

## SYLLABUS FOR ENVIRONMENTAL SCIENCE (BMM) – July 2013 – 2016

### Paper Code:ENVS1301

Semester III

(Theory)

(50 marks)

#### 1. Introduction to environment and basic concepts: Interrelated aspects of environmental studies;

Ecological footprint, carrying capacity, ecological imbalance, environmental degradation, sustainable development, environmental justice, Emission trading, media and environmental education.

#### 2. Ecology and ecosystem – principles and services

Principles – structure and functions, Services – biogeochemical cycles. Biodiversity and Wildlife, present scenario, importance of biodiversity, wetlands and biodiversity; threats and impacts of biodiversity loss; Conservation measures, UN Initiatives. GMO- advantages and disadvantages.

#### 3. Global environmental issues

Global warming and climate change, Acid rain, PC smog, Ozone depletion and remedial measures. Types and sources of air pollutants; emission and air quality standards, PUC, air pollution control, Case studies. Modern environmental threats (nuclear warfare, biological warfare, e wastes and impacts of modern agricultural practices).

#### 4. Environmental Policies and Legislations

Constitutional provisions, *Panchayat* Initiatives; **Environmental Policies and Strategies:** international organizations; International and national policy initiatives. **Important Environmental Legislations with special reference to Environmental Protection Act (1986)** and case studies.

#### 5. Environmental Impact Assessment (EIA) and EMSEnvironmental Management: Environmental audit; ISO standards, QMS and EMS; Environmental Labeling; Trade and environment; emission trading and carbon credits; carbon sequestration, Carbon capture and storage. Ecotourism and heritage management. Major Environmental Movements.

### Semester IV : Practical Paper. Paper Code:ENVS1402

(Project (25), Project presentation (5) Assignment (5), Field visit (10), Seminar (5) = 50 marks

#### Project topics

1. Biodiversity as wealth.
2. Oil spill and impact on modern environment.
3. Biosphere reserve and biodiversity protection.
4. Ozone – the good the bad.

5. Smog and ecology.
6. Acid rain.
7. Global warming – the realities.
8. Forest fire.
9. Tsunami.
10. Nuclear power plants.
11. Renewable energy sources.
12. Environmental legislations – the important ones.
13. ISO standards – EMS
14. UN conventions and environment.
15. Green bench stories.
16. Carbon Credit – Environment income.
17. Wetlands in Bengal and Ramsar convention.
18. Protocols to protect environment.
19. Environmental movements in India.
20. Religion and environment.

## REFERENCES

1. **Basu, R.N**, Environment, University of Calcutta, 2000.
2. **Misra, SP and Pande, SN**, Essential Environmental Studies (3<sup>rd</sup> Edition), Ane Books Pvt. Ltd., 2011.
3. **Ghosh Roy, MK**, Sustainable Development (Environment, Energy and Water Resources), Ane Books Pvt. Ltd., 2011.
4. **Eldon Enger and Bradley Smith**, Environmental Science: A Study of Interrelationships, Publisher: McGraw-Hill Higher Education; 12th edition, 2010.
5. **Agrawal, KM, Sikdar, PK and Deb, SC**, A Text book of Environment, Macmillan Publication, 2002.
6. **Richard T Wright**, Environmental Science: Towards a Sustainable Future, Prentice-Hall Inc., 2008.
7. **Mitra, A.K, Bhattacharya, S. and Saha, D**, Environmental Studies, St. Xavier's College, Kolkata.
8. **Daniel D. Chiras**, Environmental Science: Creating a Sustainable Future, Jones & Bartlett Publishers; 6th edition, 2001.
9. **Odum, E.P**, Fundamentals of Ecology.
10. **Howard S. Peavy and Donald R. Rowe**, Environmental Engineering, McGraw-Hill International Editions, 1985.
11. **Metcalf & Eddy**, Wastewater Engineering, Tata McGraw-Hill Edition, 1999.
12. **Karpagam, M and Geetha Jaikumar**, Green Management, Theory and Applications, Ane Books Pvt. Ltd., 2010.
13. **Bala Krishnamoorthy**, Environmental Management, PHI learning PVT Ltd, 2012.