तिरूपति कॉलेज ऑफ इंजीनियरिंग

संस्था कोड–2283(पॉलीटेक्निक), 2105(डिप्लोमा फॉर्मेसी)
बिन्दौआ, मोहनलालगंज, रायबरेली रोड, लखनऊ

दिनांकः 02 / 11 / 2023

आवश्यक सूचना

संस्थान में अध्ययनरत डिप्लोमा इन इंजीनियरिंग [इलेक्ट्रिकल इंजीनियरिंग (तृतीय सेमेस्टर) एवं सिविल इंजीनियरिंग (तृतीय सेमेस्टर)] के सभी छात्रों/छात्राओं को सूचित किया जाता है कि वर्तमान में संचालित विषय Environmental Studies के स्थान पर विषय Enviromental Studies and Disaster Management सत्र 2023–24 में संचालित किया जायेगा।

संलग्नकः पाठ्यक्रम (Syllabus)।

प्राचार्य

Distribution:

1. All HODs: for proper implementation.
   (i) C.E. (ii) E.E.
2. Class Coordinator
3. All Faculty
4. All Notice Board

CC to:

1. The Chairman: for kind information.
2. The Director: for kind information.
3. The Asst. Director: for kind information.

ENVIRONMENTAL STUDIES & DISASTER MANAGEMENT

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RATIONALE

A diploma holder must have knowledge of different types of pollution caused due to industries and constructional activities so that he may help in balancing the ecosystem and controlling pollution by various control measures. He should also be aware of environmental laws related to the control of pollution. He should know how to manage the waste. He should know the concept of hazards and disaster management.

LEARNING OUTCOMES

After undergoing the subject, the student will be able to:

- Comprehend the importance of ecosystem and sustainable development.
- Demonstrate interdisciplinary nature of environmental issues
- Identify different types of environmental pollution and control measures.
- Explain environmental legislation acts.
- Demonstrate positive attitude towards judicious use of energy and environmental protection
- Practice energy efficient techniques in day-to-day life and industrial processes.
- Analyze the impact of human activities on the environment
- Understand the basic concept of disaster and hazards.
- Analyze the impact of disaster on various social components.

DETAILED CONTENTS

1. **Introduction** (05 Periods)

Basics of ecology, eco system- concept, and sustainable development, Resources renewable and non-renewable. Global Warming, Green House Effect, Acid Rain, Concept Of Green Building

2. **Air Pollution** (05 Periods)

Source of air pollution. Effect of air pollution on human health, economy, plant, animals. Air Pollution Control Methods. Introduction to Air Pollution and its Prevention and Control Act 1981 & Environmental Protection Act 1986 and Function of State pollution control board and National Green Tribunal (NGT).

3. **Water Pollution** (08 Periods)

Impurities in water ,Cause of water pollution, Source of water pollution. Effect of water pollutionon human health, Concept of dissolved O2, BOD, COD. Prevention of water pollution. Introduction to Water (Prevention and Control of Pollution) Act 1974.

4. **Soil Pollution** (06 Periods)

4.1 Sources of soil pollution

4.2 Types of Solid waste- House hold, Hospital, From Agriculture, Biomedical, Animal waste and human waste, sediments and E-waste, Plastic Waste .

4.3 Effect of Solid waste

4.4 Disposal of Solid Waste- Solid Waste Management

5. **Noise pollution** (03 Periods)

Source of noise pollution, Unit of noise, Effect of noise pollution, Acceptable noise level, Different method of minimize noise pollution.

6. **Disaster Causes And Hazards** (5 Periods)

6.1 Introduction

6.2 Classification of Natural Disasters

6.3 Classification of Natural Disasters in India

6.3.1. Earthquake

6.3.2. Tsunami

6.3.3. Flood

6.3.4. Drought

6.3.5. Land Slide

6.3.6. Thunderstorm and Lightening

7. **Disaster Management** (10 Periods)

7.1 Framework

7.1.1 Yokohama Strategy for a Safer World (1999)

7.1.2 The Hyogo Framework for Action (HFA) (2005-2015)

7.1.3 Sendai Framework for Action (SDGS) (2015-2030)

7.2 Disaster Management, Preparedness and Response in India

7.2.1 National Disaster Management Authority (NDMA) Guidelines

7.2.2 National Policy on Disaster Management (2009)

7.2.3 National Disaster Management Act (2005)

7.2.4 NDRF (National Disaster Response Force), SDRF (State Disaster Response Force), DDRF (District Disaster Response Force), and Aapda Mitra.

7.2.5 Case studies of disaster management efforts: COVID-19 Pandemic, Earthquakes, Firefighting, Thunder Storm and Lightning

LIST OF PRACTICALS -

1. Determination of pH of drinking water and soil
2. Determination of TDS and TSS in drinking water
3. Determination of hardness in drinking water
4. Determination of oil & grease in drinking water
5. Determination of alkalinity in drinking water
6. Determination of acidity in drinking water
7. Determination of organic/inorganic solid in drinking water
8. To measure the noise level in classroom and industry.
9. To segregate the various types of solid waste in a locality.
10. To conduct the disaster management mock drill of earthquake.
11. To study of tools for different weather related measurements e.g. Thermometer, Barometer, Hygrometer, Anemometer.

INSTRUCTIONAL STRATEGY

In addition to theoretical instructions, different activities pertaining to Environmental Studies like expert lectures, seminars, visits to green house, effluent treatment plant of any industry, rain water harvesting plant etc. may also be organized.

MEANS OF ASSESSMENT

- Assignments and quiz/class tests,
- Mid-term and end-term written tests

RECOMMENDED BOOKS -

1. Environmental and Pollution Awareness by Sharma BR; Satya Prakashan, New Delhi.
2. Environmental Protection Law and Policy in India by Thakur Kailash; Deep and Deep Publications, New Delhi.
3. Environmental Pollution by Dr. RK Khitoliya; S Chand Publishing, New Delhi
4. Environmental Science by Deswal and Deswal; DhanpatRai and Co. (P) Ltd. Delhi.
5. Engineering Chemistry by Jain and Jain; Dhanpat Rai and Co. (P) Ltd. Delhi.
6. Environmental Studies by ErachBharucha; University Press (India) Private Ltd., Hyderabad.
7. Environmental Engineering and Management by Suresh K Dhamija; S K Katariaand Sons, New Delhi.
8. E-books/e-tools/relevant software to be used as recommended by AICTE/BTE/NITTTR, Chandigarh.
9. Disaster Management Second Edition AICTE Recommended by S C Sharma, Khanna Publishers
10. Bharat Bhautik Paryavaran Class 11, By NCERT.
11. Apda Avem Apda Prabhandhan | आपदा और आपदा प्रबंधन | Mahesh Kumar Barnwal | CosmosPublication

Websites for Reference:

- http://swayam.gov.in
- https://www.amazon.in/Prabhandhan
- https://ncert.nic.in/textbook.php?khgy1=0-6
- https://rb.gy/yergl

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	05	12
2	05	12
3	08	20
4	06	14
5	03	07
6	05	12
7	10	23
Total	**42**	**100**

ENVIRONMENTAL STUDIES AND DISASTER MANAGEMENT LABORATORY			
Sr.No	**Equipment's**	**Qty.**	**Price (₹)**
1.	Water Analysis Kit	01	16500
2.	pH Meter	01	700
3.	Turbidity Meter	01	7000
4.	Oven with Temperature Controller and Forced Air Circulation Type	01	28000
5.	B.O.D. Incubator	01	35000
6.	High Volume Sampler	01	56000
7.	Electrical Balance For Weighing Up to 1/10 Of Milligram (Capacity)	01	1400
8.	Sound level meter	01	5000
9.	Calibrated microphone	01	15000
10.	Data recording equipment	01	2000
11.	Thermometer	03	2500
12.	Barometer	01	5000
13.	Hygrometer	01	3500
14.	Anemometer	02	7000