



# GUJARAT ENERGY RESEARCH AND MANAGEMENT INSTITUTE



**Recognized as Scientific  
Industrial & Research  
Organization**

**With State – of – Art Research Facilities  
Ventured into Distance Learning Through Short - Term  
E – Courses  
In  
Environmental Engineering  
Starting from September, 2018**

# About the Institute

**Gujarat Energy Research & Management Institute (GERMI)** is a Centre - of - Excellence in industry learning and has been set up to develop human resource assets to cater to the petroleum and allied energy sectors, improve knowledge base of policy makers and technologies and provide a competitive edge to leaders to compete in the global arena.

Director of the Institute: Dr. Anirbid Sircar

## The Courses

Title: Design of Wastewater treatment Units

The Course comprises of three modules, each of 6 months duration,

**Module I:** Design of Wastewater Treatment Units: Physical & Chemical

**Module II:** Design of Wastewater treatment Units: Biological

**Module III:** Design of Wastewater Treatment Units: Advanced Treatment

Type of Course: Certificate

Mode of Delivery: E- Course (Distance Learning)



## Courses Offered

### Module I: Design of Wastewater Treatment Units: Physical & Chemical

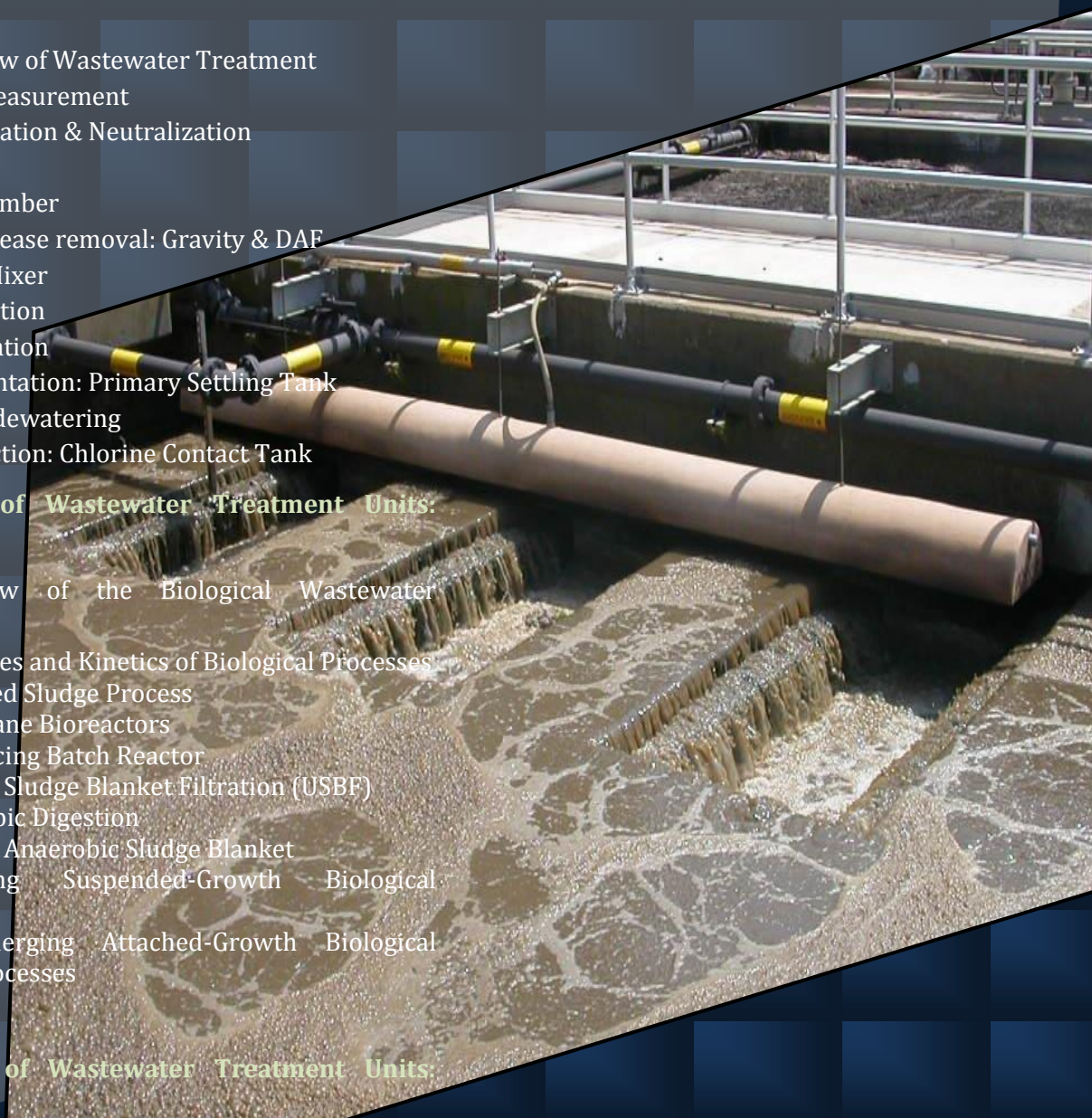
- Chapter 1 Overview of Wastewater Treatment
- Chapter 2 Flow measurement
- Chapter 3 Equalization & Neutralization
- Chapter 4 Screens
- Chapter 5 Grit chamber
- Chapter 6 Oil & Grease removal: Gravity & DAF
- Chapter 7 Rapid Mixer
- Chapter 8 Coagulation
- Chapter 9 Flocculation
- Chapter 10 Sedimentation: Primary Settling Tank
- Chapter 11 Sludge dewatering
- Chapter 12 Disinfection: Chlorine Contact Tank

### Module II: Design of Wastewater Treatment Units: Biological

- Chapter 1 Overview of the Biological Wastewater Treatment
- Chapter 2 Principles and Kinetics of Biological Processes
- Chapter 3 Activated Sludge Process
- Chapter 4 Membrane Bioreactors
- Chapter 5 Sequencing Batch Reactor
- Chapter 6 Up flow Sludge Blanket Filtration (USBF)
- Chapter 7 Anaerobic Digestion
- Chapter 8 Up flow Anaerobic Sludge Blanket
- Chapter 9 Emerging Suspended-Growth Biological Processes
- Chapter 10 Emerging Attached-Growth Biological Processes

### Module III: Design of Wastewater Treatment Units: Advanced

- Chapter 1 Overview of the Advanced Wastewater Treatment
- Chapter 2 Nutrient Removal – Nitrogen & Phosphorus
- Chapter 3 Conventional Filtration
- Chapter 4 Membrane Filtration
- Chapter 5 Adsorption
- Chapter 6 Ion Exchange
- Chapter 7 High Rate Anaerobic Reactor (HRAR)
- Chapter 8 Electro dialysis
- Chapter 9 Sludge Treatment and Disposal



## Important dates

- Application Invitation : 1<sup>st</sup> September, 2018
- Last date of application submission : 25<sup>th</sup> September, 2018
- Evaluation & Admission : 28<sup>th</sup> September, 2018
- Course Starts : 1<sup>st</sup> October, 2018
- Course Completes : 31<sup>st</sup> March, 2019

# Course Objectives

The course is designed to satisfy the following objectives:

- I. Brief description of the Wastewater Treatment Units with specific reference to
  - i. Purpose & Location
  - ii. Working Principle
  - iii. Different types & configurations with latest developments
- II. To provide Step - by - Step design of each unit based on the cited design criteria
- III. To develop Engineering drawing of the designed unit for easy understanding.

# Instructions

- Participants are expected to take part in all activities that form part of the course.
- Each module is divided into three parts for delivery of the reference material. Each part comprising of five weeks. Every week one chapter will be uploaded for four weeks followed by one assignment.
- The participants can work on individual projects and submit as a term paper or else can opt for Final Assignment which will cover the entire course material.
- Assignments will be based on MCQs and Short descriptive type answers.
- Participants will have to appear in the Final exam which will be conducted as *online on demand* during stipulated time period.
- During course, participants should compulsorily attend to interactive chat sessions.
- A certificate will be given to all successful participants

# Contact

**Course Coordinator:** Ms. Monika Panchani  
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Renewable Energy, Environment & Energy Efficiency (RE4) Wing  
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# Entry Requirements

- Environmental Students (Diploma/UG/PG)
- Fresh Environmental Diploma / B.E. /M.E. in Environmental Engineering / Management
- Non Environmental Students (Diploma / UG / PG) with Environmental Engineering as elective
- In service Environmental Professionals
- In service Non-Environmental Professionals (Diploma / B.E. / M.E. / B.Sc. / M.Sc. or equivalent with 1 year of work experience in Environmental Field)

## Course Fees

Categories	Fees*
Individuals from Academic Institutions, Research Institute & Government Agencies	Rs. 8,000/-
Individual Student (Diploma/UG/PG)	Rs. 5,000/-
Group Students (Diploma/UG/PG) (Minimum 5 students)	Rs. 3,000/- each
Individuals from Industries/Non-Academics, Non-Government Agencies & Public Sector Units	Rs. 12,000/-

\* Add GST extra

## Technical Committee

- 1) **Prof. J N Joshi:** Retired Prof. of Environmental Engineering, L. D. College of Engineering, Ahmedabad
- 2) **Dr. Prabhakar Nema:** Retired Director Level Scientist, National Environment Engineering Research Institute (NEERI), Nagpur
- 3) **Dr. A K A Rathi:** Retired Director, Department of Environment, Govt. of Gujarat
- 4) **Mr. Vimal Chokhavatiya:** Environment – Consultant
- 5) **Mrs. Huma Syed:** Associate Prof. of Environmental Engineering, Government Engineering College, Bhuj.