



Gujarat Council of Vocational Training Gandhinagar



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1. Name of Course:

Effluent Treatment Plant Operation and Maintenance

N.C.O. No. for Skills Covered:
(Please refer National Classification of
Occupations -2004 available
on www.dget.nic.in)

2. Engineering OR Non-engineering: Engineering

3. No. of students per batch: 20 to 30

4. Duration in Hours. : 160 (Theory)+282 (Practical) = 442 hrs

5. Duration in Month: 3 @ 20 hours/Week.

6. Examination Scheme:

No.	Name of Subject	Teaching Hours during full course.	Maximum Marks. (Excluding Sessional)	Minimum Marks required for Passing (Excluding Sessional).	Sessional Marks if any.
Subject-1	Environmental pollution and Waste	30			
Subject-2	Effluent Treatment plant Operation, Maintenance and Safety (Theory)	70			
	Practical	32			
Subject-3	Environmental Impact and Law(Theory)	40			
	Practical	32			
Subject-4	Soft Skills (Theory)	20			
	Practical	10			
Subject-5	Field Work	208			
	Total (Theory)	160	100	40	20
	Total (Practical)	282	300	180	60
	Grand Total	442			





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7. Entry qualification for Trainee:

Minimum entry qualification (Essential):	10 th Pass / sponsored candidate from industry (8 th Pass+3yrs actual exp on etp)
Desirable:	ITI Engineering Trade pass (1 yr course)

3. Minimum qualification for Trainer:

Minimum qualification (Essential):	ME/BE/MSc/Bsc/ Diploma
Desirable:	Environment sector experience (5 yrs field exp)





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9. Proposed Syllabus Committee Member:

Sr. No.	Name	Organization	Designation	Technical Qualification	Experience in Years	Signature
1	Shri Bharat Jain	GCPC	Member Secretary			
2	Shri N. M. Tabhani	GPCB	SEE			
3	Shri. S. M. Jha	Expert	Retd. SES. GPCB			
4	Shri N. S. Varundani	LD Engineering College	HOD, Env Engineering			
5	Shri Shailesh Patwari	NEPL	Chairman			
6	Shri Shankarbhai Patel	GESCSL	Chairman			
7	Shri Rabubhai C. Patel	NIA-CETP	Chairman			
8	Dipan Shah	Society for Environment Protection	Managing Coordinator			

10. Terminal Skills of trainee: (Should be well defined and having reference to NCO):

The trainee, after successful completion of training, will have following skills...

1. Should have broader and clear understanding of Environment , current concerns and issue of waste.
2. Can identify various types of waste, treatment required and hazards it may pose to human and environmental health.
3. Well acquaint with various types of on-site waste treatments and able to conduct necessary laboratory and onsite tests, procedures and processes.
4. Should be well versed with rules and regulations concerning waste handling, treatment and discharge.
5. Should be able to handle the operations at ETP plant safely including personal and environmental safety.





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6. Should be able to do basic maintenance of the plant, identify errors and report them to appropriate authorities.

(please attach separate sheet, if more space is required)

11. Approximate cost of Tools / Equipments / Machinery for starting one batch of the course:

Rupees

10 lacs

Reference Year

August 2012

12. Area required for practical / Workshop for one batch.

.....50..... Sq. Meter

13. Minimum Power connection required

.....15 hp.....

- 14.1 No of items in Standard list of Machinery (Lab equip.):

list attached

- 14.1.1. Page NO from ___ to ___.

- 14.2 No of items in Standard list of Shop outfit :

- 14.2.1. Page NO from ___ to ___.

- 14.3 . No of items in Standard list of Trainee Toll-Kit :

- 14.1.1. Page NO from ___ to ___.

***** FOR OFFICIAL USE *****





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Approved by GCVT in ~~Governing Body~~ meeting on

: 21-06-2012

Syllabus implemented w.e.f. admission session

: Next session

Revision History :

1. Revision No..... Revision Date.
2. Revision No..... Revision Date.
3. Revision No..... Revision Date.





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Standard List of Machinery - Equipment / Shop-outfit / or Trainee Toolkit
for Trade of _____

Sr. No.	Description of Item with detailed specifications	Item type i.e. Machinery / Equipment OR Shop Outfit OR Trainee Toolkit	Quantity Required per one Batch of Students	Quantity Required per one Batch of Students for Instructor	Total Quantity Required (Total of previous two columns)
1.	pH meter	1			
2.	Colorimeter	1			
3.	COD reflux	1			
4.	Hot air oven	1			
5.	Digital balance	1			
6.	Beaker 100 ml	24			
7.	Beaker 50 ml	24			
8.	Conical flask 250 ml	24			
9.	Conical flask 500 ml	12			
10.	Conical flask 1000 ml	3			
11.	Separating funnel	6			
12.	Volumetric flask 250 ml	24			
13.	Volumetric flask 500 ml	12			
14.	Measuring cylinder 100 ml	6			
15.	Measuring cylinder 500 ml	6			
16.	BOD bottles	13			
17.	Dessicator	2			
18.	COD condenser	6			
19.	pH strips	6 set			
20.	Wash bottle	12			





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Sr. No.	Description of Item with detailed specifications	Item type i.e. Machinery / Equipment OR Shop Outfit OR Trainee Toolkit	Quantity Required per one Batch of Students	Quantity Required per one Batch of Students for Instructor	Total Quantity Required (Total of previous two columns)
21.	Funnel	24			
22.	Burette	24			
23.	Pipette (graduated & Volumetric)	12, 12			
24.	Burette stand	24			
25.	Cuvette	3			
26.	Whatman filter paper no 42	1 box			
27.	Spoon	12			
28.	Porcelain dish	12			
29.	Tissue paper packet	1 set			
30.					
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(As many sheets as required should be used to accommodate all items)



**Proposed Course for ITI on
Effluent Treatment Plant Operator
and Maintenance
Course Outline- 1st Draft**

Week	Module Name	Theory	Lab –field
1	Environmental Pollution and Waste	30	-
	Environment & Ecology		
	Natural Resources and its conservation		
	Environmental Equilibrium- natural cycles and food pyramid		
	Environmental degradation		
	Industrialization and Environmental Pollution: water Pollution, Air Pollution, and Land Pollution		
	Climate Change and global warming		
	Sustainable Development		
	Waste generation and its Disposal		
4 week	Effluent Treatment Plant operations, Maintenance and safety	70	32
	ETP basics		
	Waste water generation and its characteristics		
	Waste water norms and Disposal		
	ETP Design, parts and processes		
	Importance of waste water segregation		
	Types of Effluent Treatment Plants		
	Waste Water Treatment: Primary, Secondary and Tertiary		
	Coagulation& Flocculation Treatment		
	Biological Treatment		
	Advance Treatment Methodologies		
	Common Effluent Treatment Plants, Its challenges and benefits.		
	Chemicals and instruments used at ETP		
	Waste water sampling and analysis		
	Hazardous Waste management		
	ETP Operation and Maintenance		
	Basics of ETP operations		
	Maintenance of ETP equipment		
	Operational precautions and monitoring		
	Record keeping		
	Waste water recycling – Zero		

For any further information Contact : Society for Environment Protection (SEP), 6-A, Kalamwadi Society, Shreyas Crossing, Sharda mandir school road, Paldi, Ahmedabad – 7 Gujarat. Email: admin@sepindia.org (M) +91-93272 01215



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	Discharge		
	Safety and Health		
	Occupational health and safety		
	Disaster Management and Emergency Planning		
	Laboratory Testing		
	Sample collection and preservation		
	Lab Instruments and chemicals		
	Physio-chemical and Biological analysis of waste water		
	Data interpretation and record keeping		
2 week	Environmental Impact and Law	40	32
	Environmental Preservation and its need		
	International Treaties related to waste water management		
	Waste Management Structure, Authorities & Institutions		
	Environmental law and its implementation		
	Environment impact assessment		
	Environmental clearance and public hearing		
	Role of Industry in Environment Conservation		
	Green Belt development		
	Water conservation and energy conservation		
	Waste Land Reclamation		
1 week	Soft Skills	20	10
	Computer Operations: word, Excel, Internet		
	Basic English Literacy		

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Week	Module Name	Theory	Lab –field
	Knowing Basic Terminology in Waste and Waste management		
	Reading Reports and Flow Diagrams		
	Conflict Resolution		
	Preparing for the field		
4 week	Field Work	-	208
	Knowing Industrial Area of the region, and taking one month on site field training – apprenticeship		
	CETP		
	TSDf		
	Incinerator		
	Primary ETP (Chemical Treatment)		
	Secondary ETP / Biological Treatment		
	Advance Technology		
	Multiple Evoparator		
	Eectro Chemical oxidation		
	Ozonization		
	GPCB / ECP central lab		
	ETP equipment maintenance		
	Air pollution control devices		

