

FACULTY OF LIFE SCIENCES

SYLLABUS

of
Environmental Studies
for
Semester- III

Bachelor of Science (Medical) / Bachelor of Science (Non -Medical) / Bachelor of Science (Computer Science) / Bachelor of Commerce / Bachelor of Business Administration / Bachelor of Science (Home Science) / Bachelor of Computer Applications / Bachelor of Science (Information Technology) / Bachelor of Science (Biotechnology)/ Master of Commerce (Five Year Integrated Programme) / Bachelor of Science (Economics)/ Master of Science (Mathematics) (Five Year Integrated Programme)/Bachelor of Business(Airlines and Airport Management)/Bachelor of Science(Medical Laboratory Technology)/Master of Science(Physics) FYIP(Five Year Integrated Programme)

Session: 2025-26



Kanya Maha Vidyalaya, Jalandhar (Autonomous)
The Heritage Institution

SCHEME**Course Code: VACE-3221****Course Title: Environmental Studies**

Bachelor of Science (Medical) / Bachelor of Science (Non -Medical) / Bachelor of Science (Computer Science) / Bachelor of Commerce / Bachelor of Business Administration / Bachelor of Science (Home Science) / Bachelor of Computer Applications /Bachelor of Science (Information Technology) / Bachelor of Science (Biotechnology)/ Master of Commerce (Five Year Integrated Programme) / Bachelor of Science (Economics)/ Master of Science (Mathematics) (Five Year Integrated Programme)/Bachelor of Business(Airlines and Airport Management)/Bachelor of Science(Medical Laboratory Technology)/Master of Science(Physics) FYIP(Five Year Integrated Programme)

(SEMESTER-III)

Course Code	Course Title	Course Type	Hours/ week	Credit L-T-P	Marks				Examinationtime (Hours)
					Total	Ext.		CA	
						Theory	Practical		
VACE-3221	Environmental Studies	VAC	1-0-2	1-0-1	50	20	15	15	3

***VAC-Value Added Course**

Course Code: VACE-3221
Course Title: Environmental Studies

COURSE OUTCOMES:

After passing this course, students will be able to:

- CO1. Understand the concept and need of environmental education.
- CO2. Understand the role of an individual in conservation of natural resources.
- CO3. Learn about role of major Eco system and their conservation.
- CO4. Develop desirable attitude, value and respect for protection of Biodiversity.
- CO5. Learn about the control measure of pollution and solid waste management.
- CO6. Understand the role of different agencies in the protection of environment.
- CO7. Knowledge regarding welfare programmes and Human rights.
- CO8. Knowledge about the applied value of environmental studies.

Course Title: Environmental Studies
Course Code: VACE-3221

(Theory)

Time: 3 Hrs.
Credit: 1-0-1

Max. Marks: 50
Theory: 20
Practical: 15
CA: 15

Instructions for the Paper Setter:

The question paper should carry 20 marks. The structure of the question paper being:

Part-A: Attempt any five questions out of seven. Each question carries 1 mark. Answer to each question should not exceed half page.

Part-B: Essay type with inbuilt choice – 15 marks

Attempt any five questions out of eight. Each question carries 3 marks. Answer to each question should not exceed 2 pages.

Unit I

The multidisciplinary nature of environmental studies

Definition, scope and importance, Need for public awareness

Unit II

Natural Resources: Renewable and non-renewable resources

Natural resources and associated problems.

- (a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
- (b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflict over water, dams-benefits and problems.
- (c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
- (d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
- (e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies.
- (f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.
 - Role of an individual in conservation of natural resources.
 - Equitable use of resources for sustainable lifestyles.

Unit III

Ecosystems

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem: Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems(ponds, streams, lakes, rivers, ocean estuaries)

Unit IV

Biodiversity and its conservation

- Introduction – Definition: genetic, species and ecosystem diversity
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical aesthetic and option values
- Biodiversity at global, national and local levels
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity

Unit V

Environmental Pollution

Definition

- Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear pollution
- Solid waste management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution
- Pollution case studies
- Disaster management: floods, earthquake, cyclone and landslides

Unit VI

Social Issues and the Environment

- From unsustainable to sustainable development
- Urban problems and related energy
- Water conservation, rain water harvesting, watershed management

- Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents andholocaust. Case studies.
- Wasteland reclamation
- Consumerism and waste products
- Environmental Protection Act, 1986
- Air (Prevention and Control of Pollution) Act, 1981
- Water (Prevention and control of Pollution) Act, 1974
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation
- Public awareness

Unit VII

Human Population and the Environment

- Population growth, variation among nations
- Population explosion – Family Welfare Programmes
- Environment and human health
- Human Rights
- Value Education
- HIV / AIDS
- Women and Child Welfare
- Role of Information Technology in Environment and Human Health
- Case Studies

Unit VIII

Field Work

- Visit to a local area to document environmental assets
river/forest/grassland/hill/mountain
- Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
- Study of common plants, insects, birds
- Study of simple ecosystems-pond, river, hill slopes, etc

References:

1. Bharucha, E. 2005. Textbook of Environmental Studies, Universities Press, Hyderabad.
2. Down to Earth, Centre for Science and Environment, New Delhi.
3. Heywood, V.H. & Waston, R.T. 1995. Global Biodiversity Assessment, Cambridge House, Delhi.
4. Joseph, K. & Nagendran, R. 2004. Essentials of Environmental Studies, Pearson Education(Singapore) Pte. Ltd., Delhi.
5. Kaushik, A. & Kaushik, C.P. 2004. Perspective in Environmental Studies, New Age International (P) Ltd, New Delhi.
6. Rajagopalan, R. 2011. Environmental Studies from Crisis to Cure. Oxford University Press, New Delhi.
7. Sharma, J. P., Sharma. N.K. & Yadav, N.S. 2005. Comprehensive Environmental Studies, Laxmi Publications, New Delhi.
8. Sharma, P. D. 2009. Ecology and Environment, Rastogi Publications, Meerut
9. State of India's Environment 2018 by Centre for Sciences and Environment, New Delhi
10. Subramanian, V. 2002. A Text Book in Environmental Sciences, Narosa Publishing House, New Delhi

FACULTY OF LIFE SCIENCES

SYLLABUS of Environmental Studies for (Semester IV)

Bachelor of Vocation (Retail Management)/Bachelor of Vocation (Animation)/Bachelor of Vocation (Nutrition & Dietician)/ Bachelor of Vocation (Beauty & Wellness)/ Bachelor of Vocation (Artificial Intelligence and Data Science)/ Bachelor of Vocation (Hospitality and Tourism)/Bachelor of Science (Fashion Designing)/Bachelor of Arts/Bachelor of Arts (Journalism& Mass Communication)/ Master of Arts (English) FYIP (Five Year Integrated Programme)

Session: 2025-26



**Kanya Maha Vidyalaya, Jalandhar (Autonomous)
The Heritage Institution**

SCHEME
Course Code: VACE-4221
Course Title: Environmental Studies

Bachelor of Vocation (Retail Management)/Bachelor of Vocation (Animation)/Bachelor of Vocation (Nutrition & Dietician)/ Bachelor of Vocation (Beauty & Wellness)/ Bachelor of Vocation (Artificial Intelligence and Data Science)/ Bachelor of Vocation (Hospitality and Tourism)/Bachelor of Science (Fashion Designing)/Bachelor of Arts/Bachelor of Arts (Journalism& Mass Communication)/ Master of Arts (English) FYIP (Five Year Integrated Programme)									
(SEMESTER-IV)									
Course Code	Course Title	Course Type	Hours/ week	Credit L-T-P	Marks				Examination time (Hours)
					Total	Ext.		CA	
						Theory	Practical		
VACE-4221	Environmental Studies	VAC	1-0-2	1-0-1	50	20	15	15	3

Course Code: VACE-4221
Course Title: Environmental Studies

COURSE OUTCOMES:

After passing this course, students will be able to:

- CO1. Understand the concept and need of environmental education.
- CO2. Understand the role of an individual in conservation of natural resources.
- CO3. Learn about role of major Eco system and their conservation.
- CO4. Develop desirable attitude, value and respect for protection of Biodiversity.
- CO5. Learn about the control measure of pollution and solid waste management.
- CO6. Understand the role of different agencies in the protection of environment.
- CO7. Knowledge regarding welfare programmes and Human rights.
- CO8. Knowledge about the applied value of environmental studies.

Course Title: Environmental Studies

**Course Code: VACE-4221
(Theory)**

Time: 3 Hrs.

Credit: 1-0-1

Max. Marks: 50

Theory: 20

Practical: 15

CA: 15

Instructions for the Paper Setter:

The question paper should carry 20 marks. The structure of the question paper being:

Part-A: Attempt any five questions out of seven. Each question carries 1 mark. Answer to each question should not exceed half page

Part-B, Essay type with inbuilt choice – 15 marks

Attempt any five questions out of eight. Each question carries 3 marks. Answer to each question should not exceed 2 pages.

Unit 1

The multidisciplinary nature of environmental studies

Definition, scope and importance, Need for public awareness

Unit 2

Natural Resources: Renewable and non-renewable resources

Natural resources and associated problems.

- (g) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
- (h) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflict over water, dams-benefits and problems.
- (i) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
- (j) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
- (k) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies.
- (l) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

- Role of an individual in conservation of natural resources.
- Equitable use of resources for sustainable lifestyles.

Unit 3

Ecosystems

- Concept of an ecosystem
- Structure and function of an ecosystem
- Producers, consumers and decomposers
- Energy flow in the ecosystem
- Ecological succession
- Food chains, food webs and ecological pyramids
- Introduction, types, characteristic features, structure and function of the following ecosystem: Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems(ponds, streams, lakes, rivers, ocean estuaries)

Unit 4

Biodiversity and its conservation

- Introduction – Definition: genetic, species and ecosystem diversity
- Biogeographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical aesthetic and option values
- Biodiversity at global, national and local levels
- India as a mega-diversity nation
- Hot-spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity

Unit 5

Environmental Pollution

Definition

- Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear pollution
- Solid waste management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution
- Pollution case studies
- Disaster management: floods, earthquake, cyclone and landslides

Unit 6

Social Issues and the Environment

- From unsustainable to sustainable development
- Urban problems and related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Environmental ethics: Issues and possible solutions
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- Wasteland reclamation
- Consumerism and waste products
- Environmental Protection Act, 1986
- Air (Prevention and Control of Pollution) Act, 1981
- Water (Prevention and control of Pollution) Act, 1974
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation
- Public awareness

Unit 7

Human Population and the Environment

- Population growth, variation among nations
- Population explosion – Family Welfare Programmes
- Environment and human health
- Human Rights
- Value Education
- HIV / AIDS
- Women and Child Welfare
- Role of Information Technology in Environment and Human Health
- Case Studies

Unit 8

Field Work

- Visit to a local area to document environmental assets
river/forest/grassland/hill/mountain
- Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
- Study of common plants, insects, birds
- Study of simple ecosystems-pond, river, hill slopes, etc

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17. Sharma, J. P., Sharma. N.K. & Yadav, N.S. 2005. Comprehensive Environmental Studies, Laxmi Publications, New Delhi.
18. Sharma, P. D. 2009. Ecology and Environment, Rastogi Publications, Meerut
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