

## SECOND SEMESTER

Course Code	Name of the Course	No. of Hours/ week	Internal Assessment				End Semester Exams		Total Marks	Credit Points
			Continuous Mode	Sessional Exams		Total	Marks	Duration		
				Marks	Duration					
BP201T	Human Anatomy and Physiology II – Theory	4	10	15	1 Hr	25	75	3 Hrs	100	4
BP202T	Pharmaceutical Organic Chemistry I – Theory	4	10	15	1 Hr	25	75	3 Hrs	100	4
BP203T	Biochemistry – Theory	4	10	15	1 Hr	25	75	3 Hrs	100	4
BP204T	Pathophysiology – Theory	4	10	15	1 Hr	25	75	3 Hrs	100	4
BP205T	Computer Applications in Pharmacy – Theory	3	25	50	2 Hrs	75	---	---	75	3
BP206T	Environmental Sciences – Theory	3	25	50	2 Hrs	75	---	---	75	3
BP207P	Human Anatomy and Physiology II – Practical	4	5	10	4 Hrs	15	35	4 Hrs	50	2
BP208P	Pharmaceutical Organic Chemistry I – Practical	4	5	10	4 Hrs	15	35	4 Hrs	50	2
BP209P	Biochemistry – Practical	4	5	10	4 Hrs	15	35	4 Hrs	50	2
BP210P	Computer Applications in Pharmacy – Practical	2	10	15	2 Hrs	25	---	---	25	1
<b>Total</b>		<b>36</b>	<b>115</b>	<b>205</b>	<b>22 Hrs</b>	<b>320</b>	<b>405</b>	<b>24 Hrs</b>	<b>725</b>	<b>29</b>

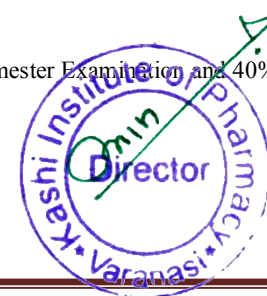


**THIRD SEMESTER\***

Course Code	Name of the Course	No. of Hours/ week	Internal Assessment				End Semester Exams		Total Marks	Credit Points
			Continuous Mode	Sessional Exams		Total	Marks	Duration		
				Marks	Duration					
BP301T	Pharmaceutical Organic Chemistry II – Theory	4	10	15	1 Hr	25	75	3 Hrs	100	4
BP302T	Physical Pharmaceutics I – Theory	4	10	15	1 Hr	25	75	3 Hrs	100	4
BP303T	Pharmaceutical Microbiology – Theory	4	10	15	1 Hr	25	75	3 Hrs	100	4
BP304T	Pharmaceutical Engineering – Theory	4	10	15	1 Hr	25	75	3 Hrs	100	4
BP305P	Pharmaceutical Organic Chemistry II – Practical	4	5	10	4 Hrs	15	35	4 Hrs	50	2
BP306P	Physical Pharmaceutics I – Practical	4	5	10	4 Hrs	15	35	4 Hrs	50	2
BP307P	Pharmaceutical Microbiology – Practical	4	5	10	4 Hrs	15	35	4 Hrs	50	2
BP308P	Pharmaceutical Engineering – Practical	4	5	10	4 Hrs	15	35	4 Hrs	50	2
KVE301	Universal Human Values and Professional Ethics**	3	20	30	1 Hr	50	100	3 Hrs	150	3
<b>Total</b>		<b>35</b>	<b>80</b>	<b>130</b>	<b>21 Hrs</b>	<b>210</b>	<b>540</b>	<b>31 Hrs</b>	<b>750</b>	<b>27</b>

\*The lateral entry students taking admission directly to second year shall compulsorily appear for and pass the Communications Skill Subject Examination in the Third Semester.

\*\*Human values & Professional Ethics will be offered as a **compulsory course** for which passing marks shall be 30% in End Semester Examination and 40% in aggregate.



**FIFTH SEMESTER**

Course Code	Name of the Course	No. of Hours/ week	Internal Assessment				End Semester Exams		Total Marks	Credit Points
			Continuous Mode	Sessional Exams		Total	Marks	Duration		
				Marks	Duration					
BP501T	Medicinal Chemistry II – Theory	3	10	15	1 Hr	25	75	3 Hrs	100	4
BP502T	Industrial Pharmacy I – Theory	3	10	15	1 Hr	25	75	3 Hrs	100	4
BP503T	Pharmacology II – Theory	3	10	15	1 Hr	25	75	3 Hrs	100	4
BP504T	Pharmacognosy and Phytochemistry	3	10	15	1 Hr	25	75	3 Hrs	100	4
BP505T	Pharmaceutical Jurisprudence – Theory	3	10	15	1 Hr	25	75	3 Hrs	100	4
BP506P	Industrial Pharmacy I – Practical	4	5	10	4 Hrs	15	35	4 Hrs	50	2
BP507P	Pharmacology II – Practical	4	5	10	4 Hrs	15	35	4 Hrs	50	2
BP508P	Pharmacognosy and Phytochemistry II – Practical	4	5	10	4 Hrs	15	35	4 Hrs	50	2
BP509P	Report on Hospital Training-I	-	-	-	-	-	100	-	100	2
<b>Total</b>		<b>27</b>	<b>65</b>	<b>105</b>	<b>17 Hrs</b>	<b>170</b>	<b>580</b>	<b>27 Hrs</b>	<b>750</b>	<b>28</b>



**SEVENTH SEMESTER**

Course Code	Name of the Course	No. of Hours/week	Internal Assessment				End Semester Exams		Total Marks	Credit Points
			Continuous Mode	Sessional Exams		Total	Marks	Duration		
				Marks	Duration					
BP701T	Instrumental Methods of Analysis – Theory	4	10	15	1 Hr	25	75	3 Hrs	100	4
BP702T	Industrial Pharmacy II – Theory	4	10	15	1 Hr	25	75	3 Hrs	100	4
BP703T	Pharmacy Practice – Theory	4	10	15	1 Hr	25	75	3 Hrs	100	4
BP704T	Novel Drug Delivery System (NDDS) – Theory	4	10	15	1 Hr	25	75	3 Hrs	100	4
BP705P	Instrumental Methods of Analysis/ NDDS – Practical	4	5	10	4 Hrs	15	35	4 Hrs	50	2
BP706PS	Practice School	12	50	100	5 Hrs	150	---	---	150	6
BP707P	Report on Hospital Training-II	-	-	-	-	-	100	-	100	2
<b>Total</b>		<b>32</b>	<b>95</b>	<b>170</b>	<b>13 Hrs</b>	<b>265</b>	<b>435</b>	<b>16 Hrs</b>	<b>700</b>	<b>26</b>



**EIGHTH SEMESTER**

Course Code	Name of the Course	No. of Hours/	Internal Assessment			End Semester Exams		Total Marks	Credit Points	
			Continuous Mode	Sessional Exams		Total	Marks			Duration
				Marks	Duration					
BP801T	Biostatistics and Research Methodology	4	10	15	1 Hr	25	75	3 Hrs	100	4
BP802T	Social and Preventive Pharmacy	4	10	15	1 Hr	25	75	3 Hrs	100	4
BP803ET	Pharma Marketing Management*	4 + 4 = 8	10 + 10 = 20	15 + 15 = 30	1 + 1 = 2 Hrs	25 + 25 = 50	75 + 75 = 150	3 + 3 = 6 Hrs	100 + 100 = 200	4 + 4 = 8
BP804ET	Pharmaceutical Regulatory Science*									
BP805ET	Pharmacovigilance*									
BP806ET	Quality Control and Standardization of Herbal*									
BP807ET	Computer Aided Drug									
BP808ET	Cell and Molecular									
BP809ET	Cosmetic Science*									
BP810ET	Experimental									
BP811ET	Advanced Instrumentation Techniques*									
BP812ET	Dietary Supplements and Nutraceuticals*									
BP813ET	Pharmaceutical Product Development*									
BP814ET	LSSSDC Elective*									
BP815PW	Project Work (On Elective)	12	-	-	-	-	150	4 Hrs	150	6
BP816P	Report on Industrial Tour	-	-	-	-	-	100	-	100	2
<b>Total</b>		<b>28</b>	<b>40</b>	<b>6</b>	<b>4 Hrs</b>	<b>10</b>	<b>550</b>	<b>16 Hrs</b>	<b>650</b>	<b>24</b>

\*(ET: Elective subject) Every candidate has to **opt for two** of the elective subjects, and has to carry out **project on any one** of them. The student has the choice to choose both the elective subjects from the already prescribed list of elective subjects by the PCI **or** choose one elective subject from the existing prescribed list of elective subjects of B. Pharm. programme by the PCI and the other (second subject) elective from list of skill pack/modules available with the LSSSDC from time to time.

**BP206T. ENVIRONMENTAL SCIENCES (Theory)**

**30 hours**

**Course content:**

**Unit-I**

**10hours**

The multidisciplinary nature of environmental studies.

Natural Resources.

Renewable and non-renewable resources: Natural resources and associated problems

a) Forest resources; b) Water resources; c) Mineral resources; d) Food resources; e) Energy resources; f) Land resources: Role of an individual in conservation of natural resources.

**Unit-II**

**10hours**

Ecosystems

Concept of an ecosystem.

Structure and function of an ecosystem.

Introduction, types, characteristic features, structure and function of the ecosystems: Forest ecosystem; Grassland ecosystem; Desert ecosystem; Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).

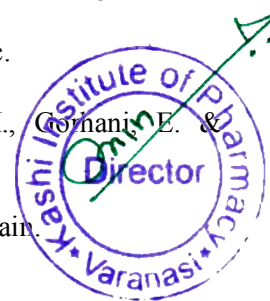
**Unit-III**

**10hours**

Environmental Pollution: Air pollution; Water pollution; Soil pollution

**Recommended Books (Latest edition):**

- Environmental Science by Singh, Y.K., New Age International Pvt. Publishers, Bangalore.
- Environmental Biology by Agarwal, K.C., 2001, Nidi Publ. Ltd. Bikaner.
- The Biodiversity of India by Bharucha Erach, Mapin Publishing Pvt. Ltd., Ahmedabad, India.
- Hazardous Waste Incineration by Brunner R.C., 1989, McGraw Hill Inc.
- Marine Pollution by Clark R.S., Clarendon Press Oxford.
- Environmental Encyclopedia, by Cunningham, W.P. Cooper, T.H., Cornani, E. & Hepworth, M.T., Jaico Pub. House, Mumbai.
- Environmental Chemistry by De A.K., Wiley Eastern Ltd.
- Down of Earth, Centre for Science and Environment, Editor Sunita Narain.



## **KVE301. UNIVERSAL HUMAN VALUES AND PROFESSIONAL ETHICS**

**30 Hours**

### **Course Content:**

#### **UNIT-I**

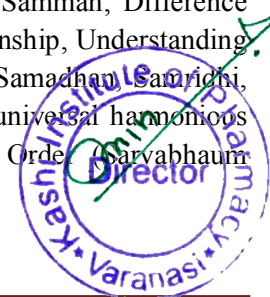
Course Introduction - Need, Basic Guidelines, Content and Process for Value Education  
Understanding the need, basic guidelines, content and process for Value Education, Self-Exploration-what is it? - its content and process; 'Natural Acceptance' and Experiential Validation- as the mechanism for self-exploration, Continuous Happiness and Prosperity- A look at basic Human Aspirations, Right understanding, Relationship and Physical Facilities the basic requirements for fulfilment of aspirations of every human being with their correct priority, Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario, Method to fulfil the above human aspirations: understanding and living in harmony at various levels.

#### **UNIT-II**

Understanding Harmony in the Human Being - Harmony in Myself Understanding human being as a co-existence of the sentient 'I' and the material 'Body', Understanding the needs of Self ('I') and 'Body' - Sukh and Suvidha, Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer), Understanding the characteristics and activities of 'I' and harmony in 'I', Understanding the harmony of I with the Body: Sanyam and Swasthya; correct appraisal of Physical needs, meaning of Prosperity in detail, Programs to ensure Sanyam and Swasthya.

#### **UNIT-III**

Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship Understanding harmony in the Family- the basic unit of human interaction, Understanding values in human-human relationship; meaning of Nyaya and program for its fulfillment to ensure Ubhay-tripti; Trust (Vishwas) and Respect (Samman) as the foundational values of relationship, Understanding the meaning of Vishwas; Difference between intention and competence, Understanding the meaning of Samman, Difference between respect and differentiation; the other salient values in relationship, Understanding the harmony in the society (society being an extension of family): Samadhan, Samridhi, Abhay, Sah-astitva as comprehensive Human Goals, Visualizing a universal harmonious order in society Undivided Society (Akhand Samaj), Universal Order (Sarvabhaum Vyawastha) - from family to world family.



## **BP505T. PHARMACEUTICAL JURISPRUDENCE (Theory)**

**45 Hours**

### **Course Content:**

#### **Unit-I**

**10 Hours**

##### **Drugs and Cosmetics Act, 1940 and its rules 1945:**

Objectives, Definitions, Legal definitions of schedules to the Act and Rules.

Import of drugs – Classes of drugs and cosmetics prohibited from import, Import under license or permit. Offences and penalties.

Manufacture of drugs – Prohibition of manufacture and sale of certain drugs,

Conditions for grant of license and conditions of license for manufacture of drugs, Manufacture of drugs for test, examination and analysis, manufacture of new drug, loan license and repacking license.

#### **Unit-II**

**10 Hours**

##### **Drugs and Cosmetics Act, 1940 and its rules 1945**

Detailed study of Schedule G, H, M, N, P, T, U, V, X, Y, Part XII B, Sch F & DMR (OA)

Sale of Drugs – Wholesale, Retail sale and restricted license. Offences and penalties.

Labeling & Packing of drugs- General labeling requirements and specimen labels for drugs and cosmetics, List of permitted colors. Offences and penalties.

Administration of the Act and Rules– Drugs Technical Advisory Board, Central drugs Laboratory, Drugs Consultative Committee, Government drug analysts, licensing authorities, controlling authorities, Drugs Inspectors.

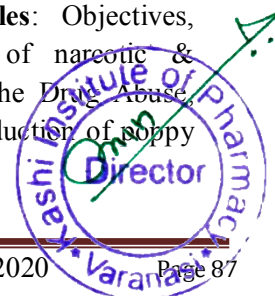
#### **Unit-III**

**10 Hours**

**Pharmacy Act-1948:** Objectives, Definitions, Pharmacy Council of India; its constitution and functions, Education Regulations, State and Joint state pharmacy councils; constitution and functions, Registration of Pharmacists, Offences and Penalties.

**Medicinal and Toilet Preparation Act-1955:** Objectives, Definitions, Licensing, Manufacture In bond and Outside bond, Export of alcoholic preparations, Manufacture of Ayurvedic, Homeopathic, Patent & Proprietary Preparations. Offences and Penalties.

**Narcotic Drugs and Psychotropic substances Act-1985 and Rules:** Objectives, Definitions, Authorities and Officers, Constitution and Functions of narcotic & Psychotropic Consultative Committee, National Fund for Controlling the Drug Abuse, Prohibition, Control and Regulation, opium poppy cultivation and production of poppy straw, manufacture, sale and export of opium, Offences and Penalties.





## BP703T. PHARMACY PRACTICE (Theory)

45 Hours

### Course Content:

#### Unit-I

10 Hours

##### **Hospital and it's organization**

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.

##### **Hospital pharmacy and its organization**

Definition, functions of hospital pharmacy, Organization structure, Location, Layout and staff requirements, and Responsibilities and functions of hospital pharmacists.

##### **Adverse drug reaction**

Classifications - Excessive pharmacological effects, secondary pharmacological effects, idiosyncrasy, allergic drug reactions, genetically determined toxicity, toxicity following sudden withdrawal of drugs, Drug interaction- beneficial interactions, 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.

##### **Community Pharmacy**

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.

#### Unit-II

10 Hours

##### **Drug distribution system in a hospital**

Dispensing of drugs to inpatients, types of drug distribution systems, charging policy and labeling. Dispensing of drugs to ambulatory patients and dispensing of controlled drugs.

##### **Hospital formulary**

Definition, contents of hospital formulary, Differentiation of hospital formulary and Drug list, preparation and revision, and addition and deletion of drug from hospital formulary.

##### **Therapeutic drug monitoring**

Need for Therapeutic Drug Monitoring, Factors to be considered during the Therapeutic Drug Monitoring, and Indian scenario for Therapeutic Drug Monitoring.

##### **Medication adherence**

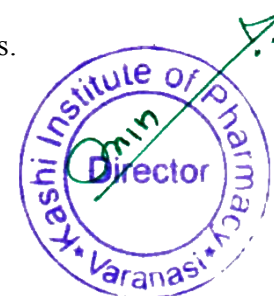
Causes of medication non-adherence, pharmacist role in the medication adherence and monitoring of patient medication adherence.

##### **Patient medication history interview**

Need for the patient medication history interview, medication interview forms.

##### **Community pharmacy management**

Financial, materials, staff, and infrastructure requirements.



## BP802T. SOCIAL AND PREVENTIVE PHARMACY (Theory)

45 Hours

### Course content:

#### Unit-I

10 Hours

**Concept of health and disease:** 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.

**Social and health education:** Food in relation to nutrition and health, Balanced diet, Nutritional deficiencies, Vitamin deficiencies, Malnutrition and its prevention.

**Sociology and health:** Socio cultural factors related to health and disease, Impact of urbanization on health and disease, Poverty and health.

**Hygiene and health:** personal hygiene and health care; avoidable habits.

#### Unit-II

10 Hours

**Preventive medicine:** 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.

#### Unit-III

10 Hours

**National health programs, its objectives, functioning and outcome of the following:** HIV AND AIDS control programme, TB, Integrated disease surveillance program (IDSP), National leprosy control programme, National mental health program, National programme for prevention and control of deafness, Universal immunization programme, National programme for control of blindness, Pulse polio programme.

#### Unit-IV

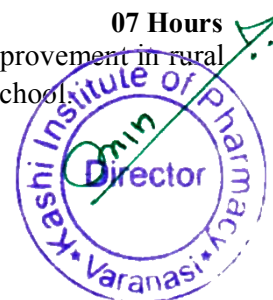
08 Hours

National health intervention programme for mother and child, National family welfare programme, National tobacco control programme, National Malaria Prevention Program, National programme for the health care for the elderly, Social health programme; role of WHO in Indian national program.

#### Unit-V

07 Hours

Community services in rural, urban and school health: Functions of PHC, Improvement in rural sanitation, national urban health mission, Health promotion and education in school.



## BP803ET. PHARMA MARKETING MANAGEMENT (Theory)

45 Hours

### Course content:

#### Unit-I

10 Hours

##### Marketing:

Definition, general concepts and scope of marketing, distinction between marketing & selling. Marketing environment. Industry and competitive analysis. Analyzing consumer buying behaviour and industrial buying behaviour.

##### Pharmaceutical market:

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; patient's choice of physician and retail pharmacist. Analysing the Market; Role of market research.

#### Unit-II

10 Hours

##### Product decision:

Classification, product line and product mix decisions, product life cycle, product portfolio analysis; product positioning; New product decisions; Product branding, packaging and labeling decisions, Product management in pharmaceutical industry.

#### Unit-III

10 Hours

##### Promotion:

Methods, determinants of promotional mix, promotional budget; An overview of personal selling, advertising, direct mail, journals, sampling, retailing, medical exhibition, public relations, online promotional techniques for OTC Products.

#### Unit-IV

08 Hours

##### Pharmaceutical marketing channels:

Designing channel, channel members, selecting the appropriate channel, conflict in channels, physical distribution management: Strategic importance, tasks in physical distribution management.

##### Professional sales representative (PSR):

Duties of PSR, purpose of detailing, selection and training, supervising, norms for customer calls, motivating, evaluating, compensation and future prospects of the PSR.

#### Unit-V

07 Hours

##### Pricing:

Meaning, importance, objectives, determinants of price; pricing methods and strategies. Issues in price management in pharmaceutical industry. An overview of DPCO (Drug Price Control Order) and NPPA (National Pharmaceutical Pricing Authority).

##### Emerging concepts in marketing:

Vertical & Horizontal Marketing; Rural Marketing; Consumerism; Industrial Marketing; Global Marketing.

