



**Govt. College for Women,  
Parade Ground, Jammu  
Autonomous College under University of  
Jammu**



**Syllabus of department of Environmental Sciences for  
B.A./B.Sc /B.Com./BBA/BCA (CBCS)**

**(Effective from academic year 2020,2021,2022,2023)**

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### **Preamble**

The endeavour of any university programme is to prepare its students to be upright and productive citizens. Accordingly, GCW Parade Ground Jammu is moulding its undergraduate programmes to a Learning Outcome-based Curriculum Framework (LOCF).

The LOCF approach is envisioned to provide a focussed, outcome-based syllabus at the



undergraduate level with an agenda to structure the teaching-learning experiences in a more student-centric manner. The LOCF approach has been adopted to strengthen students' experiences as they engage themselves in the programme of their choice. The undergraduate Programmes will prepare the students for both, academia and employability.

Each programme vividly elaborates its nature and promises the outcomes that are to be accomplished by studying the courses. The programmes also state the attributes that it aims to inculcate at the point of graduation. These attributes encompass values related to wellbeing, emotional stability, critical thinking, social justice and skills for employability. In short, each programme prepares students for sustainability and lifelong learning.

The new curriculum in Environmental Sciences offers a rigorous basis for much of the advanced thinking in the Environmental Sciences discipline. The programme is consistent with national standards in the Environmental Sciences discipline. It offers training that is comparable to that of an undergraduate student at the national level.

G C W Parade, Jammu hopes that the LOCF approach in programme of Environmental Sciences will help students in making an informed decision regarding the goals that they wish to pursue in further education and life for a sustainable world.

## **1. Course Structure**

### **1.1 Alignment with CBCS**

The Environmental Sciences programme is aligned with Choice Based Credit System (CBCS) adopted by G C W Parade, Jammu..

### **1.2 Types of Courses**

The following types of courses are offered under CBCS:

1

**Ability Enhancement Compulsory Course(AECC) :** Every student has to study compulsory module course in Environmental Sciences in Sem I and II **Skill**

**Enhancement Course (SEC).** A student is to take one such course in Semester III,IV,V,VI,

### **1.3 Number of Courses and Credits**

Ability Enhancement Compulsory course,Module Course: 2 (2 credits each)

Skill Enhancement Courses (SEC): 4 (4 credits each)

### **Learning Outcome-based Approach**

The course will empower the undergraduate students by:

i.Gaining an in-depth knowledge on natural processes that sustain life and govern economy

ii.Predicting the consequences of human actions on the web of life and quality of



human life

iii. Developing critical thinking for shaping strategies (scientific, social, economic and legal) for environmental protection and conservation of biodiversity, social equity and sustainable development

iv. Acquiring values and attitudes towards understanding complex environmental economic-social challenges and participating actively in solving current environmental problems and preventing the future ones

v. Adopting sustainability as a practice in life, society and industry.

The curriculum allows students to choose elective courses from a set of courses with contemporary relevance,

Upon completion of this programme, a student will have the necessary skills to understand and analyse in a logical manner all major environmental phenomenon.

#### Qualification Description

Graduates will evolve into ecologically informed and socially responsible citizens who are empowered to protect to protect the natural resources while ensuring sustainable lifestyle and developmental model

#### Teaching Learning Process

Teaching and learning in this programme involves classroom lectures, tutorials, field visit and ICT lectures.

#### COURSE OFFERED (ENVIRONMENTAL SCIENCES).

SEMESTER	CORE COURSE	AECC	SKILL
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I	X	Environmental Sciences-I	X
II	X	Environmental Sciences-II	X

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III	X	X	Solid Waste Management
IV	X	X	Environmental Impact Assessment
V	X	X	Green Technology
VI	X	X	Pollution Abatement Technologies

**SCHEME FOR INTERNAL ASSESSMENT AND EXTERNAL EXAMINATION(AECC) SemI and II**

<b>Examination(Theory)</b>	<b>Syllabus to be covered in the examination</b>	<b>Time</b>	<b>(Marks)</b>
Internal Assessment Test	Up to 50% (after days)	1hour	20 % (10marks)
External End Semester University Examination	Up to 100 % (after days)	3hour	80% (40marks)
Total			50

**Scheme for Internal assessment Test** Internal assessment test of 10 marks to be based on questions from syllabus / field visit.

**Scheme for End Semester Examination** External assessment of 40 marks will consist of two sections A and B. Section A will consist of six short answer type questions of two marks each. There will be two questions from each unit and candidate has to answer any five questions out of six. Section B consists of three long answer type question of 10 marks each, one from each unit with internal choice.

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**SCHEME FOR INTERNAL ASSESSMENT AND EXTERNAL EXAMINATION(SEC) Sem III , IV, V,VI**

<b>Examination(Theory)</b>	<b>Syllabus to be covered in the examination</b>	<b>Time</b>	<b>(Marks)</b>
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			3
Internal Assessment Test	Up to 50% (after days)	1hour	20 % (10marks)
External End Semester University Examination	Up to 100 % ( after days)	3hour	80% (80marks)
Total			100

**Scheme for Internal assessment Test:** Assessment test of 20 marks based on the syllabus.

**Scheme for End Semester Examination:** Paper will consist of THREE Sections 'A' , 'B' , 'C'.

Section 'A' will consist of 5 short answer questions of 3 marks each, representing all units i.e. at least ONE from each unit. All questions would be compulsory. Candidate has to restrict the answers in 70 to 80 words.

Section 'B' will consist of 5 short answer questions of 7 marks each, representing all units i.e. at least ONE from each unit. All questions would be compulsory. Candidate has to restrict the answers in 250 to 300 words.

Section 'C' will consist of 4 long answer type questions of 15 marks each out of which candidate has to attempt any TWO. Candidate has to restrict the answer in 500 to 600 words.

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**Syllabus of department of Environmental Sciences for B.A./B.Sc  
/B.Com./BBA/BCA (CBCS)**

**Revised Syllabus**

**Semester Ist**

**Title : Environmental Studies**

**COURSE NO. -UESTS-101. CREDITS-2 MAX. MARKS -50. TIME-2HRS**

**External Examination : 40**

**Internal Assessment : 10**

**Course Objective**

The aim of this course is to give an in-depth knowledge about various earth processes ,various types of pollution and legal aspect of various environmental issues **Course**

**Learning Outcomes**

At the end of the course a student will be able to understand

- i.About earth processes,environment and ecology**
- ii.Environmental pollution and its control and management**
- iii.various environmental laws,treaties and ethics**

**Unit 1 Introduction to Earth ,Environment and Ecology**

**1.1 Environment: Concept and Components (Atmosphere,Lithosphere and Hydrosphere)**

**1.2 Environmental Studies:Scope and Multidisciplinary Nature 1.3 Ecosystem: Structure ,function and types(Brief concept of Terrestrial and Aquatic ecosystem)**

**1.4 Food chain, Food web and Ecological pyramids**

**1.5 Ecological succession : Definition, types,process, Hydrosere,Xerosere**

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## **Unit 2: Environmental pollution**

**2.1 Definition ,causes, effects and control measures of air,water and noise pollution**

**2.2 Global warming and ozone layer depletion**

**2.3 Acid rain : Causes ,effects and control measures**

**2.4 Earth processes (With special emphasis on weathering)and their role in environmental pollution**

**2.5 Solid waste and electronic waste management**

## **Unit 3: Environmental Treaties, Laws and Ethics**

**3.1 Environmental treaties: Montreal protocol ,Kyoto Protocol and Convention on Biodiversity**

**3.2 Environmental laws of India**

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**a.Water(Prevention and control of pollution) act,1974**

**b.Air (Prevention and control of pollution) act,1981**

**c.Environment Protection, act1986**

**3.3 National Green Tribunal**

**3.4 Environmental ethics**

**3.5 Concept of Sustainability and sustainable development**

### **Field / practical work:**

**All the students are required to undertake the following practical**

**work 1. Record the types of pollution of any visited area/your area**

**2.To identify the sources of air pollution in your area/any visited area 3.To**

**identify the sources of water pollution in your area/any visited area 4.To**

**identify the sources of noise pollution in your area/any visited area 5.To**

**identify the sources of solid waste pollution in your area/any visited area**

**6.To assess the solid waste generation per day in your house**

**7.To assess the solid waste generated per day per person in your house**

### **Note for paper setting:**

**Scheme for Internal assessment Test:** Internal assessment test of a10 marks to be based on questions from syllabus / field visit.

**Scheme for End Semester Examination:** External assessment of 40 marks will consist of two sections A and B.Section A will consist of six short answer type questions of two marks each.There will be two questions from each unit and candidate has to answer any five questions out of six. Section B consists of three long answer type question of 10 marks each, one from each unit with internal choice.

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### **Teaching Learning Process**

Lectures , tutorials , Field visit, ICT enabled lectures

### **Assessment Methods**

Internal assessment and final examination as per CBCS rules

### **Semester 2nd**

**Title :Environmental Studies**

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**COURSE NO. -UESTS-201. CREDITS-2 MAX. MARKS -50. TIME-2HRS External Examination : 40**

**Internal Assessment : 10**

### **Course Objective**

The aim of this course is to give the students first hand knowledge about biodiversity and its conservation, various natural resources and their management, disaster management and certain aspects of human health and environment **Course Learning**

### **Outcomes**

At the end of the course a student will be able to understand

- i. Biodiversity, its crucial role in human welfare and its conservation**
- ii. Various natural resources and their management**
- iii. Various kinds of disasters , human disease and human health**

### **Unit 1: Biodiversity and its conservation**

**1.1 Biodiversity: Definition, levels of biodiversity( Genetic ,species and ecosystem), values of biodiversity**

**1.2 India as a mega diversity Nation, Biogeographic zones of India. 1.3 IUCN classification of threatened species, Hotspots of biodiversity. 1.4 Threats to Biodiversity: Habitat loss, poaching of wildlife, Man-Wildlife conflict**

**1.5 Conservation of biodiversity :in-situ and ex-situ conservation**



## **Unit 2 :Natural resources and their conservation**

**2.1 Forest resources:Causes and Consequences of deforestation ,Conservation of forests.**

**2.2 Water Resources:Uses and consequences of overutilization of water ,concept of rainwater harvesting**

**2.3 Energy resources:Renewable and non-renewable energy resources, Growing energy needs and Alternate energy sources**

**2.4 Land resources :soil erosion desertification, impacts of modern agriculture on environment**

**2.5 Case studies: National solar mission, water conflicts**

## **Unit 3: Disaster management,Human communities, Environmental health and activism**

**3.1 Introduction to natural disasters,disaster management and disaster management cycle**

**3.2 Common Diseases:Air borne diseases( Tuberculosis, influenza), food-borne diseases(Cholera, Hepatitis) Vector borne diseases (malaria, Dengue), Viral diseases(N Covid 19)**

**3.3 Drug addiction: causes ,symptoms ,prevention and rehabilitation 3.4 Role of Information Technology in environment and human health. 3.5 Environmental movements: Chipko Movement,Narmada Bachao Andolan, Silent Valley Movement ,Swacch Bharat Mission**

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### **Field / practical work:**

**All the students are required to undertake the following practical work**

- 1. Record the biodiversity of any visited area/your area**
- 2. To identify the natural resources of your area/any visited area**
- 3. To identify the sources of energy used in your area/any visited area**
- 4. Visit to Health Center for recording of common water ,air,food-borne diseases of your area**

### **Note for paper setting:**

**Scheme for Internal assessment Test:.** Internal assessment test of 10 marks to be based on questions from syllabus / field visit.

**Scheme for End Semester Examination:**External assessment will consist of two sections A and B.Section A will consist of six short answer type questions of two marks each. There will be two questions from each unit and candidate has to answer any five questions out of six. Section B consists of three long answer type question of 10 marks each,one from each unit with internal choice.

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Skill Enhancement Courses in Environmental sciences

Semester III

Title: Solid Waste Management

Course number: UESTS 301

Credits: 2

Time of Examination: 2 hours.

Maximum marks:40

Sessional Assessment:10

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### **COURSE OBJECTIVES:**

The objective of this course is to acquaint the students with the growing menace of solid waste. This course will help students to understand about varied sources of solid waste generation, their effect on life and ecosystem. Students will have an understanding about various methods of solid waste disposal and conversion of solid waste into useful entities.

### **COURSE LEARNING OUTCOMES:**

Upon successful completion of this course, the students will be able to

- . Understand how excessive waste generation has become a major environmental menace
- . Understand the various sources of solid waste generation
- . Understand the impact of improper solid waste management on life and ecosystem
- . Methods of solid waste management

### Unit 1 Basic Concepts and Management Practices

- 1.1 Solid waste: Definition and concept
- 1.2 Sources and classification of Solid Waste
- 1.3 Factors affecting the generation of Solid Waste
- 1.4 Municipal Solid Waste (Management and handling) Rules, 2016
- 1.5 Impact of solid waste on Environment, human and plant health
- 1.6 Management MSW-biodegradable waste
  - a) Composting

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- b) Vermicomposting
- c) Farmyard Manure
- d) Biogas Production

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1.7 Management of MSW-non biodegradable waste

- a) Sanitary Landfills
- b) Incineration
- c) Pyrolysis
- d) Gasification

Unit 2 : Solid waste collection and processing techniques

- 2.1 Handling and segregation of solid waste at source and methods of separation
- 2.2 Solid waste reduction technique-Reuse and recycle
- 2.3 Collection of solid waste
- 2.4 Transfer and transportation of solid waste
- 2.5 Solid waste processing methods(storage,conveying,compacting,shredding,pulping,granulating etc.
- 2.6 Management of e-waste

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## 2.7 Site selection and siting criteria for sanitary landfills

### **Literature Recommended:**

1. Anonymous (2014). Waste to resources- A waste management Handbook. The Energy and Resources Institute (TERI) New Delhi. [www.teriin.org](http://www.teriin.org).

2. Bhatia S.C.(2007), Solid and hazardous waste management ,Atlantic Publishers and Distributions(P). New Delhi

3. Khan, I. H. and Ahsan, N.(2011) Textbook of Solid Waste Mangement.CBS Publishers, New Delhi

4. Mishra, S.G. and Mani D.(1993). Pollution through solid waste. Ashok Publishing House, New Delhi.

5. Tchobanoglous, G.and Kreith, F.(2002).Handbook of Solid Waste Management: Mc Graw Hill Handbooks, Newyork

6. Zhu,D; Asnani, P.U.; Zurbrigg,C; Anapolsky,S and Mani,S.(2008).Improving solid waste management in India.The world Bank Washington D.C.[www.worldbank.org](http://www.worldbank.org). Note: II.

### **Note for Theory Paper setter**

#### **A. External Assessment**

Theory Question paper will consist of THREE sections 'A', 'B' and 'C'. Section 'A' will consist of 4 short answer type questions of 2 marks each, two questions from each unit. All the questions would be compulsory. Candidate has to restrict the answers in 70 to 80 words. Section 'B' will

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consist of 4 medium answer type questions of 5 marks each, two question from each unit of prescribed course content. All the questions would be compulsory. Candidate has to restrict the answers in 250 to 300 words. Section 'C' will consist of 2 or 3 long answer type questions of 12 marks each out of which candidates have to attempt only ONE . Candidate has to restrict the answers in 500 to 600 words.

**b. Internal assessment test** in theory course of SOLID WASTE MANAGEMENT would be of 10 marks, based on questions from syllabus.

SEMESTER-III  
IN ENVIRONMENTAL SCIENCES

LAB COURSE FOR SKILL ENHANCEMENT

Internal Evaluation

Course No: UESPS 302

Title: Laboratory Course

Credit:2

Duration of Examination: 3.0 hrs

Marks: 50

### List of practicals

1. Qualitative and Quantitative estimation of solid waste from Household/commercial /Institutional areas.
2. Cost estimation of recyclable waste generated from households /commercial /Institutional areas.

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3. Estimate energy content of household solid waste.
4. Making recycled paper/paper items from used newspapers/paper.
5. Preparation and collection of items from recycled/reused material.
6. Laboratory demonstration of Vermi –composting
7. Laboratory demonstration of Aerobic Composting
8. Field visits to waste dumping/disposal site
9. Field visits to Solid Liquid Resource Management(SLRM)
10. Field visit to various Industries
11. Field visit to paper recycling unit or any other recycling unit
12. Field visit to plastic recycling unit or any other recycling unit.
13. Construction and working of Incinerators/biogas plants
  
14. Site selection and siting criteria for sanitary landfills in your area

#### **NOTE FOR PRACTICAL COURSE**

Practicals are meant to give field experience /hands on training to manage solid waste efficiently. Daily assessment and attendance record of students would be maintained and students would be evaluated internally out of 50 marks at the end of semester according to following scheme:

- a. Attendance-5 marks  
(Below 75%-zero,75-80%-4 marks,80-85% -6marks,85-90%-8marks and above 90%-10 marks)
- b. Day to day performance-25 marks
- c. End semester practical test-10 marks

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d. Viva-voce-10 marks

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**Semester IV**

**Title: ENVIRONMENTAL IMPACT ASSESSMENT**

**Course number: UESTS 401**

**Credits: 2**

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**Time of examination: 2hours**

**Max. Marks-40**

**Sessional Assessment-10**

**Course Objective:** The objective of this course is to provide a working knowledge of current environmental impacts related to development activities, methods relating to EIA, and consider in detail how these impacts can be quantified and analysed.

**Course Learning Outcomes:** Upon successful completion of this course, the students will be able to:

- Comprehensively understand of the origin and development of EIA and the developments in India
- Predict the kind of changes that might occur with human activities.
- Understand process and methods of environmental impact assessment
- critique environmental impact statements effectively
- apply knowledge to new situations.

Unit 1 EIA: General introduction

1.1 EIA: Concept and historical background

1.2 General Process of EIA

1.3 Environmental Impacts to be considered in EIA process and their types

1.4 Prediction and assessment of various environmental impacts

1.5 EIA notification-2006,2010

1.6 Environmental Impact Statement

1.7 People's participation in EIA

Unit 2 EIA Methodologies: Types, Advantages and Disadvantages

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- 2.1 Adhoc and Checklist method
- 2.2 Matrix method
- 2.3 Cost benefit analysis
- 2.4 Network and Modelling methods
- 2.5 Overlays method
- 2.6 Environmental Audit
- 2.7 Reviewing of EIA/EIS

**Literature Recommended:**

1. Anjaneyulu, Y.(2002),Environmental Impact Assessment Methodologies.BSP BS Publications, Hyderabad.
2. Shukla S.K and Shrivastav P.R (1992).Concepts in Environmental Impact analysis. Commonwealth Publishers, New Delhi
3. Shukla S.K and Shrivastav P.R.(1992). Methodology of Environmental Monitoring and Assessment. Commonwealth Publishers, New Delhi.
4. Srivastav A.K (2011).Environmental Impact Assessment. A.P.H. Publishing Corporation New Delhi.
5. Trivedi P.R (2009), Environmental Impact Assessment. A.P.H. Publishing Corporation, New Delhi.
6. Vankhede G .(2012),Environmental Impact Assessment. Biotech Books New Delhi.
7. [www.envfor.nic.in/divisions/iass/eia/Cover.htm](http://www.envfor.nic.in/divisions/iass/eia/Cover.htm)

**Note for Theory Paper setter**

**A. External Examination**

Theory Question paper will consist of THREE sections 'A', 'B' and 'C'. Section 'A' will consist of 4 short answer type questions of 2 marks each, two questions from each unit. All the questions would be compulsory. Candidate has to restrict the answers in 70 to 80 words. Section 'B' will

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consist of 4 medium answer type questions of 5 marks each, two question from each unit of prescribed course content. All the questions would be compulsory. Candidate has to restrict the answers in 250 to 300 words. Section 'C' will consist of 2 or 3 long answer type questions of 12 marks each out of which candidates have to attempt only ONE . Candidate has to restrict the answers in 500 to 600 words.

### **B .Internal Assessment**

Internal assessment test in theory course of EIA would be of 10 marks, based on questions from syllabus.

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#### SEMESTER-IV

#### LAB COURSE FOR SKILL ENHANCEMENT IN ENVIRONMENTAL SCIENCES

#### (Internal Evaluation)

**Title: Laboratory Course**

**Course No: UESPS 402**

**Duration of Examination : 3.0 hrs**

**Credit:2**

**Marks: 50**

#### List of practicals

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1. Documentation of any environmentally sensitive /important area of your locality
2. Rapid Environmental Assessment checklists (REA) of proposed project
3. To study baseline data collection for EIA.
4. Preparation of EIA flowchart for any project that can be undertaken in respective areas
5. To study the impacts of any two developmental projects (Mining/industries/Transport sector/Hydroelectric project) by:
  - a. Checklist method
  - b. Adhoc method
  - c. Matrix method
6. Preparation of an alternate plan for the same
7. Study of a major hydroelectric project in Jammu and Kashmir
8. To study the EMP of any two developmental projects. (Mining/industries/Transport sector/Hydroelectric project)
9. Rehabilitation plan of small project
10. Mitigation measures of any area specific project

### Note for Practical Course

Practicals would be conducted to give field experience/trainings to the students for conducting EIA. Daily assessment record and attendance of the students would be maintained and each student would be evaluated (INTERNALLY) out of 50 marks at the end of the semester as per the following weightage

- a. Attendance – 5 marks

(Below 75% -Zero, 75-80%-4 marks, 80-85%- 6 marks, 85- 90% -8 marks and above 90% -10 marks).

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- b. Day to day performance- 25 marks
- c. End semester practical test-10 marks
- d. Viva-voce-10 marks

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## Semester V

Title: Green Technology

Course number: UESTS 501 Credits: 4 Time of examination: 3 hours

Marks:

Semester Examination: 80 marks

Sessional Assessment: 20 marks

### Unit 1

1.1 Definition and concept: Green Technology, Green energy, Green infrastructure, Green economy, Green chemistry

1.2 Sustainable Consumption of

Resources 1.3 3R approach

1.4 Energy Conservation

### Unit 2

2.1 Green infrastructure: Green buildings, Need and Relevance of green buildings over conventional

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buildings

2.2 Green planning, Landuse planning

2.3 Concepts of green cities, Waste Reduction, Green Belts, CNG fuelled public transport

2.4 Eco-Mark Certification: It's Importance and Implementation

Unit 3

3.1 Green Chemistry: Introduction, Principles and Recognition of green criteria

3.2 Green Products: Biodegradable products and Bioaccumulative products 3.3 ISO 14000

3.4 Green Nanotechnology

Unit 4

Applications of Green Technology

4.1 Greenhouse Gas Emission reduction

4.2 Carbon Capture and Storage technologies

4.3 Pollution reduction and removal: Flue Gas Desulphurisation, Catalytic Converters

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4.4 Successful Green Technologies: Wind Turbines, Solar Panels etc.

Unit 5 Sustainable Future

5.1 Reduction of Ecological Footprints

5.2 Major challenges and their resolution in implementation of Green Technology

5.3 Green Practices to conserve Natural Resources: Organic Agriculture Agroforestry etc.

5.4 UNEP's Green Economy Initiative

Field Visit/ Practical:

Prepare a report on the Ecofriendly products being used in your area.

Visit to industrial units to observe the use of Green Technology.

To prepare a model of an ideal green building. To prepare a working model of Solar Panel or Windmill.

Semester VI

Title: Pollution Abatement Techniques



Course number: UESTS 601 Credits: 4 Time of examination: 3 hours

Marks:

Semester Examination: 80 marks

Sessional Assessment: 20 marks

## Unit 1

1.1 Atmosphere: Structure and Composition 1.2 Air

Pollution: Introduction, Sources and Effects 1.3 Air

Pollution Control Technology: Raw material

changes, Process/Operation changes, Equipment modification, Condensation, Adsorption, Absorption gravity settling, Filtration, Wet scrubbing

1.4 Control of emissions from Automobiles:

Redesigned Engines, Catalytic Converter

## Unit 2

2.1 Water Pollution: Introduction, Definition, Causes of Water Pollution

2.2 Effects of Water Pollution: Eutrophication, Algal

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Blooms, Bioaccumulation, Nitrate Pollution, Heavy Metal Pollution

2.3 Control of water pollution: Wastewater Treatment

2.4 Bioremediation

Unit 3

3.1 Noise Pollution: Causes and Effects 3.2 Noise pollution Control Techniques: a) Sound insulation

b) Sound Absorption

c) Vibration Damping

d) Vibration Isolation

3.3 Control in Transmission Path: Installation of Barriers and Closures, Green Mufflers

3.4 Control at Receiver:

a) Using protective equipment

b) Job Rotation to reduce exposure

Unit 4 Soil Pollution and Control

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4.1 Soil Pollution: Definition and Sources of soil pollution

4.2 Soil Degradation: Soil Erosion, Modern Agriculture

4.3 Effects of soil pollution on Soil Quality and Productivity

4.3 Control Measures of soil degradation: Biofertilizers, Organic Farming, Biological Pest Management 4.4 Sustainable Landuse Planning

Unit 5 Case studies

5.1 Bhopal Gas Tragedy, London Smog 5.2

Minamata Incident Japan, Arsenic Poisoning, West Bengal

5.3 Love Canal Tragedy, New York, Endosulfan Tragedy, Kerala

5.4 Yamuna River Pollution

Field Visit /Practical/ Test

Visit to industrial units to observe the use of pollution control technology at various steps.

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Class test of 20 marks based on the syllabus.

Note for Paper Setting:

Paper will consist of THREE Sections 'A' , 'B' , 'C' .

Section 'A' will consist of 5 short answer questions of 3 marks each, representing all units i.e. at least ONE from each unit. All questions would be compulsory. Candidate has to restrict the answers in 70 to 80 words.

Section 'B' will consist of 5 short answer questions of 7 marks each, representing all units i.e. at least ONE from each unit. All questions would be compulsory. Candidate has to restrict the answers in 250 to 300 words.

Section 'C' will consist of 4 long answer type questions of 15 marks each out of which candidate has to attempt any TWO. Candidate has to restrict the answer in 500 to 600 words.

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