



UNIVERSITY OF CALCUTTA

Notification No. CSR/ 12 /18

It is notified for information of all concerned that the Syndicate in its meeting held on 28.05.2018 (vide Item No.14) approved the Syllabi of different subjects in Undergraduate Honours / General / Major courses of studies (CBCS) under this University, as laid down in the accompanying pamphlet:

List of the subjects

| <u>Sl. No.</u> | <u>Subject</u> | <u>Sl. No.</u> | <u>Subject</u> |
|----------------|---|----------------|--|
| 1 | Anthropology (Honours / General) | 29 | Mathematics (Honours / General) |
| 2 | Arabic (Honours / General) | 30 | Microbiology (Honours / General) |
| 3 | Persian (Honours / General) | 31 | Mol. Biology (General) |
| 4 | Bengali (Honours / General /LCC2 /AECC1) | 32 | Philosophy (Honours / General) |
| 5 | Bio-Chemistry (Honours / General) | 33 | Physical Education (General) |
| 6 | Botany (Honours / General) | 34 | Physics (Honours / General) |
| 7 | Chemistry (Honours / General) | 35 | Physiology (Honours / General) |
| 8 | Computer Science (Honours / General) | 36 | Political Science (Honours / General) |
| 9 | Defence Studies (General) | 37 | Psychology (Honours / General) |
| 10 | Economics (Honours / General) | 38 | Sanskrit (Honours / General) |
| 11 | Education (Honours / General) | 39 | Social Science (General) |
| 12 | Electronics (Honours / General) | 40 | Sociology (Honours / General) |
| 13 | English ((Honours / General/ LCC1/ LCC2/AECC1) | 41 | Statistics (Honours / General) |
| 14 | Environmental Science (Honours / General) | 42 | Urdu (Honours / General /LCC2 /AECC1) |
| 15 | Environmental Studies (AECC2) | 43 | Women Studies (General) |
| 16 | Film Studies (General) | 44 | Zoology (Honours / General) |
| 17 | Food Nutrition (Honours / General) | 45 | Industrial Fish and Fisheries – IFFV (Major) |
| 18 | French (General) | 46 | Sericulture – SRTV (Major) |
| 19 | Geography (Honours / General) | 47 | Computer Applications – CMAV (Major) |
| 20 | Geology (Honours / General) | 48 | Tourism and Travel Management – TTMV (Major) |
| 21 | Hindi (Honours / General /LCC2 /AECC1) | 49 | Advertising Sales Promotion and Sales Management –ASPV (Major) |
| 22 | History (Honours / General) | 50 | Communicative English –CMEV (Major) |
| 23 | Islamic History Culture (Honours / General) | 51 | Clinical Nutrition and Dietetics CNDV (Major) |
| 24 | Home Science Extension Education (General) | 52 | Bachelor of Business Administration (BBA) (Honours) |
| 25 | House Hold Art (General) | 53 | Bachelor of Fashion and Apparel Design – (B.F.A.D.) (Honours) |
| 26 | Human Development (Honours / General) | 54 | Bachelor of Fine Art (B.F.A.) (Honours) |
| 27 | Human Rights (General) | 55 | B. Music (Honours / General) and Music (General) |
| 28 | Journalism and Mass Communication (Honours / General) | | |

The above shall be effective from the academic session 2018-2019.

SENATE HOUSE
KOLKATA-700073
The 4th June, 2018

Paul
4/6/18
(Dr. Santanu Paul)
Deputy Registrar

University of Calcutta

Under Graduate Curriculum under Choice Based Credit System (CBCS)

Syllabus for Ability Enhancement Compulsory Course-2 (AECC-2) in **Environmental Studies**

Semester-2

Total Marks-100(Credit -2)

(50 Theory-MCQ type + 30 Project + 10 Internal Assessment + 10 Attendance)

[Marks obtained in this course will be taken to calculate SGPA & CGPA]

Theory

| | |
|---|------------|
| Unit 1 Introduction to environmental studies | 2 lectures |
| <ul style="list-style-type: none">•Multidisciplinary nature of environmental studies;•Scope and importance; Concept of sustainability and sustainable development. | |
| Unit 2 Ecology and Ecosystems | 6 lectures |
| <ul style="list-style-type: none">•Concept of ecology and ecosystem, Structure and function of ecosystem; Energy flow in an ecosystem; food chains, food webs; Basic concept of population and community ecology; ecological succession.•Characteristic features of the following:<ul style="list-style-type: none">a) Forest ecosystemb) Grassland ecosystemc) Desert ecosystemd) Aquatic ecosystems (ponds, streams, lakes, wetlands, rivers, oceans, estuaries) | |
| Unit 3 Natural Resources | 8 lectures |
| <ul style="list-style-type: none">• Concept of Renewable and Non-renewable resources• Land resources and land use change; Land degradation, soil erosion and desertification.•Deforestation: Causes, consequences and remedial measures•Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).•Energy resources: Environmental impacts of energy generation, use of alternative and nonconventional energy sources, growing energy needs. | |
| Unit 4 Biodiversity and Conservation | 8 lectures |
| <ul style="list-style-type: none">•Levels of biological diversity: genetic, species and ecosystem diversity;• Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots•India as a mega-biodiversity nation; Endangered and endemic species of India•Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions;•Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.•Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value. | |
| Unit 5 Environmental Pollution | 8 lectures |
| <ul style="list-style-type: none">• Environmental pollution: concepts and types,• Air, water, soil, noise and marine pollution- causes, effects and controls• Concept of hazardous waste and human health risks• Solid waste management: Control measures of Municipal, biomedical and e-waste. | |

| | |
|---|---------------------|
| Unit 6 Environmental Policies and Practices | 7 lectures |
| <ul style="list-style-type: none"> •Climate change, global warming, ozone layer depletion, acid rain and their impacts on human communities and agriculture •Environment Laws: Wildlife Protection Act; Forest Conservation Act. Water (Prevention and control of Pollution) Act; Air (Prevention & Control of Pollution) Act; Environment Protection Act; Biodiversity Act. •International agreements: Montreal Protocol, Kyoto protocol and climate negotiations; Convention on Biological Diversity (CBD). •Protected area network, tribal populations and rights, and human wildlife conflicts in Indian context. | |
| Unit 7 Human Communities and the Environment | 6 lectures |
| <ul style="list-style-type: none"> •Human population growth: Impacts on environment, human health and welfare. •Case studies on Resettlement and rehabilitation. • Environmental Disaster: Natural Disasters-floods, earthquake, cyclones, tsunami and landslides; Manmade Disaster- Bhopal and Chernobyl. •Environmental movements: Bishnois, Chipko, Silent valley, Big dam movements. •Environmental ethics: Role of gender and cultures in environmental conservation. •Environmental education and public awareness | |
| Project/ Field work | Equal to 5 lectures |
| <ul style="list-style-type: none"> •Visit to an area to document environmental assets: Natural resources/flora/fauna, etc. •Visit to a local polluted site-Urban/Rural/Industrial/Agricultural. •Study of common plants, insects, fish, birds, mammals and basic principles of identification. •Study of ecosystems-pond, river, wetland, forest, estuary and agro ecosystem. | |
| Total | 50 Lectures |

Suggested Reading:

Asthana, D. K. (2006). *Text Book of Environmental Studies*. S. Chand Publishing.

Basu, M., Xavier, S. (2016). *Fundamentals of Environmental Studies*, Cambridge University Press, India

Basu, R. N., (Ed.) (2000). *Environment*. University of Calcutta, Kolkata

Bharucha, E. (2013). *Textbook of Environmental Studies for Undergraduate Courses*. Universities Press.

De, A.K., (2006). *Environmental Chemistry*, 6th Edition, New Age International, New Delhi.

Mahapatra, R., Jeevan, S.S., Das, S. (Eds) (2017). *Environment Reader for Universities*, Centre for Science and Environment, New Delhi.

Masters, G. M., & Ela, W. P. (1991). *Introduction to environmental engineering and science*. Englewood Cliffs, NJ: Prentice Hall.

Odum, E. P., Odum, H. T., & Andrews, J. (1971). *Fundamentals of ecology*. Philadelphia: Saunders.

Sharma, P. D., & Sharma, P. D. (2005). *Ecology and environment*. Rastogi Publications.