

## Course Name-B Pharmacy; Year of study-2016-17

### New Syllabus

SEM	NBA CODE	SUBJECT CODE	SUBJECT	COURSE OUTCOME	
<b>I</b>	<b>101.1</b>	<b>BP101TP</b>	<b>HUMAN ANATOMY AND PHYSIOLOGY-I</b>	101.1.1	Understand gross morphology, structure and functions of various organs of the human body.
				101.1.2	Understand Identification of the various tissues and organs of different systems of human body.
				101.1.3	Understand the various homeostatic mechanisms and their imbalances. .
				101.1.4	Understand the Appreciate coordinated working pattern of different organs of each system
				101.1.5	Understand the practical concepts various experiments related to special senses and nervous system.
				101.1.6	Apply the knowledge of various organs of different systems of human body.
	<b>101.2</b>	<b>BP102TP</b>	<b>PHARMACEUTICAL ANALYSIS</b>	101.2.1	understand the principles of volumetric and electro chemical analysis
				101.2.2	Understand the various terminologies/concepts related with pharmaceutical analysis,
				101.2.3	Carryout various volumetric and electrochemical titrations
				101.2.4	Understandtheimportanceofitrimetric analysis
				101.2.5	Understand the importance of various instruments of electrochemical methods like- conductometer, potentiometer and

					polorography.
				101.2.6	To develop analytical skills.
<b>101.3</b>	<b>BP103TP</b>	<b>PHARMACEUTICS- I</b>	101.3.1	Know the history of profession of pharmacy	
			101.3.2	Understand the basics of different dosage forms & pharmaceutical incompatibilities	
			101.3.3	Understand the professional way of handling the prescription	
			101.3.4	Preparation of various conventional dosage forms	
			101.3.5	Understand the pharmaceutical calculation	
			101.3.6	Understand the various conventional dosage forms	
<b>101.4</b>	<b>BP104TP</b>	<b>PHARMACEUTICAL INORGANIC CHEMISTRY</b>	101.4.1	Outline pharmacopoeial standards for the qualitative and quantitative estimations of inorganic pharmaceuticals.	
			101.4.2	Describe acids, bases, buffers, and water and recall the fundamental principles of them	
			101.4.3	Describe the major intra and extra cellular electrolytes, essential and trace elements, cationic and anionic components of inorganic drugs.	
			101.4.4	Describe different GIT agents and recall the fundamental principles of them	
			101.4.5	Explain Expectorants, Emetics, Haematinics, & Poison and Antidote	

				101.4.6	Explain radio pharmaceuticals.
	<b>101.5</b>	<b>BP105TP</b>	<b>COMMUNICATION SKILLS</b>	101.5.1	Understand the behavioral needs for a Pharmacist to function effectively in the areas of pharmaceutical operation
				101.5.2	Communicate effectively (Verbal and Non Verbal)
				101.5.3	Effectively manage the team as a team player
				101.5.4	Develop interview skills
				101.5.5	Develop Leadership qualities and essentials
	<b>101.6</b>	<b>BP106TP</b>	<b>REMEDIAL BIOLOGY</b>	101.6.1	know the classification and salient features of five kingdoms of life
				101.6.2	understand the basic components of anatomy and physiology of plant
				101.6.3	know understand the basic components of anatomy of and physiology of animal with special reference to human.
				101.6.4	To know about different plant and mineral nutrition.
				101.6.5	Information regarding cells and different types of tissues
	<b>101.7</b>	<b>BP107TT</b>	<b>REMEDIAL MATHEMATICS</b>	101.7.1	Know the theory and their application in Pharmacy
				101.7.2	Solve the different types of problems by applying theory
				101.7.3	Appreciate the important application of mathematics in Pharmacy
				101.7.4	Understand the concept of Analytical Geometry, Differential Equation, etc
				101.7.5	Apply the knowledge of mathematics in pharmaceutical calculations

Old Syllabus (2014-16)

SEM	NBA CODE	SUBJECT CODE	SUBJECT	COURSE OUTCOME	
I	101.1	2210001	S	101.1.1	Understand the theoretical & practical principles involved in unit operations
				101.1.2	Apply the knowledge of unit operations in the formulations of various dosage forms.
				101.1.3	Understand the concepts of Size reduction, Size separation, Mixing, Crystallization, Extraction and leaching, etc required for the manufacturing of various pharmaceutical formulations at laboratories as well as industrial scale.
				101.1.4	Understand the Automated process control system as well as Industrial hazards and safety precautions
				101.1.5	Understand the practical concepts of size reduction, particle size distribution, etc
	101.2	2210002	PHARM CHEM-I (INORGANIC CHEMISTRY)	101.2.1	Outline pharmacopoeial standards for the qualitative and quantitative estimations of inorganic pharmaceuticals.
				101.2.2	Describe acids, bases, buffers, and water and recall the fundamental principles of them
				101.2.3	Describe the major intra and extra cellular electrolytes, essential and trace elements, cationic and anionic components of inorganic drugs.
				101.2.4	Describe different GIT agents and recall the fundamental principles of them

				101.2.5	Explain Expectorants, Emetics, Haematinics, & Poison and Antidote
<b>101.3</b>	<b>2210003</b>	<b>PHARMACE UTICAL ANALYSIS</b>	101.3.1	Explain radio pharmaceuticals.	
			101.3.2	Ability to check the purity and strength of the drug formulations	
			101.3.3	Ability to perform analysis of drugs using Fluorimetry, nepheloturbidimetry and flame photometry	
			101.3.4	Understand the different analytical techniques and their applications in analysis of drugs	
			101.3.5	Understand the practical concept of Acid-base titrations, Redox titrations, Complexometric titrations, Nonaqueous titrations, etc.	
<b>101.4</b>	<b>2210004</b>	<b>HUMAN ANATOMY PHYSIOLOGY</b>	101.4.1	An ability to describe the structure and function of various organs of the human body	
			101.4.2	Ability to perform the hematological tests and also record blood pressure, heart rate, pulse and respiratory volumes	
			101.4.3	Identify the various tissues and organs of the different systems of the human body To perform the analysis of normal and abnormal contents of urine. Students can describe the etiology and pathogenesis of these selected disease states Ability to apply the knowledge of structure and function of various physiological systems	

				101.4.4	To perform physiological experiments on nerve muscle preparations
101.5	2210005	BASICS OF COMPUTER APPLICATIONS	101.5.1	Ability to apply the knowledge of statistical tools for comparative analysis of results in pharmaceutical and clinical studies	
			101.5.2	To apply the statistical concepts in various pharmaceutical sciences	
			101.5.3	Apply the knowledge of MS Office, Excel, Powerpoint and Access for pharmaceutical and clinical studies.	
			101.5.4	To develop programs to calculate simple and arithmetic expressions	
			101.5.5	Understand practical concept of MS Office.	
			101.5.6	Understand the various software like MS Paint, MS Access, Outlook, Adobe Acrobat reader, Adobe Professional, Chemdraw, ISIS Draw, Nero Burning room	

CODE 101 is in the first semester and 101.1 is the subject code for UNIT OPERATION-I & 101.1.1. -101.1.5 are the outcomes of this course. Similarly for others subject also.

SEM	NBA CODE	SUBJECT CODE	SUBJECT	OUTCOME	
II	102.1	2220001	PHYSICAL PHARMACY	102.1.1	Understand the different physical properties of drug molecules
				102.1.2	To understand the concept of micro merits like particle size and shape and its dimensions.
				102.1.3	Ability to apply the knowledge of solubility in pharmaceutical preparations
				102.1.4	Apply the concept of interfacial phenomena.
				102.1.5	To understand the theory behind complex formation and protein- drug binding.
				102.1.6	Rheology in suspensions and emulsions
	102.2	2220002	Physical Chemistry	102.2.1	Understand the physical properties for liquid
				102.2.2	Discuss the properties of solutions like colligative properties, partition coefficient and conductance.
				102.2.3	Understand the basic principles of thermodynamics with their first, second

					and third laws.
				102.2.4	Understand the basic principles of adsorption with theory of adsorption.
				102.2.5	Understand the basic principles of photochemistry with Lambert-Beer Law
				102.2.6	Understand the chemical kinetics with second orders reactions, theories and use of catalysts.
<b>102.3</b>	<b>2220003</b> <b>I</b>	<b>PHARMACE</b> <b>UTICAL</b> <b>ANALYSIS-</b> <b>I</b>	102.3.1	Understand the principle and application of different analytical instruments used in pharmaceutical industries	
			102.3.2	Ability to perform quantitative analysis of drugs from different dosage forms using various analytical tools	
			102.3.3	Ability to interpret the analytical data and identify the structure of the compound	
			102.3.4	Ability to perform separation techniques for subsequent analysis of mixture of components	
			102.3.5	Understand the concept of extraction and various technique	
			102.3.6	Understand the concepts of various methods like colorimetry, polarimetry, etc	
<b>102.4</b>	<b>2220004</b>	<b>HUMAN</b> <b>ANATOMY</b> <b>PHYSIOLO</b> <b>GY-II</b>	102.4.1	To know the knowledge of anatomy as well as physiology of respiratory system.	
			102.4.2	To know the knowledge of anatomy as	



					well as physiology of nervous system.
				102.4.3	To understand the anatomy and physiology of sense organ like ear tongue skin.
				102.4.4	To understand the anatomy and physiology of urinary system.
				102.4.5	To understand the concept of various hormones.
				102.4.6	To understand the anatomy and physiology of reproductive system.
<b>102.5</b>	<b>2220005</b>	<b>BASICS OF COMPUTER APPLICATIONS II</b>	102.5.1		To present various response data graphically
			102.5.2		Understand the concepts of deviation , standard deviation and standard error of any given data
			102.5.3		To perform the basics of modifications in various types charts.
			102.5.4		Students obtain an understanding of the concepts of calculation of mean, mode and median of any given data
			102.5.5		Learning basic concepts of ANOVA
			102.5.6		Calculations related with t-test
<b>102.6</b>	<b>2220006</b>	<b>ENVIRONMENTAL STUDIES</b>	102.6.1		Understand the concept of Environment and environment studies
			102.6.2		Concept of Ecology and ecosystem
			102.6.3		Understand the Natural Resources
			102.6.4		Understand the studies of Human population and environment
			102.6.5		Study the environment pollution
			102.6.6		Studies on Energy and global environment issues

CODE 102 is in the Second semester and 102.1 is the subject code for PHYSICAL PHARMACY & 102.2.1. -102.2.5 are the outcomes of this course. Similarly for others subject also.

SEM	NBA CODE	SUBJECT CODE	SUBJECT	OUTCOME	
III	103.1	2230001	DISPENSING PHARMACY I AND DRUG STORE MANAGEMENT	103.1.1	An ability to identify the different pharmaceutical preparations
				103.1.2	An ability to monitor a patient medication history
				103.1.3	To apply the knowledge on maintenance of purchase and inventory control of drug store
				103.1.4	An ability to understand Principles involved and procedures adopted in dispensing of various pharmaceutical preparations
				103.1.5	An ability to understand prescription & dispensing techniques.
				103.1.6	To apply the knowledge on pharmaceutical calculations related with dose
	103.2	2230002	PHARMACEUTICAL ENGINEERING	103.2.1	To understand the pharmaceutical engineering and its significance, unit operations and its unit process.
				103.2.2	To understand the general principle, material balance tie, chemical rex., rate process etc
				103.2.3	To understand the various fluid flow and various manometers.
				103.2.4	To understand the mode of heat transfer.
				103.2.5	To understand the various principle stream in mass transfer operation.
103.2.6				To have a knowledge on materials of pharmaceutical plant construction	
103.3	2230003	PHARMACEUTICAL	103.3.1	Understand the Biochemical organization of the cell and transport	

			HEMISTR Y-III (BIOCHEM ISTRY – I)		processes across the cell membrane
				103.3.2	Introduction to carbohydrates and lipids
				103.3.3	The ability to know the importance of carbohydrate metabolism, Lipid Metabolism, etc
				103.3.4	Understand the role of Enzymes
				103.3.5	Understand the role Co-enzymes
				103.3.6	Know the knowledge of water and mineral metabolism.
103.4	2230004		PHARMAC EUTICAL CHEMIST RY-IV (ORGANIC CHEMIST RY – I)	103.4.1	Understand the basics of organic chemistry
				103.4.2	Develop ability to understand the molecular structure of organic compounds and understand importance and role of polarity of bond in organic chemistry
				103.4.3	Clarify mechanism of organic reaction via reactive intermediates.
				103.4.4	An ability to understand reaction, mechanism and application involved in hydrocarbons
				103.4.5	Understand reaction, mechanism and importance of alcohol and ether
				103.4.6	An ability to understand concept of aromaticity and reaction of benzene and polynuclear hydrocarbons
103.5	2230005		HEALTH EDUCATI ON & COMMUNI TY HEALTH	103.5.1	To know the concept of health like definition of health dimensions of health determinants of health health care of the community, etc
				103.5.2	Understand the different levels of health care of community (primary, secondary tertiary) and also to know the principle of primary health care.
				103.5.3	Understand the various principal

					involve in Nutrition and Health,etc
				103.5.4	Understand the concept of disease concept of causation history of diseases then control of disease and prevention of mode of transmission.
				103.5.5	To know about the different communicable disease like TB Cholera typhoid etc.
				103.5.6	To know the principles of epidemiology and demography.
<b>103.6</b>	<b>2230006</b>	<b>PHARMACOGNOSY-I</b>	103.6.1		Understand the History, Scope, & development of Pharmacognosy
			103.6.2		Knowledge of plants and various plant parts, various plant tissues, etc
			103.6.3		Ability to perform physical and chemical methods of evaluation of crude drugs containing carbohydrates and fixed oils
			103.6.4		Understand the strategy to obtain improved cultivation, collection & processing of medicinal plants
			103.6.5		Understand the various applications of drug containing carbohydrates and lipids
			103.6.6		Understand the concept of classification of crude drugs

CODE 103 is in the Third semester and 103.1 is the subject code for DISPENSING PHARMACY I AND DRUG STORE MANAGEMENT& 103.3.1. -103.3.6 are the outcomes of this course. Similarly for others subject also.

<b>S E M</b>	<b>NBA COD E</b>	<b>SUBJECT CODE</b>	<b>SUBJEC T</b>	<b>OUTCOME</b>	
<b>IV</b>	<b>104.1</b>	<b>2240001</b>	<b>UNIT OPERAT IONS-II</b>	104.1. 1	Understand the theoretical concepts and principles used in unit operations and process and correlate them with various practical applications in pharmaceutical industries in the process of formulations of various pharmaceutical products.

				104.1.2	Understand the theoretical concepts and principles in Filtration, Centrifugation, Drying, etc
				104.1.3	Understand the concepts of Humidity, Ventilation and Air Conditioning Systems (HVAC) used in Pharmaceutical industries.
				104.1.4	Understand the practical principal involve in centrifugation, filtration, distillation, etc
				104.1.5	Understand the Determination of humidity and related parameters using DBT/WBT and dew point method.
				104.1.6	Study of various dryers and the rate of drying curve and various parameters related to it.
<b>104.2</b>	<b>2240002</b>	<b>DISPENSING PHARMACY II AND PHARMACEUTICAL INDUSTRIAL MANAGEMENT</b>	104.2.1	Remember various types of dispensing products and principals involve in dispensing.	
			104.2.2	To Analyzed the Incompatibilities	
			104.2.3	Understand the basic concepts of dispensing, labelling, packaging & storage of different types of dispensed products.	
			104.2.4	Understand the concept of Management, Pharmaceutical marketing and Salesmanship.	

			104.2.5	Understand the practical concept of Physical as well as Chemical Incompatibilities
			104.2.6	Prepare and dispense the various pharmaceutical preparations.
<b>104.3</b>	<b>2240003</b>	<b>PHARMACEUTICAL CHEMISTRY – V (BIOCHEMISTRY – II)</b>	104.3.1	Detailed study of chemistry of Proteins and nucleic acid
			104.3.2	Metabolism of ammonia and nitrogen containing monomers.
			104.3.3	Detailed information regarding Biosynthesis of nucleic acids, genetic organization of mammalian genome etc.
			104.3.4	Genetic code and protein synthesis.
			104.3.5	Biological oxidation, enzymes, coenzymes, involved in oxidation reduction and its control.
			104.3.6	Understand the Techniques used in biochemistry.
<b>104.4</b>	<b>2240004</b>	<b>PHARMACEUTICAL CHEMISTRY – VI (ORGANIC CHEMISTRY – II)</b>	104.4.1	Understand relevance of stereochemistry & its significance in Pharmaceutical Sciences.
			104.4.2	An ability to the structures and reactions of different heterocyclic compounds.
			104.4.3	An ability to understand reaction mechanism of various functional group- phenols, amines.
			104.4.4	An ability to understand reaction involved in carbonyl group containing functional group.



			104.4.5	Clarify mechanism and application of nucleophilic aromatic substitution reaction.
			104.4.6	Understand the principal and applications of Nano-chemistry, Microwave synthesis and green chemistry.
<b>104.5</b>	<b>2240005</b>	<b>BASIC CONCEPTS OF PHARMACOLOGY AND CLINICAL PHARMACY PRACTICE</b>	104.5.1	To know the definitions of different terminology like pharmacy pharmacology clinical pharmacy pharmacoeconomics etc.
			104.5.2	To understand the mechanism of ADME of drugs,
			104.5.3	To Understand the mechanism of drug action through different receptors, ion channels enzyme transport protein etc.
			104.5.4	To know the knowledge of modification effect of drugs with special reference to children elderly and pregnancy.
			104.5.5	To know the mechanism of drug interaction and also different also adverse drug reaction.
			104.5.6	To know about Patient counselling, communication skills for effective counseling steps for patients counseling etc.
<b>104.6</b>	<b>2240006</b>	<b>PHARMACOLOGY-II</b>	104.6.1	Ability to perform the pharmacognostic study on volatile oil containing drugs

				104.6. 2	Ability to understand the detail study of volatile oil containing drugs.
				104.6. 3	Ability to understand the detail study of Resins containing drugs.
				104.6. 4	Ability to understand the detail study of Tannins containing drugs.
				104.6. 5	Understand the various technologies involve in extraction and isolation volatile oil, tannins and resins
				104.6. 6	Understand the various applications of Volatile oil, tannins and resins contacting drugs

CODE 104 is in the Fourth semester and 104.1 is the subject code for Unit Operations-II& 104.4.1. -104.4.6 are the outcomes of this course. Similarly for others subject also.

<b>S E M</b>	<b>NBA COD E</b>	<b>SUBJE CT CODE</b>	<b>SUBJECT</b>	<b>OUTCOME</b>	
<b>V</b>	<b>105.1</b>	<b>2250001</b>	<b>HOSPITAL AND COMMUNITY PHARMACY</b>	105.1.1	Understand the hospital organization and structure of Hospital like organization of hospital pharmacy, responsibility hospital pharmacist etc.
				105.1.2	To know about different drug distribution system like hospital dispensing of drugs to in patients, inpatients. Drug charges and charging policies. Central sterile.
				105.1.3	To understand the duties and hospital pharmacist.
				105.1.4	To have the knowledge of different Hospital formularies like its format and apperience, distribution, keeping a formulary current use of non formulary drug etc.
				105.1.5	To know the knowledge of nuclear pharmacy like radiopharmaceuticals, radioactive isotopes.
				105.1.6	To know about the prescription filing, drug profile patient medication profile, manual reports,
	<b>105.2</b>	<b>2250002</b>	<b>PHARMACEUTICAL</b>	105.2.1	Understand the scope of microbiology, General microbiology.

			<b>MICROBIOLOGY &amp; BIOTECHNOLOGY – II</b>	105.2.2	Knowledge of Control of microbes in pharmaceutical industries.
				105.2.3	Introduction to DNA & RNA, details study of it.
				105.2.4	Understand the scope of Biotechnology
				105.2.5	Knowledge of Immobilization of Enzyme.
				105.2.6	Study of enzyme kinetics
<b>105.3</b>	<b>2250003</b>		<b>PHARMACEUTICAL ANALYSIS III</b>	105.3.1	Understand the fundamentals of Spectroscopy.
				105.3.2	Understand the Theoretical & Practical concept of UV-VIS Spectroscopy
				105.3.3	Understand the Theoretical & Practical concept of Fluorescence Spectroscopy
				105.3.4	Understand the Theoretical concept of .IR Spectroscopy, NMR Spectroscopy, etc.
				105.3.5	Understand the Theoretical concept of mass spectroscopy.
				105.3.6	NMR Spectroscopy.
<b>105.4</b>	<b>2250004</b>		<b>PHARMACEUTICAL CHEMISTRY – VI (MEDICINAL CHEMISTRY)</b>	105.4.1	Explain the influence of physicochemical properties on drug action
				105.4.2	Outline the synthetic route for the selective medicinal compounds of each category and acquire knowledge on the mechanism of action of drug acting on respiratory

			<b>RY – I)</b>		tract, GI tract.
				105.4. 3	Classify the therapeutic agents and based on the chemical nature.
				105.4. 4	Understand the diagnostic agents and its synthesis
				105.4. 5	Acquire knowledge about the relationship between the biological activity and structure of drug acting on ANS.
				105.4. 6	Outline the synthetic route for the selective medicinal compounds of each category and acquire knowledge on the mechanism of action of drug acting on ANS.
<b>105.5</b>	<b>2250005</b>	<b>PHARMA COLOGY AND PHARMA COTHER APEUTIC S-I</b>		105.5. 1	Understand the concepts of Pharmacology of Peripheral and Autonomic Nervous system
				105.5. 2	Understand the concepts of Pharmacology of Autacoids
				105.5. 3	Understand the concepts of Pharmacology of Laxative, anti-diarrhoeal drugs Emetics, etc
				105.5. 4	Concepts of detail study & management of various disease on respiratory sysem like-asthma, COPD.
				105.5. 5	Concepts of detail study & management of various disease on gastrointestinal sysemlike-peptic ulcer and GERD, IBD
				105.5. 6	Concepts of detail study & management of various disease on eyes like- glaucoma.

	<b>105.6</b>	<b>2250006</b>	<b>PHARMA COGNOS Y-III</b>	105.6. 1	Ability to understand the detail study of Saponins containing drugs.
				105.6. 2	Understand the concepts of Plant Tissue Culture
				105.6. 3	Ability to understand the detail study of Cardioactive sterols containing glycoside drugs.
				105.6. 4	Ability to understand the detail study of Curamarins&cynogenetic glycosides containing drugs.
				105.6. 5	Concept of detail study of various laboratory requirement for plant tissue culture
				105.6. 6	Understand the applications of plant tissue culture

CODE 105 is in the Third semester and 105.1 is the subject code for HOSPITAL AND COMMUNITY PHARMACY& 105.5.1. -105.5.6 are the outcomes of this course. Similarly for others subject also.

SE	NBA	SUBJEC	SUBJECT	OUTCOME
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M	CODE	T CODE			
VI	106.1	2260001	FORENSIC PHARMAC Y	106.1.1	Ability to practice the Professional ethics
				106.1.2	Understand the various concepts of the pharmaceutical legislation in India
				106.1.3	Know the various parameters in drugs and cosmetics act and rules
				106.1.4	Understand the Various acts like Poison act 1919, Patent acts 1970, etc
				106.1.5	Details study of Pharmacy Act 1948 & AICTE Act 1987.
				106.1.6	Concepts of Law regulating the introduction of new drugs
	106.2	2260002	PHARMACE UTICAL MICROBIO LOGY & BIOTECHN OLOGY – II	106.2.1	Understand the introduction to microbial genetics
				106.2.2	Understand the Concepts involve in Analytical Microbiology- sterility testing, microbiological assay.
				106.2.3	Understand the Concepts involve in Immunology and Immunological preparations.
				106.2.4	Understand the theoretical and practical principals involve in Fermentation
				106.2.5	Knowledge of various drugs produce by biotechnology
				106.2.6	Understand the concept of fermenter and its different parameters.
106.3	2260003	PHARMACE UTICAL ANALYSIS IV	106.3.1	Understand the fundamentals of chromatographic techniques	
			106.3.2	Discuss the application of chromatography for the quantitative and qualitative analysis of drugs.	
			106.3.3	Describe the importance of X-ray and its	

					applications for pharmaceutical substances
				106.3.4	Recognize the basic concept of quality management, quality control and quality assurance
				106.3.5	Understand the theoretical and practical principal involves in HPTLC,HPLC, etc
				106.3.6	Understand the practical approaches of UV, HPLC, HPTLC, GC, etc
<b>106.4</b>	<b>2260004</b>	<b>PHARMACEUTICAL CHEMISTRY – VIII (MEDICINAL CHEMISTRY – II)</b>	106.4.1	Understand the concepts of Receptors and Drug action	
			106.4.2	Capacity to understand the concept of drug metabolism	
			106.4.3	Understand the concept drug acting on CNS stimulant	
			106.4.4	Understand the concept drug acting on CNS depressant and anti-Parkinson agents	
			106.4.5	Understand the concept Non-Steroidal Anti-Inflammatory Agents, Anti Gout and DMARDS	
			106.4.6	Understand the concept drug acting on Alzheimer and cognitive enhancer	
<b>106.5</b>	<b>2260005</b>	<b>PHARMACOLOGY AND PHARMACOTHERAPEUTICS–II</b>	106.5.1	Understand the concepts of Disease conditions like mania, epilepsy, gout, etc	
			106.5.2	Understand the significance of opioid analgesics, etc	
			106.5.3	Ability to assess the treatment for Anxiety, Insomnia, etc	
			106.5.4	To study the pharmacology of various classes of drugs like analgesic, anesthetics, etc	
			106.5.5	Understand the concepts of CNS	



				106.5.6	Study about immunomodulators.
	<b>106.6</b>	<b>2260006</b>	<b>PHARMAC OGNOSY-IV</b>	106.6.1	To provide an opportunity for the students to understand the cultivation and utilization aspects of alkaloids drugs
				106.6.2	Understand the medicinal uses of alkaloid drugs
				106.6.3	Understand the various enzymes
				106.6.4	Understand the Marine Pharmacognosy and its important
				106.6.5	Detail knowledge of pharmaceutical aid
				106.6.6	Isolation of alkaloids from various alkaloid containing plant sources

CODE 106 is in the Sixsemester and 106.1 is the subject code for FORENSIC PHARMACY& 106.6.1. -106.6.6 are the outcomes of this course. Similarly for others subject also.

<b>SE M</b>	<b>NBA CODE</b>	<b>SUBJEC T CODE</b>	<b>SUBJECT</b>	<b>OUTCOME</b>	
<b>VI I</b>	<b>107.1</b>		<b>DOSAGE FORM DESIGN I</b>	107.1.1	Study of physical and chemical properties as well as problem solving study related to stability.
				107.1.2	Knowledge of pharmaceutical excipients and their uses.
				107.1.3	Stability testing of pharmaceutical dosage forms.
				107.1.4	Study of various mechanism for drugs.
				107.1.5	Measurement of bioavailability and bioequivalence.
				107.1.6	Knowledge of BCS classification and dissolution study for various dosage

					form.
<b>107.2</b>	<b>2270002</b>	<b>PHARMACE UTICAL TECHNOLO GY I</b>	107.2.1	Study about sterile dosage forms like- defn, advantage, disadvantage, its ideal requirements, formulation, QC etc	
			107.2.2	Detailed study about liquid dosageforms- vehicals, stabilizers, preservatives, suspending agents, emulsifying agents etc	
			107.2.3	To know about semisolid dosageforms- mechanism of drug penetration, factors influencing penetration, types and mechanism of penetration etc	
			107.2.4	Perform the evaluation of cosmetic preparations	
			107.2.5	Perform the good manufacturing practice for pharmaceuticals and validation	
			107.2.6	Manufacturing (cold filling and pressure filling technique)	
<b>107.3</b>	<b>2270003</b>	<b>PHARMACE UTICAL CHEMISTR Y - IX (MEDICINA L CHEMISTR Y - III)</b>	107.3.1	Explain mechanism of action and chemical classification for antibacterial, antibiotics, Antimycobacterial, antifungal and antiprotozoal agents	
			107.3.2	Acquire knowledge about the relationship between the biological activity and structure of therapeutic agents.	
			107.3.3	Outline the synthetic route for the selective medicinal compounds of each category Antibacterial, antibiotics, Antimycobacterial, antifungal and antiprotozoal agents.	
			107.3.4	Explain the Structure Activity Relationship, mechanism of action, synthesis and use of Antiviral and	

					antineoplastic agents.
				107.3.5	Understand the concept of QSAR, CADD, and method of lead discovery, identification and optimization of lead.
				107.3.6	Recall the fundamental principles of combinatorial chemistry.
<b>107.4</b>	<b>2270004</b>	<b>PHARMAC OLOGY AND PHARMAC OTHERAPE UTICS – III</b>	107.4.1		Principles of chemotherapy including definition, classification, problems arising with antimicrobial agents, choice of antimicrobial agents.
			107.4.2		To know about different classification, antibacterial spectrum, MOA, kinetics, Adr, uses of sulphonamides, betalactam antibiotics, macrolides .etc
			107.4.3		To know about different classification, antibacterial spectrum, MOA, kinetics, Adr, uses of amionoglycoside, antifungal antiviral, anticancer.
			107.4.4		To know the definition epidemiology etiology pathophysiology, sign and symptoms diagnosis, complications and management of disease like TB Leprosy, Malaria, Ameobiasis.
			107.4.5		To know the definition epidemiology etiology pathophysiology, sign and symptoms diagnosis, complications and management of disease like UTI, Enteric infections menenigitis RTI.
			107.4.6		To know the definition epidemiology etiology pathophysiology, sign and symptoms diagnosis, complications and management of disease like Syphilis and gonorrhoea, leishmaniasis and congo fever

					and herpes and HIV infection
<b>107.5</b>	<b>2270005</b>	<b>PHARMAC OGNOSY-V</b>	107.5.1	Develop the new herbal formulation on the basis of Ayurveda principle as per Ayurvedic pharmacopoeia.	
			107.5.2	Understanding the concept of Ayurveda, Ayurvedic, formulations and their quality control.	
			107.5.3	Understanding the concept of Neutraceutical and plant sweeteners	
			107.5.4	Understand the concept of Herbal Cosmetic	
			107.5.5	A study on different types of Ayurvedic formulations like churna, Kwath, gutica, taila, ghrita, avaleha, asavas, arista, bhasma and pisti.	
			107.5.6	Understand the biosynthesis studies and basic metabolic pathways	
<b>107.6</b>	<b>2270016</b>	<b>ICCDS</b>	107.6.1	Innovation in tablets- fast dispersible tablet, matrix tablet, etc	
			107.6.2	Innovations in capsule	
			107.6.3	Innovation in palletizationana capsule.	
			107.6.4	Innovations in semisolids, parenterls, ophthalmics.	
			107.6.5	Innovations in aerosols .	
			107.6.6	Innovation in disperse system (suspension and emulsion)	

CODE 107 is in the Sevensemester and 107.1 is the subject code for DOSAGE FORM DESIGN I& 107.7.1. -107.7.6 are the outcomes of this course. Similarly for others subject also

<b>SE M</b>	<b>NBA CODE</b>	<b>SUBJEC T CODE</b>	<b>SUBJECT</b>	<b>OUTCOME</b>
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<b>VI II</b>	<b>108.1</b>	<b>2280001</b>	<b>DOSAGE FORM DESIGN II</b>	108.1.1	Classification and formulation aspects of controlled release dosage form.
				108.1.2	Formulation and evaluation of Novel drug delivery system,
				108.1.3	Understand study of targeted Drug Delivery system.
				108.1.4	Understand the scope of pharmacokinetics and clinical pharmacokinetics.
				108.1.5	Determination of pharmacokinetics parameter from plasma and urine data after administration by intravascular and oral route.
				108.1.6	Understand the concept drug interaction and their significance
				<b>108.2</b>	<b>2280002</b>
108.2.2	To understand the knowledge of capsules				
108.2.3	Understanding the concept of Extrusion and Pelletization				
108.2.4	To understand the microcapsule/microsphere.				
108.2.5	Pharmaceutical application of supercritical fluids in extraction, size reduction.				
108.2.6	Ability to perform evaluation on materials used for packaging such as glass, plastic, rubber closures etc				
<b>108.3</b>	<b>2280003</b>	<b>PHARMACEUTICAL CHEMISTRY - X</b>	108.3.1		

			(MEDICINA L CHEMISTR Y - III)	108.3.2	Acquire knowledge about the relationship between the biological activity and structure of drug acting on cardiovascular system and drug acting on blood.
				108.3.3	Outline the synthetic route for the selective medicinal compounds of each category, drug acting on cardiovascular system and drug acting on blood.
				108.3.4	Explain mechanism of action and chemical classification for drug acting on endocrine system and Miscellaneous class.
				108.3.5	Acquire knowledge about the relationship between the biological activity and structure of drug acting on endocrine system.
				108.3.6	Outline the synthetic route for the selective medicinal compounds of each category, drug acting on endocrine system and Miscellaneous class.
108.4	2280004		PHARMAC OLOGY AND PHARMAC OTHERAPE UTICS – IV	108.4.1	To know the knowledge of definition epidemiology etiology pathophysiology sign and symptoms diagnosis complications treatment and management of disease like Hypertension, Coronary Heart disease Congestive heart failure.
				108.4.2	To know the knowledge of definition epidemiology etiology pathophysiology sign and symptoms diagnosis complications treatment and management of disease like Cardiac arrhythmias, Thrombosis, Dyslipidemia, and Anemia.

				108.4.3	To know the knowledge of definition epidemiology etiology pathophysiology sign and symptoms diagnosis complications treatment and management of disease like Diabetis mellitus and hypoglysemia, Thyroid and parathyroid disorders and erectile dysfunction..
				108.4.4	To know the knowledge of definition epidemiology etiology pathophysiology sign and symptoms diagnosis complications treatment and management of disease like Anticoagulants including direct thrombin inhibitors..
				108.4.5	To know the knowledge of definition epidemiology etiology pathophysiology sign and symptoms diagnosis complications treatment and management of disease like Antifibrinolytics and Antiplatelet Drugs.
				108.4.6	To know the knowledge of Pharmacological class of drugs like Estrogen, Antiestrogen and SERM, Aromatase inhibitor, progestins and antiprogestins, Hormonal contraceptives.
<b>108.5</b>	<b>2280005</b>	<b>PHARMAC OGNOSY-VI</b>	108.5.1	Understand the preparation if herbal extract and their standardization	
			108.5.2	Describe the phytochemical screening techniques	
			108.5.3	Understanding the concept of Isolation, Identification and analysis of phytoconstituents.	
			108.5.4	Study of Phytopharmacovigilance	
			108.5.5	Understand the concept of herbal drug	

					Industry and the scope of herbal drugs
				108.5.6	Knowledge of herbal drug for modern diseases
	<b>108.6</b>	<b>2280016</b>	<b>CURRENT ADVANCE S IN NOVEL DRUG DELIVERY SYSTEMS</b>	108.6.1	Understand the basics, polymer/excipients used formulation, innovations, and evaluation of vesicular drug delivery system like liposome, niosome.
				108.6.2	Multi-unit drug delivery system like microspheres, microcapsules, pellets, beads, minitablets.
				108.6.3	To perform the mucoadhesive films, patches, diskette, strips.
				108.6.4	Nanoparticulate drug delivery system,
				108.6.5	Self-emulsifying drug delivery system.
				108.6.6	To perform In situ gels