

### BCA Sem-I

S.No.	Course Code	Course Name	Lectures Per Week	Tutorials Per Week	Practical Per Week	Total Credits
1	IFT2102	Operating Systems Lab (Unix)	0	0	2	1
2	IFT2106	Web Technologies Lab	0	0	2	1
3	IFT2108	C++ Programming Lab	0	0	2	1
4	IFT2104	Digital Electronics	2	0	0	2
5	IFT2103	Web Technologies	2	0	0	2
6	IFT2107	C++ Programming	3	0	0	3
7	IFT2105	Mathematics Paper 1	3	0	0	3
8	IFT2101	Operating Systems	3	0	0	3
		<b>Behavioural Science and Foreign Language</b>				
9	BEH 2151	Understanding Self for Effectiveness	1	0	0	1
10	CSS2151	Effective Listening	1	0	0	1
11	LAN2151	French-I	2	0	0	2
12	LAN2152	German-I	2	0	0	2
13	LAN2153	Spanish-I	2	0	0	2
<b>14</b>	<b>ENV2151</b>	<b>Environmental Studies</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>
		<b>Minor Track Syllabus</b>				
15	Minor	Minor Track Course	3	0	0	3
<b>Total Credits</b>						<b>25</b>

### Sem-II

S.No.	Course Code	Course Name	Lectures Per Week	Tutorials Per Week	Practical Per Week	Total Credits
1	IFT2207	Computer Networks Lab	0	0	2	1
2	IFT2208	DBMS LAB	0	0	2	1
3	IFT2209	Data Structures using C++ Lab	0	0	2	1
4	IFT2210	Python Programming Lab	0	0	2	1
5	IFT2203	Database Management Systems	2	0	0	2
6	IFT2205	Python Programming	2	0	0	2
7	IFT2206	Computer Architecture	2	0	0	2
8	IFT2204	Data Structures using C++	3	0	0	3
9	IFT2201	Mathematics Paper-2	3	0	0	3
10	IFT2202	Computer Networks	2	0	0	2
		<b>Behavioural Science and Foreign Language</b>				
11	BEH2251	Problem Solving & Creative Thinking*	1	0	0	1
12	CSS2251	Presentation Skills*	1	0	0	1
13	LAN2251	French – II	2	0	0	2
14	LAN2252	German – II	2	0	0	2
15	LAN2253	Spanish – II	2	0	0	2
<b>16</b>	<b>ENV2152</b>	<b>Environmental Studies-II*</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>
		<b>Minor Track Syllabus</b>				
17	Minor	Minor Track Course	3	0	0	3
<b>Total Credits</b>						<b>27</b>

**Semester - I**

Course Code	Course Name	Credits
ENV2151	Environmental Studies	2

Contact Hours			Credits Assigned			
Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
02	-	-	02	-	-	02

Theory						Term Work / Practical/Oral			Total
Internal Assessment				End Sem Exam	Duration Of End Sem Exam	Term Work	Pract.	Oral	
Test	Home Assignment	Attendance	Total Internal						
15	10	05	30	70	3 Hours	-	-	-	100

**Course Outcome**

- Globally we are facing critical environmental issues like population explosion, indiscriminate use of natural resources, global warming etc. which need to be tackled and we should aware students about the deteriorating environment. Now a days each country focusing on the achievement of fulfilling sustainable development goals.
- So, it is prime need of today's education system to make such curriculum patterns and make students aware about importance of compulsory Environmental Studies so that to some extent our future generation will be able to curb down environmental issues.
- Understanding the sustainable development goals and climate issues with respect to the carbon emissions.

**Course Objectives**

- Create 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 learners 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.

### Detailed Syllabus

Module/ Unit	Course Module / Contents	Hours	Marks Weightage
<b>1</b>	Multidisciplinary nature of environmental studies Definition, scope, and importance, need for public awareness	<b>02</b>	<b>20%</b>
<b>2</b>	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 forest and tribal people. b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts 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.	<b>08</b>	<b>25%</b>
<b>3</b>	Ecosystems Concept of an ecosystem. Structure and function of an ecosystem Producers, consumers, and decomposers. Energy flow in the ecosystem Ecological succession	<b>08</b>	

	Food chains, food webs and ecological pyramids.		<b>30%</b>
	Introduction, types, characteristic features, structure, and function of the following ecosystems: a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)		
<b>4</b>	Biodiversity and its conservation	<b>08</b>	<b>25%</b>
	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.			
<b>Total</b>		<b>26</b>	

<b>References:</b>
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- a) Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
- b) Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad – 380 013, India, Email: mapin@icenet.net (R)
- c) Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p
- d) Clark R.S., Marine Pollution, Clarendon Press Oxford (TB)
- e) Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumabai, 1196p
- f) De A.K., Environmental Chemistry, Wiley Eastern Ltd.
- g) Down to Earth, Centre for Science and Environment (R)
- h) Gleick, H.P. 1993. Water in Crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute Oxford Univ. Press. 473p
- i) Hawkins R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
- j) Heywood, V.H & Waston, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press 1140p.

- k) Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284 p.
- l) Mckinney, M.L. & School, R.M. 1996. Environmental Science Systems & Solutions, Web enhanced edition. 639p.
- m) Mhaskar A.K., Matter Hazardous, Techno-Science Publication (TB)
- n) Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)
- o) Odum, E.P. 1971. Fundamentals of Ecology. W.B. Saunders Co. USA, 574p
- p) Rao M N. & Datta, A.K. 1987. Waste Water treatment. Oxford & IBH Publ. Co. Pvt. Ltd. 345p.
- q) Sharma B.K., 2001. Environmental Chemistry. Geol Publ. House, Meerut
- r) Survey of the Environment, The Hindu (M)
- s) Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Science
- t) Trivedi R.K., Handbook of Environmental Laws, Rules Guidelines, Compliances and Standards, Vol I and II, Enviro Media (R)
- u) Trivedi R. K. and P.K. Goel, Introduction to air pollution, Techno-Science Publication (TB)
- v) Wanger K.D., 1998 Environmental Management. W.B. Saunders Co. Philadelphia, USA 499p (M) Magazine (R) Reference (TB) Textbook

**Semester - II**

Course Code	Course Name	Credits
ENV2251	Environmental Studies	2

Contact Hours			Credits Assigned			
Theory	Practical	Tutorial	Theory	Practical	Tutorial	Total
02	-	-	02	-	-	02

Theory						Term Work / Practical/Oral			Total
Internal Assessment				End Sem Exam	Duration Of End Sem Exam	Term Work	Pract.	Oral	
Test	Home Assignment	Attendance	Total Internal						
15	10	05	30	70	3 Hours	-	-	-	100

**Course outcome**

- Globally we are facing critical environmental issues like population explosion, indiscriminate use of natural resources, global warming etc. which need to be tackled and we should aware students about the deteriorating environment. Now a days each country focusing on the achievement of fulfilling sustainable development goals.
- So, it is prime need of today's education system to make such curriculum patterns and make students aware about importance of compulsory Environmental Studies so that to some extent our future generation will be able to curb down environmental issues.

**Course Objectives**

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**Detailed Syllabus**

<b>Module/ Unit</b>	<b>Course Module / Contents</b>	<b>Hours</b>	<b>Marks Weightage</b>
<b>5</b>	Environmental Pollution Definition, Cause, effects, and control measures of:	<b>10</b>	<b>35%</b>
	a) Air pollution		
	b) Water pollution		
	c) Soil pollution		
	d) Marine pollution		
	e) Noise pollution		
	f) Thermal pollution		
	g) Nuclear hazards		
	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.			
<b>6</b>	<b>Social Issues and the Environment</b>	<b>10</b>	<b>35%</b>
	From Unsustainable to Sustainable development		
	Urban problems related to energy		
	Water conservation, rainwater 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		
	Environment Protection Act.		
	Air (Prevention and Control of Pollution) Act		
	Water (Prevention and control of Pollution) Act		
	Wildlife Protection Act		
	Forest Conservation Act		
	Issues involved in enforcement of environmental legislation. Public awareness.		

7	<b>Human Population and the Environment</b>	06	30%
	Population growth, variation among nations.		
	Population explosion – Family Welfare Programme.		
	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.		
<b>Total</b>		<b>26</b>	<b>100%</b>

#### REFERENCES:

- a) Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
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