



स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ  
नांदेड- ४३१६०६ (महाराष्ट्र)

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY  
NANDED-431606, MAHARASHTRA STATE, INDIA.

Established on 17th September 1994 - Recognized by the UGC U/s 2(f) and 12(B), NAAC Re-accredited with 'A' Grade



## ACADEMIC (I-BOARD OF STUDIES) SECTION

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### परिपत्रक

सर्व संबंधितांना या परिपत्रकान्वये कळविण्यात येते की, प्रस्तुत विद्यापीठातील सर्व विद्या शाखेंतर्गत अनिवार्य राबविण्यात येणारा Six Months Core Course in Environmental Studies सोबत जोडल्याप्रमाणे सुधारित अभ्यासक्रमास शैक्षणिक वर्ष २०१८-१९ पासून लागू करण्यासाठी मा. कुलगुरू यांनी विद्यापरीषदेच्या बतिने मान्यता प्रदान केली आहे.

तरी उपरोक्त प्रमाणे ही बाब सर्व संबंधितांच्या निदर्शनास आणून द्यावी.

“ज्ञानतीर्थ” परिसर )(  
विष्णुपूरी, नांदेड. )(  
जा.क्र.शै.०१/अनिवार्य पर्यावरण शास्त्र/ )(  
२०१८-१९/९५४ )(  
दिनांक : १४/०८/२०१८ )(  
स्वा/-  
उपकुलसचिव  
शैक्षणिक (अभ्यासगंडळे) विभाग,

प्रत माहिती व पुढील कार्यवाहीस्तव :

- १) प्राचार्य, सर्व संबंधित महाविद्यालये, प्रस्तुत विद्यापीठ.
- २) संचालक, परीक्षा व मुल्यमापन मंडळ, प्रस्तुत विद्यापीठ.
- ३) कुलसचिव, (निवडणूक व सभा कक्ष) यांचे कार्यालय, प्रस्तुत विद्यापीठ.
- ४) उपकुलसचिव, पदव्युत्तर विभाग, प्रस्तुत विद्यापीठ.
- ५) उपकुलसचिव, पात्रता विभाग, प्रस्तुत विद्यापीठ.
- ६) सिस्टीम एक्सपर्ट, प्रस्तुत विद्यापीठ. (सदरील परिपत्रक व अभ्यासक्रम विद्यापीठाच्या संकेतस्थळावर प्रसारित करावे.)





# **Swami Ramanand Teerth Marathwada University, Nanded.**

## *Revised Curriculum of Six monthly Core module Course in Environmental Studies*

(For Final Year of First Degree Course of All Faculties)



**W.e.f. : June, 2018.**



## INTRODUCTION

The importance of Environmental Science and Environmental Studies can not be disputed. The need for sustainable development is a key to the future of mankind. Continuing problems of pollution, loss of forests, solid waste disposal, degradation of environment, issues like economic productivity and national security, global warming, the depletion of ozone layer and loss of biodiversity have made every one aware of environmental issues. The United Nations Conference of Environment and development held in *Rio De Janeiro* in 1992 and world summit on Sustainable Development at Johannesburg in 2002 have drawn the attention of people around the globe to the deteriorating condition of our Environment. It is clear that no citizen of the Earth can afford to be ignorant of environmental issues. Environmental Management has captured the attention of Health Care Managers. Managing environmental hazards has become important.

Human beings have been interested in ecology since the beginning of civilization. Even our ancient scriptures have emphasized about practices and values of environmental conservation. It is now critical that mankind as a whole should have a clear understanding of environmental concerns and to follow sustainable development practice.

India is rich in biodiversity, which provides various resources for people. It is also basis for biotechnology.

Only about 1.7 million living organisms have been described and named globally. Still many more remain to be identified and described. Attempts are made to conserve them in their natural and in-situ situations, intellectual property rights have become important in a biodiversity rich country like India to protect microbes, plants and animals that have useful genetic properties. Destruction of habitats, over use of conventional energy resources and environmental pollution have been found to be responsible for destruction of large number of life forms. It is feared that a large proportion of life on earth may get wiped out in the near future.

In spite of the deteriorating status of the environment, study of environment has so far not received adequate attention in our academic Programmes. Recognizing this, the Honorable Supreme Court directed the UGC to introduce a basic course on environment at every level in college education. Accordingly, the matter was considered by UGC and it was decided that a compulsory core module course in environmental studies should be prepared and compulsorily implemented in all the University / Colleges of India.

The expert committee appointed by the UGC has looked in to all the pertinent questions, issues and other relevant matters. This was followed by framing of the core module syllabus for environmental studies for under graduate courses of all branches of Higher Education. We are deeply conscious that there are bound to be gaps between the ideal and real. Genuine endeavor is required to minimize the gaps by intellectual and material inputs. The success of this course will depend on the initiative and drive of the teachers and the respective students.





**COMPULSORY SIX MONTHLY CORE MODULE COURSE IN  
ENVIRONMENTAL STUDIES**  
( For Under graduates )

*Course Structure*

Title of the Paper	No. of Theory Periods	No. of Periods for field work	Total Periods	Maximum Marks For Theory Paper	Maximum Marks For Field Work	Total Marks
Environmental Studies	35	10	45	40	10	50

*Teaching Methodologies*

The six monthly core module courses of Environmental Studies include class room teaching and field work. The syllabus is divided in to five units covering 45 lectures. The first four units will cover 35 lectures, which are classroom based to enhance knowledge skills and attitude towards environment. Unit five is based on field activities, which will be covered in ten lectures and would provide students first hand knowledge on various local environmental aspects. Field experience is one of the most effective learning tools for environmental concerns. This takes the students out of the text book mode of real learning in the field. Where the teacher merely acts as a catalyst to interpret what the student observes or discovers in his / her own environment. Field studies are as essential as class work and from an irreplaceable synergistic tool in the entire learning process.

The six monthly core module course in environmental studies shall be integrated in to the teaching Programme of all under graduate courses. The course should be run in the first term of all the final year under graduate courses.

*Examinations*

The examination of the environmental studies will be conducted along with the Winter examination. The 40 marks annual examination will be conducted by Swami Ramanand Teerth Marathwada University.

The Report of field work should be submitted to Teacher or Course Coordinator of respective college before 15 days of commencement of winter Examination. The report of field work must be assessed by the teacher at college and the internal marks list of Ten marks should be submitted through the Principal of the respective college to the Controller of Examinations, Swami Ramanand Teerth Marathwada University, Nanded before commencement of winter Examination.



**Six Monthly Core Module Course in**  
***Environmental Studies***  
(For Undergraduate Courses of all Branches of Higher Education)

**Unit I : Introduction & Natural Resources :**

Environment : Definition, Scope, Importance, Need for public awareness.

**Natural Resources** : Renewable and Non Renewable resources, Natural resources and associated problems.

**a) Forest Resources** : Utility and natural renewal balance, Uses and over exploitation of forest resources, Deforestation case studies, Mining, Dams and their effects on forests.

**b) Water Resources** : Uses of water, Over utilization of surface and ground water, Floods, Draughts, Dams : Benefits and problems.

**c) Mineral Resources** : Environmental effects of extracting and using mineral resources.

**D) Agricultural Resources** : Changes caused by agriculture and overgrazing, Effects of modern agriculture, Fertilizer and pesticide problems, Water logging, Salinity.

**E) Land Resources** : Land as a resource, Effects on productivity, Man induced landslides, Soil erosion, Desertification

**F) Energy Resources** : Needs, Types of energy and quantities available, Growing energy needs, renewable and non renewable energy resources, Use of alternate energy sources.

**Unit II : Ecosystems :**

Concepts of an ecosystems, Structure and function of an ecosystem, Producers, Consumers, and Decomposers, Energy flow in an ecosystem, Ecological succession, Food chain, Food webs, Ecological pyramids,

Introduction, Types, Characteristic features & Structure of following ecosystems (01) Forest ecosystem, (02) Grassland ecosystem, (03) Desert ecosystem (04) Aquatic ecosystem ( Ponds, Streams, Lakes, Rivers, Oceans, Estuaries ).

**Unit III : Biodiversity and its conservation :**

Introduction, Definition, Biogeographical classification of India, Value of Biodiversity : Productive use, Social, Ethical, Aesthetic, and option values, India as a mega diversity nation, Endangered and endemic species of India, Conservation of biodiversity.

**Unit IV : Environmental pollution and its mitigation :**

Definition of Pollution; Causes, effects and control measures of (A) Air pollution, (B) Water pollution, (C) Soil pollution, (D) Noise pollution

Solid waste management : causes, effects and control measures of urban and industrial wastes, nuclear hazards, Environmental hazards and their mitigation, Role of an individual in pollution and abatement.

**Unit V : Field Work :**

01. Visit to local area to document environmental assets – River, Forest, Grass land, Hill, Mountain etc.
02. Visit to local polluted site : Urban, Industrial, Agricultural
03. Study of common plants, Insects, birds etc,
04. Study of simple ecosystems : Pond, River, Hill, Slopes etc.





## सहामाही अभ्यासक्रम पर्यावरण अभ्यास

( सर्व पदवी अभ्यासक्रमास शेवटच्या वर्षी अनीवार्य )

### प्रकरण पहिले : प्रस्तावना व नैसर्गीक साधन संपत्ती :

- पर्यावरण : व्याख्या, कृतीकक्षा, महत्त्व, जनजागृती  
नैसर्गीक साधन संपत्ती : क्षयक्षम व अक्षयक्षम नैसर्गीक साधन संपत्ती, नैसर्गीक साधन संपत्तीशी निगडित समस्या.
०१. वनसंपदा : वनसंपदेचे उपयोग, नैसर्गीक पुनःनिर्माण, समतोल, शोषण, लाकूडतोड, खाणकाम व धरणांचा जंगलांवर होणारा परिणाम.
०२. जलसंपदा : जलसंपदेचे उपयोग, भ्रुपृष्ठावरील व भ्रुगर्भजलाचा अग्राद तापर, पूर, अवर्षण, धरणाचे फायदे, तोटे व समस्या
०३. खनिज संपदा : खनिज उत्पादनाचा पर्यावरणावर होणारा परिणाम
०४. अन्न संपदा : शेतीमुळे व अतिचराईमुळे होणारे बदल व आधुनिक शेतीमुळे होणारे दुष्परिणाम, स्वते, रासायनीक स्वतांचा तापर जंतुनाशके व किटकनाशकांचा तापर, पाणथळ, क्षारजल परिणाम.
०५. उर्जा साधने : उर्जा साधनांची गरज, उर्जा साधनांचे प्रकार, उपलब्ध उर्जा, वाढत्या उर्जेची मागणी, क्षयक्षम उर्जा साधने, अक्षयक्षम उर्जा साधने, पर्यायी उर्जा स्रोत.
०६. भुमी संपदा : जमीन एक संपदा, मानवी हस्तक्षेपामुळे होणारे भुस्खलन, जमिनीची धूप, वाळवंटीकरण, जमिनीचे अधःपतन, उत्पादनावरील परीणाम.

### प्रकरण दुसरे : परिसंस्था :

परिसंस्था : संकल्पना, रचना व कार्य; जैविक घटक: उत्पादक, भक्षक, व विघटक; परिसंस्थेतील उर्जाप्रवाह; परिस्थितीक अनुक्रम; अन्न साखळी; अन्न जाळे; परिस्थितीक मनोर; खालील परिसंस्थाची ओळख, प्रकार, वैशिष्ट्ये व संरचना : जंगल परिसंस्था, गवताळ परिसंस्था, वाळवंटी परिसंस्था, जल परिसंस्था, नदी परिसंस्था, तळी व सरोवरातील परिसंस्था, खाडी परिसंस्था, सागर परिसंस्था.

### प्रकरण तिसरे : जैवविविधता व संवर्धन :

भारतातील सजिवांचे भौगोलीक परिस्थितीनुसार वर्गीकरण; जैवविविधतेचे महत्त्व; क्षयक्षम, जैवविविधतेचे उपयोग, सामाजिक महत्त्व नैतिक महत्त्व, सौंदर्यात्मक महत्त्व, पर्यायी तत्व, भारत एक जैवइंधन, भारत जैवविविधतेने नटलेला देश, भारतातील संकटग्रस्त प्राणी व वनस्पती, जैवविविधतेचे संवर्धन.

### प्रकरण चवथे: पर्यावरणीय प्रदूषण व त्याचे नियंत्रण :

०१ वायु प्रदूषण : कारणे, परिणाम व नियंत्रण; ०२ जल व सागरी प्रदूषण : कारणे, परिणाम व नियंत्रण; ०३ जमिनीचे प्रदूषण : कारणे, परिणाम व नियंत्रण; ०४ ध्वनि प्रदूषण : कारणे, परिणाम व नियंत्रण; घन कचरा व्यवस्थापन : शहरी व औद्योगिक टाकाऊ पदार्थांचे परिणाम व नियंत्रण, आण्टीक संकटे, प्रदूषण व त्याच्या नियंत्रणात मानवाचा वैयक्तिक वाटा, पर्यावरणावरील आपत्ती व त्याचे निराकरण.

## प्रकरण पाचवे : क्षेत्र कार्य :

स्थानिक पर्यावरणीय स्थानास भेट : उदा. नद्या, जंगले, गवताळ प्रदेश, टेकड्या, पर्वत, डोंगरे, इत्यादी.

स्थानिक प्रदूषित भगास भेट : उदा. औद्योगिक, शेतकी, शहरी भाग इत्यादी. सर्वसामान्य वनस्पती, किटके व पक्षांचा अभ्यास.

सामान्य परिसंस्थेचा अभ्यास : उदा. डबके, तळे, नद्या, टेकड्या, डोंगरे इत्यादी.

## Reference Books

01.	Introduction to Environment	-	M. N. Sastri, Himalaya Publishing House, New Delhi.
02.	Environmental Studies	-	H. Kaur, Pragati Prakashan, Meerut
03.	Environmental Studies	-	Erach Bharucha, University press Pvt. Ltd., Hyderabad
04.	Environmental Studies	-	S. V. S. Rana, Rastogi Publication, Meerut
05.	Environmental Studies	-	C. P. Kaushik, New age international Ltd. New Delhi
06.	Environmental Studies	-	Arumugam, Saras Publication Kanyakumari

## संदर्भ ग्रंथ

०१.	पर्यावरण विज्ञान	- प्रा. बा. र. अहिरराव	- निशली प्रकाशन, पुणे
०२.	पर्यावरणशास्त्र परिवर्तन	- डॉ. जयकुमार मगर	- विद्या प्रकाशन, नागपूर
०३.	नैसर्गिक आपत्ती आणि व्यवस्थापन	- डॉ. आर. जी. पाटील	- ओम साई एन्टर्प्राईझेस, पुणे
०४.	पर्यावरणशास्त्र	- एस्क भरुवा, ओरीयंट लॉन्गमन प्रायव्हेट लिमिटेड, हैद्राबाद.	
०५.	पर्यावरण व आर्थिक क्रिया	- डॉ. शंकर चौधरी,	हिमालया पब्लिशिंग हाऊस, दिल्ली.





*Swami Ramanand Teerth Marathwada University, Nanded*  
**COMPULSORY SIX MONTHLY CORE MODULE COURSE IN  
ENVIRONMENTAL STUDIES**  
( For Under graduate courses of all branches )

**Question Paper Pattern**  
**प्रश्न पत्रीकेचे स्वरुप**

**Time : 2.30 hours**

**वेळ : अडीच तास**

**Maximum marks : 40**

**एकूण गुण : ४०**

Q. 01 :	Long Question (दिर्घोत्तरी प्रश्न ) OR किंवा a) Short Question ( लघुत्तरी प्रश्न ) b) Short Question ( लघुत्तरी प्रश्न )	10 marks (दहा गुण)  05 marks (पाच गुण) 05 marks (पाच गुण)
Q. 02 :	Long Question ( दिर्घोत्तरी प्रश्न ) OR ( किंवा ) Short Question ( लघुत्तरी प्रश्न ) Short Question ( लघुत्तरी प्रश्न )	10 marks (दहा गुण)  05 marks (पाच गुण) 05 marks (पाच गुण)
Q. 03 :	Long Question ( दिर्घोत्तरी प्रश्न ) OR ( किंवा ) Long Question ( दिर्घोत्तरी प्रश्न )	10 marks (दहा गुण)  10 marks (दहा गुण)
Q. 04 :	Attempt any Two from provided four questions खात्रील चार पैकी दोन वर टिपा लिहा	10 marks (दहा गुण)