

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**  
**B. PHARMACY III YEAR COURSE STRUCTURE AND SYLLABUS**

Effective from Academic Year 2017-18 Admitted Batch

**III Year I Semester**

S. No.	Course Code	Course Title	L	T	P	Credits
1	PS501	Medicinal Chemistry II	3	1	0	4
2	PS502	Industrial Pharmacy - I	3	1	0	4
3	PS503	Pharmacology II	3	1	0	4
4	PS504	Pharmacognosy and Phytochemistry - II	3	1	0	4
5		<b>Open Elective - I</b>	3	1	0	4
	PS505	I. Generic Product Development				
	PS506	II. Green Chemistry				
	PS507	III. Cell and Molecular Biology				
	PS508	IV. Cosmetic science				
6	PS509	Industrial Pharmacy lab	0	0	4	2
7	PS510	Pharmacology - II lab	0	0	4	2
8	PS511	Pharmacognosy and Phytochemistry - II lab	0	0	4	2
9	*MC500	Environmental sciences	1	0	0	0
		<b>Total</b>	<b>16</b>	<b>05</b>	<b>12</b>	<b>26</b>

**III Year II Semester**

S. No.	Course Code	Course Title	L	T	P	Credits
1	PS601	Medicinal Chemistry - III	3	1	0	4
2	PS602	Pharmacology - III	3	1	0	4
3	PS603	Herbal Drug Technology	3	1	0	4
4	PS604	Biopharmaceutics and Pharmacokinetics	3	1	0	4
5		<b>Open Elective - II</b>	3	1	0	4
	PS605	I. Pharmaceutical Quality Assurance				
	PS606	II. Pharmaceutical Biotechnology				
	PS607	III. Bioinformatics				
	PS608	IV. Screening Methods in Pharmacology				
6	PS609	Medicinal chemistry - III lab	0	0	4	2
7	PS610	Pharmacology - III lab	0	0	4	2
8	PS611	Herbal Drug Technology lab	0	0	4	2
9	*MC600	Human Values and Professional Ethics	1	0	0	0
		<b>Total</b>	<b>16</b>	<b>05</b>	<b>12</b>	<b>26</b>



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## \*MC500: ENVIRONMENTAL SCIENCES

B.Pharm. III Year I Sem.

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**Course Objectives:** Environmental Sciences is the scientific study of the environmental system and the status of its inherent or induced changes on organisms. It includes not only the study of physical and biological characters of the environment but also the social and cultural factors and the impact of man on environment.

**Course Outcomes:** Upon completion of the course the student shall be able to:

- Create the awareness about environmental problems among learners.
- Impart basic knowledge about the environment and its allied problems.
- Develop an attitude of concern for the environment.
- Motivate learner to participate in environment protection and environment improvement.
- Acquire skills to help the concerned individuals in identifying and solving environmental problems.
- Strive to attain harmony with Nature.

### UNIT – I

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

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

**Biodiversity and Biotic Resources:** Introduction, Definition, genetic, species and ecosystem diversity. Value of biodiversity; consumptive use, productive use, social, ethical, aesthetic and optional values. India as a mega diversity nation, Hot spots of biodiversity. Field visit. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts; conservation of biodiversity: In-Situ and Ex-situ conservation. National Biodiversity act.

### Unit – IV

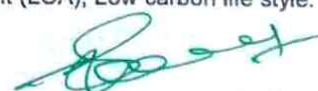
**Environmental Pollution:** Air pollution; Water pollution; Soil pollution, Noise Pollution

### UNIT – V

**Environmental Policy, Legislation & EIA:** Environmental Protection act, Legal aspects Air Act- 1981, Water Act, Forest Act, Wild life Act.

**Towards Sustainable Future:** Concept of Sustainable Development, Population and its explosion, Crazy Consumerism, Environmental Education, Urban Sprawl, Human health, Environmental Ethics, Concept of Green Building, Ecological Foot Print, Life Cycle assessment (LCA), Low carbon life style.



  
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## \*MC600: HUMAN VALUES AND PROFESSIONAL ETHICS

B.Pharm. III Year II Sem.

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**Course Objective:** To enable the students to imbibe and internalize the Values and Ethical Behavior in the personal and Professional lives.

**Course Outcome:** The students will understand the importance of Values and Ethics in their personal lives and professional careers. The students will learn the rights and responsibilities as an employee, team member and a global citizen.

### UNIT - I

**Introduction to Professional Ethics:** Basic Concepts, Governing Ethics, Personal & Professional Ethics, Ethical Dilemmas, Life Skills, Emotional Intelligence, Thoughts of Ethics, Value Education, Dimensions of Ethics, Profession and professionalism, Professional Associations, Professional Risks, Professional Accountabilities, Professional Success, Ethics and Profession.

### UNIT - II

**Basic Theories:** Basic Ethical Principles, Moral Developments, Deontology, Utilitarianism, Virtue Theory, Rights Theory, Casuist Theory, Moral Absolution, Moral Rationalism, Moral Pluralism, Ethical Egoism, Feminist Consequentialism, Moral Issues, Moral Dilemmas, Moral Autonomy.

### UNIT - III

**Professional ethics in pharmacy:** general introduction to code of pharmaceutical ethics, objectives, pharmacists in relation to his job, his trade, to his profession and relation to medicinal professions. Pharmacists oath.

### UNIT - IV

Work Place Rights & Responsibilities, Ethics in changing domains of Research, Engineers and Managers; Organizational Complaint Procedure, difference of Professional Judgment within the Nuclear Regulatory Commission (NRC), the Hanford Nuclear Reservation.

Ethics in changing domains of research - The US government wide definition of research misconduct, research misconduct distinguished from mistakes and errors, recent history of attention to research misconduct, the emerging emphasis on understanding and fostering responsible conduct, responsible authorship, reviewing & editing.


### UNIT - V

Global issues in Professional Ethics: Introduction – Current Scenario, Technology Globalization of MNCs, International Trade, World Summits, Issues, Business Ethics and Corporate Governance, Sustainable Development Ecosystem, Energy Concerns, Ozone Deflection, Pollution, Ethics in Manufacturing and Marketing, Media Ethics; War Ethics; Bio Ethics, Intellectual Property Rights.

### TEXT BOOKS:

1. Professional Ethics: R. Subramanian, Oxford University Press, 2015.
2. Ethics in Engineering Practice & Research, Caroline Whitbeck, 2e, Cambridge University Press 2015.



  
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**IV Year I Semester**

S.No	Course Code	Course Title	L	T	P	Credits
1	PS701	Instrumental Methods of Analysis	3	1	0	4
2	PS702	Industrial Pharmacy-II	3	1	0	4
3	PS703	Pharmacy Practice	3	1	0	4
4	PS704	Novel Drug Delivery Systems	3	1	0	4
5		<b>Open Elective - III</b>	3	1	0	4
	PS705	i. Pharmaceutical Marketing				
	PS706	ii. Pharmaceutical Regulatory Science				
	PS707	iii. Pharmacovigilance				
	PS708	iv. Quality Control and Standardization of Herbals				
6	PS709	Instrumental Methods of Analysis Lab	0	0	4	2
7	PS710	Practice School	0	0	4	2
8	PS711	Industrial Training	0	0	2	1
		<b>Total</b>	<b>15</b>	<b>5</b>	<b>10</b>	<b>25</b>

**IV Year II Semester**

S.No	Course Code	Course Title	L	T	P	Credits
1	PS801	Biostatistics and Research Methodology	3	1	0	4
2	PS802	Social and Preventive Pharmacy	3	1	0	4
3	PS803	Pharmaceutical Jurisprudence	3	0	0	3
4		<b>Open Elective - IV</b>	3	1	0	4
	PS804	i. Computer Aided Drug Design				
	PS805	ii. Nano Technology				
	PS806	iii. Experimental Pharmacology				
	PS807	iv. Advanced Instrumentation Techniques				
5	PS808	Project Work	0	0	6	3
		<b>Total</b>	<b>12</b>	<b>3</b>	<b>6</b>	<b>18</b>

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**PS802: SOCIAL AND PREVENTIVE PHARMACY**

B.Pharm. IV Year II Sem.

LT/P/ C  
3/1/0/ 4

**Course Objectives:** The purpose of this course is to introduce to students a number of health issues and their challenges. This course also introduced a number of national health programmes. The roles of the pharmacist in these contexts are also discussed.

**Course Outcomes:** After the successful completion of this course, the student shall be able to:

- Acquire high consciousness/realization of current issues related to health and pharmaceutical problems within the country and worldwide.
- Have a critical way of thinking based on current healthcare development.
- Evaluate alternative ways of solving problems related to health and pharmaceutical issues

**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.

**Recommended Books (Latest edition):**

1. Short Textbook of Preventive and Social Medicine, Prabhakara G N, 2<sup>nd</sup> Edition, 2010, ISBN: 9789380704104, JAYPEE Publications
2. Textbook of Preventive and Social Medicine (Mahajan and Gupta), Edited by Roy Rabindra Nath, Saha Indranil, 4<sup>th</sup> Edition, 2013, ISBN: 9789350901878, JAYPEE Publications



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