

| No | Course Information of Environmental Engineering III | |
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| 1. | Unit Name : Environmental Engineering III | |
| 2. | Unit Code : CE-61018 | |
| 3. | Classification : Engineering Subject | |
| 4. | Credit Hours : 3 | |
| 5. | Semester and Year Taught: 1/5 | |
| 6. | Pre-requisite (if any) : None | |
| 7. | Mode of Delivery : Lecture , Tutorial | |
| 8. | Assessment System and Breakdown of Marks :: | |
| | Term paper | 20% |
| | Tutorial | 10% |
| | Final Examination | 70% |
| | Total | 100% |
| 9. | Academic Staff Teaching Unit : | |
| 10. | <p>Objective of Unit:</p> <p>The objective of this course is to :-</p> <p>Overview the biological treatment methods, the design and working of septic and imhoff tanks as well as air pollution and solid waste management.</p> | |
| 11. | <p>Learning Outcomes of Unit:</p> <p>On completion of this unit, students shall be able to:</p> <p>(1) Recognize the biological treatment methods as well as septic and imhoff tanks.</p> <p>(2) Describe the sludge production, control of air pollution and solid waste management.</p> <p>(3) Apply the design considerations of biological treatment plants and septic and imhoff tanks.</p> | |
| 12. | <p>Synopsis of Unit:</p> <p>The unit is intended to describe about biological treatment methods, septic and imhoff tanks, air pollution and solid waste management.</p> | |
| 13. | <p>Topic 1: Biological Treatment I: Sewage Filtration</p> <ul style="list-style-type: none"> • Biological Treatment Techniques • Loading, Efficiency and performance of Conventional Trickling Filters • Process Design and Efficiency of Trickling Filters | |
| | <p>Topic 2: Biological Treatment II: Activated Sludge Process</p> <ul style="list-style-type: none"> • Activated sludge process mechanism • Combined Mechanical and Diffused air System | |

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| | <ul style="list-style-type: none"> • Aeration tank design considerations • Secondary setting <p>Topic 3: Biological Treatment III: Miscellaneous Methods</p> <ul style="list-style-type: none"> • Oxidation ditch • Stabilization Ponds • Aerobic, Anaerobic and Facultative Ponds <p>Topic 4: Septic and Imhoff Tanks</p> <ul style="list-style-type: none"> • Septic tank • Design and construction Features • Advantages and disadvantages of septic tanks • Imhoff tank • Imhoff design considerations • Advantages and disadvantages of Imhoff tanks <p>Topic 5: Air Pollution</p> <ul style="list-style-type: none"> • Classification of pollutants • Control of air pollution • Greenhouse effects and global warming <p>Topic 6: Solid Waste Management</p> <ul style="list-style-type: none"> • Classification of solid waste • Solid waste management • Energy recovery and disposal |
| 14. | <p>Main References:</p> <ol style="list-style-type: none"> 1. CE 61018 Environmental Engineering II, Wastewater Engineering (including air pollution) By Dr. B . C Punmia, Er. Ashok K. Jain, Dr. Arun K. Jain 2. Basic Environmental Engineering By R.C. Gaur |