

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI – 600 086
B.Sc. DEGREE: BRANCH III – PHYSICS

SYLLABUS
(Effective from the Academic Year 2015 – 2016)

ENVIRONMENTAL STUDIES

CODE : 15PH/GC/ES22

CREDIT : 2

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TOTAL TEACHING HOUR: 26

OBJECTIVES OF THE COURSE

- To create an awareness about current environmental issues
- To make the students eco-sensitive and eco-friendly
- To educate the students about conservation and management of natural resources

Unit 1

Natural Resources (7hrs.)

- 1.1. Renewable & Non Renewable Resources
- 1.2. Forest Resources – Use and Over Exploitation
- 1.3. Water Resources – Use and Over Utilization of Surface & Ground Water
- 1.4. Mineral Resources – Use and Exploitation
- 1.5. Food Resources – World Food Problems – Effects of Modern Agriculture – Sustainable Agriculture
- 1.6. Energy Resources – Renewable and Non Renewable Energy Sources – Use of Alternative Sources of Energy
- 1.7. Need for Public Awareness in Conservation of Natural Resources

Unit 2

Ecosystems and Biodiversity (6hrs.)

- 2.1. Characteristic Features of Terrestrial and Aquatic Ecosystems – Structure, Function, Food Chain, Food Web & Ecological Pyramids
- 2.2. Ecological Succession. (a brief study)
- 2.3. Definition and Levels of Biodiversity
- 2.4. Hot Spots of Biodiversity
- 2.5. Threats to Biodiversity – Habitat Loss – Poaching of Wildlife – Man & Wildlife Conflicts
- 2.6. Conservation of Biodiversity – *in-Situ* and *ex- Situ* Conservation Methods

Unit 3

Environmental Pollution (7hrs.)

- 3.1. Air Pollution : Sources , Effects and Control
- 3.2. Water Pollution: Sources, Effects and Control
- 3.3. Soil Pollution : Sources, Effects and Control

- 3.4. Noise Pollution : Sources , Effects and Control
- 3.5. Nuclear Hazards
- 3.6. Environmental Impact Assessment
- 3.7. Role of Individual, Society and Government in Prevention of Pollution

Unit 4

Social Issues and the Environment

(6hrs.)

- 4.1 Multidisciplinary Nature of Environmental Studies
- 4.2 Population Explosion and its Impact on Environment
- 4.3 Water Conservation – Rain Water Harvesting – Watershed Management
- 4.4 Environmental Ethics
- 4.5 Climate Change and Global Warming
- 4.6 Role of Information Technology in Environment

TEXT BOOKS

Bharucha, E. *Textbook of Environmental Studies*. (1st edition). Hyderabad: Universities Press, 2005.

BOOKS FOR REFERENCE

Arul, P. *A Textbook of Environmental Studies*, (1st edition), Chennai: Environment Agency, 2004.

Asthara, D.K., M. Asthara. *A Textbook of Environmental Studies*. (1st edition). New Delhi: S. Chand, 2006.

Kaushik, A., C.P. Kaushick. *Perspectives in Environmental Studies*. (2nd edition). New Delhi: New Age 2006.

Singh, H.R. *Environmental Biology*. (1st edition). New Delhi: S Chand, 2005.

PATTERN OF EVALUATION: (only internal evaluation)

Continuous Assessment:

Total Marks: 50

Duration: 90 mins.

Section A – 5 x 3 = 15 Marks (All questions to be answered)

Section B – 4 x 5 = 20 Marks (4 out of 5 to be answered)

Section C – 1 x 15 = 15 Marks (1 out of 2 to be answered)