PROGRAM: B. PHARMACY					
S. No	**Course / Code**	**Gender**	**Environment and Sustainability**	**Human Values**	**Professional Ethics**
01	Pharmaceutical Analysis **(BP102T)**			Sources of errors, types of errors, methods of minimizing errors, accuracy, precision and significant figures. Pharmacopoeia, Sources of impurities in medicinal agents, limit tests.	
02	Pharmaceutics-1 **(BP103T)**	Definition, Factors affecting posology. Paediatric dose calculations based on age, body weight and body surface area.			
03	Pharmaceutical inorganic chemistry **(BP104T)**		Radio activity, Measurement of radioactivity, Properties of α, β, γ radiations,	History of Pharmacopoeia, Sources and types of impurities, principle involved in the limit	

ADITYA PHARMACY COLLEGE * SURAMPALEM *

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

			Half life, radio isotopes and study of radio isotopes - Sodium iodide I^{131}, Storage conditions, precautions & Pharmaceutical application of radioactive substances.	test for Chloride, Sulphate, Iron, Arsenic, Lead and Heavy metals, modified limit test for Chloride and Sulphate.	
04	Remedial Biology **(BP106RBT)**	Parts of female reproductive system Parts of male reproductive system Spermatogenesis and Oogenesis, Menstrual cycle		Definition and characters of living organisms. Diversity in the living world. Binomial nomenclature Five kingdoms of life and basis of classification. Salient features of Monera, Potista, Fungi, Animalia and Plantae, Virus.	
05	Remedial Biology **(BP112RBP)**				Determination of blood group, Determination of blood pressure, Determination of tidal

ADITYA PHARMACY COLLEGE * SURAMPALEM *

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					volume.
06	Remedial Mathematics **(BP106 RMT)**				Application in solving chemical kinetics and pharmacokinetics data.
07	Human anatomy and physiology-II **(BP201T)**	Anatomy of male and female reproductive system, Functions of male and female reproductive system, sex hormones, physiology of menstruation, fertilization, spermatogenesis, oogenesis, pregnancy and parturition			Formation and role of ATP, Creatinine Phosphate and BMR. Chromosomes, genes and DNA, protein synthesis, genetic pattern of inheritance
08	Human anatomy and physiology **(BP207P)**			Determination of tidal volume and vital capacity. Study of digestive, respiratory, cardiovascular systems, urinary and reproductive systems with the help of models, charts and specimens. Recording of basal mass index.	Study of family planning devices and pregnancy diagnosis test. Demonstration of total blood count by cell analyser. Permanent slides of vital organs and gonads.

ADITYA PHARMACY COLLEGE SURAMPALEM

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

09	Biochemistry **(BP203T)**				Classification; biological significances of ATP and cyclic AMP Hormonal regulation of blood glucose level and Diabetes mellitus.
10	Biochemistry **(BP209P)**				Determination of blood creatinine. Determination of blood sugar. Determination of serum total cholesterol.
11	Pathophysiology **(BP204T)**			Asthma, Chronic obstructive airways diseases. Acute and chronic renal failure. Diabetes, thyroid diseases, disorders of sex hormones.	Pathophysiology of Atherosclerosis, Meningitis, Typhoid, Leprosy, Tuberculosis AIDS, Syphilis, Gonorrhoea.
12	Computer applications in pharmacy (BP 205T)				Chromatographic dada analysis(CDS), Laboratory Information management System (LIMS) and Text Information Management System(TIMS), Patient Monitoring System, Pharma Information System. Impact of

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					Bioinformatics in Vaccine discovery, Pharmacy Drug database.
13	Computer applications in Pharmacy **(BP205P)**				Design a form in MS Access to view, add, delete and modify the patient record in the database
14	Pharmaceutical organic chemistry II **(BP301T)**				Analytical constants: Acid value, Saponification value, Ester value, Iodine value, Acetyl value, Reichert Meissl (RM) value – significance and principle involved in their determination.
15	Pharmaceutical organic chemistry II **(BP301P)**				Iodine value, acid value, and saponification value.
16	Pharmaceutical Microbiology **(BP303T)**	Study of morphology, classification, reproduction/replication and Cultivation of Fungi and Viruses.			Sterility testing of solids, liquids, ophthalmic and other sterile products according to IP, BP and USP. Assessment of a new antibiotic. Application of cell cultures in pharmaceutical

ADITYA PHARMACY COLLEGE * SURAMPALEM *

Aditya Pharmacy College
SURAMPALEM-533 437

					sector and research.
17	Pharmaceutical Microbiology **(BP303P)**				Microbiological assay of antibiotics using cup plate method and other methods. Sterility testing procedures of pharmaceuticals. Bacteriological examination of water. Biochemical tests.
18	Pharmaceutical Engineering **(BP304T)**		Factors affecting during materials selected for Pharmaceutical plant Construction. Theories of corrosion, types of corrosion and there prevention. Ferrous and nonferrous metals, inorganic and organic non metals, basic of material handling		

			systems.		
19	Pharmaceutical Organic Chemistry-III **(BP401T)**				Stereo specific and stereo selective reactions.
20	Medicinal Chemistry-I **(BP406P)**				Determination of partition coefficient for any two drugs.
21	Physical Pharmaceutics-II **(BP403T)**		Reaction kinetics: zero, pseudo-zero, first & second order, units of basic rate constants, determination of reaction order. Physical and chemical factors influencing the chemical degradation of pharmaceutical product: temperature, solvent, ionic strength, dielectric		Accelerated stability testing in expiration dating of pharmaceutical dosage forms. Photolytic degradation and its prevention.

			constant, specific & general acid base catalysis, Simple numerical problems. Stabilization of medicinal agents against common reactions like hydrolysis & oxidation.		
22	Physical pharmaceutics-II **(BP407P)**				Accelerating stability studies.
23	Pharmacology **(BP404T)**			Drug addiction, drug abuse, tolerance, dependence tachyphylaxis, idiosyncrasy, and allergy. Pharmacological interactions and adverse drug reactions (pharmacokinetic and pharmacodynamics). Drug discovery and	

ADITYA PHARMACY COLLEGE SURAMPALEM

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

				clinical evaluation of new drugs -Drug discovery phase, preclinical evaluation phase, clinical trial phase, phases of clinical trials and Pharmacovigilance, alcohols and disulfiram.	
24	Pharmacology-I **(BP408P)**		Maintenance of laboratory animals in accordance with CPCSEA guidelines.		
25	Pharmacognosy and Phytochemistry-I **(BP405T)**		Definition, history, scope and development of pharmacognosy.	Adulteration of drugs of natural origin. Evaluation by organoleptic, microscopic, physical, chemical and biological methods and properties. Quantitative microscopy of crude drugs including lycopodium spore	Edible vaccines. Role of Pharmacognosy in allopathy and traditional systems of medicine namely, Ayurveda, Unani, Siddha, Homeopathy and Chinese systems of medicine. Novel medicinal agents from marine sources.

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

				method, leaf constants, camera lucida and diagrams of microscopic objects to scale with camera lucida.	
26	Pharmacognosy and Photochemistry-I **(BP408P)**				Determination of Fiber length and width Determination of number of starch grains by Lycopodium spore method Determination of Ash value Determination of Extractive values of crude drugs Determination of moisture content of crude drugs Determination of swelling index and foaming
27	Medicinal Chemistry-II **(BP501T)**	Nomenclature, Stereochemistry and metabolism of steroids Testosterone, Nandralone,			

		Progestrones, Oestriol, Oestradiol, Oestrione, Diethyl stilbestrol. Sildenafil, Tadalafil. Mifepristone, Norgestril, Levonorgestrol Cortisone, Hydrocortisone, Prednisolone, Betamethasone, Dexamethasone.			
28	Industrial Pharmacy-I **(BP502T)**		Application of preformulation considerations in the development of solid, liquid oral and parenteral dosage forms and its impact on stability of dosage forms. Stability studies Materials used for packaging of pharmaceutical products,		

			factors influencing choice of containers, legal and official requirements for containers, stability aspects of packaging materials, quality control tests.		
29	Industrial Pharmacy-I **(BP506P)**				Preformulation studies on paracetamol/aspirin/or any other drug. Preparation and evaluation of Paracetamol tablets. Preparation and evaluation of Aspirin tablets. Coating of tablets-film coating of tables/ granules. Preparation and evaluation of Tetracycline capsules. Preparation of Calcium Gluconate injection. Preparation of Ascorbic Acid injection. Qulaity control test of (as

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					per IP) marketed tablets and capsules. Preparation of Eye drops/ and Eye ointments. Preparation of Creams (cold / vanishing cream). Evaluation of Glass containers (as per IP).
30	Pharmacology-II **(BP503T)**	Androgens and Anabolic steroids. Estrogens, progesterone and oral contraceptives. Drugs acting on the uterus.			Principles and applications of bioassay. Types of bioassay Bioassay of insulin, oxytocin, vasopressin, ACTH, d-tubocurarine, digitalis, histamine and 5-HT.
31	Pharmacognosy and Phytochemistry-II **(BP504T)**		Study of utilization of radioactive isotopes in the investigation of Biogenetic studies.		
32	Pharmaceutical Jurisprudence **(BP505T)**	Objectives, definitions, institutional animal ethics committee, CPCSEA standards for breeding and stocking			A brief study of drugs enquiry committee, health survey and development committee, Hathi committee and mudaliar

ADITYA PHARMACY COLLEGE * SURAMPALEM *

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

		of animals, performance of experiments, transfer and acquisition of animals for experiment, records, rights to suspend or revoke registration, offences and penalties.			committee. Pharmacist relation to medical profession and pharmacist's oath.
33	Medicinal Chemistry-III **(BP601T)**				Types and applications of combinatorial chemistry: solid phase and solution phase synthesis.
34	Medicinal Chemistry-III **(BP607P)**	Preparation of medicinally important compounds or intermediates by microwave irradiation technique.			
35	Herbal drug technology **(BP603T)**		**Herbal drugs industry:** Present scope and future prospects A brief account of plant based industries and institutions		Good manufacturing practices (GMP), patenting and regulatory issues of herbal drugs. Conventional herbal formulations like syrups, mixtures and tablets and novel dosage forms like phytosomes. WHO and

ADITYA PHARMACY COLLEGE * SURAMPALEM *

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

			involved in work on medicinal and aromatic plants in India.		ICH guidelines for the assessment of herbal drugs stability testing of herbal drugs. Definition of the terms: Patent, IPR, Farmers right, Breeder's right, Bioprospecting and Bio piracy Patenting aspects of traditional knowledge and natural products. Case study of Curcuma and Neem Regulations in India (ASU, DTAB, ASU, DCC), Regulation of manufacture of ASU drugs - Schedule Z of drugs and cosmetics act for ASU drugs.
36	Biopharmaceutics and Pharmacokinetics **(BP604T)**	Factors influencing drug absorption.			
37	Pharmaceutical Biotechnology **(BP605T)**				Biosensors-Working and applications of biosensors in pharmaceutical industries. Brief introduction of PCR

ADITYA PHARMACY COLLEGE * SURAMPALEM *

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					General method of the preparation of bacterial vaccines, toxoids, viral vaccine, antitoxin, serum-immune blood derivatives and other products relative to immunity. Immune blotting techniques-ELISA, Western blotting, southern blotting.
38	Pharmaceutical Quality Assurance **(BP606T)**		Personnel responsibilities, training hygiene and personal records. Design, construction and plant layout, maintenance, sanitation, environmental control) utilities and maintenance of sterile areas, control of contamination. Equipment selection,		Definition and concept of Quality control, quality assurance and GMP Definition, elements, philosophies, Purpose, participants, process of harmonization, brief overview of QSEM, with special emphasis on Q series guidelines, ICH stability testing guidelines. Definition, Overview, elements of QbD program, tools Overview, benefits, elements steps for registration. Principles

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

			purchase, specification, maintenance, purchase. Specifications and maintenance of stores for raw materials.		and procedures.
39	Industrial Pharmacy-II **(BP702T)**		Space requirements, raw materials, pilot plant scale up considerations for solids, liquid orals, semi solids and relevant documentations, SUPAC guidelines, introduction to platform technology.	Personnel requirements.	WHO guidelines for technology transfer (TT) : Terminology, technology transfer protocol, quality risk management, transfer from R & D to production (Process, packaging and cleaning), Granularity of TT process (API, Excipients, finished products, packaging materials) Documentation, premises and equipment's, qualification and validation, quality control, analytical method transfer, approved regulatory bodies and agencies,

ADITYA PHARMACY COLLEGE SURAMPALEM

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					Commercialization - practical aspects and problems (case studies), TT agencies in India APCTD, NRDC, TIFAC, BCIL, TBSE/ SIDBI; TT related documentation - confidentiality agreement, licensing, MoUs legal issues Introduction Historical overview of regulatory affairs, regulatory authorities, role of regulatory affairs department, responsibility of regulatory affairs professionals. Drug development teams, Non-clinical drug development, pharmacology, drug metabolism and toxicology, General consideration of investigational new drug (IND) application, investigator's brochure (IB) and New Drug application (NDA).

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM 533 437

					Clinical research/BE studies, Clinical research protocols, Biostatistics in Pharmaceutical product development, data presentation for FDA submissions, management of clinical studies. Quality management and certification's: Concept of quality, total quality management, quality by design (QbD), Six sigma concept, out of specifications (OOS), change control, introduction to ISO 9000 series of quality systems standards, ISO 14000, NABL, GLP Central drug standard control organization (CDSCO) and state licensing authority: Organization, Responsibilities, certificate of Pharmaceutical product (COPP), Regulatory requirements and

					approval procedures for New Drugs.
40	Pharmacy Practice **(BP703T)**			Definition, Classification of hospital- Primary, Secondary and Tertiary hospitals, Classification based on clinical and non-clinical basis, Organization Structure of a Hospital, and Medical staffs involved in the hospital and their functions. Classifications - Excessive pharmacological effects, secondary pharmacological effects, idiosyncrasy, allergic drug reactions, genetically determined toxicity, toxicity following sudden withdrawal of drugs, Drug interaction beneficial interactions,	

ADITYA PHARMACY COLLEGE SURAMPALEM

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

				adverse interactions, and pharmacokinetic drug interactions, Methods for detecting drug interactions, spontaneous case reports and record linkage studies, and Adverse drug reaction reporting and management. Organization and structure of retail and wholesale drug store, types and design, Legal requirements for establishment and maintenance of a drug store, Dispensing of proprietary products, maintenance of records of retail and wholesale drug store. Financial, materials, staff, and infrastructure requirements.	

41	Novel Drug Delivery systems **(BP704T)**				Definition, advantages and disadvantages, microspheres/ microcapsules, micro particles, methods of microencapsulation, applications Introduction, Principles of bio adhesion/ mucoadhesion, concepts, advantages and disadvantages, trans mucosal permeability and formulation considerations of buccal delivery systems.
42	Social and Preventive Pharmacy **(BP802T)**			Definition, concepts and evaluation of public health. Understanding the concept of prevention and control of disease, social causes of diseases and social problems of the sick. Food in relation to nutrition and health, Balanced diet, Nutritional	Classification, product line and product mix decisions, product life cycle, product portfolio analysis; product positioning; New product decisions; Product branding, packaging and labelling decisions, Product management in pharmaceutical industry. Methods, determinants of promotional mix,

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM 533 437

				deficiencies, Vitamin deficiencies, Malnutrition and its prevention. Socio cultural factors related to health and disease, Impact of urbanization on health and disease, Poverty and health personal hygiene and health care; avoidable habits General principles of prevention and control of diseases such as cholera, SARS, Ebola virus, influenza, acute respiratory infections, malaria, chicken guinea, dengue, lymphatic filariasis, pneumonia, hypertension, diabetes mellitus, cancer, drug addiction-drug substance abuse HIV AND AIDS control program, TB, Integrated disease	promotional budget; An overview of personal selling, advertising, direct mail, journals, sampling, retailing, medical exhibition, public relations, online promotional techniques for OTC Products. Designing channel, channel members, selecting the appropriate channel, conflict in channels, physical distribution management: Strategic importance, tasks in physical distribution management. Duties of PSR, purpose of detailing, selection and training, supervising, norms for customer calls, motivating, evaluating, compensation and future prospects of the PSR. Meaning, importance, objectives, determinants of price; pricing methods and strategies, issues in

				surveillance program (IDSP), National leprosy control program, National mental health program, National program for prevention and control of deafness, Universal immunization program, National program for control of blindness, Pulse polio program. National health intervention program for mother and child, National family welfare program, National tobacco control program, National Malaria Prevention. Program, National program for the health care for the elderly, Social health program; role of WHO in Indian national program Community services in rural, urban and school health:	the Market; Role of market research.

				Functions of PHC, Improvement in rural sanitation, national urban health mission, Health promotion and education in school.	
43	Pharma Marketing Management **(BP803ET)**				Definition, general concepts and scope of marketing; Distinction between marketing & selling; Marketing environment; Industry and competitive analysis; Analyzing consumer buying behavior; industrial buying behavior. Quantitative and qualitative aspects; size and composition of the market; demographic descriptions and socio psychological characteristics of the consumer; market segmentation& targeting. Consumer profile; Motivation and

					prescribing habits of the physician; patients' choice of physician and retail pharmacist. Analyzing price management in pharmaceutical industry. An overview of DPCO (Drug Price Control Order and NPPA (National Pharmaceutical Pricing Authority). Vertical, Horizontal, Rural, Industrial, Global Marketing, Consumerism.
44	Pharmaceutical Regulatory Science **(BP804ET)**				Stages of drug discovery, Drug development process, pre-clinical studies, non-clinical activities, clinical studies, Innovator and generics, Concept of generics, Generic drug product development. Approval processes and timelines involved in Investigational New Drug (IND), New Drug Application (NDA),

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					Abbreviated New Drug Application (ANDA). Changes to an approved NDA, ANDA. Overview of regulatory authorities of India, United States, European Union, Australia, Japan, Canada (Organization structure and types of applications) Procedure for export of pharmaceutical products, Technical documentation, Drug Master Files (DMF), Common Technical Document (CTD), electronic Common Technical Document (ECTD), ASEAN Common Technical Document (ACTD) research. Developing clinical trial protocols, Institutional Review Board / Independent Ethics committee - formation and working procedures, Informed

					consent process and procedures, GCP obligations of Investigators, sponsors & Monitors, Managing and Monitoring clinical trials, Pharmacovigilance - safety monitoring in clinical trials Basic terminology, guidance, guidelines, regulations, Laws and Acts, Orange book, Federal Register, Code of Federal Regulatory, Purple book.
45	Pharmacovigilance **(BP805T)**			History and development of Pharmacovigilance Importance of safety monitoring of Medicine. WHO: international drug monitoring program. Pharmacovigilance Program of India (PvPI).	Anatomical, therapeutic and chemical classification of drugs. International classification of diseases. Daily defined doses. International non-proprietary names of drugs. WHO adverse reaction terminologies. MedDRA and Standardized MedDRA

				Definitions and classification of ADRS. Detection and reporting methods in Causality assessment, Severity and seriousness assessment, Predictability and preventability assessment. Management of adverse drug reactions. Terminologies of adverse medication related events Regulatory terminologies Vaccine Pharmacovigilance Vaccination failure Adverse events following immunization Passive surveillance - Spontaneous reports and case series Stimulated reporting Active surveillance - Sentinel sites, drug event monitoring and	queries. WHO drug dictionary. Basic drug information resources. Specialized resources for ADRS. Establishing in a hospital Establishment & operation of drug safety department in industry Contract Research Organizations (CROS) Establishing a national program. Pre clinical phase Clinical phase Post approval phase (PMS) Organization and bjectives of ICH Expedited reporting Individual case safety reports. Periodic safety update reports Post approval expedited reporting Pharmacovigilance planning Good clinical practice in pharmacovigilance studies Genetics related

				registries. Comparative observational studies - Cross sectional study, case control study and cohort study. Targeted clinical investigations Effective communication in Pharmacovigilance Communication in Drug Safety Crisis management Communicating with Regulatory Agencies, Business Partners, Healthcare facilities & Media.	ADR with example focusing PK parameters. Pediatrics Pregnancy and lactation Geriatrics CIOMS Working Groups CIOMS Form D&C Act and Schedule Y. Differences in Indian and global pharmacovigilance requirements.
46	Quality control and standardization of herbals **(BP806ET)**		Stability testing of herbal medicines. Application of various chromatographic techniques in standardization of herbal products. Preparation of		Basic tests for drugs – pharmaceutical substances, medicinal plant materials and dosage forms WHO guidelines for quality control of herbal drugs. Evaluation of commercial crude drugs intended for use in CGMP, GAP, GMP and GLP in the

ADITYA PHARMACY COLLEGE * SURAMPALEM *

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM 533 437

			documents for new drug application and export registration GMP requirements and Drugs & Cosmetics Act provisions.		traditional system of medicine. WHO Guidelines on current good manufacturing Practices (CGMP) for Herbal Medicines WHO Guidelines on GACP for Medicinal Plants. EU and ICH guidelines for quality control of herbal drugs. Research Guidelines for Evaluating the Safety and Efficacy of Herbal Medicines Regulatory requirements for herbal medicines. WHO guidelines on safety monitoring of herbal medicines in pharmacovigilance systems Comparison of various Herbal Pharmacopoeias. Role of chemical and biological markers in standardization of herbal Products.
47	Computer aided				Stages of drug discovery

ADITYA PHARMACY COLLEGE SURAMPALEM

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

	drug design **(BP807ET)**				and development. Rational approaches to lead discovery based on traditional medicine. Random screening, Non-Random screening, serendipitous drug discovery, lead discovery based on drug and Conformational Analysis, global conformational minima determination.
48	Cell and Molecular biology **(BP808ET)**	a) Cell and Molecular Biology: Definitions, theory, basics and Applications. b) Cell and Molecular Biology: History and Summation. c) Properties of cells and cell membrane. d) Prokaryotic versus Eukaryotic e) Cellular Reproduction Chemical Foundations - an Introduction and Reactions (Types).			

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM 533 437

49	Cosmetic Science **(BP809ET)**				Classification of cosmetic and cosmeceutical products. Definition of cosmetics as per Indian and EU regulations, Evolution of cosmeceuticals from cosmetics, cosmetics as quasi and OTC drugs. Surfactants, rheology modifiers, humectants, emollients, preservatives Classification and application. Basic structure and function of skin. Basic structure of hair, Hair growth cycle. Common problems associated with teeth and gums. Face wash, Moisturizing cream, Cold Cream, Vanishing cream and their advantages and disadvantages. Application of these products in formulation of cosmeceuticals. Actives & mechanism of action. Conditioning shampoo,

ADITYA PHARMACY COLLEGE * SURAMPALEM *

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					Hair conditioner, anti-dandruff shampoo, Hair oil. Chemistry and formulation of Para phenyl diamine based hair dyes. Principles of formulation and building blocks of oral care products: Toothpaste for bleeding gums, sensitive teeth, Teeth whitening, Mouthwash. Sun protection, Classification of Sunscreens and SPF. Skin care: Aloe and turmeric. Hair care: Henna and amla. Oral care: Neem and clove. BIS specification and analytical methods for shampoo, skin cream and toothpaste. Principles of Cosmetic Evaluation: Principles of sebumeter, corneometer. Measurement of TEWL, Skin Colour, Hair tensile strength, Hair combing properties Soaps, and

					syndet bars. Evaluation and skin benefits. Oily and dry skin, causes leading to dry skin, skin moisturisation. Basic understanding of the terms carcinogenic, dermatitis. Cosmetic problems associated with Hair and scalp: Dandruff, Hair fall causes. Cosmetic problems associated with skin: Blemishes, wrinkles, acne, prickly heat and body odour. Antiperspirants and Deodorants- Actives and mechanism of action.
50	Pharmacological Screening Methods **(BP810ET)**			Study of CPCSEA and OECD guidelines for maintenance, breeding and conduct of experiments on laboratory animals, Common lab animals: Description and applications of different species and	Selection of research topic, review of literature, research hypothesis and study design Pre-clinical data analysis and interpretation using. Popular transgenic and Students t test and mutant animals. One-way ANOVA. Graphical

ADITYA PHARMACY COLLEGE SURAMPALEM

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

				strains of animals. Techniques for collection of blood and common routes of drug administration in laboratory animals, Techniques of blood collection and euthanasia. a. Introduction: Dose selection, calculation and conversions, preparation of drug solution/suspensions, grouping of animals and importance of sham negative and positive control groups. Rationale for selection of animal species and sex for the study. b. Diuretics, nootropics, anti-Parkinson's, antiasthmatics, Preclinical screening models: for CNS activity- analgesic, antipyretic, anti-	representation of data.

				inflammatory, general anaesthetics, sedative and hypnotics, antipsychotic, antidepressant, antiepileptic, ant parkinsonism, Alzheimer's disease Preclinical screening models: for ANS activity, sympathomimetics, sympatholytics, parasympathomimetics, parasympatholytics, skeletal muscle relaxants, drugs acting on eye, local anaesthetics Preclinical screening models: for CVS activity antihypertensives, diuretics, antiarrhythmic, antidyslepidemic, anti aggregatory, coagulants, and anticoagulants Preclinical screening	

				models for other important drugs like antiulcer, antidiabetic, anticancer and antiasthmatics.	
51	Advanced Instrumentation Techniques **(BP811ET)**		Importance, various components, Principle, different methods, Limitation.		Calibration and validation-as per ICH and USFDA guidelines. Electronic balance, UV Visible spectrophotometer, IR spectrophotometer, Fluorimeter, Flame Photometer, HPLC and GC.
52	Dietary Supplements and Nutraceuticals **(BP812ET)**				a) Effect of processing, storage and interactions various environmental factors on the potential of nutraceuticals. b) Regulatory Aspects; FSSAI, FDA, FPO, MPO, AGMARK. HACCP and GMPs on Food Safety. Adulteration of foods. c) Pharmacopoeial Specifications for dietary supplements and

ADITYA PHARMACY COLLEGE * SURAMPALEM *

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					nutraceuticals.

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

PROGRAM: M. PHARMACY (PHARMACEUTICAL ANALYSIS)					
S.NO	**COURSE/CODE**	**GENDER**	**ENVIRONMENT AND SUSTAINABILITY**	**HUMAN VALUES**	**PROFESSIONAL ETHICS**
1.	ADVANCED PHARMACEUTICAL ANALYSIS **(MPA 102T)**		**1. Impurity and stability studies:** Definition, classification of impurities in drug Substance or Active Pharmaceutical Ingredients and quantification of impurities as per ICH guidelines. **Impurities in new drug products:** Rationale for the reporting and control of degradation products, reporting degradation products content of batches, listing of degradation products in specifications, qualification of degradation products. **Impurities in residual solvents:** General principles, classification of residual solvents, Analytical procedures, limits of residual		**1. Biological tests and assays of the following:** a. Adsorbed Tetanus vaccine b. Adsorbed Diphtheria vaccine c. Human anti hemophilic vaccine d. Rabies vaccine e.Tetanus Anti toxin f. Tetanus Anti serum g. Oxytocin h. Heparin sodium IP i. Antivenom. PCR, PCR studies for gene regulation, instrumentation (Principle and Procedures). **2. Immunoassays (IA)** Basic principles, Production of antibodies, Separation of bound and unbound drug, Radioimmunoassay, Optical IA, Enzyme IA, Fluoro IA, Luminiscence IA, Quantification and applications of IA.

ADITYA PHARMACY COLLEGE * SURAMPALEM

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

			solvents, reporting levels of residual solvents. **2. Elemental impurities:** Element classification, control of elemental impurities, Potential Sources of elemental Impurities, Identification of Potential Elemental Impurities, analytical procedures, instrumentation & C, H, N and S analysis. **Stability testing protocols:** Selection of batches, container orientation, test parameters, sampling frequency, specification, storage conditions, recording of results, concept of stability, commitment etc. Important mechanistic and stability related information provided by results of study of factors like temperature, pH, buffering species ionic strength and dielectric constant etc. on the reaction rates with practical considerations. **3. Impurity profiling and degradent characterization:**		

			Method development, Stability studies and concepts of validation accelerated stability testing & shelf life calculation, WHO and ICH stability testing guidelines, Stability zones, steps in development, practical considerations. Basics of impurity profiling and degradent characterization with special emphasis. Photostability testing guidelines, ICH stability guidelines for biological products. **4. Stability testing of phytopharmaceuticals:** Regulatory requirements, protocols, HPTLC/HPLC finger printing, interactions and complexity.		
2.	PHARMACEUTICAL VALIDATION **(MPA 103T)**				**1. Introduction:** Definition of Qualification and Validation, Advantage of Validation, Streamlining of Qualification & Validation process and Validation Master Plan. **Qualification:** User Requirement Specification, Design Qualification,

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					Factory Acceptance Test (FAT)/ Site Acceptance Test (SAT), Installation Qualification, Operational Qualification, Performance Qualification, Re-Qualification (Maintaining status-Calibration Preventive Maintenance, Change management), Qualification of Manufacturing Equipments, Qualification of Analytical Instruments and Laboratory equipments. **2. Qualification of analytical instruments:** Electronic balance, pH meter, UV-Visible spectrophotometer, FTIR, GC, HPLC, HPTLC **Qualification of Glassware:** Volumetric flask, pipette, Measuring cylinder, beakers and burette. **3. Validation of Utility systems:** Pharmaceutical Water System & pure steam, HVAC system, Compressed air and nitrogen. **Cleaning Validation:** Cleaning Validation - Cleaning Method development, Validation and validation of analytical method used in cleaning. Cleaning of Equipment, Cleaning of Facilities. Cleaning in place (CIP). **4. Analytical method validation:** General principles, Validation of

ADITYA PHARMACY COLLEGE * SURAMPALEM *

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					analytical method as per ICH guidelines and USP. **Computerized system validation:** Electronic records and digital significance-21 CFR part 11 and GAMP 5. **5. General Principles of Intellectual Property:** Concepts of intellectual Property (IP), Intellectual Property Protection (IPP), Intellectual Property Rights (IPR); Economic importance, mechanism for protection of Intellectual Property –patents, Copyright, Trademark; Factors affecting choice of IP protection; Penalties for violation; Role of IP in pharmaceutical industry; Global ramification and financial implications. Filing a patent applications; patent application forms and guidelines. Types patent applications-provisional and non-provisional, PCT and convention patent applications; International patenting requirement procedures and costs; Rights and responsibilities of a patentee; Practical aspects regarding maintaining of a Patent file; Patent infringement meaning and scope. Significance of transfer technology (TOT), IP and ethics-positive and negative aspects of IPP; Societal

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					responsibility, avoiding unethical practices.
3.	FOOD ANALYSIS **(MPA 104T)**		**Pesticide analysis:** Effects of pest and insects on various food, use of pesticides in agriculture, pesticide cycle, organophosphorus and organochlorine pesticides analysis, determination of pesticide residues in grain, fruits, vegetables, milk and milk products. Legislation regulations of food products with special emphasis on BIS, Agmark, FDA and US-FDA.		General Analytical methods for milk, milk constituents and milk products like ice cream, milk powder, butter, margarine, cheese including adulterants and contaminants of milk. Analysis of fermentation products like wine, spirits, beer and vinegar.
4.	MODERN BIO-ANALYTICAL TECHNIQUES **(MPA 202T)**				**Pharmacokinetics and Toxicokinetics:** Basic consideration, Drug interaction (PK-PD interactions), The effect of protein-binding interactions, The effect of tissue-binding interactions, Cytochrome P450-based drug interactions, Drug interactions linked to transporters. Microsomal assays Toxicokinetics-Toxicokinetic evaluation in preclinical studies, Importance and applications of toxicokinetic studies. LC-MS in bioactivity screening and proteomics.

ADITYA PHARMACY COLLEGE * SURAMPALEM *

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					Metabolite identification: In-vitro / in-vivo approaches, protocols and sample preparation. Microsomal approaches (Rat liver microsomes (RLM) and Human liver microsomes (HLM) in Met –ID. Regulatory perspectives. In-vitro assay of drug metabolites & drug metabolizing enzymes. **Drug Product Performance, In Vivo: Bioavailability and Bioequivalence:** Drug Product Performance, Purpose of Bioavailability Studies, Relative and Absolute Availability. Methods for Assessing Bioavailability, Bioequivalence Studies, Design and Evaluation of Bioequivalence Studies, Study Designs, Crossover Study Designs, Generic Biologics (Biosimilar Drug Products), Clinical Significance of Bioequivalence Studies.
5.	QUALITY CONTROL AND QUALITY ASSURANCE **(MPA 203T)**				**Concept and Evolution of Quality Control and Quality Assurance** Good Laboratory Practice, GMP, Overview of ICH Guidelines - QSEM, with special emphasis on Q-series guidelines. **Good Laboratory Practices:** Scope of GLP, Definitions, Quality assurance unit,

ADITYA PHARMACY COLLEGE SURAMPALEM

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					protocol for conduct of non clinical testing, control on animal house, report preparation and documentation. Analysis of raw materials, finished products, packaging materials, in process quality control (IPQC), Developing specification (ICH Q6 and Q3). Purchase specifications and maintenance of stores for raw materials. In process quality control and finished products quality control for following formulation in Pharma industry according to Indian, US and British pharmacopoeias: tablets, capsules, ointments, suppositories, creams, parenterals, ophthalmic and surgical products (How to refer pharmacopoeias), Quality control test for containers, closures and secondary packing materials.
6.	HERBAL AND COSMETIC ANALYSIS **(MPA 204T)**		**Adulteration and Deterioration:** Introduction, types of adulteration/ substitution of herbal drugs, Causes and Measure of adulteration, Sampling Procedures, Determination of Foreign Matter, DNA Finger printing techniques in		**Herbal drug-drug interaction:** WHO and AYUSH guidelines for safety monitoring of natural medicine, Spontaneous reporting schemes for bio drug adverse reactions, bio drug-drug and bio drug-food interactions with suitable examples. Challenges in monitoring the safety of herbal medicines.

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

			identification of drugs of natural origin, heavy metals, pesticide residues, phototoxin and microbial contamination in herbal formulations. **Regulatory requirements for setting herbal drug industry:** Global marketing management, Indian and international patent law as applicable herbal drugs and natural products and its protocol.		

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

PROGRAM: M. PHARMACY (PHARMACEUTICS)					
S.NO	**COURSE/CODE**	**GENDER**	**ENVIRONMENT AND SUSTAINABILITY**	**HUMAN VALUES**	**PROFESSIONAL ETHICS**
1.	DRUG DELIVERY SYSTEMS **(MPH 102T)**			**Vaccine delivery systems:** Vaccines, uptake of antigens, single Shot vaccines, mucosal and transdermal delivery of vaccines.	
2.	MODERN PHARMACEUTICS **(MPH103T)**				**Validation:** Introduction to Pharmaceutical Validation, Scope & merits of Validation, Validation and calibration of Master plan, ICH & WHO guidelines for calibration and validation of equipments, Validation of specific dosage form, Types of validation. Government regulation, Manufacturing Process Model, URS, DQ, IQ, OQ & P.Q. of facilities. **cGMP & Industrial Management:** Objectives and policies of current good manufacturing practices, layout of buildings, services,

ADITYA PHARMACY COLLEGE * SURAMPALEM *

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					equipments and their maintenance Production management: Production organization, , materials management, handling and transportation, inventory management and control, production and planning control, Sales forecasting, budget and Cost control, industrial and personal relationship. Concept of Total Quality Management. **Compression and compaction:** Physics of tablet compression, compression, consolidation, effect of friction, distribution of Forces, compaction profiles. Solubility. Study of consolidation parameters; Diffusion parameters, Dissolution parameters and Pharmacokinetic parameters, Haeckel plots, Similarity factors – f2 and f1, Higuchi and Peppas plot, Linearity Concept of significance, Standard deviation , Chi

					square test, students T-test , ANOVA test.
3.	REGULATORY AFFAIRS **(MPH 104T)**			**Clinical trials:** Developing clinical trial protocols. Institutional review board/ independent ethics committee Formulation and working procedures informed Consent process and procedures and HIPPA-new requirement to clinical study process, pharmacovigilance safety monitoring in clinical trials.	**Documentation in Pharmaceutical industry:** Master formula record, DMF (Drug Master File), distribution records. Generic drugs product development Introduction , Hatch-Waxman act and amendments, CFR (CODE OF FEDERAL REGULATION) , drug product performance, in-vitro, ANDA regulatory approval process, NDA approval process, BE and drug product assessment, in – vivo, scale up process approval changes, post marketing surveillance, outsourcing BA and BE to CRO. **Regulatory requirement for product approval:** API, biologics, novel, therapies obtaining NDA, ANDA for generic drugs ways and means of US registration for

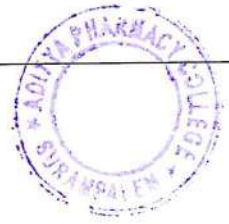
					foreign drugs. CMC, post approval regulatory affairs. Regulation for combination products and medical devices. CTD and ECTD format, industry and FDA liaison. ICH - Guidelines of ICH-Q, S E, M. Regulatory Requirements of EU, MHRA, TGA and ROW countries. **Non clinical drug development:** Global submission of IND, NDA, ANDA. Investigation of medicinal products dossier, dossier (IMPD) and investigator brochure (IB).
4.	ADVANCED BIOPHARMACEUTICS & PHARMACOKINETICS **(MPH 202T)**				**Drug Product Performance, In Vivo:** Bioavailability and Bioequivalence: drug product performance, purpose of Bioavailability studies, relative and absolute availability. Methods for assessing bioavailability, bioequivalence studies, design and evaluation of bioequivalence studies, study

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					designs, crossover study designs, evaluation of the data, bioequivalence example, Study submission and drug review process. Biopharmaceutics Classification system, methods. Permeability: In-vitro, in-situ and In-vivo methods. Generic biologics (biosimilar drug products), clinical significance of bioequivalence studies, special concerns in bioavailability and bioequivalence studies, generic substitution.
5.	COMPUTER AIDED DRUG DEVELOPMENT **(MPH 203T)**				**1. a. Computers in Pharmaceutical Research and Development:** A General Overview: History of Computers in Pharmaceutical Research and Development. Statistical modeling in Pharmaceutical research and development: Descriptive versus Mechanistic Modeling, Statistical

					Parameters, Estimation, Confidence Regions, Nonlinearity at the Optimum, Sensitivity Analysis, Optimal Design, Population Modeling **b. Quality-by-Design In Pharmaceutical Development:** Introduction, ICH Q8 guideline, Regulatory and industry views on QbD, Scientifically based QbD - examples of application. **2. Computational Modeling Of Drug Disposition: Introduction, Modeling Techniques:** Drug Absorption, Solubility, Intestinal Permeation, Drug Distribution ,Drug Excretion, Active Transport; P-gp, BCRP, Nucleoside Transporters, hPEPT1, ASBT, OCT, OATP, BBB-Choline Transporter. **3. Computer-aided formulation development:** Concept of optimization, Optimization parameters,

					Factorial design, Optimization technology & Screening design. **Computers in Pharmaceutical Formulation:** Development of pharmaceutical emulsions, micro emulsion drug carriers Legal Protection of Innovative Uses of Computers in R&D, The Ethics of Computing in Pharmaceutical Research, Computers in Market analysis. **4 a. Computer-aided biopharmaceutical characterization:** Gastrointestinal absorption simulation. Introduction, Theoretical background, Model construction, Parameter sensitivity analysis, Virtual trial, Fed vs. fasted state, In vitro dissolution and in-vitro, in-vivo correlation, Biowaiver considerations. **b. Computer Simulations in**



PRINCIPAL
Aditya Pharmacy College
SURAMPALEM 533 437

					Pharmacokinetics and Pharmacodynamics: Introduction, Computer Simulation: Whole Organism, Isolated Tissues, Organs, Cell, Proteins and Genes. **c. Computers in Clinical Development:** Clinical Data Collection and Management, Regulation of Computer Systems. **5. Artificial Intelligence (AI), Robotics and Computational fluid dynamics:** General overview, Pharmaceutical Automation, Pharmaceutical applications, Advantages and Disadvantages. Current Challenges and Future Directions.

ADITYA PHARMACY COLLEGE * SURAMPALEM *

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

PROGRAM: PHARM D					
S.NO	**Course/code**	**Gender**	**Environmental and sustainability**	**Human values**	**Professional qualification**
1.	Human anatomy and physiology **(T1101)**	Reproductive system a) Male and female reproductive system b) Their hormones – Physiology of menstruation c) Spermatogenesis & Oogenesis d) Sex determination (genetic basis) e) Pregnancy and maintenance and parturition f) Contraceptive devices			Drugs and athletics
2.	Human anatomy and physiology (Practical) **(T1108)**	1) Reproductive system. 2) To perform pregnancy diagnosis test.			
3.	Pharmaceutics **(T1102)**			Incompatibilities: Introduction, classification and methods to overcome the Incompatibilitie	1.Historical back ground and development of profession of pharmacy and pharmaceutical Industry in brief. 2. Development of Indian Pharmacopoeia and introduction to

ADITYA PHARMACY COLLEGE * SURAMPALEM *

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

				s.	other Pharmacopoeias such as BP, USP, European Pharmacopoeia, Extra pharmacopoeia and Indian national formulary.
4.	Pharmaceutics (Practical) **(T1109)**			Incompatibilities a. Mixtures with Physical b. Chemical & Therapeutic incompatibilities. colorless bottles required for dispensing. Paper envelope (white), butter paper and white paper required for dispensing.	
5.	Medicinal biochemistry **(T1103)**				1. Introduction to clinical chemistry: Cell; composition; malfunction; Roll of the clinical chemistry laboratory. 2.The kidney function tests: Role of kidney; Laboratory tests for normal function includes- a) Urine analysis (macroscopic and physical examination, quantitative and Semiquantitative tests.) b) Test for NPN constituents. (Creatinine /urea clearance, determination of blood and urine

					creatinine, urea and uric acid) c) Urine concentration test d) Urinary tract calculi. (stones) 3. Liver function tests: Physiological role of liver, metabolic, storage, excretory, Protective, circulatory functions and function in blood coagulation. a) Test for hepatic dysfunction-Bile pigments metabolism. b) Test for hepatic function test-Serum bilirubin, urine bilirubin, and urine Urobilinogen. c) Dye tests of excretory function. d) Tests based upon abnormalities of serum proteins. Selected enzyme tests. 4. Lipid profile tests: Lipoproteins, composition, functions. Determination of serum lipids, total cholesterol, HDL cholesterol, LDL cholesterol and Triglycerides.
6.	Pharmaceutical Inorganic chemistry **(T1105)**		Dental products Radio pharmaceutic als.	Errors	
7.	Pathophysiology **(T2101)**			1.Chemical mediators in inflammation, 2.Drug hypersensitivity 3.Cigarrate	Cancer: differences between benign and malignant tumors, Histological diagnosis of malignancy, invasions and metastasis, patterns of spread, disturbances of growth of cells, classification of tumors, general

ADITYA PHARMACY COLLEGE SURAMPALEM

PRINCIPAL
Aditya Pharmacy Col
SURAMPALEM-533 4

				smoking and its effects 4.Biological effects and its radiation 5.Etiology and hazards of Obesity 6.Complications of obesity 7.Diagnosis of cancer 8.Disorders of vitamins 9.Methods in pathology-laboratory values of clinical significance 10.Pathophysiology of dengue hemorrhagic fever	biology of tumors, spread of malignant tumors, etiology and pathogenesis of cancer.
8.	Pharmaceutical microbiology **(T2102)**			Study of infectious diseases: Typhoid, Tuberculosis, Malaria, Cholera,	1. Disinfectants- Study of disinfectants, antiseptics, fungicidal and veridical agents factors affecting their activation and mechanism of action. Evaluation of bactericidal, bacteristatic,,virucidal activities, evaluation of preservatives

				Hepatitis, Meningitis, Syphilis & Gonorrhea and HIV.	in pharmaceutical preparations. 2. Diagnostic tests : Schick's Test, Elisa test, Western Blot test, Southern Blot PCR Widal, QBC, Mantaux Peripheral smear. Study of malarial parasite.
9.	Pharmaceutical microbiology (Practical) **(T2107)**			Diagnostic tests for some common diseases, Widal, malarial parasite. Indicate minor experiment & indicate major experiment	
10.	Pharmacognosy and phytopharmaceuticals (Practicals) **(T2108)**			Different methods of adulteration of crude drugs	
11.	Pharmacology-I **(T2104)**			1.Pre clinical evaluations 2.Drug interactions	
12.	Community pharmacy **(T2105)**			1. Definition, scope, of community pharmacy Roles and responsibilities of Community pharmacist	1.Community Pharmacy Management a) Selection of site, Space layout, and design b) Staff, Materials- coding, stocking c) Legal requirements d) Maintenance of various registers e) Use of Computers: Business and health care soft wares

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

				2. Prescriptions – parts of prescription, legality & identification of medication related problems like drug interactions. 3. Patient medication adherence Definition, Factors affecting medication adherence, role of pharmacist in improving the adherence. 4. Health screening services Definition, importance, methods for screening Blood pressure/ blood sugar/ lung function and Cholesterol	2. Pharmaceutical care Definition and Principles of Pharmaceutical care. 3. Patient counseling: Definition, outcomes, various stages, barriers, Strategies to overcome barriers Patient information leaflets- content, design, & layouts, advisory labels

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

				testing 5. OTC Medication- Definition, OTC medication list & Counseling 10 Health Education WHO Definition of health, and health promotion, care for children, pregnant & breast feeding women, and geriatric patients. Commonly occurring Communicable Diseases, causative agents, Clinical presentations and prevention of communicable diseases – Tuberculosis,	

ADITYA PHARMACY COLLEGE * SURAMPALEM *

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

				Hepatitis, Typhoid, Amoebiasis, Malaria, Leprosy, Syphilis, Gonorrhea and AIDS Balance diet, and treatment & prevention of deficiency disorders Family planning – role of pharmacist 6.code of ethics for community pharmacist.	
13	Pharmacology II **(T3101)**				Recombinant DNA technology: principles. Processes (gene transfer technology) and applications
14.	Pharmaceutical Analysis **(T3102)**				1. GLP, ISO 9000. 1. Total quality management, quality review and documentation. 2. ICH- international conference for harmonization-guidelines. 3. Regulatory control.
15.	Pharmaco therapeutics II **(T3103)**			Infectious disease: Guidelines for the rational use	

ADITYA PHARMACY COLLEGE SURAMPALEM

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

				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, Gonarrhoea and Syphilis	
16.	Pharmaceutical jurisprudence **(T3104)**		Drugs and Cosmetics Act, 1940,and its rules 1945. Objectives, Legal definition, Study of Schedule's	1. Medicinal and Toilet Preparation Act –1955. Objectives, Legal Definitions, Licensing, Bonded and	

			with reference to Schedule B, C&C1, D, E1, F&F1, F2, F3, FF, G, H, J, K, M, N, P, R, V, W, X, Y. Sales, Import, labeling and packaging of Drugs And Cosmetics Provisions Relating to Indigenous Systems.	Non Bonded Laboratory, Ware Housing, Manufacture of Ayurvedic, Homeopathic, Patent & Proprietary Preparations. 2. Drug Price control Order & National Drug Policy (Current). 3. Prevention Of Cruelty to animals Act-1960. 4. Patents & design Act-1970. 5. Brief study of prescription and Non-prescription Products.	
17.	Medicinal chemistry **(T3105)**				Diagnostic agents
18.	Pharmaceutical formulation **(T3106)**				1. Pharmaceutical dosage form-concept and classification 2. Tablets: Formulation of different types of tablets, tablet excipients,

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

					granulation techniques quality control and evaluation of tablets. Tablet coating, Type of coating, quality control tests for coated tablet.
19.	Pharmaco therapeuitcs- III (Practical) **(T4107)**			Psychiatry disorders: Schizophrenia, Affective disorders, Anxiety disorders, Sleep disorders, Obsessive Compulsive disorders	
20.	Hospital pharmacy **(T4102)**		1.Continuing professional development programs Education and training 2. Radio Pharmaceuticals – Handling and packaging	1. Hospital pharmacy- Organization and management a) Organizational structure-Staff, Infrastructure & work load statistics b) Management of materials and finance c) Roles & responsibilities	1. Hospital drug policy a) Pharmacy and Therapeutic committee (PTC) b) Hospital formulary c) Hospital committees - Infection committee - Research and ethical committee d) developing therapeutic guidelines e) Hospital pharmacy communication – Newsletter 2. Manufacture of Pharmaceutical preparations a) Sterile formulations – large and small volume parenterals b) Manufacture of Ointments, Liquids, and creams

ADITYA PHARMACY COLLEGE * SURAMPALEM *

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

				of hospital pharmacist 2. Hospital pharmacy services a) Procurement & warehousing of drugs and Pharmaceuticals b) Inventory control Definition, various methods of Inventory Control ABC, VED, EOQ, Lead time, safety stock c) Drug distribution in the hospital i) Individual prescription method ii) Floor stock method iii) Unit dose drug distribution method	c) Manufacturing of Tablets, granules, capsules, and powders d) Total parenteral nutrition

ADITYA PHARMACY COLLEGE ★ SURAMPALEM ★

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

				d) Distribution of Narcotic and other controlled substances e) Central sterile supply services – Role of pharmacist	
21.	Hospital pharmacy (Practical) **(T4108)**				1. Pharmacy and Therapeutics committee – Organization, functions, and limitations. 2. Evaluation of prescriptions generated in hospital for drug interactions and find out the Suitable management.
22.	Clinical pharmacy **(T4103)**			1. Patient data analysis The patient's case history, its structure and use in evaluation of drug therapy & Understanding common medical abbreviations and terminologies used in clinical practices. 2. Clinical	1. Definitions, development and scope of clinical pharmacy 2. Introduction to daily activities of a clinical pharmacist a. Drug therapy monitoring (medication chart review, clinical review, pharmacist interventions) b. Ward round participation c. Adverse drug reaction management d. Drug information and poisons information e. Medication history f. Patient counseling g. Drug utilization evaluation (DUE) and review (DUR) h. Quality assurance of clinical

				laboratory tests used in the evaluation of disease states, and interpretation of test results a. Haematological, Liver function, Renal function, thyroid function tests b. Tests associated with cardiac disorders c. Fluid and electrolyte balance d. Microbiological culture sensitivity tests e. Pulmonary Function Tests 3. Drug & Poison information a. Introduction to drug information	pharmacy services 3. 6. Pharmacovigilance a. Scope, definition and aims of pharmacovigilance b. Adverse drug reactions - Classification, mechanism, predisposing factors, causality assessment [different scales used] c. Reporting, evaluation, monitoring, preventing & management of ADRs d. Role of pharmacist in management of ADR. 4. Communication skills, including patient counseling techniques, medication history interview, presentation of cases. 5. Pharmaceutical care concepts 6. Critical evaluation of biomedical literature 7. Medication errors

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437

				resources available b. Systematic approach in answering DI queries c. Critical evaluation of drug information and literature d. Preparation of written and verbal reports e. Establishing a Drug Information Centre f. Poisons information-organization & information resources	
23.	Clinical pharmacy (Practical) **(T4109)**				a. Answering drug information questions (4 Nos). b. Patient medication counseling (4 Nos). c. Case studies related to laboratory investigations (4 Nos). d. Patient medication history interview (3 Nos).

ADITYA PHARMACY COLLEGE SURAMPALEM

PRINCIPAL
Aditya Pharmacy College
SURAMPALEM-533 437