

Best practices in Sewage Effluent & Waste Water Treatment Technology Workshop

Unit processes, troubleshooting, maintenance and options in sludge treatment.
2 CPD *

21-22 February 2022, 20-21 June 2022, 12-13 Sept 2022, 21-22 Nov 2022
Johannesburg / Online

NB* dates set according to availability of our subject matter expert



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Best practices in Sewage Effluent & WasteWater Treatment Technology Workshop

CASI Construction Academy presents 2 day informative workshop where , participants will learn how to manage the effective operation and performance of wastewater treatment plants. In this comprehensive training approach, participants will gain a detailed understanding of the principles applied to the treatment of organic, inorganic, or a combination of both industrial effluent types. Environmental pollution control is an area difficult to teach, largely because it is an extremely delicate area afflicted with variables interacting between biotic and abiotic factors that affect the effectiveness of treatment.

Poor operation and maintenance of wastewater and sewage treatment infrastructure is a cause for concern in Africa. It negatively affects public health and functioning of eco systems. Main Sources of water pollution according to the World Wide Fund for Nature include Industrial water discharge and general pollution from city sewers. If left untreated, effluent from municipal , industrial and mining waste water discharge will have an adverse effect on the environment. Runoff from small-scale mining operations, urban storm water and runoff from agricultural, livestock and poultry operations have also impaired the quality of water over the years and has been a cause for concern.

Aims

Competency enhancement in managing Wastewater Treatment Plant in practice visà- vis conformance to the legal and related D.O.E requirement.

Objective:

Establish concise exposure and understanding through experience with regards to:

- the legal requirement
- the effluent parameters
- unit processes – design details
- maintenance requirement
- troubleshooting methods
- sampling technique
- sludge treatment

Who should attend?

- All personnel involved in environmental management
- Treatment Plant Operator
- Plant Engineers
- Health & Safety Officer/Engineers
- Waste Treatment Engineers,
- Industrial Plant Managers/ Engineers
- Project / Process Engineers,
- Chemical / Sanitary Engineers,
- Utilities / Consulting Engineers
- Municipal Planners/Engineers
- Sewerage Operators
- Maintenance Engineers, Technicians
- Mechanical Engineers and Technicians
- Design Engineers
- Operation, Maintenance, Inspection and Repair Managers
- Anyone responsible for managing and operating sewerage treatment facilities

Overview





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S E S S I O N S

Day 1

- Definitions; industrial effluent; mixed effluent; sewage.
- Overview of the effluent and sewage regulations of 2009; common parameters;
- Legal liability under Section 25, EQA 1974
- Nature of effluent and sewage:
 - inorganic, organic & inorganic, organic;
- Water Pollution; overview of significant parameters: turbidity, color, pH, hardness, D.O, B.O.D, C.O.D, suspended solids, free chlorine, and trace inorganic (metals and nonmetals)
- **Wastewater Treatment System (IETS) – Unit Processes**
 - Overview of wastewater to sludge pictorial illustration;
- **General scope based treatment objectives;**
 - General scope based on treatment schemes:
- **Detail scopes of primary, secondary & tertiary treatment**
- **Primary Treatment;**
 - **Screening & comminutors;**
 - Grit remover;
 - Grit & oil interceptor;
 - Oil interceptor;
 - API interceptor;
 - CPI interceptor
- **Equalization; the EQ Tank**
- **Primary clarification; clarifier tanks**
- **Primary aeration;**
 - Oxidation ditch
 - Dissolved Air Flotation (DAF)

- **Secondary Treatment;**

Attached growth; - trickling filter

- Suspended growth;
 - Aeration tank
 - Sequential Batch Reactor (SBR)
 - Anaerobic digestion
 - Principles & application

- **Aerobic versus Anaerobic – the 'Carbon Concern'**

- Chemical treatment
- Methods;
- Cyanide destruction;
- Chromium reduction;
- Coagulation

- **Solubility of metals as a function of pH;**

- The scheme;
- Coagulation mechanism;
- Coagulation agent





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DAY 2

Tertiary Treatment;

- Adsorption;
 - Activated carbon;
 - Its production;
 - Its properties;
 - Application in removing Volatile Organic Carbon (VOC)
- Ion exchange; water demineralization;
- Pure oxidation;
 - Ozonation;
 - Chemistry and mechanism;
 - Use in sludge disinfection

Membrane filtration

- **Principles and technology;**
 - Membrane structure;
 - Membrane variation; its application
- **Membrane process**
 - Nano filtration;
 - Ultra filtration;
 - Micro filtration
 - Reverse Osmosis (RO) filtration;
- **Membrane geometrics**
- **Use in Electrodialysis;**
- **Overall IETS/WWTP – Integrated overview of all units – summary**
- WWTP Troubleshooting
- Chemical coagulation
- Theory of coagulation & flocculation;
- Coagulation failure;
- Flocculation failure
- Biological flocculation
- Bulking issues 'ashing' and 'gassing'
- The filamentous organisms
- Chemical remediation – odour issues

- Sludge drying failure
- Equipments: pump, mixer, blower, metal tanks, valves and pH meter
- WWTP Maintenance
- EQ tanks; pumps; coagulation tanks; clarifier tanks; scrapers; sludge pumps; mixer blowers; filter press; chemical dosing system; anti or descaling chemicals.

Sludge Management

- Overview of sludge management methods;
 - Disposal;
 - Characteristics;
 - Physical;
 - Biological;
 - Biochemical;
 - Processing;
 - Objectives;
 - Options;
 - Treatment;
 - Stabilization;
- Lime, chlorine, oxygen, heat, UV, radiation, drying & combustion;
- Incinerator;
- Pyrolysis;
- Wet oxidation;
- composting
- Disposal summary;

Course Evaluation and ends.



In-house Training

Maximize on learning and reduce on company downtime by managing your employee training .

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Registration

- Complete the registration on the last Page
- Select delegate package
- Submit scanned copies to register@casi.co.za
- Receive invoice , Make payment , Complete pre-workshop Questionnaire
- Attend Session

www.casits.co.za

To register Email: register@casits.co.za

Contact Numbers +27 87 700 5633 /+27 794 11 70 42



Delegate Registration form- MK www.casi.co.za +27 (0) 87 700 5633/ +27 794117042 Email scanned copy to : register@casi.co.za

Delegate Details

Full Names : _____

ID number : _____

Position : _____

Cell Number : _____

Email : _____

Regular Vegetarian Halal

Full Names : _____

ID number : _____

Position : _____

Cell Number : _____

Email : _____

Regular Vegetarian Halal

Full Names : _____

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Delegate Fees

R8 999 excl. VAT per delegate Local Delegates

, Session , Conference fees , material hand outs . Does not include Travel and Accommodation .

R9 999 excl. VAT per delegate International Delegates

, Session , Conference fees , material hand outs . Does not include Travel and Accommodation .

Payment By Means Of Bank Transfer

All Payments Must be made directly into the CASI Bank Account provided on the invoice and proof of banking details

Please state the invoice number as reference .

A copy of the bank deposit / Proof of Payment receipt must be emailed to accounts@casits.co.za

Invoice Contact

Full Names : _____

Position : _____

Department : _____

Direct Line : _____

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Email : _____

I hereby acknowledge that I have read and understood all the terms and conditions of registration and have the authority to approve the registration on behalf of the company

Name _____ Position _____

Approving Managers Signature : _____ Date: _____ email: _____

Direct line: _____ Company Name: _____

Type of Business: _____ Company Registration# _____

Tel : _____ Fax: _____ VAT Number _____

Address: _____

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