

2023 Spring MRWA Review Classes

Water | Math | Wastewater | Lagoon Operations

This brochure includes classes for the entire state of Michigan

HOW TO REGISTER FOR AN MRWA CLASS ON OUR WEBSITE

Did you get this brochure with your name on it? If so, you are in the database.

DO NOT create an account. Call the MRWA office if you do not know what email address we have on file for you.

Go to mrwa.net click login at the very top of the page, enter your email and follow the prompts to set up a password. (If you are not found, call the MRWA office, do not create an account)

Note: Even though membership is by community, accounts in the system are by person

Once you are logged in your name will appear at the very top of the page You can register any of the employees in your community now Go to events tab, Select event, Enter # of tickets you need (attendees), Click continue

In the attendee field start typing the attendee's LAST NAME and select the pop-up name. The rest of the fields for that attendee will populate if we have the info in the database.

Note: Do no overwrite the info in the populated field unless it has changed. For Example: City of XYZ do not change it to City of XYZ Water Department. Individuals are tied to the specific city name. Or Benjamin Smith do not overwrite to Ben Smith. Benjamin Smith is tied to the city membership—Ben Smith is not.

Please make sure we have the attendee cell phone and attendee email address. Repeat for each additional attendee.

Click Continue

At the end select invoice (bill to you so the invoice comes to you) Or pay with credit card

If registering for multiple classes, you will need to register and checkout for each class.

Water Certification Review Courses



You must attend the entire class to earn the CECs



Michigan Rural Water Association has compiled review courses for those planning to take the water treatment and distribution Certification Test. The course will be instructed by an experienced water operator. The course content has been structured based on the DEQ study guide for waterworks operator certification exams. Concentration will be placed on reviewing math skills, system maintenance, chlorination, sampling, and other areas necessary to help you study for your certification exam. During this two-day review course, your instructor will answer your questions and provide tips on test-taking.

TOPICS WILL INCLUDE

Chlorination Contingencies & Emergencies Corrosion **Cross Connections Customer Relations** Fluoridation Hardness/Softening **Hydrants Hydraulics** Instrumentation Iron Removal Main Installation Management Meters Microbiology Pipes & Joints O&M Phosphate Pumps & Motors Record Keeping Safety **SDWA** Sampling Storage Taste & Odor Valves Wells

Water Quality

AGENDA

8:30 a.m. Class Begins
10:30 a.m. Break
10:45 a.m. Class Resumes
Noon Lunch (provided)
1:00 p.m. Class Resumes
2:30 p.m. Break

2:45 p.m. Class Resumes 4:00 p.m. Class Adjourns

Distribution S1 & S2

April 18-19, 2023

Dave Payne Public Services Building, 1153 Exeter Road, Bloomfield Hills, MI 48303

April 25-26, 2023

English Hills Terrace 5179 West River Drive NE Comstock Park MI 49321

April 25-26, 2023

Online via zoom

Need last-minute help? If you attend one of the twoday math or review classes, we will automatically register you for the zoom math review on May 1. You will receive a separate email for that registration. Your choice to attend or not. If you want to come in person on May 1, class fee applies. Circle the class you want to register for.

Members \$340 per attendee Non-Members \$440 per attendee

Attendee cell phone and email address are required for all attendees. Registration will not be processed without these.

ATTENDEE Name:
Employer:
Address:
City/State/ZIP:
ATTENDEE CELL Phone:
ATTENDEE Email:
If attending in person, do you have any special dietary requirements?
Name & phone of person completing form:
Send and invoice: Charge my credit card info below:
Visa Mastercard Discover
Card number:
Expiration date: CSC code:
Name on card:
Card Billing address:
Email address to send receipt to:

Distribution S3 & S4

April 5-6, 2023	April 11-12, 2023	April 18-19, 2023
Quality Inn	Comfort Inn Conf Center	Dave Payne Public Services
2980 Cook Rd.	1645 Commerce Park Drive	Building, 1153 Exeter Road,
West Branch, MI 48661	Chelsea, Michigan 48118	Bloomfield Hills, MI 48303
April 25-26, 2023 English Hills Terrace	April 25-26, 2023 Online via zoom	Circle the class you
5179 West River Drive NE Comstock Park MI 49321	Cininic via zoom	want to register for.
		Members \$340 per attendee

Need last-minute help? If you attend one of the two-day math or review classes, we will automatically register you for the zoom math review on May 1. You will receive a separate email for that registration. Your choice to attend or not. If you want to come in person on May 1, class fee applies.

Members \$340 per attendee Non-Members \$440 per attendee

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Visa Mastercard Discover
Card number:
Expiration date: CSC code:
Name on card:
Card Billing address:
Email address to send receipt to:

Limited Treatment (D Certification) Review

April 4-5, 2023
City of Jackson DPW
Doherty Hotel
421 Water St.
Jackson MI
Clare MI

April 11-12, 2023
Online via zoom
Charty Hotel
Online via zoom
Charty Hotel
Online via zoom

Need last-minute help? If you attend one of the two-day math or review classes, we will automatically register you for the zoom math review on May 1. You will receive a separate email for that registration. Your choice to attend or not. If you want to come in person on May 1, class fee applies.

Circle the class you want to register for.

Members \$340 per attendee Non-Members \$440 per attendee

Attendee cell phone and email address are required for all attendees. Registration will not be processed without these.

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Visa Mastercard Discover
Card number:
Expiration date: CSC code:
Name on card:
Card Billing address:
Email address to send receipt to:

UP Water Review (Distribution & Limited Treatment)

1.2 CECs, Water Technical

Email address to send receipt to:

You must attend the entire class to earn the CECs



Michigan Rural Water Association has compiled review courses for those planning to take the Distribution Certification Test. The course will be instructed by an experienced water operator. The course content has been structured based on the EGLE study guide for waterworks operator certification exams. Concentration will be placed on reviewing math skills, system maintenance, chlorination, sampling, and other areas necessary to help you study for your certification exam.

TOPICS WILL	INCLUD					
Chlorination	nina	Contingencies & Emergencies Hydrants	Corrosion Hydraulics	Cross Connections Instrumentation	Customer Relations Iron Removal	Fluoridation Main Installation
Hardness/Softe Management	ming	Meters	Microbiology	O&M	Phosphate	Pipes & Joints
Pumps & Motors Record Keeping		Safety	Sampling	SDWA	Storage	
Taste & Odor		Valves	Wells	Water Quality		C
AGENDA						
8:30 a.m.	Class B	egins				
Noon	Lunch I	Break (Lunch will be provided)	Attend	dee cell nhone and emai	I address are required for a	II attendees
1:00 p.m.	Class R			ration will not be proces	•	in attenaces.
4:00 p.m.	Class A	djourns			o be a work address. Just a	n email address that
Need last-minute	help? If you	attend one of the two-day math			tendee will be asked to set	•
or review classes,	we will aut	omatically register you for the	•	•	u use your actual name and	d company so we car
		You will receive a separate email	track y	our CECs for EGLE.		_
to come in person		oice to attend or not. If you want class fee applies.			April 5-6, 20	23
ATTENDEE Na	ame:				shpeming Towns	hip Hall
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Employer:					Ishpeming, MI 4	•
					ishpenning, wii -	- 30 - 3
Address:						
					Members \$340 per d	attendee /
City/State/Z	ZIP:				Non-Members \$44	40 per
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ATTENDEE (LELL Pho	one: 				
<mark>attendee e</mark>	<mark>Email:</mark>					
If attending	in perso	on, do you have any spec	ial dietary red	quirements?		
				<u> </u>		
Name & ph	one of p	person completing form:				
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Send and in	voice	Charge my credit	card iiiio bei	ow		
Visa N	/lasterca	ard Discover				
						
Card number	er:					
Expiration d	late:	CSC	code:			
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Name on ca	ırd:					
Card Billing	address	•				
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2 Day Math

1.1 CECs, Water Technical

You must attend the entire class to earn the CECs



This class starts off with basic mathematical concepts such as "how to use a calculator", "how to solve for X", and "how to use and apply mathematical formulas". We then go into practical mathematics for water operators, starting with basic concepts on day one and advancing to mathematics needed for the seasoned operator, such as the allowable leakage calculation for new water mains and the basic Bernoulli equation.

Our Goals: To give water operators a basic mathematical foundation that will allow them to approach any math problem with confidence and advance their career. To inspire students to believe that a math problem is "just a problem" that can be approached and solved like any problem they encounter.

AGENDA Day 1	
8.30am – 10.00am	Basic Math Concepts
10.15 am - 12.00pm	Areas & Volumes
Noon	Lunch (provided)
12:45pm – 2pm	Chemical feed and disinfection
2.15pm – 3.30pm	Calculating pounds & ppm chlorine
3:30pm	Adjourn
AGENDA Day 2	
8:30am – 10am	Hydraulic Calculations
10:15am – Noon	Horsepower, Continuity Equation, etc.
Noon	Lunch (provided)
12:45pm – 2pm	Bernoulli Equation
2:15pm – 3:30pm	Allowable leakage & other calculations
3:30pm	Adjourn

About your instructor: Mike Engels provides mathematics instruction to water and wastewater operators across Michigan. Time after time, students in those courses express their gratitude to Mike for his ability to convey mathematics in a way they can understand.

Two Day Math Reviews

February 28 – March 1, 2023 Ypsilanti Community Utilities Authority 2777 State Road Ypsilanti, MI 48198-9112	March 7-8, 2023 Battle Creek DPW 150 South Kendall Battle Creek MI 49037	March 21-22, 2023 City of Sterling Heights, DPW 7200 18 Mile Rd. Sterling Heights, MI 48314
March 28-29, 2023 Doherty Hotel 604 North McEwan Clare MI	March 28-29, 2023 Online via zoom	

Need last-minute help? If you attend one of the two-day math or review classes, we will automatically register you for the zoom math review on May 1. You will receive a separate email for that registration. Your choice to attend or not. If you want to come in person on May 1, class fee applies.

Attendee cell phone and email address are required for all attendees. Registration will not be processed without these.

ATTENDEE Name:	Circle the class you
Employer:	want to register for. Two Day Classes
Address:	Members \$340 per attendee
City/State/ZIP:	Non-Members \$440 per attendee
REQUIRED ATTENDEE CELL Phone:	
REQUIRED ATTENDEE Email:	
If attending in person, do you have any special dietary requirements?	
Name & phone of person completing form:	
Send and invoice: Charge my credit card info below:	
Visa Mastercard Discover	
Card number:	
Expiration date: CSC code:	
Name on card:	
Card Billing address:	
Email address to send receipt to:	

One Day Math Review

May 1, 2023
2123 University Park Dr Ste 150
Okemos MI 48864

May 1, 2023
Online via zoom

Course topics include:

-Basic Arithmetic (Basic course) -Areas and Volumes

-Velocity and Flow Rates

-Pressure, Force and Head

-Including The Picnic Table Formula

-Typical Water Problems

-Conversions and Formulas

-Calculating Horsepower

-Chemical Feed Rates (Chlorine)

Circle the class you want to register for.

Members \$185 per attendee Non-Members \$235 per attendee

Agenda

8:00 a.m. Registration

8:30 a.m. Mathematics for water personnel

Noon Lunch (provided) 1:00 p.m. Mathematics continues

3:30 p.m. Class adjourns

Attendee cell phone and email address are required for all attendees. Registration will not be processed without these.

ATTENDEE Name:
Employer:
Address:
City/State/ZIP:
REQUIRED ATTENDEE CELL Phone:
REQUIRED ATTENDEE Email:
If attending in person, do you have any special dietary requirements?
Name & phone of person completing form:
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Visa Mastercard Discover
Card number:
Expiration date: CSC code:
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Email address to send receipt to:

Wastewater Operations Review



1.2 CECs, Wastewater Technical

You must attend the entire class to earn the CECs

Class qualifies for 1.2 SHE Engineering. Must take and pass an additional written exam administered at the end of the class to earn SHE credits.

Instructor: John Holland, MRWA

Course Outline: This is a two-day, course will cover the proper operation, maintenance, and procedures for the following wastewater topics. Mathematical calculations associated with each topic will also be covered.

Preliminary treatment: Grit & Rag removal

Primary treatment: Primary clarifier operation, settling rates,

sludge pumping, and detention times

Secondary Treatment: Activated Sludge, RBC's, Trickling Filters,

Oxidation Ditches, and Secondary Clarifiers

Solids Treatment & Disposal: Aerobic Digesters, Anaerobic Digesters,

and Land Application of Sludge

Laboratory Operations: Suspended Solids, BOD, Phosphorous, pH,

Dissolved Oxygen, QAQC

Agenda: Day One

8:30am – Noon Wastewater Math Noon – 1pm Lunch (provided) 1pm – 4pm Wastewater Math

Agenda: Day Two

8:30am – 9:15am: Preliminary Treatment 9:30am – 10:30am: Primary Treatment 10:30am – Noon: Secondary Treatment Noon – 1:00 pm Lunch (provided)

1pm – 2:15pm: Secondary Treatment Activated Sludge, RBC's and Trickling Filters

2:30pm – 3:15pm: Solids Treatment & Disposal

3:15pm – 4pm: Laboratory Operations

Wastewater Operations

March 22-23, 2023 Saginaw Chippewa WWTP 7375 E. Tomah Rd. Mt. Pleasant, MI 48858 March 22-23, 2023 Online via zoom

Class qualifies for 1.2 SHE Engineering. Must take and pass an additional written exam administered at the end of the class to earn SHE credits.

Circle the class you want to register for.

Members \$340 per attendee Non-Members \$440 per attendee

Attendee cell phone and email address are required for all attendees. Registration will not be processed without these.

ATTENDEE Name:
Employer:
Address:
City/State/ZIP:
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If attending in person, do you have any special dietary requirements?
Name & phone of person completing form:
Send and invoice: Charge my credit card info below:
Visa Mastercard Discover
Card number:
Expiration date: CSC code:
Name on card:
Card Billing address:
Email address to send receipt to:

Advanced Wastewater Operations



1.2 CECs, Wastewater Technical

You must attend the entire class to earn the CECs

Class qualifies for 1.2 SHE Engineering. Must take and pass an additional written exam administered at the end of the class to earn SHE credits.

Agenda - Day 1 8:00 - 8:20 Registration 8:20 – 8:30 Housekeeping / Introduction 8:30 – 10:00 General Review (Pretreatment, Clarification, Trickling Filters, RBC's) 10:00 – 10:10 Break 10:10 – 12:00 Activated Sludge Review (Microorganisms, F:M, MCRT, Sludge age) Wasting Rates 12:00 – 12:30 Lunch (provided) 12:30 – 1:50 Nitrogen Removal Nitrogen Cycle & Microorganisms **Operational Controls** 1:50 - 2:00 Break 2:00 – 3:30 Phosphorus Removal (Chemicals, Math) 3:30 – 4:00 Day End Review and Practice Problems Agenda - Day 2 8:00 - 8:20 Registration 8:20 – 10:20 Residual Solids Management Thickening (Gravity, DFAS, Belt Filter, Vacuum Filter) Lime Stabilization Composting Land Application 10:20 – 10:30 Break 10:30 – 12:00 Mechanical and Instrumentation Review of HP and TDH Pump Curves 4-20 milliamps 12:00 – 12:30 Lunch (provided) 12:30 – 1:30 Mechanical and Instrumentation Continued 1:30-2:30Laboratory Laboratory Review (TSS and BOD, GEO MEAN and Fecal Coliform) **Basic Chemistry** QA/QC QA/QC Math (Mean, STD DEV) 2:30 – 3:00 Day End Review and Practice Problems End of Class Exam for SHE's (optional) 3:00-5:00

Advanced Wastewater Operations

March 29-30, 2023 2123 University Park Dr Ste 150 Okemos MI 48864 March 29-30, 2023 Online via zoom

Class qualifies for 1.2 SHE Engineering. Must take and pass an additional written exam administered at the end of the class to earn SHE credits.

Circle the class you want to register for.

Members \$340 per attendee Non-Members \$440 per attendee

Attendee cell phone and email address are required for all attendees. Registration will not be processed without these.

ATTENDEE Name:
Employer:
Address:
City/State/ZIP:
ATTENDEE CELL Phone:
ATTENDEE Email:
If attending in person, do you have any special dietary requirements?
Name & phone of person completing form:
Send and invoice: Charge my credit card info below:
Visa Mastercard Discover
Card number:
Expiration date: CSC code:
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Card Billing address:
Email address to send receipt to:

Activated Sludge Process and Control



1.1 CECs, Wastewater Technical

You must attend the entire class to earn the CECs

Instructor: John Holland, MRWA

AGENDA Day 1 – Activated Sludge Process and Control			
8:30 - 8:40	8:30 - 8:40 Introduction		
8:40 - 9:30	Introduction to the Activated Sludge Process • The Basic Process • Modifications of the Activated Sludge Process • Keywords and Definitions • Process Description		
9:30 - 10:30	Operation Normal Operation Process Equipment; Operation Strategy; Microorganisms Abnormal Operation Trouble shooting; Making Corrections		
10:30 - 10:45	Break		
10:45 - 12:00	Activated Sludge Math Tank Volumes MLSS & MLVSS MCRT & Sludge Age Wasting Rates BOD Loading F/M Ratio Return Rate Estimated		
12:00 - 12:45	Lunch (provided)		
12:45 - 2:00 Plant Tour and Process Familiarization			
2:00 - 3:00	Math Continued		
AGENDA Day 2			
8:30 - 10:30	Math Continued		
10:30 - 10:45	Break		
10:45 - 12:00	Math Continued		
12:00 - 12:45	Lunch (provided)		
12:45 - 2:30	Laboratory • Microorganisms • SVI / SDI		
2:30 - 3:00 Review & Questions			

Activated Sludge

March 6-7, 2023 Saginaw Chippewa WWTP 7375 E. Tomah Rd. Mt. Pleasant, MI 48858 March 6-7, 2023 Online via zoom

Circle the class you want to register for.

Members \$340 per attendee Non-Members \$440 per attendee

Attendee cell phone and email address are required for all attendees. Registration will not be processed without these.

ATTENDEE Name:
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Send and invoice: Charge my credit card info below:
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Card number:
Expiration date: CSC code:
Name on card:
Card Billing address:
Email address to send receipt to:

Lagoon Operations



1.2 CECs, Wastewater Technical

You must attend the entire class to earn the CECs

Class qualifies for 1.2 SHE Engineering. Must take and pass an additional written exam administered at the end of the class to earn SHE credits.

AGENDA Day 1		
8am – 8:15am	Class Begins (Introductions / housekeeping)	
8:15am – 9am	Introduction	
9am – 10am	Basic Math	
10am – 10:15am	Break	
10:15am – Noon	Math continued	
Noon - 12:45pm	Lunch (provided)	
12:45pm – 1:45pm	Treatment Process	
1:45pm – 2pm	Break	
2pm – 3:30pm	Design Criteria	
AGENDA Day 2		
8am – 9am	Sampling and Lab Analysis	
9am – 10am	Management Practices	
10am – 10:15am	Break	
10:15am – 11am	Permits, Records and Reports	
11am – Noon	Collection Systems	
Noon – 12:45pm	Lunch (provided)	
12:45pm – 1:45pm	Collection Systems Continued	
1:45pm – 2pm	Break	
2pm – 3:30pm	Safety	

Lagoon Operations

1.2 CECs, Wastewater Technical - You must attend the entire class to earn the CECs

April 18-19, 2023	April 18-19, 2023
Doherty Hotel	Online via zoom
604 North McEwan	
Clare MI	

Circle the class you want to register for.

Members \$340 per attendee Non-Members \$440 per attendee

Class qualifies for 1.2 SHE Engineering. Must take and pass an additional written exam administered at the end of the class to earn SHE credits.

Attendee cell phone and email address are required for all attendees. Registration will not be processed without these.

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You are Invited

2023 MRWA Annual Conference and Exhibition

March 15-17, 2023

Grand Traverse Resort

Traverse City, MI

Pre-conference class March 14

Water Taste Test Competition Earn up to 1.7 CEC's during preconference and conference classes

Networking Opportunities

To see details or download the full registration brochure go to https://www.mrwa.net/annual-conference

MRWA SAFETY TRAINING SERIES

Michigan Rural Water Association has partnered with G & S Safety Consultants to provide you with a live (via zoom) Safety Training Series.

Future episodes via zoom include:

February 28, 2023 Electrical Safety March 28, 2023 First Aid April 25, 2023 Fall Prevention/Arrest Systems More dates and topics to come

All classes begin at 7:30am and end at 8:30am

IMPORTANT INFO YOU NEED TO KNOW:

Cost is based on your community size so you will need to login to the website. If we have your community size wrong, give us a call to update it.

Most communities will only need to purchase one link/ticket.

We suggest that you watch these trainings by connecting your computer to a large screen TV so all of your staff can watch together.

If you have multiple locations that want to watch live, you will need to purchase additional links/tickets. Each zoom link is tied to an email address so be sure to register the right people to receive the links.

Participation during the live session is encouraged. You can ask questions through your camera if you have one or use the zoom chat function.

There are no CECs but you will want to track of your attendees.

Episodes will be recorded and viewable for 30 days after the live episode. (Link to recording will be emailed to those who purchased the live session.)

Please do your best to register online before contacting the office. Go to MRWA website events tab to register.



Michigan Rural Water Association 2127 University Park Dr Ste 340 Okemos MI 48864 NON-PROFIT PRSRT STD US POSTAGE PAID CLARE, MI 48617 PERMIT #2

This brochure includes MRWA classes for the entire state of Michigan.

Attendee cell phone and attendee email address required. We will not process any registration without that information. Attendee cell and email will NOT be shared with outside parties.

MRWA Outdoor Expo August 17, 2023 Michigan International Speedway MRWA UP Conference October 18-19, 2023 Ramada, Marquette