
BP813PW	Project Work	12	-	6
Total		24	4	22


Table-IX: Semester wise credits distribution

Semester	Credit Points
I	27/29 ^S /30 [#]
II	29
III	26
IV	28
V	26
VI	26
VII	24
VIII	22
Extracurricular/ Co curricular activities	01*
Total credit points for the program	209/211^S/212[#]

* The credit points assigned for extracurricular and or co-curricular activities shall be given by the Principals of the colleges and the same shall be submitted to the University. The criteria to acquire this credit point shall be defined by the colleges from time to time.

^SApplicable ONLY for the students studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics course.

[#]Applicable ONLY for the students studied Mathematics / Physics / Chemistry at HSC and appearing for Remedial Biology course.


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10. Program Committee

1. The B. Pharm. program shall have a Program Committee constituted by the Head of the institution in consultation with all the Heads of the departments.
2. The composition of the Program Committee shall be as follows:

A senior teacher shall be the Chairperson; One Teacher from each department handling B.Pharm courses; and four student representatives of the program (one from each academic year), nominated by the Head of the institution.

3. Duties of the Program Committee:

- i. Periodically reviewing the progress of the classes.
- ii. Discussing the problems concerning curriculum, syllabus and the conduct of classes.
- iii. Discussing with the course teachers on the nature and scope of assessment for the course and the same shall be announced to the students at the beginning of respective semesters.
- iv. Communicating its recommendation to the Head of the institution on academic matters.
- v. The Program Committee shall meet at least thrice in a semester preferably at the end of each Sessionalexam (Internal Assessment) and before the end semester exam.

11. Examinations/Assessments

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

11.1. End semester examinations

The End Semester Examinations for each theory and practical course through semesters I to VIII shall be conducted by the university except for the subjects with asterix symbol (*) in table I and II for which examinations shall be conducted by the subject experts at college level and the marks/grades shall be submitted to the university.

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I Year I Semester

S. No.	Sub Code	Subject	L	T	P	Credits
1	PHR16111	English	4	1	-	3
2	PHR16112	Remedial Mathematics / Remedial Biology	4	-	-	0
3	PHR16113	Human Anatomy & Physiology - I	4	1	-	3
4	PHR16114	General & Dispensing Pharmacy	4	1	-	3
5	PHR16115	Pharmaceutical Organic Chemistry-I	4	1	-	3
6	PHR16116	English Communications Skills Lab	-	-	3	2
7	PHR16117	Remedial Biology Lab	-	-	2	0
8	PHR16118	General & Dispensing Pharmacy Lab	-	-	3	2
9	PHR16119	Pharmaceutical Organic Chemistry-I Lab	-	-	3	2
		Total	20	4	14	18

I Year II Semester

S. No.	Sub Code	Subject	L	T	P	Credits
1	PHR16121	Human Anatomy & Physiology - II	4	1	-	3
2	PHR16122	Pharm. Inorganic Chemistry	4	1	-	3
3	PHR16123	Pharm. Organic Chemistry - II	4	1	-	3
4	PHR16124	Physical Pharmacy - I	4	1	-	3
5	PHR16125	Computer Applications & Biostatistics	4	1	-	3
6	PHR16126	Human Anatomy & Physiology Lab	-	-	3	2
7	PHR16127	Physical Pharmacy - I Lab	-	-	3	2
8	PHR16128	Computer Applications Lab	-	-	3	2
		Total	20	5	9	21

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II Year I Semester

S. No.	Sub Code	Subject	L	T	P	Credits
1	PHR16211	Pharmaceutical Unit Operations - I	4	1	-	3
2	PHR16212	Pharmaceutical Biochemistry	4	1	-	3
3	PHR16213	Physical Pharmacy - II	4	1	-	3
4	PHR16214	Pharmaceutical Microbiology	4	1	-	3
5	PHR16215	Health Education & Pathophysiology	4	1	-	3
6	PHR16216	Pharmaceutical Biochemistry Lab	-	-	3	2
7	PHR16217	Physical Pharmacy - II Lab	-	-	3	2
8	PHR16218	Pharmaceutical Microbiology Lab	-	-	3	2
		Total	20	5	9	21

II Year II Semester

S. No.	Sub Code	Subject	L	T	P	Credits
1	PHR16221	Pharmaceutical Unit Operations -II	4	1	-	3
2	PHR16222	Pharmaceutical Analysis - I	4	1	-	3
3	PHR16223	Pharmacognosy -I	4	1	-	3
4	PHR16224	Medicinal Chemistry - I	4	1	-	3
5	PHR16225	Pharmacology - I	4	1	-	3
6	PHR16226	Pharmaceutical Unit Operations Lab	-	-	3	2
7	PHR16227	Pharmaceutical Analysis - I Lab	-	-	3	2
8	PHR16228	Pharmacognosy - I Lab	-	-	3	2
		Total	20	5	9	21


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III Year I Semester

S. No.	Sub Code	Subject	L	T	P	Credits
1	PHR16311	Pharmacognosy -II	4	1	-	4
2	PHR16312	Medicinal Chemistry - II	4	1	-	4
3	PHR16313	Pharmaceutical Technology - I	4	1	-	4
4	PHR16314	Environmental Science	4	1	-	2
5	PHR16315	Pharmaceutical Management	4	1	-	3
6	PHR16316	Pharmacognosy -II Lab	-	-	3	2
7	PHR16317	Pharmaceutical Technology-I Lab	-	-	3	2
8	PHR16318	Medicinal Chemistry Lab	-	-	3	2
		Total	20	5	9	23

III Year II Semester

S. No.	Sub Code	Subject	L	T	P	Credits
1	PHR16321	Pharmaceutical Technology -II	4	1	-	4
2	PHR16322	Pharm. Biotechnology	4	1	-	4
3	PHR16323	Pharmacology - II	4	1	-	4
4	PHR16324	Medicinal Chemistry - III	4	1	-	4
5	PHR16325	Regulatory Affairs, IPR & Patents	4	1	-	2
6	PHR16326	Pharmaceutical Technology -II Lab	-	-	3	2
7	PHR16327	Pharmacology Lab	-	-	3	2
8	PHR16328	Pharm. Biotechnology Lab	-	-	3	2
		Total	20	5	9	24

PHR16327 - ph-Biotechnology lab } As per
 PHR16328 - pharmacology lab } Subject Registration

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IV Year I Semester

S. No.	Sub Code	Subject	L	T	P	Credits
1	PHR16411	Pharmaceutical Analysis -II	4	1	-	4
2	PHR16412	Biopharmaceutics & Pharmacokinetics	4	1	-	4
3	PHR16413	Chemistry of Natural Products	4	1	-	4
4	PHR16414	Hospital & Community Pharmacy	4	1	-	3
5	PHR16415	Pharmaceutical Jurisprudence	4	1	-	3
6	PHR16416	Pharmaceutical Analysis – II Lab	-	-	3	2
7	PHR16417	Biopharmaceutics & Pharmacokinetics Lab	-	-	3	2
8	PHR16418	Chemistry of Natural Products Lab	-	-	3	2
9		Project Commencement	-	-	-	-
		Total	20	5	9	24

IV Year II Semester

S. No.	Sub Code	Subject	L	T	P	Credits
1	PHR16421	Bioassays & Toxicology	4	1	-	3
2	PHR16422	Clinical Pharmacy, Therapeutics & Pharmacovigilance	4	1	-	3
3	PHR16423	Controlled release & Novel Drug Delivery Systems	4	1	-	4
4	PHR16424	Quality Assurance, GMP, GLP	4	1	-	2
5	PHR16425	Bioassays & Toxicology Lab	-	-	3	2
6	PHR16426	Seminar on selected topic	-	-	-	2
7	PHR16427	Project Work *	-	-	-	10
8	PHR16428	Comprehensive Viva voce	-	-	-	2
		Total	16	4	3	28

*Project work evaluation includes dissertation, seminar and viva voce

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COURSE STRUCTURE**I Year - I SEMESTER**

S. No.	Subject	T	P	Credits
1.	English	3+1	—	3 ✓
2.	Remedial Mathematics-I/ Remedial Biology-I	3/2 + 1	—	3/2
3	Human Anatomy & Physiology - I	3+1	—	3
4	Dispensing Pharmacy & Ethics	3+1	—	3
5	Pharmaceutical Organic Chemistry-I	3+1	—	3
6	English Communications Skills Lab	—	3	2 ✓
7	Remedial Biology Lab	—	2	0/1
8	Dispensing Pharmacy Lab	—	3	2
9	Pharmaceutical Organic Chemistry-I Lab	—	3	2
Total Credits				21

I Year - II SEMESTER

S. No.	Subject	T	P	Credits
1	Human Anatomy & Physiology - II	3+1	—	3
2	Pharm. Inorganic Chemistry	3+1	—	3
3	Pharm. Organic Chemistry - II	3+1	—	3
4	Physical Pharmacy - I	3+1	—	3
5	Computer Applications & Biostatistics	3+1	—	3
6	Human Anatomy & Physiology Lab	—	3	2
7	Physical Pharmacy - I Lab	—	3	2
8	Computer Applications Lab	—	3	2
Total Credits				21

II Year - I SEMESTER

S. No.	Subject	T	P	Credits
1	Pharmaceutical Unit Operations - I	3+1	—	
2	Pharmacognosy - I	3+1	—	3
3	Physical Pharmacy - II	3+1	—	3

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4	Pharmaceutical Microbiology	3+1	—	3
5	Environmental Science	3+1	—	3
6	Pharmacognosy - I Lab	—	3	2
7	Physical Pharmacy - II Lab	—	3	2
8	Pharmaceutical Microbiology Lab	—	3	2
Total Credits				21

II Year - II SEMESTER

S. No.	Subject	T	P	Credits
1	Pharmaceutical Unit Operations-II	3+1	—	3
2	Pharmaceutical Analysis - I	3+1	—	3
3	Pharmacognosy - II	3+1	—	3
4	Medicinal chemistry - I	3+1	—	3
5	Health Education & Pathophysiology	3+1	—	3
6	Pharmaceutical Unit Operations Lab	—	3	2
7	Pharmaceutical Analysis - I Lab	—	3	2
8	Pharmacognosy - II Lab	—	3	2
Total Credits				21

III Year - I SEMESTER

S. No.	Subject	T	P	Credits
1	Pharmaceutical Biochemistry	3+1	—	3
2	Medicinal Chemistry - II	3+1	—	3
3	Pharmaceutical Technology - I	3+1	—	3
4	Pharmacology - I	3+1	—	3
5	Pharmaceutical Management	3+1	—	3
6	Pharmaceutical Biochemistry Lab	—	3	2
7	Pharmaceutical Technology - I Lab	—	3	2
8	Medicinal Chemistry Lab	—	3	2
Total Credits				21

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III Year - II SEMESTER

S. No.	Subject	T	P	Credits
1	Pharmaceutical Technology -II	3+1	-	4
2	Pharm. Biotechnology	3+1	-	4
3	Pharmacology - II	3+1	-	4
4	Medicinal Chemistry -III	3+1	-	4
5	Regulatory Affairs, IPR & Patents	3+1	-	2
6	Pharmaceutical Technology -II Lab	-	3	2
7	Pharmacology Lab	-	3	2
8	Pharm. Biotechnology Lab	-	3	2
	Total Credits			24

IV Year - I SEMESTER

S. No.	Subject	T	P	Credits
1	Pharmaceutical Analysis -II	3+1	-	4
2	Bio assays & Toxicology	3+1	-	4
3	Chemistry of Natural Products	3+1	-	4
4	Hospital & Community Pharmacy	3+1	-	4
5	Pharmaceutical Jurisprudence	3+1	-	3
6	Pharmaceutical Analysis - II Lab	-	3	2
7	Bio assays & Toxicology Lab	-	3	2
8	Chemistry of Natural Products	-	3	2
9	Project Commencement	-	-	-
	Total Credits			25

IV Year - II SEMESTER

S. No.	Subject	T	P	Credits
1	Biopharmaceutics & Pharmacokinetics	3+1	-	4
2	Clinical Pharmacy, Therapeutics & Pharmacovigilance	3+1	-	3
3	Controlled release & Novel Drug Delivery Systems	3+1	-	4
4	Quality Assurance, GMP, GLP	3+1	3	3
5	Biopharmaceutics & Pharmacokinetics Lab	-	3	2
6	Project Work	-	-	4
7	Project Seminar	-	-	4
8	Comprehensive Viva	-	-	2
	Total Credits			26

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M.PHARMACY PHARMACEUTICS

I SEMESTER

- | | |
|-----------|---|
| Paper 101 | - Modern Analytical Techniques |
| Paper 102 | - Research Methodologies |
| Paper 103 | - Biopharmaceutics & Pharmacokinetics |
| Paper 104 | - Advanced Physical Pharmaceutics |
| Paper 105 | - Biopharmaceutics & Pharmacokinetics - LAB |
| Paper 106 | - Advanced Physical Pharmaceutics - LAB |
| Paper 107 | - Seminar |

II SEMESTER

- | | |
|-----------|--|
| Paper 201 | - Advanced Pharmaceutical Technology |
| Paper 202 | - Advances In Drug Delivery Systems |
| Paper 203 | - Industrial Pharmacy |
| Paper 204 | - Drug Regulatory Affairs |
| Paper 205 | - Advanced Pharmaceutical Technology - LAB |
| Paper 206 | - Advances In Drug Delivery Systems - LAB |
| Paper 207 | - Seminar |

III SEMESTER

- | | |
|-----------|--------------------|
| Paper 301 | - Seminar-I |
| Paper 302 | - Project Work – I |

IV SEMESTER

- | | |
|-----------|---------------------------|
| Paper 401 | - Seminar-II |
| Paper 402 | - Project Work – II |
| Paper 403 | - Comprehensive Viva Voce |

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SCHEME OF INSTRUCTIONS AND EVALUATION PHARMACEUTICAL ANALYSIS AND QUALITY ASSURANCE

I SEMESTER							
Paper No.	Title of the Paper	Evaluation / Marks				Total	Credits
		Theory		Practical			
		Mid Examination	University End Examination	Mid Examination	University End Examination		
Paper - 101	Modern Analytical Techniques	40	60			100	3
Paper - 102	Research Methodologies	40	60			100	3
Paper - 103	Biopharmaceutics & Pharmacokinetics	40	60			100	3
Paper - 104	Advanced Physical Pharmaceutics	40	60			100	3
Paper - 105	Biopharmaceutics & Pharmacokinetics			40	60	100	2
Paper - 106	Advanced Physical Pharmaceutics			40	60	100	2
Paper - 107	Seminal					100	2
	Total					700	18

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II SEMESTER							
Paper No.	Title of the Paper	Evaluation / Marks				Total	Credits
		Theory		Practical			
		Mid Examination	University End Examination	Mid Examination	University End Examination		
Paper - 201	Advanced Pharmaceutical Technology-I	40	60			100	3
Paper - 202	Advanced in Drug Delivery Systemts	40	60			100	3
Paper - 203	Advanced Pharmaceutical Technology-II	40	60			100	3
Paper - 204	Drug Regulatory Affairs	40	60			100	3
Paper - 205	Advanced Pharmaceutical Technology			40	60	100	2
Paper - 206	Advanced in Drug Delivery Systemts			40	60	100	2
Paper - 207	Seminal					100	2
	Total					700	18

M.PHARMACY
PHARMACEUTICAL ANALYSIS AND QUALITY
ASSURANCE

I SEMESTER

- Paper 101 - Modern Analytical Techniques
- Paper 102 - Research Methodologies
- Paper 103 - Advanced Pharmaceutical Analysis - I
- Paper 104 - Chromatographic and Other Special techniques
- Paper 105 - Advanced Pharmaceutical Analysis-I - LAB
- Paper 106 - Chromatographic and Other Special techniques - LAB
- Paper 107 - Seminar

II SEMESTER

- Paper 201 - Advanced Pharmaceutical Analysis - II
- Paper 202 - Phytopharmaceutical and Biological Analysis
- Paper 203 - Quality Assurance of Pharmaceuticals – I
- Paper 204 - Drug Regulatory Affairs
- Paper 205 - Advanced Pharmaceutical Analysis - II - LAB
- Paper 206 - Phytopharmaceutical and Biological Analysis - LAB
- Paper 207 - Seminar

III SEMESTER

- Paper 301 - Seminar-I
- Paper 302 - Project Work – I

IV SEMESTER

- Paper 401 - Seminar-II
- Paper 402 - Project Work – II
- Paper 403 - Comprehensive Viva Voce

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SCHEME OF INSTRUCTIONS AND EVALUATION PHARMACEUTICAL ANALYSIS AND QUALITY ASSURANCE

I SEMESTER							
Paper No.	Title of the Paper	Evaluation / Marks				Total	Credits
		Theory		Practical			
		Mid Examination	University End Examination	Mid Examination	University End Examination		
Paper - 101	Modern Analytics Techniques	40	60			100	3
Paper - 102	Research Methodologies	40	60			100	3
Paper - 101	Advanced Pharmaceutical Analysis	40	60			100	3
Paper - 102	Chromatographic and other special Techniques	40	60			100	3
Paper - 104	Advanced Pharmaceutical Analysis I Practical			40	60	100	3
Paper - 105	Chromatographic and other special Techniques I Practical			40	60	100	3
Paper - 106	Seminal					100	2
	Total					700	18

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II SEMESTER							
Paper No.	Title of the Paper	Evaluation / Marks				Total	Credits
		Theory		Practical			
		Mid Examination	University End Examination	Mid Examination	University End Examination		
Paper - 201	Advanced Pharmaceutical Analysis-II	40	60			100	3
Paper - 202	Pharmaceutical and Biological Analysis	40	60			100	3
Paper - 203	Quality Assurance of Pharmaceutical	40	60			100	3
Paper - 204	Drug Regulatory Affairs	40	60			100	3
Paper - 205	Advanced Pharmaceutical I Analysis -II Practical			40	60	100	3
Paper - 205	Phytopharmaceutical and Biological Analysis Practical			40	60	100	3
Paper - 206	Seminal					100	2
	Total					700	18

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M.PHARMACY

INDUSTRIAL PHARMACY

I SEMESTER

- | | | |
|-----------|---|--|
| Paper 101 | - | Modern Analytical Techniques |
| Paper 102 | - | Research Methodologies |
| Paper 103 | - | Advanced Biopharmaceutics, Pharmacokinetics
& Physical Pharmaceutics |
| Paper 104 | - | Advanced Pharmaceutical Technology |
| Paper 105 | - | Advanced Biopharmaceutics,
Pharmacokinetics &
Physical Pharmaceutics - LAB |
| Paper 106 | - | Advanced Pharmaceutical Technology - LAB |
| Paper 107 | - | Seminar |

II SEMESTER

- | | | |
|-----------|---|---|
| Paper 201 | - | Advances In Drug Delivery Systems |
| Paper 202 | - | Industrial Pharmacy - I |
| Paper 203 | - | Industrial Pharmacy - II |
| Paper 204 | - | Drug Regulatory Affairs |
| Paper 205 | - | Advances in Drug Delivery Systems - LAB |
| Paper 206 | - | Industrial Pharmacy – I - LAB |
| Paper 207 | - | Seminar |

III SEMESTER

- | | | |
|-----------|---|------------------|
| Paper 301 | - | Seminar-I |
| Paper 302 | - | Project Work – I |

IV SEMESTER

- | | | |
|-----------|---|-------------------------|
| Paper 401 | - | Seminar-II |
| Paper 402 | - | Project Work – II |
| Paper 403 | - | Comprehensive Viva Voce |

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SCHEME OF INSTRUCTIONS AND EVALUATION INDUSTRIAL PHARMACY

I SEMESTER							
Paper No.	Title of the Paper	Evaluation / Marks				Total	Credits
		Theory		Practical			
		Mid Examination	University End Examination	Mid Examination	University End Examination		
Paper - 101	Modern Analytics Techniques	40	60			100	3
Paper - 102	Research Methodologies	40	60			100	3
Paper - 103	Advanced Biopharmaceutics Pharmacokinetics & Physical Pharmaceutics	40	60			100	3
Paper - 104	Advanced Pharmaceutical Technology	40	60			100	3
Paper - 105	Advanced Biopharmaceutics, Pharmacokinetics & Physical Pharmaceutics Lab			40	60	100	3
Paper - 106	Advanced Pharmaceutical Technology Lab			40	60	100	3
Paper - 107	Seminar					100	2
	Total					700	18

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II SEMESTER							
Paper No.	Title of the Paper	Evaluation / Marks				Total	Credits
		Theory		Practical			
		Mid Examination	University End Examination	Mid Examination	University End Examination		
Paper - 201	Advances in Drug Delivery Systems	40	60			100	3
Paper - 202	Industrial Pharmacy-I	40	60			100	3
Paper - 203	Industrial Pharmacy-II	40	60			100	3
Paper - 204	Drugs Regulatory Affairs	40	60			100	3
Paper - 205	Advances in Drug Delivery Systems Lab			40	60	100	3
Paper - 206	Industrial Pharmacy-I			40	60	100	3
Paper - 207	Seminal					100	2
	Total					700	18

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भारत का राजपत्र The Gazette of India

साप्ताहिक/WEEKLY

प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

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NO. 19] NEW DELHI, SATURDAY, MAY 10—MAY 16, 2008 (VAISAKHA 20, 1930)

इस भाग में भिन्न पृष्ठ संख्या दी जाती है जिससे कि यह अलग संकलन के रूप में रखा जा सके।
(Separate paging is given to this Part in order that it may be filed as a separate compilation)

भाग III—खण्ड 4

[PART III—SECTION 4]

[सांविधिक निकायों द्वारा जारी की गई विविध अधिसूचनाएं जिसमें कि आदेश, विज्ञापन और सूचनाएं सम्मिलित हैं]
[Miscellaneous Notifications including Notifications, Orders, Advertisements and Notices issued by
Statutory Bodies]

भारतीय रिज़र्व बैंक

मुंबई-400001, दिनांक 9 अप्रैल 2008

संदर्भ : बैंपविवि. सं. आईबीडी.-14241/23.13.048/2007-08--भारतीय रिज़र्व बैंक अधिनियम, 1934 (1934 का 2) की धारा 42 की उप-धारा (6) के खण्ड (ग) के अनुसरण में भारतीय रिज़र्व बैंक इसके द्वारा निदेश देता है कि उक्त अधिनियम की दूसरी अनुसूची में निम्नलिखित परिवर्तन किये जाएं :--

“अरब बांग्लादेश बैंक लिमिटेड” शब्दों के स्थान पर “एबी बैंक लिमिटेड” शब्द होंगे।

आनन्द सिन्हा
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[PUBLISHED IN THE GAZETTE OF INDIA, No.19, PART III, SECTION 4]

Ministry of Health and Family Welfare
(Pharmacy Council of India)

New Delhi, 10th May, 2008.

Pharm.D. Regulations 2008

Regulations framed under section 10 of the Pharmacy Act, 1948 (8 of 1948).

(As approved by the Government of India, Ministry of Health vide, letter No.V.13013/1/2007-PMS, dated the 13th March, 2008 and notified by the Pharmacy Council of India).

No.14-126/2007-PCI.— In exercise of the powers conferred by section 10 of the Pharmacy Act, 1948 (8 of 1948), the Pharmacy Council of India, with the approval of the Central Government, hereby makes the following regulations, namely:-

CHAPTER-I

1. Short title and commencement. - (1) These regulations may be called the Pharm.D. Regulations 2008.
(2) They shall come into force from the date of their publication in the official Gazette.
2. Pharm.D. shall consist of a certificate, having passed the course of study and examination as prescribed in these regulations, for the purpose of registration as a pharmacist to practice the profession under the Pharmacy Act, 1948.

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CHAPTER-II

3. Duration of the course. -

- a) Pharm.D: The duration of the course shall be six academic years (five years of study and one year of internship or residency) full time with each academic year spread over a period of not less than two hundred working days. The period of six years duration is divided into two phases -

Phase I - consisting of First, Second, Third, Fourth and Fifth academic year.

Phase II - consisting of internship or residency training during sixth year involving posting in speciality units. It is a phase of training wherein a student is exposed to actual pharmacy practice or clinical pharmacy services and acquires skill under supervision so that he or she may become capable of functioning independently.

- b) Pharm.D. (Post Baccalaureate): The duration of the course shall be for three academic years (two years of study and one year internship or residency) full time with each academic year spread over a period of not less than two hundred working days. The period of three years duration is divided into two phases -

Phase I - consisting of First and Second academic year.

Phase II - consisting of Internship or residency training during third year involving posting in speciality units. It is a phase of training wherein a student is exposed to actual pharmacy practice or clinical pharmacy services, and acquires skill under supervision so that he or she may become capable of functioning independently.

4. Minimum qualification for admission to. -

- a) Pharm.D. Part-I Course - A pass in any of the following examinations -

(1) 10+2 examination with Physics and Chemistry as compulsory subjects along with one of the following subjects:

Mathematics or Biology.

(2) A pass in D.Pharm course from an institution approved by the Pharmacy Council of India under section 12 of the Pharmacy Act.

(3) Any other qualification approved by the Pharmacy Council of India as equivalent to any of the above examinations.

Provided that a student should complete the age of 17 years on or before 31st December of the year of admission to the course.

Provided that there shall be reservation of seats for the students belonging to the Scheduled Castes, Scheduled Tribes and other Backward Classes in accordance with the instructions issued by the Central Government/State Government/Union Territory Administration as the case may be from time to time.


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b) Pharm.D. (Post Baccalaureate) Course -

A pass in B.Pharm from an institution approved by the Pharmacy Council of India under section 12 of the Pharmacy Act:

Provided that there shall be reservation of seats for the students belonging to the Scheduled Castes, Scheduled Tribes and other Backward Classes in accordance with the instructions issued by the Central Government/State Government/Union Territory Administration as the case may be from time to time.

5. Number of admissions in the above said programmes shall be as prescribed by the Pharmacy Council of India from time to time and presently be restricted as below -
 - i) Pharm.D. Programme - 30 students.
 - ii) Pharm.D. (Post Baccalaureate) Programme - 10 students.
6. Institutions running B.Pharm programme approved under section 12 of the Pharmacy Act, will only be permitted to run Pharm.D. programme. Pharm.D. (Post Baccalaureate) programme will be permitted only in those institutions which are permitted to run Pharm.D. programme.
7. Course of study. - The course of study for Pharm.D. shall include the subjects as given in the Tables below. The number of hours in a week, devoted to each subject for its teaching in theory, practical and tutorial shall not be less than that noted against it in columns (3), (4) and (5) below.

T A B L E S

First Year :

S.No.	Name of Subject	No. of hours of Theory	No. of hours of Practical	No. of hours of Tutorial
(1)	(2)	(3)	(4)	(5)
1.1	Human Anatomy and Physiology	3	3	1
1.2	Pharmaceutics	2	3	1
1.3	Medicinal Biochemistry	3	3	1
1.4	Pharmaceutical Organic Chemistry	3	3	1
1.5	Pharmaceutical Inorganic Chemistry	2	3	1
1.6	Remedial Mathematics/ Biology	3	3*	1
	Total hours	16	18	6 = (40)

* For Biology


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Second Year:

S.No	Name of Subject	No. of hours of Theory	No. of hours of Practical	No. of hours of Tutorial
(1)	(2)	(3)	(4)	(5)
2.1	Pathophysiology	3	-	1
2.2	Pharmaceutical Microbiology	3	3	1
2.3	Pharmacognosy & Phytopharmaceuticals	3	3	1
2.4	Pharmacology-I	3	-	1
2.5	Community Pharmacy	2	-	1
2.6	Pharmacotherapeutics-I	3	3	1
	Total Hours	17	9	6 = 32

Third Year:

S.No.	Name of Subject	No. of hours of Theory	No. of hours of Practical	No. of hours of Tutorial
(1)	(2)	(3)	(4)	(5)
3.1	Pharmacology-II	3	3	1
3.2	Pharmaceutical Analysis	3	3	1
3.3	Pharmacotherapeutics-II	3	3	1
3.4	Pharmaceutical Jurisprudence	2	-	-
3.5	Medicinal Chemistry	3	3	1
3.6	Pharmaceutical Formulations	2	3	1
	Total hours	16	15	5 = 36

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Fourth Year:

S.No.	Name of Subject	No. of hours of Theory	No. of hours of Practical/ Hospital Posting	No. of hours of Tutorial
(1)	(2)	(3)	(4)	(5)
4.1	Pharmacotherapeutics-III	3	3	1
4.2	Hospital Pharmacy	2	3	1
4.3	Clinical Pharmacy	3	3	1
4.4	Biostatistics & Research Methodology	2	-	1
4.5	Biopharmaceutics & Pharmacokinetics	3	3	1
4.6	Clinical Toxicology	2	-	1
	Total hours	15	12	6 = 33

Fifth Year:

S.No.	Name of Subject	No. of hours of Theory	No. of hours of Hospital posting*	No. of hours of Seminar
(1)	(2)	(3)	(4)	(5)
5.1	Clinical Research	3	-	1
5.2	Pharmacoepidemiology and Pharmacoeconomics	3	-	1
5.3	Clinical Pharmacokinetics & Pharmacotherapeutic Drug Monitoring	2	-	1
5.4	Clerkship *	-	-	1
5.5	Project work (Six Months)	-	20	-
	Total hours	8	20	4 = 32

* Attending ward rounds on daily basis.

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Sixth Year:

Internship or residency training including postings in speciality units. Student should independently provide the clinical pharmacy services to the allotted wards.

- (i) Six months in General Medicine department, and
- (ii) Two months each in three other speciality departments

8. Syllabus. - The syllabus for each subject of study in the said Tables shall be as specified in Appendix -A to these regulations.
9. Approval of the authority conducting the course of study. - (1) No person, institution, society or university shall start and conduct Pharm.D or Pharm.D. (Post Baccalaureate) programme without the prior approval of the Pharmacy Council of India.
- (2) Any person or pharmacy college for the purpose of obtaining permission under sub-section (1) of section 12 of the Pharmacy Act, shall submit a scheme as prescribed by the Pharmacy Council of India.
- (3) The scheme referred to in sub-regulation (2) above, shall be in such form and contain such particulars and be preferred in such manner and be accompanied with such fee as may be prescribed:
- Provided that the Pharmacy Council of India shall not approve any institution under these regulations unless it provides adequate arrangements for teaching in regard to building, accommodation, labs., equipments, teaching staff, nonteaching staff, etc., as specified in Appendix-B to these regulations.
10. Examination. - (1) Every year there shall be an examination to examine the students.
- (2) Each examination may be held twice every year. The first examination in a year shall be the annual examination and the second examination shall be supplementary examination.
- (3) The examinations shall be of written and practical (including oral nature) carrying maximum marks for each part of a subject as indicated in Tables below :

T A B L E S**First Year examination :**

S.No.	Name of Subject	Maximum marks for Theory			Maximum marks for Practicals		
		Examination	Sessional	Total	Examination	Sessional	Total
1.1	Human Anatomy and Physiology	70	30	100	70	30	100
1.2	Pharmaceutics	70	30	100	70	30	100
1.3	Medicinal Biochemistry	70	30	100	70	30	100
1.4	Pharmaceutical Organic Chemistry	70	30	100	70	30	100
1.5	Pharmaceutical Inorganic Chemistry	70	30	100	70	30	100
1.6	Remedial Mathematics/Biology	70	30	100	70*	30*	100*
				600			600 = 1200

* for Biology.

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Second Year examination :


S.No.	Name of Subject	Maximum marks for Theory			Maximum marks for Practicals		
		Examination	Sessional	Total	Examination	Sessional	Total
2.1	Pathophysiology	70	30	100	-	-	-
2.2	Pharmaceutical Microbiology	70	30	100	70	30	100
2.3	Pharmacognosy & Phytopharmaceuticals	70	30	100	70	30	100
2.4	Pharmacology -I	70	30	100	-	-	-
2.5	Community Pharmacy	70	30	100	-	-	-
2.6	Pharmacotherapeutics-I	70	30	100	70	30	100
				600			300 = 900

Third Year examination :

S.No.	Name of Subject	Maximum marks for Theory			Maximum marks for Practicals		
		Examination	Sessional	Total	Examination	Sessional	Total
3.1	Pharmacology-II	70	30	100	70	30	100
3.2	Pharmaceutical Analysis	70	30	100	70	30	100
3.3	Pharmacotherapeutics-II	70	30	100	70	30	100
3.4	Pharmaceutical Jurisprudence	70	30	100	-	-	-
3.5	Medicinal Chemistry	70	30	100	70	30	100
3.6	Pharmaceutical Formulations	70	30	100	70	30	100
				600			500 = 1100

Fourth Year examination :

S.No.	Name of Subject	Maximum marks for Theory			Maximum marks for Practicals		
		Examination	Sessional	Total	Examination	Sessional	Total
4.1	Pharmacotherapeutics-III	70	30	100	70	30	100
4.2	Hospital Pharmacy	70	30	100	70	30	100
4.3	Clinical Pharmacy	70	30	100	70	30	100
4.4	Biostatistics & Research Methodology	70	30	100	-	-	-
4.5	Biopharmaceutics & Pharmacokinetics	70	30	100	70	30	100
4.6	Clinical Toxicology	70	30	100	-	-	-
				600			400 = 1000


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Fifth Year examination :

S.No.	Name of Subject	Maximum marks for Theory			Maximum marks for Practicals		
		Examination	Sessional	Total	Examination	Sessional	Total
5.1	Clinical Research	70	30	100	-	-	-
5.2	Pharmacoepidemiology and Pharmacoeconomics	70	30	100	-	-	-
5.3	Clinical Pharmacokinetics & Pharmacotherapeutic Drug Monitoring	70	30	100	-	-	-
5.4	Clerkship *	-	-	-	70	30	100
5.5	Project work (Six Months)	-	-	-	100**	-	100
				300	200 = 500		

* Attending ward rounds on daily basis.

** 30 marks - viva-voce (oral)

70 marks - Thesis work

11. Eligibility for appearing Examination.— Only such students who produce certificate from the Head of the Institution in which he or she has undergone the Pharm.D. or as the case may be, the Pharm.D. (Post Baccalaureate) course, in proof of his or her having regularly and satisfactorily undergone the course of study by attending not less than 80% of the classes held both in theory and in practical separately in each subject shall be eligible for appearing at examination.
12. Mode of examinations.— (1) Theory examination shall be of three hours and practical examination shall be of four hours duration.
 - (2) A Student who fails in theory or practical examination of a subject shall re-appear both in theory and practical of the same subject.
 - (3) Practical examination shall also consist of a viva -voce (Oral) examination.
 - (4) Clerkship examination - Oral examination shall be conducted after the completion of clerkship of students. An external and an internal examiner will evaluate the student. Students may be asked to present the allotted medical cases followed by discussion. Students' capabilities in delivering clinical pharmacy services, pharmaceutical care planning and knowledge of therapeutics shall be assessed.
13. Award of sessional marks and maintenance of records.— (1) A regular record of both theory and practical class work and examinations conducted in an institution imparting training for Pharm.D. or as the case may be, Pharm.D. (Post Baccalaureate) course, shall be maintained for each student in the institution and 30 marks for each theory and 30 marks for each practical subject shall be allotted as sessional.
 - (2) There shall be at least two periodic sessional examinations during each academic year and the highest aggregate of any two performances shall form the basis of calculating sessional marks.
 - (3) The sessional marks in practicals shall be allotted on the following basis:-
 - (i) Actual performance in the sessional examination (20 marks);
 - (ii) Day to day assessment in the practical class work, promptness, viva- voce record maintenance, etc. (10 marks)

14. Minimum marks for passing examination.— A student shall not be declared to have passed examination unless he or she secures at least 50% marks in each of the subjects separately in the theory examinations, including sessional marks and at least 50% marks in each of the practical examinations including sessional marks. The students securing 60% marks or above in aggregate in all subjects in a single attempt at the Pharm.D. or as the case may be, Pharm. D. (Post Baccalaureate) course examination shall be declared to have passed in first class. Students securing 75% marks or above in any subject or subjects shall be declared to have passed with distinction in the subject or those subjects provided he or she passes in all the subjects in a single attempt.
15. Eligibility for promotion to next year.— All students who have appeared for all the subjects and passed the first year annual examination are eligible for promotion to the second year and, so on. However, failure in more than two subjects shall debar him or her from promotion to the next year classes.
16. Internship.— (1) Internship is a phase of training wherein a student is expected to conduct actual practice of pharmacy and health care and acquire skills under the supervision so that he or she may become capable of functioning independently.
(2) Every student has to undergo one year internship as per Appendix-C to these regulations.
17. Approval of examinations.— Examinations mentioned in regulations 10 to 12 and 14 shall be held by the examining authority hereinafter referred to as the university, which shall be approved by the Pharmacy Council of India under sub-section (2) of section 12 of the Pharmacy Act, 1948. Such approval shall be granted only if the examining authority concerned fulfills the conditions as specified in Appendix-D to these regulations.
18. Certificate of passing examination.— Every student who has passed the examinations for the Pharm.D. (Doctor of Pharmacy) or Pharm.D. (Post Baccalaureate) (Doctor of Pharmacy) as the case may be, shall be granted a certificate by the examining authority.

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