

A.Y: 2019-20

### 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
<b>Total</b>		<b>32/34<sup>S</sup>/36<sup>#</sup></b>	<b>4</b>	<b>27/29<sup>S</sup>/30<sup>#</sup></b>

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

<sup>S</sup>Applicable 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
<b>Total</b>		<b>32</b>	<b>4</b>	<b>29</b>

\*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
<b>Total</b>		<b>28</b>	<b>4</b>	<b>24</b>



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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
<b>Total</b>		<b>31</b>	<b>5</b>	<b>28</b>

**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
<b>Total</b>		<b>27</b>	<b>5</b>	<b>26</b>



  
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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


  
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(Effective for Batches Admitted from 2016 – 17 Academic Year Onwards)

**Program Code: 881****B. Pharmacy (Fourth year)****SEMESTER - VII**

Course Code	Description	Course Title	Hours/Week			Credits	Marks		Duration of Exam
			L	T	P		Internal	End Exam	
PY.08.881.7.1.T	PS, CORE	Medicinal Chemistry-II	4	0	·	4	30	70	3
PY.08.881.7.2.T	PS, CORE	Pharmaceutical Analysis-II (Instrumental Analysis)	4	0	·	4	30	70	3
PY.08.881.7.3.T	PS, CORE	Dosage Formulation Design	4	0	0	4	30	70	3
PY.08.881.7.4.T	PS, FC	Biopharmaceutics & Pharmacokinetics	3	2	0	3	30	70	3
PY.08.881.7.5.T	HS, FC	Pharmaceutical Business Management	3	0	0	3	30	70	3
PY.08.881.7.6.P	PS, CORE	Medicinal Chemistry-II Practical	0	0	4	2	30	70	4
PY.08.881.7.7.P	PS, CORE	Pharmaceutical Analysis-II (Instrumental Analysis) Practical	0	0	4	2	30	70	4
PY.08.881.7.8.P	PS, CORE	Dosage Formulation Design Practical	0	0	4	2	30	70	4
			18	2	12	24	240	560	

  
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OSMANIA UNIVERSITY

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(Effective for Batches Admitted from 2016 – 17 Academic Year Onwards)

Program Code: 881

B. Pharmacy (Fourth year)

SEMESTER - VIII

Course Code	Description	Course Title	Hours/Week				Marks		Duration of Exam
			L	T	P	Credits	Internal	End Exam	
PY.08.881.8.1.T	PS, CORE	Pharmaceutical Biotechnology	4	0	-	4	30	70	3
PY.08.881.8.2.T	PS, CORE	Pharmacoinformatics	4	0	-	4	30	70	3
PY.08.881.8.3.T	PS, CORE	Cosmetic Technology	4	0	-	4	30	70	3
PY.08.881.8.4.T	PS, FC	Hospital and Clinical Pharmacy	3	0	0	3	30	70	3
PY.08.881.8.5.T	Open elective	eGMP / Pharmacovigilance	3	0	0	3	30	70	3
PY.08.881.8.6.P	PS, CORE	Pharmaceutical Biotechnology Practical	0	0	4	2	30	70	4
PY.08.881.8.7.P	PS, CORE	Pharmacoinformatics Practical	0	0	4	2	30	70	4
PY.08.881.8.8.P	PS, CORE	Cosmetic Technology Practical	0	0	4	2	30	70	4
			18	0	12	24	240	560	
PY.08.881.8.8.X	Seminar	Curricular / Co - curricular			-	2	Grade-A/B/C/D/F Non-CGPA		

At the end of the program CGPA will be Awarde on 10 Point Scale with the Final Grade on tran:


  
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Table - 2: Course of study for M. Pharm. (Pharmaceutics)

Course Code	Course	Credit Hours	Credit Points	Hrs./week	Marks
Semester I					
MPH101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPH102T	Drug Delivery System	4	4	4	100
MPH103T	Modern Pharmaceutics	4	4	4	100
MPH104T	Regulatory Affair	4	4	4	100
MPH105P	Pharmaceutics Practical I	12	6	12	150
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
MPH201T	Molecular Pharmaceutics (Nano Tech and Targeted DDS)	4	4	4	100
MPH202T	Advanced Biopharmaceutics & Pharmacokinetics	4	4	4	100
MPH203T	Computer Aided Drug Delivery System	4	4	4	100
MPH204T	Cosmetic and Cosmeceuticals	4	4	4	100
MPH205P	Pharmaceutics Practical II	12	6	12	150
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650


  
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Table – 12: Course of study for M. Pharm. III Semester  
(Common for All Specializations)

Course Code	Course	Credit Hours	Credit Points
MRM 301T	Research Methodology and Biostatistics*	4	4
-	Journal club	1	1
-	Discussion / Presentation (Proposal Presentation)	2	2
-	Research Work	28	14
Total		35	21

\* Non University Exam

Table – 13: Course of study for M. Pharm. IV Semester  
(Common for All Specializations)

Course Code	Course	Credit Hours	Credit Points
-	Journal Club	1	1
-	Research Work	31	16
-	Discussion/Final Presentation	3	3
Total		35	20

Table – 14: Semester wise credits distribution

Semester	Credit Points
I	26
II	26
III	21
IV	20
Co-curricular Activities (Attending Conference, Scientific Presentations and Other Scholarly Activities)	Minimum=02 Maximum=07*
Total Credit Points	Minimum=95 Maximum=100*

\*Credit Points for Co-curricular Activities


  
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Table - 5: Course of study for M. Pharm. (Pharmaceutical Analysis)

Course Code	Course	Credit Hours	Credit Points	Hrs./wk	Marks
Semester I					
MPA101T	Modern Pharmaceutical Analytical Techniques	4	4	4	100
MPA102T	Advanced Pharmaceutical Analysis	4	4	4	100
MPA103T	Pharmaceutical Validation	4	4	4	100
MPA104T	Food Analysis	4	4	4	100
MPA105P	Pharmaceutical Analysis Practical I	12	6	12	150
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650
Semester II					
MPA201T	Advanced Instrumental Analysis	4	4	4	100
MPA202T	Modern Bio-Analytical Techniques	4	4	4	100
MPA203T	Quality Control and Quality Assurance	4	4	4	100
MPA204T	Herbal and Cosmetic Analysis	4	4	4	100
MPA205P	Pharmaceutical Analysis Practical II	12	6	12	150
-	Seminar/Assignment	7	4	7	100
Total		35	26	35	650


  
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(Common for All Specializations)

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-	Journal club	1	1
-	Discussion / Presentation (Proposal Presentation)	2	2
-	Research Work	28	14
Total		35	21

\* Non University Exam

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(Common for All Specializations)

Course Code	Course	Credit Hours	Credit Points
-	Journal Club	1	1
-	Research Work	31	16
-	Discussion/Final Presentation	3	3
Total		35	20

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\*Credit Points for Co-curricular Activities

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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.

### TABLES

**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
	<b>Total hours</b>	<b>16</b>	<b>18</b>	<b>6 = (40)</b>

\* 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
	<b>Total Hours</b>	<b>17</b>	<b>9</b>	<b>6 = 32</b>

**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
	<b>Total hours</b>	<b>16</b>	<b>15</b>	<b>5 = 36</b>

  
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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
	<b>Total hours</b>	<b>15</b>	<b>12</b>	<b>6 = 33</b>

**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	-
	<b>Total hours</b>	<b>8</b>	<b>20</b>	<b>4 = 32</b>

\* Attending ward rounds on daily basis.



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## **PHARM. D. POST BACCALAUREATE PROGRAM**

(Inclusion of Pharmacotherapeutics I & II subject in the fourth year of the program)

### **SYLLABUS FOR PHARMACOTHERAPEUTICS I & II (THEORY)**

Theory: 3Hrs/week

- Etiopathogenesis and pharmacotherapy of diseases associated with following systems/ diseases.

1.	<b>Cardiovascular system:</b> Hypertension, Congestive cardiac failure, Angina Pectoris, Myocardial infarction, Hyperlipidaemias, Electrophysiology of heart and Arrhythmias	<b>Total = 13 hrs</b> <b>(3+2+2+2+2+2)</b>
2.	<b>Respiratory system :</b> Introduction to Pulmonary function test, Asthma, Chronic obstructive airways disease, Drug induced pulmonary diseases	<b>Total = 6</b> <b>(1+2+2+1)</b>
3.	<b>Endocrine system :</b> Diabetes, Thyroid diseases, Oral contraceptives, Hormone replacement therapy, Osteoporosis	<b>Total = 8</b> <b>(3+2+1+1+1)</b>
4.	<b>General prescribing guidelines for</b> a. Paediatric patients b. Geriatric patients c. Pregnancy and breast feeding	<b>Total = 4hrs</b> <b>(1+1+2)</b>
5.	<b>Ophthalmology:</b> Glaucoma, Conjunctivitis- viral & bacterial	<b>(3 hrs)</b>
6.	<b>Introduction to rational drug use</b> Definition, Role of pharmacist Essential drug concept Rational drug formulations	<b>Total = 2 hrs</b> <b>(1+1)</b>

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7.	<b>Infectious disease:</b> Guidelines for the rational use of antibiotics and surgical Prophylaxis, Tuberculosis, Meningitis, Respiratory tract infections, Gastroenteritis, Endocarditis, Septicemia, Urinary tract infections, Protozoal infection- Malaria, HIV & Opportunistic infections, Fungal infections, Viral infections, Gonorrhoea and Syphilis	<b>Total = 18 hrs.</b> (2+1+1+2+1+1+1+2+1+2+1+1+1+1)
8.	<b>Musculoskeletal disorders</b> Rheumatoid arthritis, Osteoarthritis, Gout, Spondylitis, Systemic lupus erythematosus.	<b>Total = 6hrs.</b> (2+1+1+1+1)
9.	<b>Renal system</b> Acute Renal Failure, Chronic Renal Failure, Renal Dialysis, Drug induced renal disorders	<b>Total = 05hrs.</b> (2+1+1+1)
10.	<b>Oncology:</b> Basic principles of Cancer therapy, General introduction to cancer chemotherapeutic agents, Chemotherapy of breast cancer, leukemia. Management of chemotherapy nausea and emesis	<b>Total = 06 hrs.</b> (2+1+2+1)
11.	<b>Dermatology:</b> Psoriasis, Scabies, Eczema, Impetigo	<b>Total = 4hrs.</b>

### PHARMACOTHERAPEUTICS – I & II (PRACTICAL)

**Practicals: 3 Hrs./Week**

**Practicals:**

Hospital postings in various departments designed to complement the lectures by providing practical clinical discussion; attending ward rounds; follow up the progress and changes made in drug therapy in allotted patients; case presentation upon discharge. Students are required to maintain a record of cases presented and the same should be submitted at

  
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the end of the course for evaluation. A minimum of 20 cases should be presented and recorded covering most common diseases.

### Assignments:

Students are required to submit written assignments on the topics given to them. Topics allotted should cover recent developments in drug therapy of various diseases. A minimum of THREE assignments [1500 – 2000 words] should be submitted for evaluation.

### Format of the assignment:

1. Minimum & Maximum number of pages.
2. Reference(s) shall be included at the end.
3. Assignment can be a combined presentation at the end of the academic year.
4. It shall be computer draft copy.
5. Name and signature of the student.
6. Time allocated for presentation may be 8+2 Min.

### Scheme of Practical Examination:

	Sessionals	Annual
Synopsis	05	15
Major Experiment	10	25
Minor Experiment	03	15
Viva	02	15
<b>Max Marks</b>	<b>20</b>	<b>70</b>
<b>Duration</b>	<b>03hrs</b>	<b>04hrs</b>

**Note:** Total sessional marks is 30 (20 for practical sessional plus 10 marks for regularity, promptness, viva-voce and record maintenance).

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