



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

Subject code	Name of Subject	Theory	Practicals
<b>I/VI YEAR</b>			
1.1	Human Anatomy and Physiology	<ol style="list-style-type: none"> <li>1. By studying this course, students are able to correlate Human Anatomy &amp; Physiology with other biomedical sciences.</li> <li>2. It provides basic knowledge about the structure and physiology of human body.</li> <li>3. The students would get an idea about the mechanism of action of drugs as they study the basic structure of Human body.</li> <li>4. By studying this course, students would be able to understand the coordinated working pattern of organs of human body.</li> <li>5. Through this course, students would be able to understand homeostatic mechanisms of Human body.</li> </ol>	<ol style="list-style-type: none"> <li>1. This course provides the students' knowledge about the functions of sense organs of human body.</li> <li>2. This course provides specimens which help to understand various parts of human body</li> <li>3. This course trains the students about usage of tools for the evaluation of parameters.</li> <li>4. This course allows the students to prepare chart models which helps the students to improve their organizational skills as well as time management techniques.</li> </ol>



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

1.2	Pharmaceutics	<ol style="list-style-type: none"> <li>1. To understand the concepts related to dosage forms like monophasic and biphasic liquid dosage forms</li> <li>2. To get a basic idea about different dosage forms and its route of administration</li> <li>3. To prepare and dispense the liquid dosage form for external applications</li> <li>4. To elucidate the compounding of suppositories</li> </ol>	<ol style="list-style-type: none"> <li>1. To understand the concepts related to dosage forms like monophasic and biphasic liquid dosage forms</li> <li>2. To get a basic idea about different dosage forms and its route of administration</li> <li>3. To prepare and dispense the liquid dosage form for external applications</li> <li>4. To elucidate the compounding of suppositories</li> </ol>
1.3	Medicinal Biochemistry	<ol style="list-style-type: none"> <li>1. Basic study about cell and their constituents</li> <li>2. Importance of enzymes and their inhibitors in diagnostic and therapeutic applications</li> <li>3. Chemistry of biomolecules and bioenergetics</li> <li>4. Metabolism of carbohydrates in physiological and pathological conditions</li> <li>5. Lipid and amino acid, nucleic acid metabolic pathways</li> </ol>	<ol style="list-style-type: none"> <li>1. Determine normal constituents of urine in diagnosing health condition</li> <li>2. Abnormal constituents identification in urine sample helps in diagnosing diseases or disorder condition</li> <li>3. Describes the changes in blood parameters in various metabolic disorders condition</li> <li>4. Gains the knowledge related to importance of ions in physiological process</li> </ol>



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

1.4	Pharmaceutical Organic Chemistry	<ol style="list-style-type: none"> <li>1. Provide the good knowledge about IUPAC/ common system of nomenclature of simple organic compounds belonging to the different class of organic compounds</li> <li>2. To understand about the important physical and chemical properties of organic compounds.</li> <li>3. To know about free radical/ nucleophilic/ electrophilic substitution, addition, elimination, oxidation and reduction reactions with mechanism, order of reactivity, stability of the compound.</li> <li>4. It explains about organic reactions with mechanisms</li> <li>5. Deals with free radical addition's reactions, Bayer strain theory, SN<sub>1</sub>, SN<sub>2</sub> reactions.</li> </ol>	<ol style="list-style-type: none"> <li>1. The practical knowledge on how to prepare the organic compounds, purification and recrystallization</li> <li>2. To know about the preparation of organic compounds by using the named reactions</li> <li>3. Able to understand the systemic analysis of unknown organic compounds</li> <li>4. Knowledge about stereo models of methane, ethane, ethylene, acetylene and so on</li> </ol>
1.5	Pharmaceutical Inorganic Chemistry	<ol style="list-style-type: none"> <li>1. The subject mainly deals with analytical chemistry topics such as volumetric analysis, acid-base titration, redox titration, non- aqueous , precipitation and complexometric titration.</li> <li>2. To know about inorganic compounds that are used as medicinal gases, acidifiers, antacids, cathartic.</li> <li>3. To understand the sources of impurities and limit tests</li> </ol>	<ol style="list-style-type: none"> <li>1. Provide the practical knowledge about to carry out the limit tests for impurities</li> <li>2. Helps to carryout assays by titrimetric analysis</li> <li>3. Able to perform systematic analysis of unknown inorganic compound</li> <li>4. This practical also deals with the preparation of compounds</li> </ol>



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

		4. Able to deal with essential trace elements, antimicrobial, pharmaceutical aids 5. To know about dental products, radio pharmaceuticals, miscellaneous compounds.	
1.6	Remedial Mathematics / Biology	1. To be able to understand the plant parts and their Modification 2. Know the classification and salient features of Five kingdoms of life 3. Familiarize with the plant physiology – absorption, transpiration, respiration, photosynthesis 4. Taxonomical study of Leguminosae, Solanaceae, Zingiberaceae, Liliaceae and Rubiaceae families. 5. To Know the morphological characters of plant parts Modifications	1. Learn and understand animal tissue, study of different systems of frog. 2. Learn and understand Vegetative morphology and reproductive morphology 3. Learn about the transverse section characters of Senna, Ephedra 4. To know the Permeant slide preparation
<b>II/VI YEAR</b>			
2.1	Pathophysiology	1. Know the pathogenesis and morphology of reversible and irreversible cell injury; enumerate various lipoproteins and describe lipoprotein disorders	---



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

		<ol style="list-style-type: none"> <li>2. Illustrate the events involved in acute and chronic inflammation</li> <li>3. Recognize the biological significance of various hypersensitivity disorders</li> <li>4. Discuss the mechanisms involved in autoimmune diseases and allograft rejection</li> <li>5. Discuss the etiopathogenesis of selected diseases</li> <li>6. Describe the general biology of cancer, mechanism of shock and effects of radiation exposure.</li> <li>7. The students would have learnt about drugs used in treatment of CVS disorders, CNS disorders ANS disorders</li> </ol>	
2.2	Pharmaceutical Microbiology	<ol style="list-style-type: none"> <li>1. To Know about the historical development, Morphology, Classification, Bacterial growth cycle and factors influencing the bacterial growth. Studying of isolation, preservation techniques of microbes.</li> <li>2. To understand the types of Nutrient media for the cultivation of bacteria, fungi, Rickettsia &amp; Virus.</li> </ol>	<ol style="list-style-type: none"> <li>1. Study of Equipment, Aseptic culture transfer techniques and preparation of sterile culture medias.</li> <li>2. Sterilization of Glass wares and Isolation of pure culture by streaking. Estimation of microbial enzymatic activity &amp; cell counting techniques.</li> </ol>



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

		<p>Identification and classification of Microorganisms by different staining techniques. To study about different sterilization techniques and sterility testing of pharmaceuticals.</p> <p>3. To Know about immunology, types of immunity, Immunological reactions; Preparation of vaccines and their importance.</p> <p>4. To acquire the knowledge about Microbiological assaying of antibiotics and the standardization of vaccines &amp; Seras.</p> <p>5. To study the different infectious diseases &amp; imp; their diagnostic tests.</p>	<p>3. Microscopic observation of cultures by different staining techniques and motility by Hanging drop method.</p> <p>4. Determination of potency of antibiotic by microbiological assays and sterility testing of pharmaceuticals, Diagnostic test of typhoid and Malaria &amp; Evaluation of chemical disinfectant activity.</p>
2.3	Pharmacognosy & Phytopharmaceuticals	<p>1. Discuss the definition, history, scope and development of pharmacognosy</p> <p>2. Describe the techniques in the cultivation, processing, storage and production of crude drugs of natural origin</p> <p>3. Describe fundamental aspects of plant tissue culture</p> <p>4. Describe different types of secondary metabolites, their</p>	<p>1. To evaluate crude drugs authentication by morphological process</p> <p>2. Microscopic characterization of crude drugs by Transverse characterization and powder microscopic studies</p> <p>3. Determination of adulterants by chemical</p>



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

		<p>general properties, classification, and their test for identification</p> <p>5. Describe the sources, chemical constituents and uses of plants products containing plant fibers, hallucinogens, teratogens, natural allergens, drug obtained from primary metabolites (carbohydrates, lipids, proteins) and marine drugs.</p>	<p>evaluation methods</p> <p>4. Analyzing the purity of phytochemicals by Qualitative and Quantitative characterization process</p>
2.4	Pharmacology-I	<p>1. Describing about the different drugs used for treatment of diseases.</p> <p>2. Students would be able to apply the knowledge of different diseases and disorders in treatment</p> <p>3. The students would have learnt about drugs used in treatment of CVS disorders, CNS disorders, ANS disorders</p> <p>4. They would get an idea about autocooids which is used for different biological actions</p> <p>5. They comprehended the principles of general Pharmacology, adverse drug reactions, drug interactions, clinical evaluation of new drugs, receptor theories</p>	---



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

		principles and mechanism of drug action	
2.5	Community Pharmacy	<ol style="list-style-type: none"><li>1. Know the roles and responsibilities of community pharmacist</li><li>2. Outline the layout and infrastructure requirements for community pharmacy</li><li>3. Recognize the need of inventory control and discuss the various methods</li><li>4. Discuss the factors affecting medication adherence</li><li>5. Perform general patient counseling</li><li>6. Apply health screening services in community pharmacy</li></ol>	---





# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

2.6	Pharmacotherapeutics-I	<ol style="list-style-type: none"> <li>1. To understand basic knowledge on the Etiopathogenesis of selected diseases.</li> <li>2. Grasp Recognize the role of pharmacist in essential and rational drug use the knowledge on therapeutic approach in the management of selected diseases and controversies in drug therapy.</li> <li>3. The students would have learnt about the general prescribing guidelines of pediatric, geriatric and pregnancy cases.</li> <li>4. To understand the discovery phase of new drug in preclinical &amp; clinical phases.</li> <li>5. The students understand and recognize the role of pharmacist in essential and rational drug use.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss the therapeutic approach to the student's management of selected diseases</li> <li>2. Prepare individualized therapeutic plans based on diagnosis</li> <li>3. Perform patient counselling during hospital visits.</li> <li>4. Conduct planned experiments and prepare laboratory report in a standard format</li> </ol>
<b>III/VI YEAR</b>			



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

3.1	Pharmacology-II	<ol style="list-style-type: none"> <li>1. In continuation with the previous year, this subject would have continued describing about the different drugs used for treatment of diseases.</li> <li>2. Students will be able to apply the knowledge of different disorders in treatment of diseases</li> <li>3. The students would have learnt about drugs used in the treatment of cancer, drugs used in treatment of tuberculosis, leprosy, malaria</li> <li>4. They would get an idea about correlation of pharmacology with other bio medical sciences</li> <li>5. They comprehended the principles of toxicology</li> </ol>	<ol style="list-style-type: none"> <li>1. Describing about the Common laboratory techniques</li> <li>2. Students will able to apply the knowledge of study of different routes of drug administration in mice or rats</li> <li>3. The students would have learnt about effect of drugs on ciliary motility of frog esophagus and effect of drug on rabbit eye</li> <li>4. They would get an idea about effect of skeletal muscle relaxants using Rota rod apparatus</li> </ol>
3.2	Pharmaceutical Analysis	<ol style="list-style-type: none"> <li>1. To Understand Principles and Instrumentation of Chromatography Techniques</li> <li>2. To Understand Principles and Instrumentation of Spectroscopy techniques</li> <li>3. Know Principles and Instrumentation of Electrochemical techniques</li> <li>4. To Understand the Concept of Quality Assurance</li> </ol>	<ol style="list-style-type: none"> <li>1. Able to know the Determination of the Pharmaceutical Formulations by Spectroscopy Techniques</li> <li>2. Understand about the Qualitative analysis of Chemical Compounds by Chromatography Techniques</li> <li>3. Able to perform the assay of Chemical Compounds</li> </ol>



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

		System 5.To Understand the Concept of Validation and Calibration of analytical Instruments	by Electrochemical Methods 4. To Determine the Quantitative Analysis by Chromatography Techniques
3.3	Pharmacotherapeutics-II	<ol style="list-style-type: none"> <li>1. Identify drug interactions and rationalize the prescription</li> <li>2. Discuss the therapeutic approach to management of selected diseases</li> <li>3. Prepare individualized therapeutic plans based on diagnosis</li> <li>4. Perform patient counseling</li> <li>5. Conduct planned experiments and prepare laboratory report in a standard format</li> </ol>	<ol style="list-style-type: none"> <li>1. Explain the evolution of pharmacy as a profession in India and emergence of regulatory bodies</li> <li>2. Discuss the importance of code of pharmaceutical ethics</li> <li>3. Recognize the provisions of various acts pertaining to drugs and cosmetics</li> <li>4. Explain the latest amendments with respect to New Drug policy, DPCO and Patent and design act</li> <li>5. Discuss the concepts of price fixation of pharmaceutical products</li> <li>6. Outline the concepts of Narcotic and Psychotropic Substances Act, Pharmacy Act and Excise duties Act</li> </ol>
3.4	Pharmaceutical Jurisprudence	<ol style="list-style-type: none"> <li>1.Understand the Pharmacy acts</li> <li>2. Able to explain the different schedules</li> </ol>	--



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

		3. Know the pharmacy educational standards 4. Know the rules and ethics of pharmacy profession 5. To regulate and import various drugs	
3.5	Medicinal Chemistry	1. To understand the designing of drugs by using SAR, QSAR, Combinatorial chemistry and modern techniques 2. To know the synthesis of different class of drugs like Antiviral, Antibiotics, etc., 3. To know the classification, MOA, and uses of entire drug profile 4. To apply the knowledge of drugs to treat the disease 5. To have the knowledge to counsel the patients in administration of drugs and their safety profile	1. It helps to carry out the procedure involved in the synthesis of medical compounds 2. It helps to carry out the assays of medicinal compounds 3. It gives the detailed information about the monographs of medicinal compounds 4. It gives the information about the determination of physicochemical properties of drug molecules
3.6	Pharmaceutical Formulations	1. Formulation of tablet, excipient, granulation, Coating and quality control 2. Hard and soft gelatin filling, quality control, production. 3. Formulation and evaluation of suspensions, emulsions and solutions, Stability and their container.	1. Manufacturing of tablet by wet granulation and direct compression technique. 2. Manufacturing of injectables such as ascorbic acid, calcium gluconate, sodium chloride. 3. Evaluation of dosage form such as tablet, capsule, injection etc.



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

		<p>4. Parenteral manufacturing, quality control. sterilization of large and small volume parenteral.</p> <p>5. Semisolid preparation, bases, Jellies, suppositories, their packaging and novel drug delivery system.</p>	<p>4. Manufacturing of semisolid such as ointment, gel and their evaluation, cosmetic preparation</p>
<b>IV/VI YEAR</b>			
4.1	Pharmacotherapeutics-III	<p>1. Explain the etiopathogenesis of selected gastrointestinal, haematological, neurological and psychiatric diseases</p> <p>2. Discuss the principles of evidence-based therapy and pain management</p> <p>3. Identify the patient specific parameters relevant in initiating and monitoring drug therapy and adverse effects</p> <p>4. Discuss the therapeutic approach in the management of selected diseases and controversies in drug therapy</p> <p>5. Prepare individualized therapeutic plans based on diagnosis</p>	<p>1. Identify drug interactions and rationalize the prescription</p> <p>2. Discuss the therapeutic approach to management of selected diseases</p> <p>3. Prepare individualized therapeutic plans based on diagnosis</p> <p>4. Conduct patient counseling</p> <p>5. Conduct planned experiments and prepare laboratory report in a standard format</p>



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET& A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

		6. Recognize the role of pharmacist in essential and rational drug use	
4.2	Hospital Pharmacy	1 Obtain the knowledge on the professional practice management skills in hospital pharmacies 2. Explain the importance of various drug distribution methods in hospital pharmacy. 3. Discuss the manufacturing practices of various formulations in hospital set up. 4. Explain the students to Provide unbiased drug information to the doctors. 5. Make the students to learn about practice-based research methods and the stores management and inventory control	1. Analyze prescriptions for drug interactions 2. To Formulate and prepare parenteral formulations and powders 3.Perform inventory analysis. 4. Ask the students to Answer the drug information queries through literature search.
4.3	Clinical Pharmacy	1. Monitor drug therapy of patient through medication chart review and clinical review; 2. Obtain medication history interview and counsel the patients; 3. Identify and resolve drug related problems; and	--



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

		<p>detect, assess and monitor adverse drug reaction;</p> <p>4. Interpret selected laboratory results (as monitoring parameters in therapeutics) of specific disease states;</p> <p>5. Retrieve, analyze, interpret and formulate drug or medicine information.</p>	
4.4	Biostatistics & Research Methodology	<p>1. Develop the ability to apply the methods while working on a research project work</p> <p>2. Describe the appropriate statistical methods required for a particular research design</p> <p>3. To learn about clinical study designs</p> <p>4. Usage of computer applications in community pharmacy and hospital pharmacy</p> <p>5. Students can gain the knowledge regarding Trial balance and maintenance of ledger accounts for their startups</p>	---



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

4.5	Biopharmaceutics & Pharmacokinetics	<ol style="list-style-type: none"> <li>1. Understand the basic concepts in Biopharmaceutics and pharmacokinetics</li> <li>2. Equate different processes occurring in the body after the drug administration.</li> <li>3. Use plasma data and derive the pharmacokinetic parameters to describe the process of drug absorption, distribution, metabolism and elimination.</li> <li>4. Design the Bioavailability and Bio- equivalence study of new drugs dosage forms and its use in Clinical research.</li> <li>5. To impart knowledge and skills necessary for dose calculations, dose adjustments and to apply Biopharmaceutics theories in practical problem solving.</li> </ol>	<ol style="list-style-type: none"> <li>1. Compute various Pharmacokinetic parameters.</li> <li>2. Critically evaluate biopharmaceutical studies involving drug product equivalency</li> <li>3. Use plasma data and derive the pharmacokinetic parameters to describe the process of drug absorption, distribution, metabolism and elimination.</li> <li>4. Design and evaluate dosage regimens of the drugs using pharmacokinetic and biopharmaceutical parameters</li> </ol>
4.6	Clinical Toxicology	<ol style="list-style-type: none"> <li>1. Understand the general principles involved in the management of poisoning.</li> <li>2. Understand the usage of Antidotes and their clinical applications.</li> <li>3. Appreciate the principles of Toxicokinetics.</li> </ol>	---





# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

		<p>4. Understand the signs and symptoms of substance abuse and treatment of dependence</p> <p>5. Understand the clinical symptoms and management of chronic poisoning with the Heavy metals.</p>	
<b>V/VI YEAR</b>			
5.1	Clinical Research	<p>1. Know the new drug development process, and understand the regulatory and ethical requirements.</p> <p>2. Appreciate and conduct the clinical trials activities and Know safety monitoring and reporting in clinical trials</p> <p>3. Manage the trial coordination process, Know the new drug development process.</p> <p>4. Understand the regulatory and ethical requirements. Appreciate and conduct the clinical trials activities</p> <p>5. Know safety monitoring and reporting in clinical trials and manage the trial coordination process</p>	--



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

5.2	Pharmacoepidemiology and Pharmacoeconomics	<ol style="list-style-type: none"> <li>1. Discuss the scope, need, origin and evaluation of Pharmacoepidemiology</li> <li>2. Explain the importance of Measurement of outcomes in Pharmacoepidemiology</li> <li>3. Discuss the Recommend suitable method for measuring the outcome of Pharmacoepidemiology for a disease</li> <li>4. Discuss the basic principles, role and relevance of Pharmacoeconomic in the development of a new drug</li> <li>5. Identify and justify an appropriate evaluation method for Pharmacoeconomic study of a disease</li> </ol>	-
5.3	Clinical Pharmacokinetics & Pharmacotherapeutic Drug Monitoring	<ol style="list-style-type: none"> <li>1. Know about Nomograms and Tabulations in designing dosage regimen, Conversion from intravenous to oral dosing, calculation of dose and dosing interval</li> <li>2. Understand about Drug interaction, metabolism, excretion, etc.,</li> <li>3. Therapeutic drug monitoring, Individualization, TDM</li> </ol>	--



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

		<p>of drug used in disease state.</p> <p>4. Drug adjustment in renal and hepatic failure, Measurement of GFR, creatinine clearance.</p> <p>5. Bayesian Theory, Genetic polymorphism in Drug metabolism, population pharmacokinetic data, Pharmacogenetics.</p>	
5.4	Clerkship	Attending ward rounds on daily basis. Every student shall spend half a day in the morning hours attending ward rounds on daily basis as a part of clerkship. Students practice clinical pharmacy services under the supervision of Academic and Clinical Preceptors.	
5.5	Project Work	Six Month project work has to be carried out as Clinical Pharmacist in the area of Clinical Pharmacy in collaborated Hospital and also in multi specialty hospital.	
<b>VI/VI YEAR</b>			



# NIRMALA COLLEGE OF PHARMACY

(A UNIT OF CATECHIST SISTERS OF ST.ANN'S, HYD)

ATMAKURU (Village), Mangalagiri (M), Guntur Dist-522503, A.P, India.

Approved by AICTE & PCI New Delhi & Govt. of A.P, Affiliated to SBTET & A.N University, Guntur

Accredited by NAAC & Approved under UGC 2f & 12b and Approved Institutional Innovation Council by AICTE

Ph: 08645-236255, 236722, 9912342142 E-mail: [ncpa@csagp@yahoo.co.in](mailto:ncpa@csagp@yahoo.co.in) Web site: [www.ncpacsag.ac.in](http://www.ncpacsag.ac.in)

## PHARM D COURSE OUTCOMES (CO'S)

6.0	Internship	---	<ol style="list-style-type: none"><li>1. Explain the pathophysiology of disease states and the rationale for drug therapy</li><li>2. Discuss the available therapeutic options to provide patient care in co-operation with patients, prescribers, and other members of an Interprofessional health care team</li><li>3. Identify, manage and use resources of the health care system, in cooperation with patients, prescribers, other health care providers</li><li>4. Analyze the therapeutic approaches to promote health improvement, wellness, and disease prevention</li><li>5. Demonstrate skills in monitoring of the National Health programmes and schemes.</li><li>6. Develop leadership qualities to function effectively as a member of the health care team</li><li>7. Communicate effectively with patients and the community</li></ol>
-----	------------	-----	---