Welcome
to
ES200

Environmental Studies :

Science and Engineering

Autumn 2020-21

Professor Tabish Nawaz
Professor Virendra Sethi*
Professor Swatantra Pratap Singh

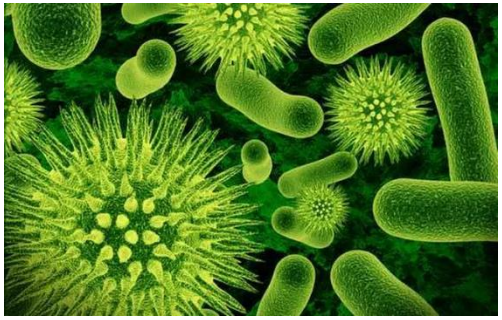
Environmental Science
and
Engineering Department
(ESED)

** Instructor In-Charge*

Any Questions?
Clarifications ?

Please write through MOODLE

ES-200 (Module-B)
Environmental Studies: Science and Engineering



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ES-200
Evaluation: Module-B (33%)

- 1 Assignment (10 %)
- 1 End Semester Exam (23 %)

- Module B – 33% weightage towards final grades

ES-200
Contents: Module-B

- Nature and scope of environmental problems
- Ecosystem & Biodiversity
- Environmental awareness and sustainable development

Week-1

- Water Resources, Water Quality & Pollution Sources
  - Parameters for Water Quality Characteristics, and Standards
- Surface Water Treatment System
  - Conventional Surface and Municipal Wastewater Treatment System
- Alternate Water & Wastewater Treatment

Week-2

Why ES 200?

Aerospace Engineering
Biosciences and Bioengineering
Computer Science & Engineering
Chemical Engineering
Chemistry
Civil Engineering
Electrical Engineering

Energy Science and Engineering
Humanities & Social Sciences
Mathematics
Mechanical Engineering
Metallurgical Engg. & Materials Sci.
Physics

Why ES 200?

Important for Life

https://www.t-mobile.com/cell-phone/apple-iphone-x

Living things need

food

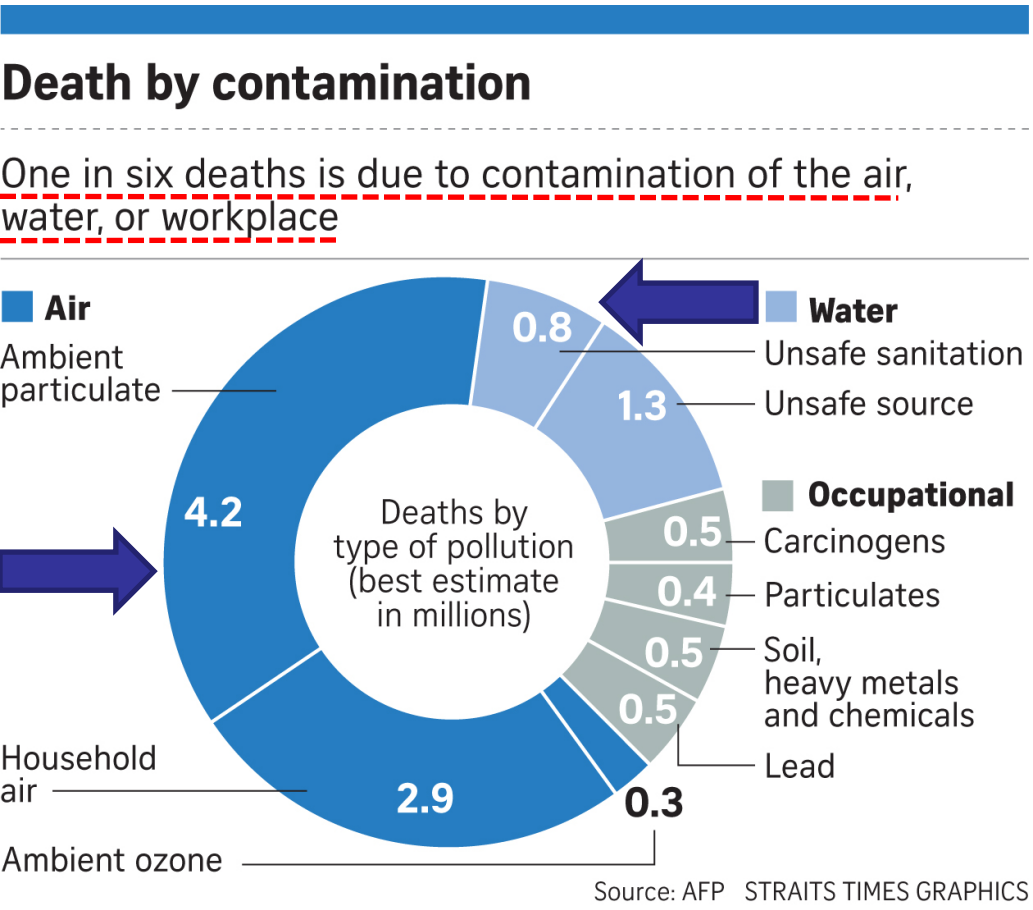
water

air

sunlight

Course Overview: Death due to pollution

❖ **Based on Lancet article**



https://www.straitstimes.com/world/europe/pollution-kills-nine-million-people-every-year-study

- ❖ 131.4 million births per year
- ❖ 55.3 million people die each year

❖Pollution kills 9.0 million people every year

https://www.worldometers.info/world-population/

Thank You

ES 200: Autumn 2020
Environmental Studies: Science and Engineering
Module C: Solid Waste Management

By Prof. Tabish Nawaz (Module C)
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Environmental Science and Engineering Department
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Instructor Contact Information

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Module C

Why Solid Waste Management: Objectives of the Module

(1) Identify the various types of solid wastes, their sources and understand their characteristics.

(2) Comprehend the functional elements of a solid waste management system.

(3) Analyze and evaluate the engineering aspects associated with the management of solid waste from the point of generation to final disposal.

What Will be Covered?

- Solid Waste Classification
- Solid Waste Management System
- Characteristics of MSW
- Analysis of solid waste management systems
  - Material balance approach
- Functional elements: MSW Collection
  - Hauled-container system
  - Stationary-container system
- MSW Transfer and Transport
  - Transfer Stations
- MSW Processing Techniques
- MSW Ultimate Disposal
  - Sanitary Landfilling

How – Typical Class Proceeding

- ***Pre-recorded lectures*** in the form of videos or narrated ppt slides etc. in the first week of Module C
- ***Follow up questions/activities***
- ***Doubt collection***
- ***Interactive Sessions*** over online platform like MS Teams in the 2nd week of Module C
- ***Discussion Questions*** brought up during interaction
- ***Students' Contribution*** to the discussion questions
- Quiz and assignments
- Ends with "muddiest-points" test or a ***5-minute quiz***

What Can You Expect?

- Clear learning objectives

  understanding

  - of solid waste management

  - of processes involved in solid waste formation, collection, transport, treatment and disposal

  - of bio-chemistry of treatment technologies

  - clarity on the ongoing environmental pollution issues

- Lots of “what”, “why”, “how”, “can you…” questions in the class
- Many random 3-minute quizzes and “muddiest points” tests

Information Central …

Moodle

https://moodle.iitb.ac.in/login/index.php

Or

MS Teams

Module C

Solid Waste Management

Resources

1) Manual on Municipal Solid Waste Management – 2016, Central Public Health & Environmental Engineering Organization (CPHEEO) *(e-version available)*

2) Garg, S.K., Ecology & Environmental Studies, 4th revised edition, Khanna Publishers, Delhi. *(e-book available)*

3) Sincero, A.P., Sincero, G.A., Environmental Engineering: A design Approach, Ecology & Environmental Studies, 2006, PHI, Delhi

4) Peavy, H.S., Rowe, D.R., Tchobanoglous, G., Environmental Engineering, 2013, McGraw Hill, Delhi

Grading & Attendance Policy

Exam/Quiz/Assignments	Marks (33)
Mid-Sem Exam	20
Assignments + Class Discussion	8
Quiz	5

Assignment: The assignments are intended to help you assimilate the concepts discussed during class.
This will be done through solving numerical problems, writing essays and/or preparing a small presentation

Class Discussion: This is meant for exchanging ideas and suggestions with respect to the topics.
It will be conducted through questions, cross-discussion and bringing in perspective from ones own experience

Attendance Policy: Attending weekly interaction session is compulsory. In the case of unforeseen circumstances like poor health, or any other technical issue, the students are expected to inform the instructor or course TAs through email, message or call whichever is convenient

Module A

Air Pollution

34%

2 Assignments x 7 Marks each = 14%

Final Exam = 20%

(Mode of exam to be decided)

Air Quality

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For this course, please use
es999.cese@gmail.com

Air Quality

Goal of the Air Quality Module

You will be able to explain key concepts of air pollution and air quality management

This course is
in
Service of YOU

This course is to
Honour YOU
as
Decision Makers of Tomorrow

Module A (Air Pollution) will be created as a game called :

YOU

are

Accountable for Air Quality

in

Your City

As Someone Accountable for Air Quality in Your City

(and therefore the Health of People in your City)

ES200

may occur more as an

Opportunity

and not

just “another required” course

You are invited to play the Game !

First Home Work

Three Parts:

A. Movie 1

B. Movie 2

C. Written Submission based on A and B above

Home Work 1 (Part A)

Please STUDY the film :

“An Inconvenient Truth”

Before

11:59pm on 14 August 2020

To Inquire Today

How much do I already know or not know about air pollution

ES 200 Environmental Studies

Air Quality

Pre-course Quiz

on

Google Form by 12 August 11:59pm

Thank you

This is an online (Self Study) Course

We will do our best to provide you inputs and answer any queries.

Flipped Classroom Model

M 830, T 930, H, 1030

Request you to be extra vigilant about your learning and picking up the subject matter and the context thereof.