Course Name	Wastewater Treatment Processes
Credit Hours	2 Hours
Course Description	This course provides an overview of wastewater treatment, including the physical separation of solids, chemical treatment processes, biological processes, and solids treatment and disposal.
Course Objectives	After completing this course, the licensee should be able to:

- List and define the different stages of treatment that can be found at a modern wastewater treatment plant.
- List the various solids separation processes.
- List the equipment used in each solids separation process.
- Describe how each piece of equipment involved in solids separation operates.
- Determine appropriate means of treating sewage and wastewater chemically to reduce pollution.
- Identify the differences between a suspended-growth or fixed-growth biological treatment process.
- Define sludge.
- Describe how to treat sludge.
- List the major units involved in each sludge treatment process.
- List the popular methods of sludge disposal.

Course Timed Syllabus	Attached
Method of Presentation	This online course uses instructor-led video, animation, text, and images. Multiple choice questions are used to test how well the student understands the material between each section. Each answer choice has a response which tells the student whether the selected answer is correct or not.
Schedule and Location	This course may be taken at any time at www.aypotech.com. The student may sign in and out of the course as many times as needed to complete the course.
Attendance Verification	Licensees can only access the training course using a secure username and password, linked to their unique email address.

Method of Evaluation

The licensee must complete all multiple-choice questions between sections correctly to get credit for the course. If their first response is incorrect, students will have to try again until they choose the correct answer. Question choices are randomized, so each participant will have a unique testing experience.

The course is also timed; participants will not get credit until they spend at least 120 active minutes in the course.

After successful completion of the course, the licensee is required to complete and submit a questionnaire in order to access their certificate of completion.

Instructor(s)

Ralph Stevens

Cost

$20

Wastewater Treatment Processes Timed Syllabus

Section	Topic		Questions	Minutes*
	Overview of Wastewater Treatment			
1		Purpose of Treatment	1	2.0
2		Sources of Wastewater	1	1.7
3		Wastewater Collection Systems	1	2.2
4		Typical Treatment Facilities	1	1.4
5		Influent	1	1.9
6		Preliminary Treatment	1	1.8
7		Primary Treatment	2	2.7
8		Secondary Treatment	1	3.8
9		Tertiary Treatment	1	1.7
10		Disinfection and Effluent Discharge	1	1.7
11		Solids Handling	1	2.6
	Physical Separation of Solids			
12		Screening	2	4.1
13		Grinding	1	1.7
14		Grit Removal	2	5.0
15		Sedimentation	1	3.1
16		Factors Affecting Settling Rates	1	2.0
17		Types of Clarifiers	1	2.6
18		Air Floatation	1	1.9
19		Filtration and Effluent Disposal	2	4.1
	Chemical Treatment Processes			
20		Solids in Wastewater	1	1.9
21		Chemical Coagulants	2	4.0
22		Phosphate Removal	1	1.8
23		Chemical Clarification Equipment	1	1.6
24		Disinfection	2	2.8
25		Factors Affecting Disinfection	1	2.1
26		Disinfection with Chlorine	2	3.7
27		Equipment Used in Chlorine Feeding	2	4.5
	Biological Processes			
28		Lagoons	1	2.6
29		Activated Sludge	4	7.4
30		Aeration with Pure Oxygen	1	2.0
31		Trickling Filters	1	1.8
32		Distribution Systems	1	1.6
33		Trickling Filter Operations	1	2.0
34		Synthetic Media	1	1.5
35		Activated Biofilter Processes (ABF)	1	2.0
36		Rotating Bilogical Contactors (RBC)	1	1.8
37		Secondary Clarifiers	1	1.8
	Solids Treatment and Disposal			
38		Three Processes	2	3.3
39		Sludge Conditioning	3	6.6
40		Thickening and Dewatering	1	3.1
41		Drying Beds	2	3.8
42		Lagoons	1	1.5
43		Vacuum Filtration and Filter Presses	1	3.0
44		Further Reduction of Water Content	1	1.8
45		Composting	1	1.5
46		Ultimate Disposal	2	4.0
		Totals:	62	123
	Time Required to Complete Course:			120

*Time per section is based on 250 words/minute plus one minute per question

Ralph Stevens

Certificates/Licenses

- Certified Maintenance Reliability Professional
- Grade 4 Electrical/Instrumentation & Grade 3 Water Treatment Operator Licenses (CA)
- Grade 3 Operator, Maintenance Technician, & Grade 1 Collection Operator Licenses (AZ)

Instructional Experience

TPC Training/JADE Learning   **2017 - present**

Conducts training seminars, assessing the training needs and comprehension of the students, preparing training material and agenda, continually enhancing technical instructional delivery and presentation skills, adjusting course content in accordance with business needs and regulatory requirements, and ensuring the quality of the course content throughout a course life cycle. Over 600 hours of classroom instructional experience per year.

California Water Environment Association

Class trainer for Electrical/Instrumentation licensees. Workshop trainer for Reliability Centered Maintenance.

Technical Experience

Maintenance Reliability Supervisor (CCWRD)   **2017 - 2020**

Helping leadership enhance the district into RCM, RCD, and Operational Excellence.

Planner/Scheduler (Clark County Water)   **2012 - 2014**

Planned, scheduled, inspected work performed along with mentoring staff at the WWTP, lift stations and lagoons. Instructed staff on the install, repair, and maintenance of motors, pumps, SCADA, controls, plant facilities and project management. Used Maximo EMS to monitor and control work flow, budgets, assets, and cost roll up. Served as onsite safety trainer, odor compliant person, and site inspector. Performed root cause analysis and predictive maintenance on plant equipment.

Electrical Supervisor (Metropolitan Water Reclamation)   **1978 - 2012**

Supervised Electrical Department in all wastewater processes, SCADA control wave, lift stations, deep tunnel, power plant sub-stations, control structures, disinfection, ozone, pumps, tide gates, and day-to-day operations. Supervised 4 WWTP operators, 24 electricians, support trades and contract workers. Setup the Mainsaver CMMS system, asset management, job and safety plans, and RCM implementation. Used CMMA and SAP to track progress, order parts, schedule work, and oversee work order completion. Worked on general construction from the sub-contractor side of the Deep Tunnel Storm Water Collection Systems.