

Course Description

BP 206 T. ENVIRONMENTAL SCIENCES (Theory)

30 hours

Scope: 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.

Objectives: Upon completion of the course the student shall be able to:

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

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




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Recommended Books (Latest edition):

1. Y.K. Sing, Environmental Science, New Age International Pvt, Publishers, Bangalore
2. Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
3. Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad – 380 013, India,
4. Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p
5. Clark R.S., Marine Pollution, Clarendon Press Oxford
6. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p
7. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
8. Down of Earth, Centre for Science and Environment



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BP 603 T. HERBAL DRUG TECHNOLOGY (Theory)

45 hours

Scope: This subject gives the student the knowledge of basic understanding of herbal drug industry, the quality of raw material, guidelines for quality of herbal drugs, herbal cosmetics, natural sweeteners, nutraceutical etc. The subject also emphasizes on Good Manufacturing Practices (GMP), patenting and regulatory issues of herbal drugs

Objectives: Upon completion of this course the student should be able to:

1. understand raw material as source of herbal drugs from cultivation to herbal drug product
2. know the WHO and ICH guidelines for evaluation of herbal drugs
3. know the herbal cosmetics, natural sweeteners, nutraceuticals
4. appreciate patenting of herbal drugs, GMP .

Course content:

UNIT-I

11 Hours

Herbs as raw materials

Definition of herb, herbal medicine, herbal medicinal product, herbal drug preparation

Source of Herbs

Selection, identification and authentication of herbal materials

Processing of herbal raw material

Biodynamic Agriculture

Good agricultural practices in cultivation of medicinal plants including Organic farming.

Pest and Pest management in medicinal plants: Biopesticides/Bioinsecticides.

Indian Systems of Medicine

- a) Basic principles involved in Ayurveda, Siddha, Unani and Homeopathy
- b) Preparation and standardization of Ayurvedic formulations viz Aristas and Asawas, Ghutika, Churna, Lehya and Bhasma.

UNIT-II

7 Hours

Nutraceuticals

General aspects, Market, growth, scope and types of products available in the market. Health benefits and role of Nutraceuticals in ailments like Diabetes, CVS diseases, Cancer, Irritable bowel syndrome and various Gastro intestinal diseases.

Study of following herbs as health food: Alfaalfa, Chicory, Ginger, Fenugreek, Garlic, Honey, Amla, Ginseng, Ashwagandha, Spirulina

Herbal-Drug and Herb-Food Interactions: General introduction to interaction and classification. Study of following drugs and their possible side effects and interactions: Hypercium, kava-kava, Ginkobiloba, Ginseng, Garlic, Pepper & Ephedra.

UNIT-III

10 Hours

Herbal Cosmetics



T354 Pharmacognosy II (Theory)

(3 hrs/week)

Section I

Sr.No.	Topic	Hrs.
1.	Study of Primary cell constituents : Carbohydrates and related products. Biological source, collection, preparation, chemical constituents, chemical test, uses, substituents and adulterants of 1) Isapgol 2) Linseed 3) Honey 4) Acacia 5) Agar 6) Sterculia 7) Tragacanth 8) Cellulose and its products 9) Pectin 10) Guar gum 11) Sodium alginate 12) Inulin 13) Starch 14) Chitin	12
2.	Biogenesis of Natural products A brief introduction to biosynthesis A brief account of primary and secondary metabolite's production from carbon metabolism in plants. Production of Amino acid by shikimic acid pathway.	6
3.	Study of fibers used in pharmacy: Asbestos, Cotton, Glass wool, Nylon, Polyester, Silk, jute and Wool.	3
4.	A brief introduction to natural colours and dyes: Saffron, Cochineal, Annatto	2

Section II

5.	A brief account to Plant bitters and Sweeteners	3
6.	General introduction of lipids, enzymes, proteins and tannins. Definition, classification, method of extraction, chemistry, and method of analysis of above classes Biological source, collection, preparation, chemical constituent, chemical test for identification and uses of the following: Almond oil, castor oil, cod liver, Sesame oil, cotton seed oil, Wheat germ oil, bees wax, cocoa butter, olive oil, jojoba oil, shark liver oil, and wool fat. Bromelain, diastase, papain, pepsin, trypsin, pancreatin, Gelatin. Pale catechu, black catechu, gall and myrobalan, balerica, amla, arjuna, ashoka, pterocarpus.	14
7.	An introduction to potential cardio-vascular, anticancer/cytotoxic and antibiotic drugs from marine sources	5

Total Hrs- 45

Books Recommended:

1. Faulkner D. J. and Fenical W. H. , Marine Natural Product Chemistry (NATO conference series 4) plenum press, New York
2. Horborn J. B. Phytochemical methods, Chapman and Hall, International Edition, London



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P354 Pharmacognosy II (Practicals)
(3 hrs/week)

- 1) Chemical test for following drugs *
 - Carbohydrates; Acacia, Agar, Tragacanth, Starch, Honey, Alginate and Pectin.
 - Lipids; Specific chemical tests for Fixed oils.(Almond,Castor,Sesame ,olive & cotton seed oil)
 - Proteins; Gelatin
 - Tannins; Hydrolysable and condensed tannins*
- 2) Identification of following fibers by chemical tests.*
Ex: cotton, Jute, silk, wool
- 3) Analysis of fixed oil: acid value, Iodine value and Saponification value of above mentioned any 3 fixed oils.**
- 4) Isolation of polysaccharides/mucilages and their evaluation. **.
- 5) Isolation and identification of papain.**

* Minor and ** Major experiment

Books Recommended:

- 1) Clarke ECG, Isolation and Identification of Drugs, The Pharmaceutical Press, London
- 2) Horborn J. B. Phytochemical methods, Chapman and Hall, International Edition, London
- 3) Iyengar M.A. , Pharmacognosy Lab Manual. Manipal Power Press, Manipal
- 4) Khandelwar K.R., Practical Pharmacognosy, Nirali Prakashan
- 5) Kokate C. K. Practical Pharmacognosy, Vallabh Prakashan, Delhi
- 6) Kokate C. K. Purohit A. P. and Gokhale S. B. , Pharmacognosy (degree) Nirali Prakashan
- 7) Official methods of analysis, Association of official analytical chemists publications, Washington
- 8) Tyler, V.E., Brady, R., Pharmacognosy
- 9) V.D.Rangari, Pharmacognosy and Phytochemistry Volume I & II
- 10) Wallis, T.E. Textbook of Pharmacognosy, J.A. Churchill Limited, London
- 11) Whistler R.L., Industrial Gums, Polysaccharides and their derivatives, 2nd Edition,Academic Press, New Delhi.
- 12) Indigeneous drugs by R.N.chopada

Examination Pattern is as follows

Sr. No.	Types of Question	Sessional	University
	Duration	3 Hrs	4 Hrs
1	Synopsis	5	10
2	Viva Voce	5	10
3	Exp. Major	-	30
	Minor	10	10+10
4	Journal Marks	10	-
	Total Marks	30	70



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Activity Report



President :
Shri Amrishbhai R. Patel
M.L.A.

Principal :
Dr. S. B. Bari
M.Pharm. Ph.D., D.I.M.F.J.C.

Activity report
Submitted to
The Principal,
H. R. Patel Institute of Pharmaceutical Education and Research, Shirpur

Name of Activity	Tree Plantation
Organizer	H. R. Patel Institute of pharmaceutical Education and Research Shirpur.
Venue	HRPIPER
Name of Speaker With contact details	-
Date of activity	14th July 2020
Objectives	To generate awareness about the importance of environmental demands of plant in ecosystem and biodiversity
In charge	Dr. Z. G. Khan
Number of Participant	15
Brief Report on activity	To make awareness about the importance of trees for the sustainable environment and initiate such responsibility among the students & staff, various medicinal plants were planted on 14th July 2020. Along with this, staff took the responsibility to take care of these plants. SES's H R Patel Institute of Pharmaceutical Education and Research Shirpur and Green Army together worked for the target of Crore plantations in 2020-21 helped in planting nearly 50 Plants at Mandal Shivar Tal. Shirpur. Participants: Total 15 Participants were present for Tree plantation.
Photograph Of activity	

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एच.आर.पटेल फार्मसी महाविद्यालयातर्फे मांडळ शिवारात वृक्षारोपणाचा कार्यक्रम

शिरपुर - कोविड १९ च्या संक्रमणाच्या कठीण काळातही जगा पर्यावरण, करुनी वृक्ष संवर्धन, या वृक्ष लागवड व संवर्धन या महत्वाकांक्षी मोहिमेतर्गत एच. आर. पटेल फार्मसी महाविद्यालयाने मांडळ ग्रामपंचायतीच्या सहकार्याने करवंद रोड बरील मांडळ शिवारात महावीर तानि परिसरातील मोठ्या जागेवर वृक्षारोपण करून अभिन्न संदेश दिला.

या वृक्षारोपण कार्यक्रमाचा शुभारंभ महाविद्यालयाचे प्राचार्य डॉ. एस. बी. बारी व मांडळचे सरपंच सुनील माळी यांच्या प्रमुख उपस्थितीत झाला. दिवसेंदिवस पर्यावरणाचा समतोल विघटन असून मोठ्या प्रमाणावर होत असलेली वृक्षतोड, जंगलांचा नाश या बाबी त्यासाठी कारणीभूत आहेत. या असमतोलामुळे अनियमित व अपूर्ण पर्जन्यमान, भयानक उष्णता अशा संकटांना आपल्याला तोंड देणे भाग पडत आहे. यावर प्रभावीपणे मात

करायची असल्यास काळाची गरज ओळखून पर्यावरणाचा समतोल राखण्यासाठी मोठ्या




प्रमाणावर वृक्षारोपण व त्याचे संवर्धन करणे आवश्यक आहे, असे प्रतिपादन यावेळी महाविद्यालयाचे प्राचार्य डॉ. एस. बी. बारी यांनी केले.

या वेळी महाविद्यालयाच्या प्राध्यापक व प्राध्यापकेतर कर्मचाऱ्यांनी जवळजवळ ५० वृक्षांचे रोपण केले व वृक्षांच्या संवर्धनासाठी सर्वोत्तमरी पर्वत करू अशी शपथ घेत पर्यावरण संवर्धनाचा संकल्प केला. कार्यक्रम यशस्वीनेसाठी सरपंच सुनील माळी, डॉ. पी. ओ. पाटील, रजिस्ट्रार एस. डी. बागूल, प्रा. व्ही. के. चटप, प्रा. जमीर खान, वाय. बी. डाकूर यांनी विशेष परिश्रम घेतले.

Outcome

To make awareness about the importance of trees and initiate the responsibility to save the environment.




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Activity report
Submitted to
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H. R. Patel Institute of Pharmaceutical Education and Research, Shirpur

Name of Activity	Tree Plantation Drive
Organizer	H. R. Patel Institute of pharmaceutical Education and Research Shirpur.
Venue	HRPIPER
Name of Speaker With contact details	-
Date of activity	07th July 2019
Objectives	To generate awareness about the importance of environmental demands of plant in ecosystem and biodiversity
In charge	Dr. Z. G. Khan
Number of Participant	Students and faculty -40
Brief Report on activity	To make awareness about the importance of trees for the sustainable environment and initiate such responsibility among the student & staff, various medicinal plants were planted in the college premises on 27th July 2019. Along with this, students and staff took the responsibility to take care of these plants.
Photograph Of activity	
Outcome	To make awareness about the importance of trees and initiate the responsibility to save the environment.




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Activity report
Submitted to
The Principal,
H. R. Patel Institute of Pharmaceutical Education and Research, Shirpur

Name of Activity	Tree Plantation Drive
Organizer	H. R. Patel Institute of pharmaceutical Education and Research Shirpur.
Venue	HRPIPER, Shirpur and Ambegaon
Name of Speaker With contact details	-
Date of activity	20th July 2018 and 01st August 2018
Objectives	To generate awareness about the importance of environmental demands of plant in ecosystem and biodiversity
In charge	Dr. L. R. Zawar & Ms. P. H. Patil
Number of Participant	Students faculty and Green Army -100
Brief Report on activity	<p>To make awareness about the importance of trees for the sustainable environment and initiate such responsibility among the student & staff, various medicinal plants were planted in the college premises on 20th July 2018. Along with this, students and staff took the responsibility to take care of these plants.</p> <p>HRPIPER and Green Army together worked for target of 13 Crore plantation. Hon. Bhupesh Bhai Patel, Managing Director SES, has declared to plant trees at Ambegaon with collaboration of Pharmacy, Engineering, IMRD students. T Y B Pharm Batch (A) 22 students travelled to Ambegaon Tal: Shirpur and helped in planting nearly 300 Neem Plants on 01st August 2018.</p>
Photograph Of activity	

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Outcome

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