

2.3. Teaching- Learning process

2.3.1 Student centric methods, such as experiential learning, participative learning and problem solving methodologies are used for enhancing learning experiences.

1. Experiential Learning:

At the institution, experiential learning occurs following lectures in the classroom through tutorial sessions, labs, equipment simulations, and publications. Students are stimulated to engage in scientific research by industrial visit/training and minor/major project work.

Hands on Learning

The practical work of the students is regularly evaluated by the faculty. The JNTU Hyderabad syllabus is followed when conducting experiments in the lab sessions, giving students the chance and experience at first-hand how the theoretical concepts are put into practise. Live instrument handling and demonstrations are a common practise. Live demonstrations and handling of instruments include the UV-Visible Spectrophotometer, HPLC, Dissolution, Diffusion Cell, GEL Electrophoresis, Soxhlet, Compound Microscope, Microbial Zone Reader, BOD Incubator, and Autoclave etc is a regular practice

Industrial Learning

Every year, students participate in industrial tours, training sessions, and internships that expose them to the working cultures of many businesses and allow them to interact with industry experts for experiential learning and subject expertise.

2. Participative Learning:

Scientific Learning

Participative learning is encouraged in the classrooms, which improves students' educational experiences. Students' scientific learning and communication skills are enhanced by encouraging them to take part in a variety of activities, such as poster presentations, electronic posters, Power Point presentations, quizzes, and leaflet competitions.



Model Making

Students are given instructions on how to create scientific models. Model making primary goal is to integrate knowledge across a entire programme of study, a major, or a single course in order to associate concepts. This makes it easier for students to comprehend and recall the connections between distinct ideas, structures, or species.

Add on courses

Short term courses on beyond curriculum topics are arranged during summer vacation.

3. Problem Solving Methodologies:**Case Study Learning**

Students develop their problem-solving skills by studying topics such adverse drug reaction (ADR) detection and reporting, drug interaction analysis, medication reconciliation in case studies, and providing the best response to drug-related questions from patients, doctors, and nurses.

Assignment Learning

Every semester, teachers urge students to produce assignments as an additional teaching tool. Numerous sorts of assignments, including essays, literature reviews, critical reviews, reflective diaries, and case studies, are offered to students as a part of the internal evaluation process, depending on the requirement analysis and the learning scenarios.

Project based Learning

The research projects that students do assist them develop their problem-solving abilities. It further prepares students for the workforce by inspiring them to research and address a difficulty in their field.

Publications

Students can strengthen their writing and research skills, network with professionals, become better researchers, and learn more about their potential career paths through publications. Scientific research articles written by students are published in reputable journals under the direction of their faculty.



Mind mapping exercise

A mind map is a visual tool for teaching pupils about ideas and concepts. It is a visual thinking tool that aids in information structuring and aids in improving student analysis, comprehension, synthesizing, recall, and generation of new ideas.



Experimental learning





JNTUH COLLEGE CODE:U2EAMCET CODE: SDIP

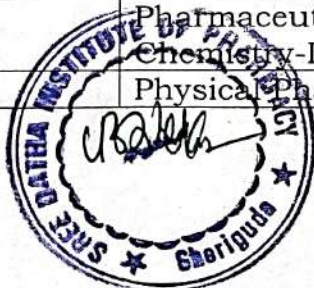
SREE DATTHA INSTITUTE OF PHARMACY

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Courses that include experiential learning through project work/field work/internship for the A. Y. 2022-23

Programme Name	Course code	Name of the Course that include experiential learning through project work/field work/internship	Link to the relevant Document
B. Pharmacy	PS101	Human Anatomy and Physiology I	View Document
B. Pharmacy	PS102	Pharmaceutical Analysis I	
B. Pharmacy	PS103	Pharmaceutics I	
B. Pharmacy	PS104	Pharmaceutical Inorganic Chemistry-I	
B. Pharmacy	HS105	Communication skills	
B. Pharmacy	BS106/BS107	Remedial Biology / Remedial Mathematics	
B. Pharmacy	PS108	Human Anatomy and Physiology-I lab	
B. Pharmacy	PS109	Pharmaceutical Analysis-I lab	
B. Pharmacy	PS110	Pharmaceutics I lab	
B. Pharmacy	PS111	Pharmaceutical Inorganic Chemistry-I lab	
B. Pharmacy	HS112	Communication skills lab	
B. Pharmacy	BS113	Remedial Biology lab	
B. Pharmacy	PS201	Human Anatomy and Physiology II	
B. Pharmacy	PS202	Pharmaceutical Organic Chemistry I	
B. Pharmacy	BS203	Biochemistry	
B. Pharmacy	BS204	Pathophysiology	
B. Pharmacy	CS205	Computer Applications in Pharmacy	
B. Pharmacy	PS206	Human Anatomy and Physiology II lab	
B. Pharmacy	PS207	Pharmaceutical Organic Chemistry I lab	
B. Pharmacy	BS208	Biochemistry lab	
B. Pharmacy	CS209	Computer Applications in Pharmacy lab	
B. Pharmacy	PS301	Pharmaceutical Organic Chemistry-II	
B. Pharmacy	PS302	Physical Pharmaceutics-I	



B. Pharmacy	BS303	Pharmaceutical Microbiology
B. Pharmacy	PC304	Pharmaceutical Engineering
B. Pharmacy	PS305	Pharmaceutical Organic Chemistry-II Lab
B. Pharmacy	PS306	Physical Pharmaceutics-I Lab
B. Pharmacy	BS307	Pharmaceutical Microbiology Lab
B. Pharmacy	PC308	Pharmaceutical Engineering Lab
B. Pharmacy	PS401	Pharmaceutical Organic Chemistry-III
B. Pharmacy	PC402	Physical Pharmaceutics-II
B. Pharmacy	PS403	Pharmacology-I
B. Pharmacy	PC404	Pharmacognosy and Phytochemistry-I
B. Pharmacy	PC405	Pharmaceutical Jurisprudence
B. Pharmacy	PC406	Physical Pharmaceutics-II Lab
B. Pharmacy	PS407	Pharmacology-I Lab
B. Pharmacy	PC408	Pharmacognosy and Phytochemistry-I Lab
B. Pharmacy	PS501	Medicinal Chemistry I
B. Pharmacy	PS502	Industrial Pharmacy - I
B. Pharmacy	PS503	Pharmacology II
B. Pharmacy	PS504	Pharmacognosy and Phytochemistry - II
B. Pharmacy	PS508	Cosmetic science
B. Pharmacy	PS509	Medicinal Chemistry I Lab
B. Pharmacy	PS510	Industrial Pharmacy - I lab
B. Pharmacy	PS511	Pharmacology - II lab
B. Pharmacy	PS512	Pharmacognosy and Phytochemistry - II lab
B. Pharmacy	PS601	Medicinal Chemistry - II
B. Pharmacy	PS602	Pharmacology - III
B. Pharmacy	PS603	Herbal Drug Technology
B. Pharmacy	PS604	Biopharmaceutics and Pharmacokinetics
B. Pharmacy	PS605	Pharmaceutical Quality Assurance
B. Pharmacy	PS609	Medicinal chemistry - II lab
B. Pharmacy	PS610	Pharmacology - III lab
B. Pharmacy	PS611	Herbal Drug Technology lab
B. Pharmacy	PS612	Biopharmaceutics and Pharmacokinetics
B. Pharmacy	PS701	Instrumental Methods of Analysis
B. Pharmacy	PS702	Industrial Pharmacy-II
B. Pharmacy	PS703	Pharmacy Practice



B. Pharmacy	PS704	Medicinal chemistry - III
B. Pharmacy	PS707	Pharmacovigilance
B. Pharmacy	PS709	Instrumental Methods of Analysis Lab
B. Pharmacy	PS710	Practice School
B. Pharmacy	PS711	Industrial Training
B. Pharmacy	PS801	Biostatistics and Research Methodology
B. Pharmacy	PS802	Social and Preventive Pharmacy
B. Pharmacy	PS803	Novel Drug Delivery System
B. Pharmacy	PS804	Computer Aided Drug Design
B. Pharmacy	PS808	Novel Drug Delivery System Lab
B. Pharmacy		Project work
Pharm. D.		Human Anatomy and Physiology
Pharm. D.		Pharmaceutics
Pharm. D.		Medicinal Biochemistry
Pharm. D.		Pharmaceutical Organic Chemistry
Pharm. D.		Pharmaceutical Inorganic Chemistry
Pharm. D.		Remedial Mathematics/ Biology
Pharm. D.		Human Anatomy and Physiology Lab
Pharm. D.		Pharmaceutics Lab
Pharm. D.		Medicinal Biochemistry Lab
Pharm. D.		Pharmaceutical Organic Chemistry Lab
Pharm. D.		Pharmaceutical Inorganic Chemistry Lab
Pharm. D.		Remedial Biology Lab
Pharm. D.		Pathophysiology
Pharm. D.		Pharmaceutical Microbiology
Pharm. D.		Pharmacognosy&Phytopharmaceuticals
Pharm. D.		Pharmacology-I
Pharm. D.		Community Pharmacy
Pharm. D.		Pharmacotherapeutics-I
Pharm. D.		Pharmaceutical Microbiology Lab
Pharm. D.		Pharmacognosy&PhytopharmaceuticalsLab
Pharm. D.		Pharmacotherapeutics-I Lab
Pharm. D.		Pharmacology-II
Pharm. D.		Pharmaceutical Analysis
Pharm. D.		Pharmacotherapeutics-II
Pharm. D.		Pharmaceutical Jurisprudence
Pharm. D.		Medicinal Chemistry



Pharm. D.		Pharmaceutical Formulations
Pharm. D.		Pharmacology-II Lab
Pharm. D.		Pharmaceutical Analysis Lab
Pharm. D.		Pharmacotherapeutics-II Lab
Pharm. D.		Medicinal Chemistry Lab
Pharm. D.		Pharmaceutical Formulations Lab
Pharm. D.		Pharmacotherapeutics-III
Pharm. D.		Hospital Pharmacy
Pharm. D.		Clinical Pharmacy
Pharm. D.		Biostatistics & Research Methodology
Pharm. D.		Biopharmaceutics& Pharmacokinetics
Pharm. D.		Clinical Toxicology
Pharm. D.		Pharmacotherapeutics-III Lab
Pharm. D.		Hospital Pharmacy Lab
Pharm. D.		Clinical Pharmacy Lab
Pharm. D.		Biopharmaceutics & Pharmacokinetics Lab
Pharm. D.		Clinical Research
Pharm. D.		Pharmacoepidemiology and Pharmacoeconomics
Pharm. D.		Clinical Pharmacokinetics & Pharmacotherapeutic Drug Monitoring
Pharm. D.		Clerkship
Pharm. D.		Project work
Pharm. D. (PB)		Pharmacotherapeutics III
Pharm. D. (PB)		Hospital Pharmacy
Pharm. D. (PB)		Clinical Pharmacy
Pharm. D. (PB)		Biostatistics & Research Methodology
Pharm. D. (PB)		Biopharmaceutics& Pharmacokinetics
Pharm. D. (PB)		Clinical Toxicology
Pharm. D. (PB)		Pharmacotherapeutics III Lab
Pharm. D. (PB)		Hospital Pharmacy Lab
Pharm. D. (PB)		Clinical Pharmacy Lab
Pharm. D. (PB)		Biopharmaceutics& Pharmacokinetics Lab
Pharm. D. (PB)		Pharmacotherapeutics I & II
Pharm. D. (PB)		Pharmacotherapeutics I & II Lab
Pharm. D. (PB)		Clinical Research
Pharm. D. (PB)		Pharmacoepidemiology&Pharmacoeconomics
Pharm. D. (PB)		Clinical Pharmacokinetics & P.D.M.
Pharm. D. (PB)		Clerkship
Pharm. D. (PB)		Project Work
M. Pharmacy (Pharmaceutics)	Professional Core-I	Modern Pharmaceutics-I
M. Pharmacy (Pharmaceutics)	Professional Core-II	Applied Biopharmaceutics and Pharmacokinetics



M. Pharmacy (Pharmaceutics)	Professional Elective-I	Total Quality Management
M. Pharmacy (Pharmaceutics)	Professional Elective-II	Stability of Drugs and Dosage Forms
M. Pharmacy (Pharmaceutics)	MC	Research methodology and IPR
M. Pharmacy (Pharmaceutics)	Modern Pharmaceutics - I Lab	Modern Pharmaceutics - I Lab
M. Pharmacy (Pharmaceutics)	Laboratory- II	Applied Biopharmaceutics and Pharmacokinetics Lab
M. Pharmacy (Pharmaceutics)	Audit-I	English for Research Paper Writing
M. Pharmacy (Pharmaceutics)	Professional Core-III	Modern Pharmaceutics - II
M. Pharmacy (Pharmaceutics)	Professional Core-IV	Advanced Drug Delivery Systems
M. Pharmacy (Pharmaceutics)	Professional Elective-III	Industrial Pharmacy
M. Pharmacy (Pharmaceutics)	Professional Elective-IV	Nano based Drug Delivery Systems
M. Pharmacy (Pharmaceutics)	Laboratory- III	Modern Pharmaceutics - II Lab
M. Pharmacy (Pharmaceutics)	Laboratory- IV	Advanced Drug Delivery System Lab
M. Pharmacy (Pharmaceutics)		Mini project
M. Pharmacy (Pharmaceutics)	Audit-II	Personality Development through Life Enlightenment Skills
M. Pharmacy (Pharmaceutics)	Open Elective	Entrepreneurship management
M. Pharmacy (Pharmaceutics)	Professional Elective-V	Scale up and Technology Transfer
M. Pharmacy (Pharmaceutics)	Dissertation	Dissertation Work Review - II
M. Pharmacy (Pharmaceutics)	Dissertation	Dissertation Work Review - III
M. Pharmacy (Pharmaceutics)	Dissertation	Dissertation Viva-Voce
M. Pharmacy (Pharmaceutica l Analysis)	Professional Core-I	Modern Pharmaceutical Analytical Techniques
M. Pharmacy (Pharmaceutica l Analysis)	Professional Core-II	Pharmaceutical and Food Analysis
M. Pharmacy (Pharmaceutica l Analysis)	Professional Elective-I	Advanced Pharmaceutical Analysis
M. Pharmacy (Pharmaceutica l Analysis)	Professional Elective-II	Stability of Drugs and Dosage forms
M. Pharmacy (Pharmaceutica l Analysis)		Research Methodology & IPR



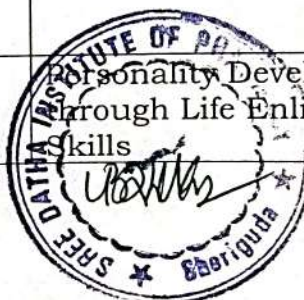
M. Pharmacy (Pharmaceutica I Analysis)	Laboratory-I	Modern Pharmaceutical Analytical Techniques lab
M. Pharmacy (Pharmaceutica I Analysis)	Laboratory-II	Pharmaceutical and food Analysis Lab
M. Pharmacy (Pharmaceutica I Analysis)	Audit I	English for Research Paper Writing
M. Pharmacy (Pharmaceutica I Analysis)	Professional Core-III	Advanced Instrumental Analysis I
M. Pharmacy (Pharmaceutica I Analysis)	Professional Core-IV	Modern Bio-analytical Techniques
M. Pharmacy (Pharmaceutica I Analysis)	Professional Elective-III	Modern Bio-analytical Techniques
M. Pharmacy (Pharmaceutica I Analysis)	Professional Elective-IV	Advanced Instrumental Analysis - II
M. Pharmacy (Pharmaceutica I Analysis)	Laboratory-III	Advanced Instrumental Analysis I Lab
M. Pharmacy (Pharmaceutica I Analysis)	Laboratory-IV	Pharmaceutical Quality Control & Quality Assurance Lab
M. Pharmacy (Pharmaceutica I Analysis)		Mini Project with Seminar
M. Pharmacy (Pharmaceutica I Analysis)	Audit II	Personality Development through Life Enlightenment Skills
M. Pharmacy (Pharmaceutica I Analysis)	Professional Elective-V	Scale up and Technology Transfer
M. Pharmacy (Pharmaceutica I Analysis)	Open Elective	Entrepreneurship management
M. Pharmacy (Pharmaceutica I Analysis)	Dissertation	Dissertation Work Review - II
M. Pharmacy (Pharmaceutica I Analysis)	Dissertation	Dissertation Work Review - III
M. Pharmacy (Pharmaceutica I Analysis)	Dissertation	Dissertation Viva-Voce
M. Pharmacy (Pharmacology)	Professional Core-I	Advanced Pharmacology - I
M. Pharmacy (Pharmacology)	Professional Core-II	Clinical Pharmacology and Pharmacotherapeutics
M. Pharmacy (Pharmacology)	Professional Elective-I	Clinical Research and Pharmacovigilance
M. Pharmacy (Pharmacology)	Professional Elective-II	Principles of Toxicology



M. Pharmacy (Pharmacology)		Research Methodology and IPR	
M. Pharmacy (Pharmacology)	Laboratory-I	Advanced Pharmacology - I Lab	
M. Pharmacy (Pharmacology)	Laboratory-II	Clinical Pharmacology and Pharmacotherapeutics Lab	
M. Pharmacy (Pharmacology)	Audit-I	English for Research Paper Writing	
M. Pharmacy (Pharmacology)	Professional Core-III	Advanced Pharmacology - II	
M. Pharmacy (Pharmacology)	Professional Core-IV	Pharmacological Screening Methods and Toxicology	
M. Pharmacy (Pharmacology)	Professional Elective-III	Pharmacoepidemiology and Pharmacoeconomics	
M. Pharmacy (Pharmacology)	Professional Elective-IV	Pharmaceutical Management	
M. Pharmacy (Pharmacology)	Laboratory-III	Advanced Pharmacology - II Lab	
M. Pharmacy (Pharmacology)	Laboratory-IV	Pharmacological Screening Methods and Toxicologylab	
M. Pharmacy (Pharmacology)		Mini project with Seminar	
M. Pharmacy (Pharmacology)		Mini project with Seminar	
M. Pharmacy (Pharmacology)	Audit-II	Mini project with Seminar through Life Enlightenment Skills	
M. Pharmacy (Pharmacology)	Professional Elective-V	Hospital and Community Pharmacy	
M. Pharmacy (Pharmacology)	Open Elective	Pharmaceutical Administration	
M. Pharmacy (Pharmacology)	Dissertation	Dissertation Work Review - II	
M. Pharmacy (Pharmacology)	Dissertation	Dissertation Work Review - III	
M. Pharmacy (Pharmacology)	Dissertatio	Dissertation Viva-Voce	
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Professional Core-I	Good Regulatory Practice	
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Professional Core-II	Drug Regulatory Affairs	



M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Professional Elective-I	Total Quality management
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Professional Elective-II	Stability of Drugs and Dosage forms
M. Pharmacy (Pharmaceutic al Regulatory Affairs)		Research methodology and IPR
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Laboratory- I	Regulatory Practice and Documentation Lab
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Laboratory- II	Drug Regulation and Registration Lab
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Audit - I	English for Research Paper Writing
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Professional Core-III	Regulatory aspects of medical devices
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Professional Core-IV	Regulatory aspects of herbals and biologicals
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Professional Elective-III	Nano based Drug delivery systems
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Professional Elective-IV	Advanced Drug Delivery Systems
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Laboratory- III	Regulatory aspects of herbals and biologicals Lab
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Laboratory- IV	Regulatory aspects of medical devices Lab
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Audit - II	Personality Development through Life Enlightenment Skills



Affairs)			
M. Pharmacy (Pharmaceutic al Regulatory Affairs)		Mini Project with Seminar	
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Professional Elective-V	Scale up and Technology Transfer	
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Open Elective	Entrepreneurship management	
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Dissertation	Dissertation Work Review - II	
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Dissertation	Dissertation Work Review - III	
M. Pharmacy (Pharmaceutic al Regulatory Affairs)	Dissertatio	Dissertation Viva-Voce	



JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
BACHELOR OF PHARMACY
COURSE STRUCTURE AND SYLLABUS

Effective from Academic Year 2022-23 Admitted Batch

I Year I semester

S. No	Course Code	Subject	L	T	P	Credits
1	PS101	Human Anatomy and Physiology I	3	1	-	4
2	PS102	Pharmaceutical Analysis I	3	1	-	4
3	PS103	Pharmaceutics	3	1	-	4
4	PS104	Pharmaceutical Inorganic Chemistry	3	1	-	4
5	HS105	Communication skills	2	-	-	2
6	BS106/BS107	Remedial Biology [#] / Remedial Mathematics [§]	2 [#] /3 [§]	-	-	2 [#] /3 [§]
7	PS108	Human Anatomy and Physiology-I lab	-	-	4	2
8	PS109	Pharmaceutical Analysis I lab	-	-	4	2
9	PS110	Pharmaceutics lab	-	-	4	2
10	PS111	Pharmaceutical Inorganic Chemistry lab	-	-	4	2
11	HS112	Communication skills lab	-	-	2	1
12	BS113	Remedial Biology lab	-	-	2	1
Total			16/17	4	20	30[#]/30

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

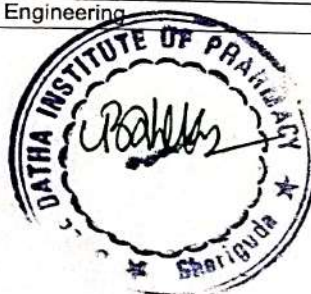
[§]Applicable ONLY for the students who have studied Physics / Chemistry / Botany / Zoology at HSC and appearing for Remedial Mathematics (RM) course.

I Year II semester

S. No	Course Code	Subject	L	T	P	Credits
1	PS201	Human Anatomy and Physiology II	3	1	-	4
2	PS202	Pharmaceutical Organic Chemistry-I	3	1	-	4
3	BS203	Biochemistry	3	1	-	4
4	BS204	Pathophysiology	3	1	-	4
5	CS205	Computer Applications in Pharmacy	3	-	-	3
6	PS206	Human Anatomy and Physiology II lab	-	-	4	2
7	PS207	Pharmaceutical Organic Chemistry-I Lab	-	-	4	2
8	BS208	Biochemistry lab	-	-	4	2
9	CS209	Computer Applications in Pharmacy lab	-	-	2	1
10	*MC200	NSS	-	-	-	-
Total			15	4	14	26

II YEAR I SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	PS301	Pharmaceutical Organic Chemistry-II	3	1	0	4
2	PS302	Physical Pharmaceutics-I	3	1	0	4
3	BS303	Pharmaceutical Microbiology	3	1	0	4
4	PC304	Pharmaceutical Engineering	3	1	0	4



5	PS305	Pharmaceutical Organic Chemistry-II Lab	0	0	4	2
6	PS306	Physical Pharmaceutics-I Lab	0	0	4	2
7	BS307	Pharmaceutical Microbiology Lab	0	0	4	2
8	PC308	Pharmaceutical Engineering Lab	0	0	4	2
10	*MC300	NSO	0	0	0	0
Total Credits			12	04	16	24

II YEAR II SEMESTER

S. No	Course Code	Course Title	L	T	P	Credits
1	PS401	Pharmaceutical Organic Chemistry-III	3	1	0	4
2	PC402	Physical Pharmaceutics-II	3	1	0	4
3	PS403	Pharmacology-I	3	1	0	4
4	PC404	Pharmacognosy and Phytochemistry-I	3	1	0	4
5	PS405	Pharmaceutical Jurisprudence	3	1	0	4
6	PC406	Physical Pharmaceutics-II Lab	0	0	4	2
7	PS407	Pharmacology-I Lab	0	0	4	2
8	PC408	Pharmacognosy and Phytochemistry-I Lab	0	0	4	2
9	*MC400	Gender Sensitization Lab	1	0	0	0
Total Credits			16	05	12	26

III Year I Semester

S. No.	Course Code	Course Title	L	T	P	Credits
1	PS501	Medicinal Chemistry I	3	1	0	4
2	PS502	Industrial Pharmacy - I	3	1	0	4
3	PS503	Pharmacology II	3	1	0	4
4	PS504	Pharmacognosy and Phytochemistry - II	3	1	0	4
5	PS505 PS506 PS507 PS508	Open Elective - I I. Generic Product Development II. Green Chemistry III. Cell and Molecular Biology IV. Cosmetic science	3	1	0	4
6	PC509	Medicinal Chemistry I Lab	0	0	4	2
7	PS510	Industrial Pharmacy - I lab	0	0	4	2
8	PS511	Pharmacology - II lab	0	0	4	2
9	PS512	Pharmacognosy and Phytochemistry - II lab	0	0	4	2
10	*MC500	Environmental sciences	1	0	0	0
Total			16	05	16	28

III Year II Semester

S. No.	Course Code	Course Title	L	T	P	Credits
1	PS601	Medicinal Chemistry - II	3	1	0	4
2	PS602	Pharmacology - III	3	1	0	4
3	PS603	Herbal Drug Technology	3	1	0	4
4	PS604	Biopharmaceutics and Pharmacokinetics	3	1	0	4
5	PS605 PS606 PS607 PS608	Open Elective - II I. Pharmaceutical Quality Assurance II. Pharmaceutical Biotechnology III. Bioinformatics IV. Screening Methods in Pharmacology	3	1	0	4
6	PS609	Medicinal chemistry - II lab	0	0	4	2



7	PS610	Pharmacology - III lab	0	0	4	2
8	PS611	Herbal Drug Technology lab	0	0	4	2
9	PS612	Biopharmaceutics and Pharmacokinetics Lab	0	0	4	2
10	*MC600	Human Values and Professional Ethics	1	0	0	0
Total			16	05	16	28

IV Year I Semester

S.No	Course Code	Course Title	L	T	P	Credits
1	PS701	Instrumental Methods of Analysis	3	1	0	4
2	PS702	Industrial Pharmacy-II	3	1	0	4
3	PS703	Pharmacy Practice	3	1	0	4
4	PS704	Medicinal Chemistry - III	3	1	0	4
5	PS705 PS706 PS707 PS708	Open Elective - III i. Pharmaceutical Marketing ii. Pharmaceutical Regulatory Science iii. Pharmacovigilance iv. Quality Control and Standardization of Herbals	3	1	0	4
6	PS709	Instrumental Methods of Analysis Lab	0	0	4	2
7	PS710	Practice School	0	0	4	2
8	PS711	Industrial Training	0	0	4	2
Total			15	5	12	26

IV Year II Semester

S.No	Course Code	Course Title	L	T	P	Credits
1	PS801	Biostatistics and Research Methodology	3	1	0	4
2	PS802	Social and Preventive Pharmacy	3	1	0	4
3	PS803	Novel Drug Delivery System	3	1	0	4
4	PS804 PS805 PS806 PS807	Open Elective - IV i. Computer Aided Drug Design ii. Nano Technology iii. Experimental Pharmacology iv. Advanced Instrumentation Techniques	3	1	0	4
5	PS808	Novel Drug Delivery System Lab	0	0	4	2
6		Project Work	0	0	6	3
Total			12	4	10	21

*MC - Mandatory Course - Satisfactory/ Unsatisfactory.



R22M.PHARM PHARMACEUTICS/PHARMACEUTICAL TECH.

JNTUH

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.PHARMACY (PHARMACEUTICS / PHARMACEUTICAL TECHNOLOGY)
R22 COURSE STRUCTURE AND SYLLABUS
Effective from Academic Year 2022-23 Admitted Batch

I YEAR I Semester

Course Code	Course Title	L	T	P	Credits
Professional Core-I	Modern Pharmaceutics-I	3	1	0	4
Professional Core-II	Applied Biopharmaceutics and Pharmacokinetics	3	1	0	4
Professional Elective-I	1. Advanced Physical Pharmaceutics	3	1	0	4
	2. Drug Regulatory affairs				
	3. Total Quality Management				
Professional Elective-II	1. Cosmetics and Cosmeceuticals	3	1	0	4
	2. Pharmaceutical Validation				
	3. Stability of Drugs and Dosage Forms				
	Research methodology and IPR	2	0	0	2
Laboratory- I	Modern Pharmaceutics – I Lab	0	0	6	3
Laboratory- II	Applied Biopharmaceutics and Pharmacokinetics Lab	0	0	6	3
Audit - I	Audit Course- I	2	0	0	0
	Seminar & Assignment	0	0	4	2
	TOTAL	16	4	16	26

I YEAR II Semester

Course Code	Course Title	L	T	P	Credits
Professional Core-III	Modern Pharmaceutics - II	3	1	0	4
Professional Core-IV	Advanced Drug Delivery Systems	3	1	0	4
Professional Elective-III	1. Industrial Pharmacy	3	1	0	4
	2. Herbal Cosmetics				
	3. Pharmaceutical Management				
Professional Elective-IV	1. Nano based Drug Delivery Systems	3	1	0	4
	2. Nutraceuticals				
	3. Clinical Research and Pharmacovigilance				
Laboratory- III	Modern Pharmaceutics – II Lab	0	0	6	3
Laboratory- IV	Advanced Drug Delivery System Lab	0	0	6	3
	Mini Project	2	0	0	2
Audit - II	Audit Course- II	2	0	0	0
	Seminar & Assignment	0	0	4	2
	TOTAL	16	4	16	26

II YEAR I Semester

Course Code	Course Title	L	T	P	Credits
Professional Elective-V	1. Biostatistics	3	1	0	4
	2. Scale up and Technology Transfer				
	3. Production area, Design and Packaging Development				
Open Elective	Open Elective	3	1	0	4
	Comprehensive Viva voce	0	0	8	4
	Dissertation Work Review	0	0	24	12
	TOTAL	6	2	32	24



R22M.PHARM PHARMACEUTICS/PHARMACEUTICAL TECH.

JNTUH

II YEAR II Semester

Course Code	Course Title	L	T	P	Credits
Dissertation	Dissertation Work Review - III	0	0	24	12
Dissertation	Dissertation Viva-Voce	0	0	20	10
	TOTAL	0	0	44	22

***For Dissertation Work Review - I, Please refer R22 Academic Regulations.**

Audit Courses I & II:

1. English for Research Paper Writing
2. Disaster Management
3. Sanskrit for Technological Learning
4. Value Education
5. Constitution of India
6. Pedagogy Studies
7. Stress Management by Yoga
8. Personality Development through Life Enlightenment Skills



R22 M.PHARM PHARMACEUTICAL ANALYSIS

JNTUH

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.PHARMACY (PHARMACEUTICAL ANALYSIS)
R22 COURSE STRUCTURE AND SYLLABUS
 Effective from Academic Year 2022-23 Admitted Batch

I YEAR I Semester

Course Code	Course Title	L	T	P	Credits
Professional Core-I	Modern Pharmaceutical Analytical Techniques	3	1	0	4
Professional Core-II	Pharmaceutical Food Analysis	3	1	0	4
Professional Elective-I	1. Advanced Pharmaceutical Analysis 2. Drug Regulatory Affairs 3. Phytochemistry	3	1	0	4
Professional Elective-II	1. Pharmaceutical Validation 2. Cosmetics and Cosmeceuticals 3. Stability of Drugs and Dosage forms	3	1	0	4
	Research Methodology & IPR	2	0	0	2
Laboratory-I	Modern Pharmaceutical Analytical Techniques lab	0	0	6	3
Laboratory-II	Pharmaceutical food Analysis Lab	0	0	6	3
Audit - II	Audit course- I	2	0	0	0
	Seminar & Assignment	0	0	4	2
	TOTAL	16	4	16	26

I YEAR II Semester

Course Code	Course Title	L	T	P	Credits
Professional Core-III	Advanced Instrumental Analysis - I	3	1	0	4
Professional Core-IV	Pharmaceutical Quality Control & Quality Assurance	3	1	0	4
Professional Elective-III	1. Modern Bio-analytical Techniques 2. Herbal Cosmetics 3. Pharmacoeconomics & Pharmacoeconomics	3	1	0	4
Professional Elective-IV	1. Advanced Instrumental Analysis - II 2. Nutraceuticals 3. Clinical Research and Pharmacovigilance	3	1	0	4
Laboratory- III	Advanced Instrumental Analysis I Lab	0	0	6	3
Laboratory- IV	Pharmaceutical Quality Control & Quality Assurance Lab	0	0	6	3
	Mini project	2	0	0	2
Audit - II	Audit Course - II	2	0	0	0
	Seminar & Assignment	0	0	4	2
	Total	16	4	16	26

II YEAR I Semester

Course Code	Course Title	L	T	P	Credits
Professional Elective-V	1. Biostatistics 2. Scale up and Technology Transfer 3. Production Area Design and Packaging Development	3	1	0	4
Open Elective	Open Elective	3	1	0	4
Dissertation	Comprehensive Viva Voce	0	0	8	4
	Dissertation Work Review	0	0	24	12
	Total	6	2	32	24

R22 M.PHARM PHARMACEUTICAL ANALYSIS

II YEAR II SEMESTER

Course Code	Course Title	L	T	P	Credits
		0	7	24	12
Dissertation	Dissertation Work Review - III	0	0	20	10
Dissertation	Dissertation Viva-Voce	0	0	44	22
	Total				

*For Dissertation Work Review - I, Please refer R22 Academic Regulations.

Audit Courses I&II:

1. English for Research Paper Writing
2. Disaster Management
3. Sanskrit for Technological Learning
4. Value Education
5. Constitution of India
6. Pedagogy Studies
7. Stress Management by Yoga
8. Personality Development through Life Enlightenment Skills



JAWAHARLALNEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M. PHARMACY (PHARMACOLOGY)
R22 COURSE STRUCTURE AND SYLLABUS
Effective from Academic Year 2022 – 23 Admitted Batch

I YEAR I Semester

Course Code	Course Title	L	T	P	Credits
Professional Core-I	Advanced Pharmacology-I	3	1	0	4
Professional Core-II	Clinical Pharmacology and Pharmacotherapeutics	3	1	0	4
Professional Elective-I	1. Pharmacokinetics and Drug Metabolism 2. Clinical Research and Pharmacovigilance 3. Principles of Drug Discovery	3	1	0	4
Professional Elective-II	1. Animal Cell Cultures and Applications 2. Molecular Biology 3. Principles of Toxicology	3	1	0	4
	Research Methodology and IPR	2	0	0	2
Laboratory-I	Advanced Pharmacology –I Lab	0	0	6	3
Laboratory-II	Clinical Pharmacology and Pharmacotherapeutics Lab	0	0	6	3
Audit-I	Audit Course-I	2	0	0	0
	Seminar & Assignment	0	0	4	2
	TOTAL	16	4	16	26

I YEAR II Semester

Course Code	Course Title	L	T	P	Credits
Professional Core-III	Advanced Pharmacology - II	3	1	0	4
Professional Core-IV	Pharmacological Screening Methods and Toxicology	3	1	0	4
Professional Elective-III	1. Quality Use of Medicines 2. Pharmacoepidemiology and Pharmacoeconomics 3. Advanced Drug Delivery Systems	3	1	0	4
Professional Elective-IV	1. Pharmaceutical Management 2. Nutraceuticals 3. Pharmacokinetic and Therapeutic Drug Monitoring	3	1	0	4
Laboratory-III	Advanced Pharmacology–II Lab	0	0	6	3
Laboratory-IV	Pharmacological Screening Methods and Toxicology lab	0	0	6	3
	Mini project	2	0	0	2
Audit-II	Audit Course– II	2	0	0	0
	Seminar & Assignment	0	0	4	2
	TOTAL	16	4	16	26

II YEAR I Semester

Course Code	Course Title	L	T	P	Credits
Professional Elective-V	1. Biostatistics 2. Hospital and Community Pharmacy 3. Medicinal Plant Biotechnology	3	1	0	4
Open Elective	Open Elective	3	1	0	4
	Comprehensive Viva Voce	0	0	8	4
	Dissertation Work Review-II	0	0	24	12
	TOTAL	6	2	32	24



R22 M.Pharm Pharmacology

II YEAR II Semester

Course Code	Course Title	L	T	P	Credits
Dissertation	Dissertation Work Review - III	0	0	24	12
Dissertation	Dissertation Viva-Voce	0	0	20	10
	TOTAL	0	0	44	22

***For Dissertation Work Review - I, Please refer R22 Academic Regulations.**

Audit Courses I & II:

1. English for Research Paper Writing
2. Disaster Management
3. Sanskrit for Technological Learning
4. Value Education
5. Constitution of India
6. Pedagogy Studies
7. Stress Management by Yoga
8. Personality Development through Life Enlightenment Skills



R22 M.Pharm Pharmaceutical Regulatory Affairs

JNTUH

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.PHARMACY (PHARMACEUTICAL REGULATORY AFFAIRS)
R22 COURSE STRUCTURE AND SYLLABUS
Effective from Academic Year 2022-23 Admitted Batch

I YEAR I Semester

Course Code	Course Title	L	T	P	Credits
Professional Core-I	Good Regulatory Practices	3	1	0	4
Professional Core-II	Drug Regulatory Affairs	3	1	0	4
Professional Elective-I	1. Intellectual Property Rights 2. Total Quality management 3. Pharmaceutical Validation	3	1	0	4
Professional Elective-II	1. Stability of Drugs and Dosage Forms 2. Pharmaceutical Formulation Technology 3. Documentation and Regulatory Writing	3	1	0	4
	Research methodology and IPR	2	0	0	2
Laboratory- I	Regulatory Practice and Documentation Lab	0	0	6	3
Laboratory- II	Drug Regulation and Registration Lab	0	0	6	3
Audit - I	Audit Course - I	2	0	0	0
	Seminar & Assignment	0	0	4	2
	Total	16	4	16	26

I YEAR II Semester

Course Code	Course Title	L	T	P	Credits
Professional Core-III	Regulatory aspects of herbals and biologicals	3	1	0	4
Professional Core-IV	Regulatory aspects of medical devices	3	1	0	4
Professional Elective-III	1. Regulatory aspects of Foods and Nutraceuticals 2. Pharmaceutical Quality Control and Quality Assurance 3. Nano Based Drug Delivery Systems	3	1	0	4
Professional Elective-IV	1. Clinical Research and Pharmacovigilance 2. Nutraceuticals 3. Advanced Drug Delivery Systems	3	1	0	4
Laboratory- III	Regulatory aspects of herbals and biologicals lab	0	0	6	3
Laboratory- IV	Regulatory aspects of medical devices lab	0	0	6	3
	Mini project	2	0	0	2
Audit - II	Audit Course - II	2	0	0	0
	Seminar & Assignment	0	0	4	2
	Total	16	4	16	26

II YEAR I Semester

Course Code	Course Title	L	T	P	Credits
Professional Elective-V	1. Biostatistics 2. Scale up and Technology Transfer 3. Production area, Design and Packaging Development	3	1	0	4
Open Elective	Open Elective	3	1	0	4
	Comprehensive Viva Voce	0	0	8	4
	Dissertation Work Review - II	0	0	24	12
	Total	6	2	32	24



R22 M.Pharm Pharmaceutical Regulatory Affairs

JNTUH

II YEAR II Semester

Course Code	Course Title	L	T	P	Credits
Dissertation	Dissertation Work Review - III	0	0	24	12
Dissertation	Dissertation Viva-Voce	0	0	20	10
	Total	0	0	44	22

***For Dissertation Work Review - I, Please refer R22 Academic Regulations.**

Audit Courses I & II:

1. English for Research Paper Writing
2. Disaster Management
3. Sanskrit for Technological Learning
4. Value Education
5. Constitution of India
6. Pedagogy Studies
7. Stress Management by Yoga
8. Personality Development through Life Enlightenment Skills



PHARM-D 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
	Total hours	16	18	6 = (40)

* For Biology



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



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.



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

