



Course Name: Doctor of Pharmacy

Duration: 6 years

S.No.	Program Outcomes
1	To understand the elements of pharmaceutical care and provide comprehensive patient care services.
2.	To understand the elements of pharmaceutical care and provide comprehensive patient care services.
3	To understand fundamental aspects of pharmacotherapy based on pathological abnormalities that occur in various diseases and disorders.
4	To impart basic knowledge regarding the rational use of various drugs in treating the patient in a view to individualize drug therapy for a specific diagnosis.
5	Identify the patient specific parameters relevant in initiating drug therapy, and monitoring therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse effect/s)
6	To ensure effective communication of health-related information to all healthcare professionals by providing patient counselling, identification and management of adverse drug reactions, conducting medication, history interviews and reporting of medication errors.
7	Impart knowledge on drug development process especially the phases of clinical trials and also the ethical issues involved in the conduct of clinical research.
8	To ensure that effective, integrated and critically analyzed medicine and poison information is provided to healthcare professionals, which helps in the efficient patient management.



DOCTOR OF PHARMACY

FIRST YEAR

S.No.	Subject	Course Outcomes
1.	HUMAN ANATOMY &PHYSIOLOGY	<ol style="list-style-type: none">1. This course is designed to impart a fundamental knowledge on the structure and functions of the human body.2. It also helps in understanding both homeostasis mechanisms and homeostatic imbalances of various body systems.3. Since a medicament, which is produced by pharmacist, is used to correct the deviations in human body, it enhances the understanding of how the drugs act on the various body systems in correcting the disease state of the organs.
2.	PHARMACEUTICS	<ol style="list-style-type: none">1. This course is designed to impart a fundamental knowledge on the art and science of formulating different dosage forms.2. It prepares the students for most basics of the applied field of pharmacy.
3.	MEDICINAL BIOCHEMISTRY	<ol style="list-style-type: none">1. This course deals with complete understanding of the molecular level of the chemical process associated with living cells.2. Clinical chemistry deals with the study of chemical aspects of human life in health and illness and the application of chemical laboratory methods to diagnosis, control of treatment, and prevention of diseases.
4.	PHARMACEUTICAL ORGANIC CHEMISTRY	<ol style="list-style-type: none">1. This course is designed to impart a very good knowledge about various chemical aspects of different classes of organic compounds.
5.	PHARMACEUTICAL INORGANIC CHEMISTRY	<ol style="list-style-type: none">1. This course mainly deals with fundamentals of Analytical Chemistry and also the study of inorganic pharmaceuticals regarding their monographs and also the course deals with basic knowledge of analysis of various pharmaceuticals.



6.	MATHEMATICS/BIOLOGY	<ol style="list-style-type: none">1. This is an introductory course in mathematics.2. This subject deals with the introduction to matrices, determinants, trigonometry, analytical geometry, differential calculus, integral calculus, differential equations, Laplace transformations. <ol style="list-style-type: none">1. This is an introductory course in Biology, which gives detailed study of natural sources such as plant and animal origin.2. This subject has been introducing to the pharmacy course in order to make the student aware of various naturally occurring drugs and its history, sources, classification, distribution and the characters of the plants and animals.3. This subject gives basic foundation to Pharmacognosy.
----	----------------------------	--



SECOND YEAR

S.No.	Subject	Course Outcomes
1.	PATHOPHYSIOLOGY	<ol style="list-style-type: none">1. This course is designed to impart a thorough knowledge of the relevant aspects of pathology of various conditions with reference to its pharmacological applications, and understanding of basic Pathophysiological mechanisms.2. Hence it will not only help to study the syllabus of pathology, but also to get base line knowledge of its application in other subject of pharmacy.
2.	PHARMACEUTICAL MICROBIOLOGY	<ol style="list-style-type: none">1. This course deals with the various aspects of microorganisms, its classification, morphology, laboratory cultivation identification and maintenance.2. It also discusses with sterilization of pharmaceutical products, equipment, media etc.3. The course further discusses the immunological preparations, diseases its transmission, diagnosis, control and immunological tests.4. Microbiology has always been an essential component of pharmacy curriculum.5. This is because of the relevance of microbiology to pharmaceutical sciences and more specifically to pharmaceutical industry.
3.	PHARMACOGNOSY & PHYTOPHARMACEUTICALS	<ol style="list-style-type: none">1. This subject has been introduced for the pharmacy course in order to make the student aware of medicinal uses of various naturally occurring drugs its history, sources, distribution, method of cultivation, active constituents, medicinal uses, identification tests, preservation methods, substitutes and adulterants.



4.	PHARMACOLOGY	<ol style="list-style-type: none">1. This subject will provide an opportunity for the student to learn about the drug with regard to classification, pharmacodynamic and pharmacokinetic aspects, adverse effects, uses, dose, route of administration, precautions, contraindications and interaction with other drugs.2. In this subject, apart from general pharmacology, drugs acting on autonomic nervous system, cardiovascular system, central nervous system, blood and blood forming agents and renal system will be taught.3. In addition to theoretical knowledge, the basic practical knowledge relevant to therapeutics will be imparted.
5.	COMMUNITY PHARMACY	<ol style="list-style-type: none">1. In the changing scenario of pharmacy practice in India, Community Pharmacists are expected to offer various pharmaceutical care services.2. In order to meet this demand, students will be learning various skills such as dispensing of drugs, responding to minor ailments by providing suitable safe medication, patient counselling, health screening services for improved patient care in the community setup.
6.	PHARMACOTHERAPEUTICS	<ol style="list-style-type: none">1. Pharmacotherapeutics is introduced for the first time in second of PharmD program.2. The whole disorders and diseases seen in human population were divided and introduced in second, third and fourth year of PharmD.3. This course is designed to impart knowledge and skills necessary for contribution to quality use of medicines. Chapters dealt cover briefly pathophysiology and mostly therapeutics of various diseases. This will enable the student to understand the pathophysiology of common diseases and their management.



THIRD YEAR

S.No.	Subject	Course Outcomes
1	PHARMACOLOGY	<ol style="list-style-type: none">1. This subject will provide an opportunity for the student to learn about the drug with regard to classification, pharmacodynamic and pharmacokinetic aspects, adverse effects, uses, dose, route of administration, precautions, contraindications and interaction with other drugs.2. In this subject, drugs acting on autacoids, respiratory system, GIT, immune system and hormones, and pharmacology of autacoids and hormones will be concentrated. In addition, pharmacology of chemotherapeutic agents, vitamins, essential minerals and principles of toxicology are also taught.3. In addition to theoretical knowledge, the basic practical knowledge relevant to therapeutics will be imparted.
2	PHARMACEUTICAL ANALYSIS	<ol style="list-style-type: none">1. This subject deals with the application of instrumental methods in qualitative and quantitative analysis of drugs.2. This subject is designed to impart a fundamental knowledge on the principles and instrumentation of spectroscopic and chromatographic technique.3. This also emphasizes on theoretical and practical knowledge on modern analytical instruments that are used for drug testing.
3	PHARMACOTHERAPEUTICS-II	<ol style="list-style-type: none">1. This course is designed to impart knowledge and skills necessary for contribution to quality use of medicines.2. Chapters dealt cover briefly pathophysiology and mostly therapeutics of various diseases.3. This will enable the student to understand the pathophysiology of common diseases and their management.



4	PHARMACEUTICAL JURISPRUDENCE	<ol style="list-style-type: none">1. This course exposes the student to several important legislations related to the profession of pharmacy in India.2. The Drugs and Cosmetics Act, along with its amendments are the core of this course.3. Other acts, which are covered, include the Pharmacy Act, dangerous drugs, medicinal and toilet preparation Act etc.4. Besides this the new drug policy, professional ethics, DPCO, patent and design Act will be discussed
5	MEDICINAL CHEMISTRY	<ol style="list-style-type: none">1. The course deals with aspects like Quantitative Structure Activity Relationship (QSAR), prodrug, combinatorial chemistry and computer aided drug design (CADD) and concept of anti sense molecules.2. Along with these the students are also exposed to other aspects like mechanism of action, synthesis of important compounds, chemical nomenclature, brand names of important marketed products and their side effects.
6	PHARMACEUTICAL FORMULATIONS	<ol style="list-style-type: none">1. This Subject deals with the formulation and evaluation of various pharmaceutical dosage forms2. The student will be exposed various methods of formulations available for different kinds of pharmaceutical dosage forms along with basic principles behind their formulation.



FOURTH YEAR

S.No.	Subject	Course Outcomes
1	PHARMACOTHERAPEUTICS	<ol style="list-style-type: none">1. This course is designed to impart knowledge and skills necessary for contribution to quality use of medicines.2. Chapters dealt cover briefly pathophysiology and mostly therapeutics of various diseases.3. This will enable the student to understand the pathophysiology of common diseases and their management.
2	HOSPITALPHARMACY	<ol style="list-style-type: none">1. In the changing scenario of pharmacy practice in India, for successful practice of Hospital Pharmacy, the students are required to learn various skills like drug distribution, drug dispensing, manufacturing of parenteral preparations, drug information, patient counselling, and therapeutic drug monitoring for improved patientcare.
3	CLINICALPHARMACY	<ol style="list-style-type: none">1. This course completely deals with the practice of pharmacy at the hospital settings by providing sound knowledge to students on various proceedings that happen in and around the hospital.2. It also highlights the importance of clinical pharmacist various aspects of drug use by inculcating concepts of drug and poison information services, pharmacovigilance, medication history interview, ward round participation, laboratory and clinical data assessment, patient counselling etc.



4	BIOSTATISTICS & RESEARCH METHODOLOGY	<ol style="list-style-type: none">1. To understand the applications of Biostatics in Pharmacy.2. This subject deals with descriptive statistics, Graphics, Correlation, Regression, logistic regression Probability theory, Sampling technique, Parametric tests, Non Parametric tests, ANOVA, Introduction to Design of Experiments, Phases of Clinical trials and Observational and Experimental studies, SPSS, R and MINITAB statistical software's, analyzing the statistical data using Excel.
5	BIOPHARMACEUTICS & PHARMACOKINETICS	<ol style="list-style-type: none">1. This subject is designed to impart knowledge and skills of Biopharmaceutics and pharmacokinetics and their applications in pharmaceutical development, design of dose and dosage regimen.
6	CLINICAL TOXICOLOGY	<ol style="list-style-type: none">1. This subject is designed to provide all necessary aspects of poison management and general principals involved behind them.2. It also deals with various poisonous substances and their remedial measures during any accidental exposure towards such substances.3. Synthetic chemicals, plant and animal toxins, drugs, heavy metals, radiation etc are all included in the subject and it offers a broader perspective of learning to the student



FIFTH YEAR

S.No.	Subject	Course Outcomes
1.	CLINICALRESEARCH	<ol style="list-style-type: none">1. This course aims to provide the students an opportunity to learn drug development process especially the phases of clinical trials and also the ethical issues involved in the conduct of clinical research.2. Also, it aims to imparts knowledge and develop skills on conceptualizing, designing, conducting and managing clinical trials.
2.	PHARMACOEDPIDEMIOLOGY &PHARMACOECONOMICS	<ol style="list-style-type: none">1. This subject deals with various applications of epidemiological methods in the field of pharmacy along with various sources that provide pharmacoepidemiologic data for the conduction of studies like vaccine safety, drug induced birth disorders etc.2. Pharmaco-economics on the other hand deals with effective application of therapeutic regimens by reducing the overall cost occurring due to the treatment.
3.	CLINICAL PHARMACOKINETICS & PHARMACOTHERAPEUTIC DRUGMONITORING	<ol style="list-style-type: none">1. This course is designed to enable students to understand the basics principles and applications of pharmacokinetics in designing the individualized dosage regimen, to interpret the plasma drug concentration profile in altered pharmacokinetics, drug interactions and in therapeutic drug monitoring processes to optimize the drug dosage regimen.2. Also, it enables students to understand the basic concepts of pharmacogenetics, pharmacometrics for modeling and simulation of pharmacokinetic data