

Fleming Training Center Course Catalog

Water and Wastewater Operator Training

State of Tennessee
Department of Environment and Conservation
Office of Environmental Assistance

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Murfreesboro, TN37129

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<http://www.tn.gov/environment/fleming/>



<http://www.facebook.com/flemingtrainingcenter>

Fleming Training Center

Frequently Asked Questions Regarding Training Classes



1. Who should attend the FTC courses?

Anyone who is interested in learning more about the fields of water and wastewater treatment or distribution and collection systems may enroll in any of our courses.

2. Which courses are required in order to be certified?

State law **does not** require that applicants take any of our courses in order to take the certification exams for water treatment, wastewater, distribution systems or collection systems. The courses are provided to aid the operators in preparing to take the various examinations, but they are not required. The only exception to this would be anyone interested in becoming certified in the area of Cross Connection Control.

3. How much do FTC courses cost?

Course fees vary depending on the length of class and materials required. Courses conducted by independent agencies (such as T.W.W.A. or T.W.Q.M.A.) or other State agencies may be held at the Training Center and may charge a fee for attendance. In these instances, participants need to contact the sponsoring entity for further information.

4. How long are FTC classes?

The classes range in length from one day (most continuing education seminars) to two weeks. Please check the course description for exact details.

5. What are the hours of FTC classes?

Most classes start promptly at 8:30 a.m. and end at 4:00 p.m. with a lunch break of one hour. Most five-day and ten-day classes end at 4:00 p.m. on Fridays. Exact times will be included in the confirmation letter that each registered student receives.

6. Do I have to register for FTC classes and seminars?

YES. To register for a class, submit this form along with payment no less than 30 (thirty) days in advance of the scheduled class date. Forms received later than 30 days will be assessed a \$50 late fee. Class booklets may be downloaded for print at no charge at www.tn.gov/environment/fleming/study.shtml. Students requesting a printed copy must include an additional \$10 per booklet.

To register for a continuing education seminar, submit this form along with payment three (3) business days in advance of scheduled seminar date. For late registration, please call (615) 898-8090.

7. How long in advance should I register for a class?

We suggest that you register a minimum of thirty days in advance of the class date. Some classes may require registration even earlier. In most cases, early registration will ensure that there is space in the class. You can register as far in advance as you wish; in fact, the earlier, the better. **Forms received later than 30 days will be assessed a \$50 late fee.**

8. If I register for a class 30 days in advance, will I be assured of a space?

Not necessarily, although generally there should be space available at that time. If space is not available, you will be notified that you are being placed on a waiting list or give you the opportunity change the registration to the next class.

9. What happens after I e-mail, mail or fax my registration?

After the registration is received, the rosters are checked to ensure that space is available in the class. If space is available, your name will be added to the roster. Approximately three weeks prior to the class, you will receive by mail a letter confirming your registration for the class, as well as any additional information that you may need, including times, locations and information sheets.

If the class is closed when the registration form is received, you will receive a letter advising you of the situation and telling you that your name is being placed on a waiting list. If space becomes available prior to the class, you will be contacted regarding your attendance. If you have any questions about class enrollment, please contact our registration office at (615) 898-6501.

10. What do I do if I cannot attend a class for which I am registered?

If you are registered for a class/seminar and determine that you will not be able to attend, please contact the FTC registration office as soon as possible. Often there is a waiting list of persons who would very much like to have the opportunity to attend.

11. If I cannot attend a course/seminar, can I send someone else in my place?

Certainly. If you know this in advance of the class date, please inform the FTC registration office so that the appropriate changes can be made to the rosters.

12. What do I need to bring with me when I come to class?

Minimum requirements include paper, pens or pencils, highlighters, and a scientific calculator. You will also need to print off the Study Guide on our website for your particular class. Additionally, most students find it beneficial to purchase the suggested textbook. If you require any additional materials, they will be listed in your confirmation letter.

13. How do I know which textbooks I need?

The suggested textbooks for each course are listed in the Course Catalog, on our website, and on the information sheet that is mailed with the class confirmation letter.

14. Where do I purchase these textbooks?

The textbooks may be purchased either directly from the publisher or from textbook suppliers. Many of the suggested textbooks can be found online new and some can be found used at a discounted price.

15. Can I purchase the textbooks after I get to the Center?

No. We do not have a supply of textbooks for sale at the Center.

16. What is necessary in order to complete a course at FTC?

For most classes, course completion requires satisfactory attendance and a passing score on the final test given at the end of the class. No testing is done for continuing education seminars. For specific requirements for individual classes, please call the contact person listed for the particular class.

17. Will the course count towards my continuing education requirement?

All FTC-sponsored continuing education seminars are approved by the Certification Board for credit toward continuing education requirements in the appropriate fields (e.g., Water Treatment Seminars for Grades 1, 2, 3, and 4 Water Treatment, etc.) The training courses have also been approved for credit. Please check the Course Catalog for specific details on particular classes.

18. Will the course count towards my experience requirement when applying for an examination?

The Rules and Regulations of the Certification Board provide for some coursework to count toward the experience requirements for the certification exam. Grade 4 Water Treatment Plant Operator applicants or Grade 4 Wastewater Treatment Plant Operator applicants can accumulate up to 36 months of experience credit from training courses. All other grades of water, wastewater, collection and distribution can only accumulate 3 months of experience credit from training courses. Training classes have to be approved by the Operator Certification Board to count as experience credit. The details of experience credit that can be attained from specific FTC courses are listed in the Course Catalog.

19. Will FTC provide me with proof of attendance at the courses/seminars?

Students who successfully complete a training class will receive a Certificate of Completion. Students who attend a Continuing Education Seminar will receive a letter after they have attended stating that the C.E. credits were applied to their certification. Please retain these documents in a safe location because they will serve as your only proof of attendance.

20. Are all of the classes held in Murfreesboro?

While most of the classes are held at the Training Center in Murfreesboro, several times a year continuing education seminars are held at off-site locations across the State (Memphis, Jackson, Chattanooga, Knoxville, Johnson City, etc.)

21. I need more education on a particular subject. Can you help me?

The FTC Staff welcomes suggestions on topics to include in both the basic training classes and continuing education seminars. If you would like to have a particular subject presented, please contact one of the instructors with your suggestions. If you need individual assistance in a certain area, our staff would also be happy to work with you on a one-on-one basis.

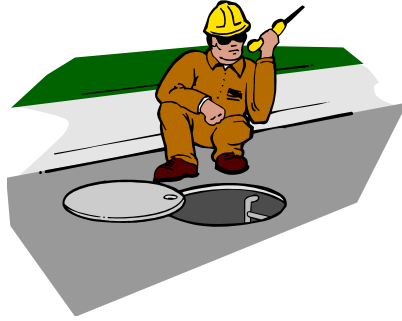
22. With whom can I talk if I have questions about classes at the Training Center?

The registration office handles all class/seminar registrations, waiting lists, confirmation letters, cancellations, etc. You can contact our registration office at (615) 898-6501. If you have specific questions about course content or subject material, please contact the Instructor listed in the Course Catalog.

23. I need assistance on-site at my plant, not in the classroom. Whom can I call?

The staff at FTC is more than happy to provide technical assistance with any problems that you might have. Experts in your area will visit on-site and offer suggestions to help you solve any problems. Please contact the appropriate water or wastewater instructor.

**For further information, please call
(615) 898-8090.**

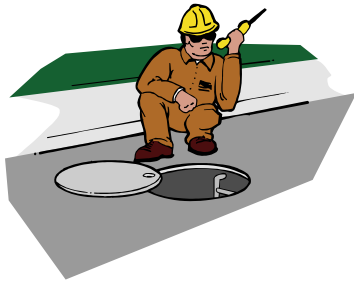


Collection System Classes

#1203 Collection Systems Grade 1 & 2

Collection Systems Grade 1 & 2

FLEMING TRAINING CENTER
COURSE # 1203



Who should attend?

Persons who are currently working in a Collection System Grade 1 or 2 and are planning to become certified collection system operators.

No prerequisite is required, however, basic math skills are essential. For those who need to brush up on math, course # 1001, Basic Math, is recommended.

Course Description

The course will examine collection system facilities and the procedures used to operate a wastewater collection system.

Major topics include:

- Pipeline Cleaning and Maintenance
- Pumps and Lift Stations
- Sewer Rehabilitation
- Inspection and Testing
- Equipment Maintenance
- Cross Connection Control
- Safety

Course Materials

Please bring a Study Guide printed off Fleming website for Collection Systems class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required. The following textbook is recommended.

Operation and Maintenance of Wastewater Collection Systems Vol. 1 (California State University at Sacramento)

Course Length

The course is four and a half class days.

Experience Credit

Three months for Collection Grade 1 and 2 Operator applicants.

Continuing Education

Approved for six hours of continuing education credit for all **certified** collection operators.

Fees

\$275.00 for class

\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov



Continuing Education Seminars

Collection System Seminars

Distribution System Seminars

Water Treatment Seminars

Wastewater Treatment / Biological Natural Systems Seminars

Small Water System Seminars

Continuing Education Seminars



The Fleming Training Center offers a variety of Continuing Education Seminars each year. Although anyone interested in acquiring knowledge about water and wastewater topics is welcome to attend, the seminars are designed to help certified operators meet the continuing education requirements mandated by the State. The seminars are held at the training center and at other locations across the state. The seminars are overseen by FTC staff and may include guest speakers from state and federal agencies as well as representatives of the water and wastewater industry.

Who should attend?

Certified Water Treatment, Wastewater Treatment, Distribution System, and Collection System Operators, all grades.

Seminars offered each year

- Water Treatment Seminar
- Wastewater Treatment Seminar
- Collection System Seminar
- Distribution System Seminar
- Small Water Seminar

Locations

- Chattanooga
- Elizabethton/Johnson City
- Jackson
- Knoxville
- Memphis
- Murfreesboro

Fees

\$125/seminar

Interested in hosting a seminar? Have seminar ideas for us? Give us a call.

Registration

Registration is required for all seminars. Registration forms should be submitted at least thirty days in advance in order for us to make sure the room can accommodate the number of attendees

Continuing Education

Seminars offered by the training center are approved by the Certification Board. Each one day seminar is approved for six hours of continuing education credit. Two day seminars are approved for twelve hours of continuing education credit. For the credit to be applied you must attend a seminar that relates to your particular certification. For example, certified distribution operators must attend distribution system seminars.

Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov



Cross Connection Control Classes

#2103 Cross Connection Control Basic Workshop

3102 Cross Connection Control Renewal Workshop

Cross Connection Control Basic Workshop

**Fleming Training Center
Course # 2103**



Who should attend?

Individuals working in water systems who are involved in cross connection programs, plumbers, employees of industries and institutions, irrigation personnel, and fire protection system personnel.

Course Description

The course will give individuals an understanding of how backflow occurs and how backflow and cross connection hazards can be prevented or corrected. The individuals will also learn procedures for testing Double Check Valve and Reduced Pressure Backflow Prevention Assemblies.

Major Topics Include

- Causes of backflow
- Proper installation of backflow devices
- Choosing the proper device
- Conducting a cross connection control program
- Recordkeeping
- Testing RPBP and Double Check Valve assemblies.

Course Materials

Please bring a Study Guide printed off Fleming website for Cross Connection Control class, highlighter, and pens or pencils to class.

For testing devices please bring a flat-head screwdriver. You may bring your own test kit or use those provided.

Course Length

The course is three class days.

Experience Credit

Three months for Grade 4 Water Treatment or Wastewater Operator applicants.

Continuing Education

Approved for up to twelve hours of continuing education credit for all certified operators.

Certification Issued

Individuals who successfully complete the workshop will be issued a certificate in testing backflow prevention devices.

Fees:

\$335.00 for class and test

If you are a full-time employee of a Tennessee public water system, your fee is only \$60.

Questions? Contact:

Dennis Conger

(615) 898-6508

Dennis.Conger@tn.gov

Cross Connection Control Renewal Workshop

Fleming Training Center
Course # 3102



Who should attend?

Individuals currently certified to test backflow prevention devices who need to renew their certificates.

Prerequisite: Course # 2103 Cross Connection Control Basic Workshop.

Course Description

The course will inform individuals about current developments in backflow prevention and cross connection control. The individuals will also practice testing Double Check Valve and Reduced Pressure Backflow Prevention Assemblies.

Major Topics Include

- New equipment approved for use
- Problems encountered in backflow assembly testing
- Refinement in testing technique
- Testing RPBP and Double Check Valve assemblies.

Course Materials

Please bring a Study Guide printed off Fleming website for Cross Connection Control class, highlighter, and pens or pencils to class.

For testing devices please bring a flat-head screwdriver. You may bring your own test kit or use those provided.

Course Length

The course is a one day class.

Experience Credit

None.

Continuing Education

Approved for up to six hours of continuing education credit for all **certified** operators.

Certification Issued

Individuals who successfully complete the workshop will have their certificate in testing backflow prevention devices renewed.

Fees:

\$170.00 for class and test

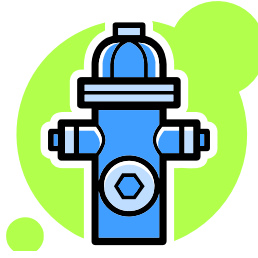
If you are a full-time employee of a Tennessee public water system, your fee is only \$60.

Questions? Contact:

Dennis Conger

(615) 898-6508

Dennis.Conger@tn.gov

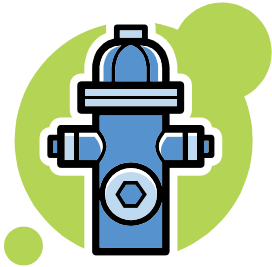


Distribution System Classes

#1103 Distribution Systems Grade 1 & 2

Distribution Systems Grade 1 & 2

Fleming Training Center
Course # 1103



Who should attend?

Persons who are currently working in a Distribution System Grade 1 or 2 and are planning to become certified distribution operators.

No prerequisite is required, however, basic math skills are essential. For those who need to brush up on math, course # 1001, Basic Math, is recommended.

Course Description

The course will examine distribution system facilities and the procedures used to distribute treated water to consumers.

Major topics include:

- Pipe Installation and Maintenance
- Valves and Pumps
- Fire Hydrants
- Services and Meters
- Water Storage
- Cross Connection Control
- Safety, Rules, and Recordkeeping

Course Materials

Please bring a Study Guide printed off Fleming website for Distribution class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required. The following textbooks are recommended.

Water Transmission and Distribution.
(American WaterWorks Association A.W.W.A)

Water Treatment and Distribution Study Guide.
(A.W.W.A)

Course Length

The course is four and a half class days.

Experience Credit

Three months for Distribution Grade 1 & 2 Operator applicants.

Continuing Education

Approved for six hours of continuing education for all **certified** distribution operators.

Fees

\$275.00 for class

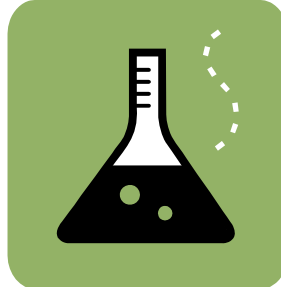
\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov



Laboratory Classes

#2202 Intermediate Wastewater Laboratory

2102 Intermediate Water Treatment Laboratory

Intermediate Wastewater Treatment Laboratory Workshop



FLEMING TRAINING CENTER COURSE # 2202

Who Should Attend?

Employees of wastewater treatment facilities involved in laboratory testing or those who are interested in learning wastewater treatment laboratory procedures.

No prerequisite is required. Course # 1001 Basic Math is recommended if the student has difficulty with math.

Course Description

This is an entry level “hands-on” course that combines laboratory and classroom instruction. The student will learn proper sampling techniques and to perform wastewater treatment plant tests. The class also instructs the student in lab recordkeeping and the calibration and maintenance of laboratory equipment.

Topics include:

- Suspended Solids Analysis
- Dissolved Oxygen, B.O.D., and C.O.D.
- Chlorine and Ammonia Nitrogen Tests
- Fecal Coliform and *E. coli* Analysis

Course Length

The class is ten days.

Course Materials

Please bring a Study Guide printed off Fleming website for Intermediate Wastewater Treatment Laboratory class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required.

Please wear proper attire when working in the laboratory. Refrain from wearing shorts, sandals, or open-toed shoes.

Experience Credit

Ten months for Grade 4 Wastewater Treatment Operator applicants.

Continuing Education

Approved for up to twelve hours of continuing education credit for all grades of certified wastewater treatment operators.

Fees:

\$550.00 for class

\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt
(615) 898-6506
Shannon.Pratt@tn.gov



Intermediate Water Treatment Laboratory Workshop



FLEMING TRAINING
CENTER
COURSE # 2102

Who Should Attend?

Employees of water treatment facilities involved in laboratory testing or those who are interested in learning water treatment laboratory procedures.

No prerequisite is required. Course # 1001 Basic Math is recommended if the student has difficulty with math.

Course Description

This is a “hands-on” course that combines laboratory and classroom instruction. The student will learn proper sampling techniques and to perform water treatment plant tests. The class also instructs the student in lab recordkeeping and the calibration and maintenance of laboratory equipment.

Topics include:

- Chlorine and Fluoride
- Iron, Manganese and Phosphate
- Turbidity and Nitrate
- Total Coliform and *E. Coli* Analysis
- Jar Testing
- pH, Alkalinity, and Hardness

Course Length

The class is ten days.

Course Materials

Please bring a Study Guide printed off Fleming website for Intermediate Water Treatment Laboratory class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required.

Please wear proper attire when working in the laboratory. Refrain from wearing shorts, sandals, or open-toed shoes.

Experience Credit

Ten months for Grade 4 Water Treatment Operator applicants.

Continuing Education

Approved for up to twelve hours of continuing education credit for all grades of certified water treatment operators.

Fees

\$550.00 for class

\$10.00 for Study Guide (or print from Fleming website for free)

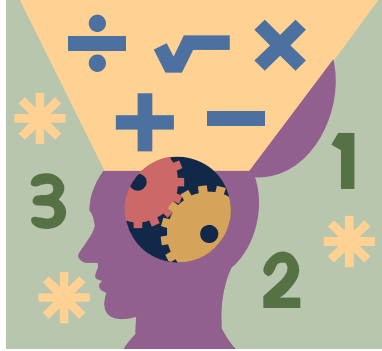
Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov





Mathematics Classes

#1001 Basic Math for Water and Wastewater Operators

#1202 Applied Math for Collection System Operators

#1102 Applied Math for Distribution System Operators

#1201 Applied Math for Wastewater Operators

1103 Applied Math for Water Treatment Grade 1 & 2 Operators

#1101 Applied Math for Water Treatment Grade 3 & 4 Operators

Basic Math for Water and Wastewater Operators

Fleming Training Center
Course # 1001



Who should attend?

This course is intended for water treatment and wastewater treatment personnel as well as persons working in collection or distribution systems.

The class is for persons who either lack basic math skills or would like a review of math topics before attending an applied math class. There is a diagnostic test available on our website if you are unsure whether or not this class would benefit you. There is no prerequisite for the course.

Course Description

The course is a review of arithmetical skills and includes some basic algebra and geometry.

Topics include:

- Solving for the Unknown
- Fractions, Decimals, Percents
- Ratio and Proportion
- Conversions and Dimensional Analysis
- Area, Volume, and Flow

Course Length

The course is five class days.

Course Materials

Please bring a Study Guide printed off Fleming website for Basic Math class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required, however, the following textbook is recommended.

Basic Math Concepts for Water and Wastewater Operators.

Technomic Publishing Company.

Experience Credit

None.

Continuing Education

Approved for up to twelve hours of continuing education for all grades of **certified** water treatment, wastewater treatment, collection, or distribution operators.

Fees

\$275.00 for class

\$10.00 for Study Guide (or print from Fleming website for free)

Contact:

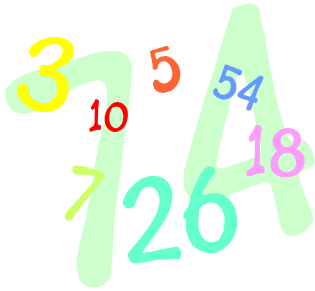
Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov

Applied Math for Collection System Operators

Fleming Training Center
Course # 1202



Who should attend?

This course is intended for individuals who are currently working in Collection Systems Grade 1 or 2. The course is geared toward persons who are planning to become certified operators and for currently certified operators who want to have a better understanding of collection system processes and the calculations involved.

There is no prerequisite for the course, however, **basic math skills are essential.** If a student has difficulty with math, it is recommended that he or she attend the Basic Math Course # 1001 prior to this class.

Course Description

The course involves practice in applying math skills to the calculations used in Collection System Grade 1 & 2 processes.

Topics include:

- Area, Volume, and Flow
- Pumps, Horsepower, and Efficiency
- Leaks and Dye Testing
- Chemical Dosage
- Maps and Blueprints

Course Length

The course is three and a half class days.

Course Materials

Please bring a Study Guide printed off Fleming website for Applied Math for Collection Systems class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required, however, the following textbook is recommended.

Operation and Maintenance of Wastewater Collection Systems Vol 1. (California State University at Sacramento)

Experience Credit

None.

Continuing Education

Approved for up to six hours of continuing education credit for all **certified** Collection System Grade 1 & 2 operators.

Fees

\$225.00 for class

\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov

Applied Math for Distribution System Operators

Fleming Training Center
Course # 1102



Who should attend?

This course is intended for individuals who are currently working in a Distribution Systems Grade 1 or 2 . The course is geared toward persons who are planning to become certified operators and for currently certified operators who want to have a better understanding of distribution system processes and the calculations involved.

There is no prerequisite for the course, however, **basic math skills are essential.** If a student has difficulty with math, it is recommended that he or she attend the Basic Math Course # 1001 prior to this class.

Course Description

The course involves practice in applying math skills to the calculations used in Distribution Systems Grade 1 & 2.

Topics include:

- Head and Head Loss
- Pumps, Horsepower, and Efficiency
- Disinfection
- Flow Rate and Hydrant Flow Testing
- C-Factor

Course Length

The course is four and a half class days.

Course Materials

Please bring a Study Guide printed off Fleming website for Applied Math for Distribution class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required, however, the following textbooks are recommended.

Basic Science Concepts and Applications.
(American Water Works Association)

Experience Credit

None.

Continuing Education

Approved for up to six hours of continuing education credit for **certified** Distribution System Grade 1 & 2 operators.

Fees:

\$275.00 for class

\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov

Applied Math for Wastewater Treatment Operators

Fleming Training Center
Course # 1201



Who should attend?

This course is intended for individuals who are currently working in a Wastewater Treatment Facility, not a Biological Natural System. The course is geared toward persons who are planning to become certified operators and for currently certified operators who want to have a better understanding of wastewater treatment processes and the calculations involved.

There is no prerequisite for the course, however, **basic math skills are essential**. If the student has difficulty with math, it is recommended that they attend the Basic Math Course # 1001 prior to this class.

Course Description

The course involves practice in applying math skills to the calculations used in wastewater treatment plant operations.

Topics include:

- Activated sludge and Trickling filter math
- Digesters and Dewatering
- Pre-Treatment and Pumps
- Laboratory calculations

Course Length

The course is five class days.

Course Materials

Please bring a Study Guide printed off Fleming website for Applied Math for Wastewater Treatment class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required, however, the following textbooks are recommended.

Applied Math for Wastewater Plant Operators. Technomic Publishing Co.

Experience Credit

Five months for Grade 4 Wastewater Treatment Operator applicants upon completion.

Continuing Education

Approved for up to twelve hours of continuing education credit for all grades of **certified** wastewater treatment operators.

Fees

\$275.00 for class

\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov

Applied Math for Water Treatment Grade 1 & 2 Operators

Fleming Training Center
Course # 1104



Who should attend?

This course is intended for individuals who are currently working in a Grade 1 or 2 Water Treatment Facility. The course is geared toward persons who are planning to become certified operators and for currently certified operators who want to have a better understanding of water treatment processes and the calculations involved.

There is no prerequisite for the course, however, **basic math skills are essential**. If a student has difficulty with math, it is recommended that he or she attend the Basic Math Course # 1001 prior to this class.

Course Description

The course involves practice in applying math skills to the calculations used in water treatment plant operation in Grade 1 and 2 Water Treatment Facilities.

Topics include:

- Volume and Flow
- Pumps and Feeders
- Disinfection
- Fluoridation
- Stabilization

Course Length

The course is three class days.

Course Materials

Please bring a Study Guide printed off Fleming website for Applied Math for Water Treatment Grade 1 and 2 class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required, however, the following textbooks are recommended.
Applied Math for Water Plant Operators.
(Technomic Publishing Company)

Experience Credit

None.

Continuing Education

Approved for six hours of continuing education credit for **certified** Water Treatment Grade 1 and 2 operators.

Fees:

\$225.00 for class

\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov

Applied Math for Water Treatment Grade 3 & 4

Fleming Training Center
Course # 1101



Who should attend?

This course is intended for individuals who are currently working in a Grade 3 or 4 Water Treatment Facility. The course is geared toward persons who are planning to become certified operators and for currently certified operators who want to have a better understanding of water treatment processes and the calculations involved.

There is no prerequisite for the course, however, **basic math skills are essential**. If a student has difficulty with math, it is recommended that he or she attend the Basic Math Course # 1001 prior to this class.

Course Description

The course involves practice in applying math skills to the calculations used in water treatment plant operation in Grade 3 and 4 Water Treatment Facilities.

Topics include:

- Coagulation and Sedimentation
- Filtration and Disinfection
- Pre-Treatment and Pumps
- Stabilization and Softening
- Fluoridation and Chemical Feeders

Course Length

The course is five (5) class days.

Course Materials

Please bring a Study Guide printed off Fleming website for Applied Math for Water Treatment Grade 3 and 4 class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required, however, the following textbooks are recommended.

Applied Math for Water Plant Operators
(Technomic Publishing Company)

Experience Credit

Five months for Grade 4 Water Treatment applicants upon completion.

Continuing Education

This course is approved for up to twelve hours of continuing education for all grades of **certified** water treatment operators.

Fee:

\$275.00 for class

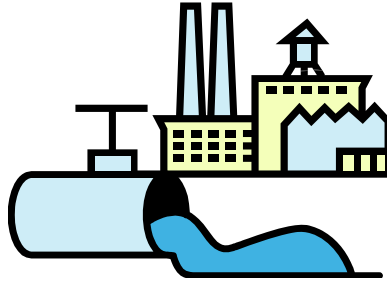
\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov



Wastewater Treatment Classes

#1204 Biological/Natural Systems

#1205 Wastewater Treatment Grade 1 & 2

#2201 Wastewater Treatment Grade 3 & 4

#3201 Advanced Wastewater Treatment

3202 Activated Sludge Workshop

Biological / Natural Systems



Fleming Training Center

Course # 1204

Who should attend?

Persons who are currently working in Biological/Natural Systems who are planning on becoming certified operators or who want to have a better understanding of these systems.

There is no prerequisite for the course, however, basic math skills are essential. If the student has difficulty with math, it is recommended that they attend the Basic Math Course # 1001 prior to this class.

Course Description

This is an introductory course on wastewater with an emphasis on biological/natural treatment systems. Plus, all math needed for a BNS operator will be covered, there is no need to also take Applied Math for Wastewater Operators Course # 1201.

Topics Include:

- Wastewater Characteristics
- Facultative and Aerated Lagoons
- Intermittent Sand Filters
- Spray Irrigation
- Constructed Wetlands
- Overland Flow Systems
- Disinfection and Lab Procedures
- Math

Course Materials

Please bring a Study Guide printed off Fleming website for Biological/Natural Systems class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required.

The following textbook is recommended.

Operation of Wastewater Treatment Plants Vol. 1 (California State University at Sacramento)

Course Length

The course is four and a half class days.

Experience Credit

Three months for BNS applicants.

Continuing Education

Approved for six hours of continuing education credit for **certified** Biological/Natural System operators.

Fees

\$275.00 for class

\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov

Wastewater Treatment Grade 1 & 2



Fleming Training Center

Course # 1205

Who should attend?

Persons who are currently working in a Wastewater Treatment Grade 1 or 2 Facilities who are planning on becoming certified operators or who want to have a better understanding of these systems. There is no prerequisite for the course, however, **basic math skills are essential.** If the student has difficulty with math, it is recommended that they attend the Basic Math Course # 1001 prior to this class.

Course Description

This is an introductory course for employees of Wastewater Treatment plants. The individual will gain an understanding of the basics of operation and maintenance of wastewater facilities.

Topics Include:

- Wastewater Characteristics
- Preliminary Treatment
- Sedimentation
- Activated Sludge
- Disinfection
- Wastewater Lagoons

Course Materials

Please bring a Study Guide printed off Fleming website for Introduction to Wastewater Treatment class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required.

The following textbook is recommended.

Operation of Wastewater Treatment Plants Vols. 1 and 2 (California State University at Sacramento)

Course Length

The course is five class days.

Experience Credit

Three months for Grades 1 and 2 Wastewater Treatment operator applicants.

Continuing Education

Approved for up to six hours of continuing education credits for all certified Wastewater Treatment operators.

Fees

\$275.00 for class

\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov



Wastewater Treatment Grade 3 & 4



Fleming Training Center

Course # 2201

Who should attend?

Persons who are currently working in a Wastewater Treatment Grade 3 or 4 Facility who are planning on becoming certified operators or who want to have a better understanding of these systems. There is no prerequisite for the course, however, **basic math skills are essential.** If the student has difficulty with math, it is recommended that they attend the Basic Math Course # 1001 prior to this class.

Course Description

This is an introductory course for employees of Wastewater Treatment plants. The individual will gain an understanding of the basics of operation and maintenance of wastewater facilities.

Topics Include:

- Wastewater Characteristics
- Preliminary Treatment
- Sedimentation
- Activated Sludge
- Sludge Digestion and Disposal
- Disinfection and Lab Procedures
- NPDES Permits

Course Materials

Please bring a Study Guide printed off Fleming website for Introduction to Wastewater Treatment class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required.

The following textbook is recommended.

Operation of Wastewater Treatment Plants Vols. 1 and 2 (California State University at Sacramento)



Course Length

The course is ten class days.

Experience Credit

Ten months for Grade 4 Wastewater Treatment Operator applicants, or three months for Grades 3.

Continuing Education

Approved for up to twelve hours of continuing education credits for all certified Wastewater Treatment operators.

Fees

\$550.00 for class

\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov



Advanced Wastewater Treatment



Fleming Training Center

Course # 3201

Who should attend?

Persons who are currently working in Wastewater Treatment Grade 3 and 4 Facilities who are planning on becoming certified operators or who want to have a better understanding of these systems.

Prerequisite:

Introduction to Wastewater
Course # 2201

Course Description

This course follows up on the Introduction to Wastewater course. It includes a more in-depth review of activated sludge and wastewater treatment processes.

Topics Include:

- Activated Sludge Theory and Math
- Sludge Digestion
- Solids Handling
- Phosphorus and Nitrogen Removal
- Odor and Grease Control
- Disinfection

Course Materials

Please bring a Study Guide printed off Fleming website for Advanced Wastewater Treatment class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required.

The following textbook is recommended.

Operation of Wastewater Treatment Plants Vols. 1 and 2 (California State University at Sacramento)



Course Length

The course is five class days.

Experience Credit

Five months for Grade 4 Wastewater Treatment Operator applicants.

Continuing Education

Approved for up to twelve hours of continuing education credit for all **certified** Wastewater Treatment operators.

Fees

\$275.00 for class

\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov



Activated Sludge Workshop



Fleming Training Center

Course # 3202

Who should attend?

Persons who are currently working in Activated Sludge plants who want to have a better understanding of these systems.

Prerequisite:

Wastewater Treatment Grade 3 & 4
Course # 2201

Course Description

This is a course designed to help operators of activated sludge facilities in identifying operational problems before they become serious. The course may include classroom lectures and/or “hands on” laboratory exercises.

Topics Include:

- Activated Sludge Operation
- Microscopic Examination of Activated Sludge
- Activated Sludge Math

Course Materials

Please bring a scientific calculator, scratch paper, highlighter, and pens or pencils to class. A study guide will be ready for you when you attend class at no additional charge.

No textbook is required.



Course Length

The course is three class days.

Experience Credit

Three months for Grade 4 Wastewater Treatment operator applicants.

Continuing Education

Approved for up to twelve hours of continuing education for all certified Wastewater Treatment plant operators.

Fees

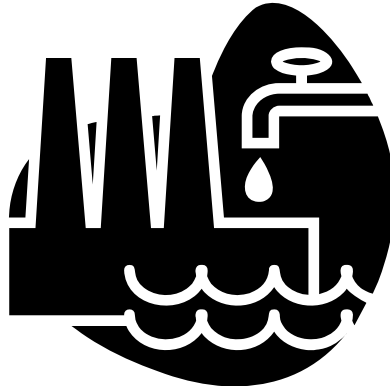
\$225.00 for class

Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov



Water Treatment Classes

#2101 Water Treatment Grade 1 & 2

#3101 Water Treatment Grade 3 & 4

#3103 Coagulation and Flocculation Workshop

3110 Advanced Water Treatment

GRADE 1 AND 2 WATER TREATMENT



**Fleming Training Center
Course # 2101**

Who Should Attend?

Individuals who are currently working in Grade 1 or 2 Water Treatment Facilities who are planning on becoming certified operators.

No prerequisite is required; however, **basic math skills are essential.** If the student has difficulty with math, Course # 1001 Basic Math is recommended.

Course Description

The course is an introduction to the water treatment process. The student will gain an understanding of the various components and processes in the production of potable water. The student will also become familiar with water quality analysis and Tennessee state regulations applied to drinking water systems.

Topics Include:

- Water Sources and Sampling
- Pre-Treatment and Sedimentation
- Coagulation and Flocculation
- Filtration and Disinfection

Course Materials

Please bring a Study Guide printed off Fleming website for Grade 1 and 2 Water Treatment class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required.

The following textbook is recommended.

Water Supply Operations:Water Treatment.
3rd edition (A.W.W.A)

Course Length

Five class days

Experience Credit

3 months for Grade 1 and 2 Water Treatment operator applicatnts.

Continuing Education

Approved for up to twelve hours of continuing education credit for all **certified** Grade 1 and 2 Water Treatment operators.

Fees

\$275.00 for class

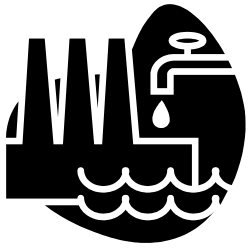
\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt
(615) 898-6506
Shannon.Pratt@tn.gov



GRADE 3 AND 4 WATER TREATMENT



**Fleming Training Center
Course # 3101**

Who Should Attend?

Individuals who are currently working in Grade 3 or 4 Water Treatment Facilities who are planning on becoming certified operators.

No prerequisite is required; however, **basic math skills are essential.** If the student has difficulty with math, Course # 1001 Basic Math is recommended.

Course Description

The course covers all aspects of the water treatment process. The student will gain an understanding of the various components and processes in the production of potable water. The student will also become familiar with water quality analysis and Tennessee state regulations applied to drinking water systems.

Topics Include:

- Sedimentation, Coag./Flocculation
- Filtration and Disinfection
- Fluoridation and Stabilization
- Adsorption, Aeration, and Softening
- Water Analysis and Sampling

Course materials

Please bring a Study Guide printed off Fleming website for Grade 3 and 4 Water Treatment class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required.

The following textbook is recommended.

Water Supply Operations:Water Treatment.
3rd edition (A.W.W.A)

Course Length

Ten class days

Experience Credit

Ten months for Grade 4 Water Treatment operator applicants. Three months for Grade 1-3 Water Treatment operator applicants.

Continuing Education

Approved for up to twelve hours of continuing education credit for all **certified** Water Treatment operators.

Fees

\$550.00 for class

\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt
(615) 898-6506
Shannon.Pratt@tn.gov



COAGULATION AND FLOCCULATION WORKSHOP



**Fleming Training Center
Course # 3103**

Who Should Attend?

Individuals who are currently working in Water Treatment Grade 3 or 4 Facilities who are planning on becoming certified operators.

Prerequisite:

Water Treatment Grade 3 & 4
Course # 3101

Course Description

The course is designed to give individuals classroom and hands on experience with jar testing, and other methods to improve coagulation and flocculation.

Topics Include:

- Coagulation and Flocculation Theory
- Coagulation/ Jar Test Math
- Jar Test Planning
- Streaming Current Monitors
- Turbidimeters

Course materials

Please bring a Study Guide printed off Fleming website for Coag/Floc class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

Please bring a small sample of coagulant and coagulant aid for jar testing.

No textbook is required. The following book is recommended.

AWWA Manual 37 Operational Control of Coagulation and Filtration Practices (A.W.W.A)

Course Length

Three class days

Experience Credit

Three months for Grade 4 Water Treatment operator applicants

Continuing Education

Approved for up to twelve hours of continuing education credit for all **certified** Water Treatment operators.

Fees

\$225.00 for class

\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov



ADVANCED WATER TREATMENT



Filter

**Fleming Training Center
Course # 3110**

Who Should Attend?

Individuals who are currently working in Water Treatment Grade 3 or 4 Facilities who are planning to become certified operators.

Prerequisite:

Water Treatment Grade 3 & 4
Course #3101

Course Description

The course is designed to complement the Water Treatment Grade 3 & 4 Course. It provides a more in-depth review of treatment methods, procedures, and planning.

Topics Include:

- Filter Optimization and Performance
- Preventative Maintenance
- Emergency Operation Planning
- Fluoride Addition Methods
- Safety and Safety Training
- Bacteriological Analysis and Sampling Plans

Course materials

Please bring a Study Guide printed off Fleming website for Advanced Water Treatment class, scientific calculator, scratch paper, highlighter, and pens or pencils to class.

No textbook is required.

The following textbook is recommended.

Water Supply Operations:Water Treatment.
3rd edition (A.W.W.A)

Course Length

Five class days

Experience Credit

Five months for Grade 4 Water Treatment operator applicants

Continuing Education

Approved for up to twelve hours of continuing education credit for all **certified** Water Treatment operators.

Fees:

\$275.00 for class

\$10.00 for Study Guide (or print from Fleming website for free)

Questions? Contact:

Shannon Pratt

(615) 898-6506

Shannon.Pratt@tn.gov

