**20CEXXO8 - ENVIRONMENTAL POLLUTION AND CONTROL**

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| **Course Category** | Open Elective | **Credits** | 3 |
| **Course Type** | Theory | **Lecture - Tutorial – Practical** | 3-0-0 |
| **Prerequisite** | None | **Sessional Evaluation** | 40 |
| **Semester End Exam Evaluation** | 60 |
| **Total Marks** | 100 |

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| **Course Outcomes** | CO1 | Understand the nature, significance and effects of pollution. |
| CO2 | Understand the effects of air pollution and various controlling parameters. |
| CO3 | Understand the effects of water pollution and various controlling parameters. |
| CO4 | Understand the various methods for solid and hazardous waste disposal. |
| CO5 | Understand the environmental legislation acts for industrial pollution control. |
| CO6 | Understanding the characteristics and effects of noise pollution. |
| **Course Content** | **UNIT – I**  **THE NATURE OF POLLUTION:**  Air pollution and its effects on living and non-living things. Water pollution and its effects on living and non-living things, solid wastes and land pollution.  **UNIT – II**  **AIR POLLUTION CONTROL:**  Influence of metereological parameters, physical principles, dry systems, fabric collectors, wet scrubbers, electrostatic precipitations, fume incineration tall sacks. Physical separation systems gravity setting chambers, inertial separators, cyclones, fabric collectors, wet scrubbers, electrostatic precipitators, fume incineration.  **UNIT – III**  **WATER POLLUTION CONTROL:**  Routine methods for removal of suspended and dissolved impurities, advance methods like chemical oxidation, membrane separation process, and biological process for removal of phosphorous and nitrogen. Land treatment, eutrophication control.  **UNIT – IV**  **SOLD WASTE MANAGEMENT:**  Quantities and characterizations of municipal solid wastes, recovery of materials and energy, sanitary land filling. Disposal of hazardous wastes.  **UNIT – V**  **ENVIRONMENTAL LEGISLATION AND INDUSTRIAL POLLUTION CONTROL:**  Legislation conserving water pollution air pollution and hazards wastes. Caste studies of pollution control in cement industries, paper, & pulp industries, brewing.  **UNIT – VI**  **NOISE POLLUTION CONTROL:** Basics of acoustics and specification of sound; sound power, sound intensityand sound pressure levels; Sources of Noise, typical range of noiselevels, types of noise pollution, Characteristics of noise, Effects of noise on the human health, Reactions to noise, psychologicaleffects. | |
| **Textbooks and Reference books** | **TEXT BOOKS:**   1. CS Rao, *Environmental Pollution Control Engineering*, New Age International Private Limited; 4th edition, October 2021. 2. [P. R. Trivedi](https://www.google.co.in/search?sa=X&biw=1366&bih=639&tbm=bks&tbm=bks&q=inauthor:%22P.+R.+Trivedi%22&ved=0ahUKEwjrp9Dz8KbNAhUDrI8KHfytD2kQ9AgITTAD), [*Environmental Pollution and Control*](https://books.google.co.in/books?id=NxwNtk3aw54C&printsec=frontcover&dq=ENVIRONMENTAL+POLLUTION+AND+CONTROL&hl=en&sa=X&ved=0ahUKEwjrp9Dz8KbNAhUDrI8KHfytD2kQ6AEISzAD), APH Publishing Corporation, December 2004. 3. [J. Jeffrey Peirce](https://www.google.co.in/search?sa=X&biw=1366&bih=639&tbm=bks&tbm=bks&q=inauthor:%22J.+Jeffrey+Peirce%22&ved=0ahUKEwjrp9Dz8KbNAhUDrI8KHfytD2kQ9AgINzAA), ‎[P Aarne Vesilind](https://www.google.co.in/search?sa=X&biw=1366&bih=639&tbm=bks&tbm=bks&q=inauthor:%22P+Aarne+Vesilind%22&ved=0ahUKEwjrp9Dz8KbNAhUDrI8KHfytD2kQ9AgIODAA), ‎[Ruth Weiner](https://www.google.co.in/search?sa=X&biw=1366&bih=639&tbm=bks&tbm=bks&q=inauthor:%22Ruth+Weiner%22&ved=0ahUKEwjrp9Dz8KbNAhUDrI8KHfytD2kQ9AgIOTAA), [*Environmental Pollution and Control*](https://books.google.co.in/books?id=zxn3TgTOxggC&printsec=frontcover&dq=ENVIRONMENTAL+POLLUTION+AND+CONTROL&hl=en&sa=X&ved=0ahUKEwjrp9Dz8KbNAhUDrI8KHfytD2kQ6AEINTAA),  Butterworth-Heinemann publishers, 4th edition , January 1998.   **REFERENCE BOOKS:**   1. Howard Peavy, Donald Rowe, George Tchobanoglous, *Environmental Engineering*, McGraw Hill Education publishers, First edition, July 2017 2. S.C. Bhatia, *Noise Pollution and its control*, Atlantic Publication, 2007. 3. P.A Vesilind, J.J. Peirce, *Environmental pollution and control*, Butterworth-Heinemann publishers, 4thedition, November 1997. | |

**CO-PO Mapping:**3-High Mapping, 2-Moderate Mapping, 1-Low Mapping, - -Not Mapping

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** | **PSO3** |
| **CO1** | - | 1 | - | - | - | 2 | 1 | - | - | - | - | 1 | - | 1 | - |
| **CO2** | 2 | 2 | 1 | 1 | 1 | 2 | 1 | - | - | - | - | 2 | - | 2 | 1 |
| **CO3** | 2 | 2 | 1 | 1 | 2 | 2 | 1 | - | - | - | - | 2 | - | 2 | 1 |
| **CO4** | 1 | 2 | 1 | 1 | 2 | 2 | 1 | - | - | - | - | 2 | - | 2 | 1 |
| **CO5** | 2 | 2 | 1 | 1 | 2 | 2 | 1 | - | - | - | - | 2 | - | 2 | 1 |
| **CO6** | - | 1 | - | - | 1 | 2 | 1 | - | - | - | - | 2 | - | 2 | 1 |