Annexure - I

Study & Evaluation Scheme

of

Bachelor of Arts (Education)

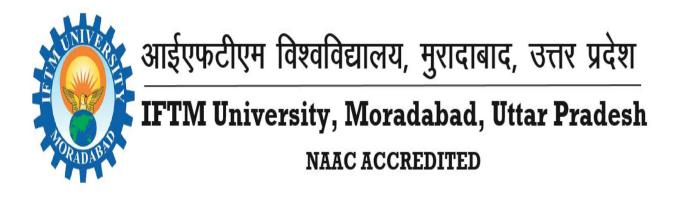
[w.e.f Session 2020-21 & onwards]



आईएफटीएम विश्वविद्यालय, मुरादाबाद, उत्तर प्रदेश IFTM University, Moradabad, Uttar Pradesh

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IFTM UNIVERSITY

N.H.-24, Lodhipur Rajput, Delhi Road, Moradabad, Uttar Pradesh-244102 E-mail Id: info@iftmuniversity.ac.in website: www.iftmuniversity.ac.in Study & Evaluation Scheme Of Bachelor of Arts (Education) [w.e.f Session 2020-21]

Summary

Programme:Bachelor of Arts (Education)Course Level:UG DegreeDuration:Three years (Six semesters) Full TimeMedium of Instruction:Hindi / English

Minimum Required Attendance:

75%

Objective of the Programme:

Education is a training of both mind and soul; it should give both knowledge and wisdom. Unless we preserve the value of democracy, justice, liberty, equality and fraternity, we cannot preserve our freedom. Education finds its guiding principle in the aims of the social order for which it prepares. Student must develop thought for the poor and suffering, regards and respect for women, faith in brotherhood regardless of race, colour, religion.

Evaluation of theory Papers:

Internal	External	Total		
30	70	100		

Internal Evaluation of theory:

Class Test I	Class Test II	Class Test III	Assignment(s)	Others To activities(including attendance)	
Best two out of the three					
10	10	10	5	5	30

Duration of Examination:

Internal	External	Practical
1 hr	3 hrs	3hrs

Study and Evaluation Scheme Programme: Bachelor of Arts (Education)

S. Paper Subject title Period Evaluation					,	Evaluation Scheme			
Ы. N.	code	Subject the	Credits	L T P			Evaluation Scheme		
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l							Internal	External	Total
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. <u></u>		SE	MEST	ER	-I				
1	BAED111	Principles of Education	4	4			30	70	100
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1 BA	BAED211	History and Development of Education in India	4	4			30	70	100
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		First Year Total	8	8					200
		SEC	OND	YE	AR				
	1		MESTE	CR -	III				
1	BAED311	Educational Psychology	4	4			30	70	100
			4						100
		SEN	AESTE	-R –	IV				
1	BAED411	Thought and Practices in Education	4	4			30	70	100
			4						100
		Second Year Total	8	8					200
		TH	IRD Y	E	R				
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1	BAED511	New Trends and Innovation in Education	4	4			30	70	100
			4						100
	•	SEN	AESTE	R –	VI	•			
1.	BAED611	Educational Administration	4	4			30	70	100
			4						100
		Third Year Total	8	8					200
	T ¹ / X 7							1.40	200
	First Year						60 60	140	200
	Second Ye Third Yea						60 60	140 140	200 200
	11111 184	TOTAL MARKS	24			<u> </u>	180	420	<u> </u>

FIRST YEAR

IFTM University, Moradabad Bachelor of Arts (Education) Programme Semester - I Paper Code: BAED 111: Principles of Education

Objectives:

Objective of this course is to maintain an interaction between values and beliefs on the one hand, and openness to scientific achievements and technological innovations on the other hand.

UNIT - I:

- Education Its Meaning- Nature and scope
- Aims of Education
- Functions of Education

UNIT - II:

- •Types and Agencies of Education- Types of Formal, Informal and Non-formal Education.
- Role of Agencies- Family, school and state.
- Mass Media-concept and importance in education in reference to modern Indian Society.

UNIT – III:

- Education and social change.
- Education and democracy.
- Education and Culture.
- Value Education & Yoga Education.

UNIT – IV:

- Education for National Integration.
- Education for International understanding.
- Human Rights Education; Fundamental Rights & Duties in Indian constitution.

Course Outcomes:

Students completing this course will be able to:

- 1. Develop physical, mental, spiritual and social aspects of personality.
- 2. Developsocial skills.
- 3. To access the knowledge.

- 1. Aggarwal, J.C., Theory and Principles of Education, New Delhi Vikas Publishing House.
- 2. Saxena, N.R. Swaroop Principles of Education, Meerut R. Lal Book Depot, 1996.
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 www.sciencedirect.com
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- 4. www.egyankosh.ac.in

IFTM University, Moradabad Bachelor of Arts (Education) Programme Semester - II

Paper Code: BAED211; History and Development of Education in India

Objectives:

Objective of this course is to give due recognition and importance to the social organizations, traditions, customs and value systems of the various communities.

UNIT-I:

Historical Background of Indian Education: Vedic, Buddhist and Muslim Education.

UNIT-II:

British Education in India-oriental-occidental controversy, Macaulay's minute, Wood's dispatch. Hunter Commission, Gokhle-Bill, Sadler Commission, and Wardha Scheme.

Unit-III:

Main recommendations of commissions in Indian Education Commission 1964-66, National Education Policy (NEP) 1986 and Revised, National curriculum framework 2005, Right to Education (RTE) 2009. Sarva Shiksha Abhiyaan (SSA).

UNIT-IV:

Stages of Education and their Problem: Elementary Education (Pre Primary and Primary Education), Secondary Education & Higher Education

Course outcomes:

Students completing this course will be able to:

- 1. Increase reliance on social mobilization to promote basic education.
- 2. Emphasis on pre-primary education.
- 3. Have introduction of minimum level of learning in school.
- 4. Adopt a child centered activity-based approach.

- 1. Ghosh, S.C, (1989), Education Policy in India since Warren Hastings, Calcutta, N-Prakashan.
- 2. Mukherjee, R.K., (1960), Ancient Indian Education, Delhi, Moti Lal Banarasi Das.
- 3. Nurallah, S & Naik J.P.,(1974), A student's History of Education in India, The Macmillan Co. of India Ltd.
- 4 Chaube, S.P., History and Problems of Indian Education, Agra, Vinod Pustak Mandir, Agra.
- 5 ∨fXugk⊊h ∨kj0% ∨k/kų̃ud Hkkjrh; f'k{kk] leL;k;a∨kų̃ lek/kku] t;iǵ % jktLFkku] xbFk ∨dknehA
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- 1. www.ibe.unesco.org
- 2. www.egyankosh.ac.in
- 3. www.education.stateuniversity.com
- 4. www.academia.edu

SECOND YEAR

IFTM University, Moradabad Bachelor of Arts (Education) Programme Semester - III

Paper Code: BAED 311; Educational Psychology

Objectives:

Objective of this course is to familiarize students, help in realizing goals and ideas, and understanding human nature so that he may be able to motivate and direct the learning and growth.

UNIT-I:

Psychology of Education:- Meaning, Nature, Aims, Scope, Need and Importance of Educational Psychology for a teacher.

Methods of Educational Psychology: Observation, Experimental and Case Study. Relationship of Education and Psychology.

UNIT-II:

Learning:- Concept and Nature of learning, Theories of learning (Thorndike, Pavlov, Skinner and Insight).

Transfer of Learning:- Concept, Types and application in education,

Motivation:- Meaning, Nature and Role of Motivation in Learning.

UNIT-III:

Individual Difference:- Meaning, Nature and its Educational Importance. Intelligence:- Meaning, Nature, types and measurement of Intelligence and I.Q. Personality:- Concept, types and determinants, personality development through education.

UNIT-IV:

Adjustment: Meaning, Nature and Process of Adjustment, Characteristics of well adjusted person.

Education of Exceptional Children– Gifted, Creative & Backward.

Course Outcomes:

Students completing this course will be able to:

- 1. Assist in defining and setting up Educational objectives and standards in terms of desirable behaviour.
- 2. Develop in those who teach, a sympathetic attitude towards children.
- 3. Provide a body of facts and principle which can be used in solving the problems of teaching.

- 1. Bhatnagar, Suresh, Advanced Educational Psychology, Meerut, R. Lal Book Depot.
- 2. Chauhan, S.S, Advanced Educational Psychology, New Delhi, Vikas Publishing House.
- 3. Chronback, L.J, Education Psychology, New York, Harcourt Bruce & Co.
- 4. Shonkardai, Problem Children, Delhi, Atma Ram and Sons.

- 5. Terman, L.M. & Oden M.H., The Gifted Child Grous UP Calijornia, Standard University, Press.
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- 2. www.preservearticles.com
- 3. www.shareyouressays.com
- 4. www.scientificwarldinfo.com

IFTM University, Moradabad Bachelor of Arts (Education) Programme Semester - IV Paper Code: BAED411; Thought and Practices in Education

Objectives:

Objective of this course is to familiarize students with attempts to establish coherent meaning within the whole domain of thought. It offers criteria for intelligent interpretation of educational end and means.

UNIT – I:

Philosophy of Education – Meaning, Nature, Scope, Needs and Importance. Relationship of Education and Philosophy.

UNIT – II:

Indian Thinkers: Mahatma Gandhi, Sri Aurobindo, Geeju Bhai, Ravindranath Tagore & Swami Vivekananda.

UNIT – III:

Western Thinkers: Plato, Rousseau and John Dewy.

UNIT – IV:

Educational Practices - Kindergarten, Montessori, Dalton Plan, Project Method.

Course Outcomes:

Students completing this course will be able to:

- 1. Determines the aims of Education.
- 2. Formulates their own methods of teaching.
- 3. Confront the philosophical problems implicit in the experience of self, others and universe.
- 4. Develop habits of clear and critical thinking.

- 1. Mani, R.S., Educational Ideas of Gandhi and Tagore, New Delhi, New Book Society of India.
- 2. Pandey, R.S., An Introduction to Major Philosophies of Education, Agra, Vinod Pustak Mandir.
- 3. Sharma, S.R., Philosophy of Education, New Delhi, Mohit Publications.
- 4. Kabir, Humyum, Indian Philosophy of Education, Mumbai, Asia Publishing House.
- 5. Ramchandani S., Great thoughts on Education, Guwahati, D.V.S. Publication Distribution.
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- 1. www.vkmaheshwari.com
- 2. www.slideshare.net
- 3. www.scranton.edu
- 4. www.hofstra.edu
- 5. Plato.stanford.edu

THIRD YEAR

IFTM University, Moradabad Bachelor of Arts (Education) Programme Semester - V

Paper Code: BAED511; New Trends and Innovations in Education

Objectives:

Objective of this course is to familiarize students with classification of innovations, discuss the hurdles to innovation and offer ways to increase the scale and rate of innovation based on transformation in the education system.

UNIT-1:

Innovation : Meaning, Nature and types of Innovation; The Stages or Process of Adapting Innovation, Educational Innovation and New Dimensions of Education, Need and Importance of Educational Innovation. New Dimensions in Indian Education System.

UNIT-II:

Distance Education: Concept, Aims, Needs and limitation of Distance Education, Basic Principle of Distance Education, Forms of Distance Education- Correspondence and open Education.Changing School in the era of liberalization, privatization and globalization.

UNIT-III:

Use of new modern trends in Education: Radio, Television, Computer, Internet, Video conferencing, EDUSAT and e-learning – content, magazines and journals.

UNIT-IV:

Integrated Child Development Scheme (ICDS)-Early childhood care and education (ECCE), Balwadi, Aanganwadi and other efforts in public and private sectors at state and central levels. State supported innovations; Lok- Jumbish, Eklavya, Mahila Samakhya. National Level– Brief Account of right to education, National Literacy Mission & Adult Education, Life Skill Education- Hard & Soft Skills.

Course Outcomes:

Students completing this course will be able to:

- 1. Produce the needed high-quality learning outcomes across the system.
- 2. Focus on Educational innovation of teaching and learning theory and practice.
- 3. Apply a needed solid theoretical foundation based on purposeful, systematic, research and sound pedagogy.

- 1. Chauhan, S.S., (1994), Innovations in teaching hearing process, Vikas Publishing House P. Ltd., New Delhi.
- 2. Sharma, A.R., Educational Technology, Agra, Vinod Pustak Mandir.
- 3. Laxmi S., (1989), Innovations in Education, Delhi, Sterling Publishers Pvt. Ltd.
- 4. Mohanti, J., (1982), Indian Education the Emerging Societies, New Delhi, Sterling Publishers.
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- 6. \vk; 2] ekgu yky(1/20141/2*** kf{kd i/kklu, oaicU/ku** ejB] lwk2 idk ku 1/4/kj0 yky cpd fMikb/A

- 1. www.emerald.com
- 2. www.slideshare.net
- www.oecd.org
 www.nwmissouri.edu
- 5. www.teachthought.com

IFTM University, Moradabad Bachelor of Arts (Education) Programme Semester - VI Paper Code: BAED611; Educational Administration

Objectives:

Objective of this course is to familiarize students with regarded as the process of integrating the appropriate human and material resources that are made available and made effective for achieving the purposes of a program of an educational institution based on human sympathy, understanding, knowledge and skill.

Unit -I:

Educational Administration: Meaning, aims, need and principles. Problem and solution of Indian Educational Administration.

Unit - II:

Educational administration at Central Level:-

1- U.G.C.

2. NCTE

- 3- M.H.R.D.
- 4. NCERT

Unit –III:

Educational administration at State Level,

- 1- State University
- 2- DIET
- 3- SCERT

Unit –IV:

Qualities of – Head of Institution, Teacher and Management. Concept of Institution-Government, Govt. Added & Self – Finance and their administration at Higher education level

Course Outcomes:

Students completing this course will be able to:

- 1. Ensure adequate utilization of all resources.
- 2. Ensure professional ethics and professional development.
- 3. Mobilize the community.
- 4. Ensure qualitative improvement of education.

- 1. Bhatnagar, S.S. & Gupta, P.K., Educational Administration and Management.
- 2. Sharma R.A., Education Administration and Management.
- 3. Chandra, S.S. & Chakraborty, A.K., School Administration organization and Management.
- 4. Kudesia, Umesh Chandra, Educational Administration.
- 5. Gupta Ram Babu, Educational Administration.

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- 1. www.yourarticlelibrary.com
- 2. www.jstar.org
- 3. www.oswego.com
- 4. www.nier.go.jp

IFTM University, Moradabad B.A. (Education) Programme

w.e.f. Session 2019-20

Audit Course: 1

S.N.	Course Code	Course Name
1.	UDM	Disaster Management

Note: Course of Disaster Management is mandatory to study as an audit paper.

Audit Course: 2

S.N.	Course Code	Course Name
1.	ES	Environmental Studies

Note: Course of Environmental Studies is mandatory to study as an audit paper.

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IFTM University, Moradabad B.A. (Education) **Programme:**

UDM: Disaster Management (UDM)

Objectives:

- To provide students an understanding to the concepts and aspects of disaster and its relationship with development.
- To ensure awareness of Disaster Risk Reduction (DRR) approaches among students.
- To assist students, develop ability to respond to their environment with potential response to disaster.

UNIT I: Introduction to Disasters

- Definition: Disaster, Hazard, Vulnerability, Resilience, Risks
- Types of disasters Earthquake, Landslide, Flood, Drought, Fire, campus shooting, bomb threat, terrorist incidence and financial emergency etc.
- Causes and Impacts including social, economic, political, environmental, health, psychosocial, etc. Differential impacts- in terms of caste, class, gender, age, location, disability.
- Global trends in disasters: urban disasters, pandemics, complex emergencies, Climate change- Dos and Don'ts during various types of Disasters.

UNIT II: Approaches to Disaster Risk Reduction

- Disaster life cycle its analysis, phases, culture of safety, prevention, mitigation and preparedness
- Community based DRR (Disaster Risk Reduction), Structural-non-structural measures,
- Roles and responsibilities of community: Panchayati Raj Institutions/Urban Local Bodies (PRIs/ULBs), States, Centre, and other stakeholders

UNIT III: Inter-Relationship between Disasters and Development (08 Sessions)

- Factors affecting Vulnerabilities, impact of Development projects such as dams, embankments, changes in Land-use etc.
- Climate Change Adaptation- IPCC Scenario and Scenarios in the context of India Relevance of indigenous knowledge, appropriate technology and local resources.
- Role of international co-operations in Disaster Management

UNIT IV: Disaster Risk Management in India

- Hazard and Vulnerability profile of India. Components of Disaster Relief: Water, Food, Sanitation, Shelter, Health, Waste Management
- Institutional arrangements (Mitigation, Response and Preparedness, Disaster Management Act and Policy – Other related policies, plans, programmes and legislation
- Role of GIS and Information Technology Components in Preparedness, Risk Assessment, Response and Recovery Phases of Disaster – Disaster Damage Assessment.

UNIT V: Disaster Management: Applications, Case Studies and Field Works (07 Sessions)

The project /fieldwork is meant for students to understand vulnerabilities and to work on reducing disaster risks and to build a culture of safety. Projects must be conceived creatively based on the geographic location and hazard profile of the region where the college is located. A few ideas or suggestions are discussed below.

Several governmental initiatives require Urban Local Bodies (ULBs) and Panchayati Raj Institutions (PRIs) to be pro active in preparing DM plans and community based disaster preparedness plans. Information on these would be available with the district collector or Municipal corporations.

Credit: 3

(10 Sessions)

(08 Sessions)

(12Sessions)

Teachers could ask students to explore and map disaster prone areas, vulnerable sites, vulnerability of people (specific groups) and resources. The students along with teacher could work on ways of addressing these vulnerabilities, preparing plans and consultation with local administration or NGOs. Students could conduct mock drills in schools, colleges or hospitals. They could also work on school safety, safety of college buildings, training in first aid.

Other examples could be- identifying how a large dam, road/ highway or an embankment or the location of an industry affects local environment and resources or how displacement of large sections of people creates severe vulnerabilities may be mapped by student project work.

The suggested topics for Project work for student could be as follows:

- Monitoring and evaluation plan for disaster response
- Low cost Home based water purification methods
- Planning Nutrition intervention programmes
- > Safety tips before during and after earthquake, cyclone, floods and fire accidents.
- ➢ MockDrills
- Major disasters in India
- Disaster Management in India
- Flood affected areas and damages in India
- ➢ Heat waves in India
- ➢ Earth quakes in India
- Historical Tsunamis in India
- > Nuclear emergence
- Traffic accidents in India
- ➢ Train Accidents
- Major disease outbreak
- Disaster management structure in India
- Precaution, mitigation of disaster in India
- > Warning system in India to prevent disaster
- ➢ Bhopal gas tragedy
- ➢ Kutch earth quake
- \succ Tsunami (2004)
- ➢ Kosi Calamity 2008
- Mayapuri radiation exposure Delhi (2010)
- Mock exercises

Any field works related to disaster management.

Learning Outcomes: The students will be able to identify the nature and causes of disaster and to apply the disaster risk reduction mechanism.

Teaching Resources: Emphasis will be on interactive teaching learning methods. Tools could be Range of Films- documentaries and feature films related to disasters and their impacts and on vulnerabilities of people are available which a teacher could choose with care and screen. This could form a basis for classroom discussion.

- Modh, Satish, Introduction to Disaster Management, Macmillan Publisher India Ltd.
- Alexander, David, Introduction in 'Confronting Catastrophe', Oxford University Press.
- Blaikie, P, Cannon T, Davis I, Wisner B 1997. At Risk Natural Hazards, Peoples' Vulnerability and Disasters, Routledge.
- Damon, P. Coppola, Introduction to International Disaster Management, Butterworth-Heinemann.
- Singhal, J.P. "Disaster Management", Laxmi Publications. ISBN-10: 9380386427 ISBN-13: 978-9380386423.

- Bhattacharya, Tushar, Disaster Science and Management, McGraw Hill India Education Pvt. Ltd.ISBN-10: 1259007367, ISBN-13: 978-1259007361].
- Gupta. Anil K, Sreeja S. Nair. Environmental Knowledge for Disaster Risk Management, New Delhi, NIDM.
- Kapur, Anu, Vulnerable India: A Geographical Study of Disasters, New Delhi, IIAS and Sage Publishers.
- Carter, Nick, Disaster Management: A Disaster Manager's Handbook. Asian Development Bank, Manila Philippines.
- Cuny, F., Development and Disasters, Oxford University Press. Document on World Summit on Sustainable Development.
- Govt. of India: Disaster Management Act 2005, Government of India, New Delhi, Government of India, 2009.
- Nair, Sreeja S., Environmental Knowledge for Disaster Risk Management, New Delhi, NIDM, Indian Journal of Social Work.
- Special Issue on Psychosocial Aspects of Disasters, Volume 63, Issue 2, April.

Website Sources:

- 1. <u>http://nidm.gov.in/</u>
- 2. <u>http://nidmssp.in</u>
- 3. <u>http://www.drishtiias.com/upsc-exam-gs-resources-COMMUNITY-BASED-DISASTER-MANAGEMENT</u>

Note: Latest editions of all the suggested readings must be used.

IFTM University, Moradabad B.A. (Education) Programme:

ES: Environmental Studies (ES)

Credits: 3

2 Session

10 Session

8 Session

Course Objectives:

The course is designed to provide every student with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment; to create new patterns of behaviour of individuals, groups, and society as a whole towards the environment.

Unit1

Nature, Definition, Scope and Importance of Environmental Studies.

Unit 2

Unit 3

Natural Resources: Renewable and non-renewable resources, Natural resources and associated problems. Forest resources: Use and over-exploitation, Deforestation, Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.

World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. 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 4

Ecosystems: Concept of an Ecosystem, Structure and Function of an Ecosystem, Energy flow in the ecosystem. Hot-sports of Bio-diversity, Threats to Bio-diversity: Habitat Loss, poaching of wildlife, man-wildlife conflicts. Conservation of Bio-diversity: In-situ and Exsitu conservation of biodiversity. Environmental Pollution Definition, Cause, effects and control measures of: 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.

Unit 5

8 Session

8 Session

Social Issues and the Environment: From Unsustainable to Sustainable development, urban problems related to energy, Water conservation, rain water harvesting, watershed management, Resettlement and rehabilitation of people; its problems and concerns. Environmental Ethics : Issues and possible solutions, Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, 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.

Field Work

2 Session

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.

Course Outcomes:

Students completing this course will be able to:

- > Recognize the interconnectedness of multiple factors in environmental challenges.
- > Engage constructively with diverse forms of knowledge and experience.
- Recognize and apply methodological approaches of the social sciences, natural sciences, and humanities.
- Evaluate and interpret various forms of evidence, including text, data, and other media about the environment.
- Work productively with those within and beyond the academy on interdisciplinary collaborative projects.
- communicate clearly and competently matters of environmental concern and understanding to a variety of audiences in appropriate forms.

- 1. Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.
- Bharucha, Erach, The Biodiversity of India, Map in Publishing Pvt. Ltd., Ahmedabad 380 013, India, Email:mapin@icenet.net (R)
- 3. Brunner, R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc. 480p
- 4. Clark, R.S., Marine Pollution, Clanderson Press Oxford (TB)
- 5. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumabai, 1196p
- 6. Gleick, H.P., 1993. Water in crisis, Pacific Institute for Studies in Dev, Environment & Security. Stockholm Env. Institute Oxford Univ. Press. 473p
- 7. Hawkins, R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)
- Heywood, V.H & Waston, R.T, 1995, Global Biodiversity Assessment. Cambridge Univ. Press 1140p.

- 9. Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284 p.
- 10. Mckinney, M.L. & School, R.M. 1996. Environmental Science systems & Solutions, Web enhanced edition. 639p.
- 11. Mhaskar, A.K., Matter Hazardous, Techno-Science Publication (TB)
- 12. Miller, T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)
- 13. Odum, E.P. 1971. Fundamentals of Ecology. W.B. Saunders Co. USA, 574p
- 14. Rao, M N. & Datta, A.K. 1987. Waste Water treatment. Oxford & IBH Publ. Co. Pvt. Ltd. 345p.
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