

# TUMKUR UNIVERSITY

Vishwavidyanilaya Karyalaya, B.H. Road, Tumkur- 572 103

Phone No.0816-2255596, 2254546 Fax No.0816-2270719

No. TU: AC: 2017-18 / 2211

Date: 12.09.2017

To

The Principals of Constituent and affiliated colleges

Sir/Madam,

In reference D.O.No.F.1-2/2017(CCP-II) dated: 19.06.2017 recived from, University Grants Commission, regarding compulsory Implementation of module Syllabus on Environmental Studies for undergraduate course of all branches of higher education in Universities and Colleges as per directives of the Hon'ble supreme court of India.

In this regard it is hereby informed to all the Colleges to implement the same as per the directions of the Hon'ble supreme court with immediate effect. A copy of the Syllabus has already been uploaded on University website [www.tumkuruniversity.ac.in](http://www.tumkuruniversity.ac.in).

Yours faithfully,

  
Deputy Registrar  
(Academic Section)

Copy:

- 1) The Secretary, University Grants Commission, Bhaddur Shah Zafar Marg, New Delhi-110002
- 2) System Analyst, Tumkur University, Tumkur.
- 3) Office copy.

## UNIVERSITY GRANTS COMMISSION

### Ability Enhancement Compulsory Course (AECC – Environment Studies)

#### **Unit 1 : Introduction to environmental studies**

- Multidisciplinary nature of environmental studies;
- Scope and importance; Concept of sustainability and sustainable development.

(2 lectures)

#### **Unit 2 : Ecosystems**

- What is an ecosystem? Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems :
  - a) Forest ecosystem
  - b) Grassland ecosystem
  - c) Desert ecosystem
  - d) Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

(6 lectures)

#### **Unit 3 : Natural Resources : Renewable and Non-renewable Resources**

- Land resources and land use change; Land degradation, soil erosion and desertification.
- Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.
- Water : Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).
- Energy resources : Renewable and non renewable energy sources, use of alternate energy sources, growing energy needs, case studies.

(8 lectures)

#### **Unit 4 : Biodiversity and Conservation**

- 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.

(8 lectures)

#### **Unit 5 : Environmental Pollution**

- Environmental pollution : types, causes, effects and controls; Air, water, soil and noise pollution
- Nuclear hazards and human health risks
- Solid waste management : Control measures of urban and industrial waste.
- Pollution case studies.

(8 lectures)

#### **Unit 6 : Environmental Policies & Practices**

- Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture

- Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD).
- Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context. (7 lectures)

### Unit 7 : Human Communities and the Environment

- Human population growth: Impacts on environment, human health and welfare.
- Resettlement and rehabilitation of project affected persons; case studies.
- Disaster management : floods, earthquake, cyclones and landslides.
- Environmental movements : Chipko, Silent valley, Bishnois of Rajasthan.
- Environmental ethics: Role of Indian and other religions and cultures in environmental conservation.
- Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi). (6 lectures)

### Unit 8 : Field work

- Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc.
- Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.
- Study of common plants, insects, birds and basic principles of identification.
- Study of simple ecosystems-pond, river, Delhi Ridge, etc. (Equal to 5 lectures)

### Suggested Readings:

1. Carson, R. 2002. *Silent Spring*. Houghton Mifflin Harcourt.
2. Gadgil, M., & Guha, R. 1993. *This Fissured Land: An Ecological History of India*. Univ. of California Press.
3. Gleeson, B. and Low, N. (eds.) 1999. *Global Ethics and Environment*, London, Routledge.
4. Gleick, P. H. 1993. *Water in Crisis*. Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute, Oxford Univ. Press.
5. Groom, Martha J., Gary K. Meffe, and Carl Ronald Carroll. *Principles of Conservation Biology*. Sunderland: Sinauer Associates, 2006.
6. Grumbine, R. Edward, and Pandit, M.K. 2013. Threats from India's Himalaya dams. *Science*, 339: 36-37.
7. McCully, P. 1996. *Rivers no more: the environmental effects of dams* (pp. 29-64). Zed Books.
8. McNeill, John R. 2000. *Something New Under the Sun: An Environmental History of the Twentieth Century*.
9. Odum, E.P., Odum, H.T. & Andrews, J. 1971. *Fundamentals of Ecology*. Philadelphia: Saunders.
10. Pepper, I.L., Gerba, C.P. & Brusseau, M.L. 2011. *Environmental and Pollution Science*. Academic Press.
11. Rao, M.N. & Datta, A.K. 1987. *Waste Water Treatment*. Oxford and IBH Publishing Co. Pvt. Ltd.
12. Raven, P.H., Hassenzahl, D.M. & Berg, L.R. 2012. *Environment*. 8th edition. John Wiley & Sons.
13. Rosencranz, A., Divan, S., & Noble, M. L. 2001. *Environmental law and policy in India*. Tripathi 1992.
14. Sengupta, R. 2003. *Ecology and economics: An approach to sustainable development*. OUP.
15. Singh, J.S., Singh, S.P. and Gupta, S.R. 2014. *Ecology, Environmental Science and Conservation*. S. Chand Publishing, New Delhi.
16. Sodhi, N.S., Gibson, L. & Raven, P.H. (eds). 2013. *Conservation Biology: Voices from the Tropics*. John Wiley & Sons.
17. Thapar, V. 1998. *Land of the Tiger: A Natural History of the Indian Subcontinent*.
18. Warren, C. E. 1971. *Biology and Water Pollution Control*. WB Saunders.
19. Wilson, E. O. 2006. *The Creation: An appeal to save life on earth*. New York: Norton.
20. World Commission on Environment and Development. 1987. *Our Common Future*. Oxford University Press.



प्रो (डॉ.) जसपाल एस. सन्धू  
सचिव

*Prof. Dr. Jaspal S. Sandhu*

MBBS, MS (Ortho), DSM, FAIS, FASM, FAFSM, FFIMS, FAMS  
Secretary



विश्वविद्यालय अनुदान आयोग  
**University Grants Commission**

(मानव संसाधन विकास मंत्रालय, भारत सरकार)  
(Ministry of Human Resource Development, Govt. of India)

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D.O.No.F.1-2/2017(CPP-II)

19<sup>th</sup> June, 2017

Dear Sir/Madam,

In continuation to this office letter of even number dated 20<sup>th</sup> July, 2014 and letter No.13-1/2000(EA/ENV/COS-I) dated 07.08.2014, 20.11.2014 and 30.03.2015 regarding compulsory implementation of module syllabus on Environmental Studies for undergraduate course of all branches of higher education in universities and colleges as per directives of the Hon'ble Supreme Court of India, University Grants Commission with the help of an Expert Committee has framed 8 units module syllabus for Ability Enhancement Compulsory Courses (AECC-Environmental Studies) under CBCS. The module is available on University Grants Commission website [www.ugc.ac.in](http://www.ugc.ac.in). I request you to take necessary steps for implementation of the directions of the Hon'ble Supreme Court.

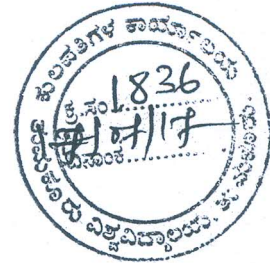
It is brought to your notice that non-implementation of the order of Hon'ble Supreme Court, in its letter and spirit, amounts to contempt of court. This may also be informed to all the Colleges affiliated to your esteemed University.

With kind regards,

Yours sincerely,

(Jaspal S. Sandhu)

**The Vice-Chancellor**  
Tumkur University,  
B.H. Road,  
Tumkur-572 103,  
Karnataka.



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