Out of Sight, but No Longer Out of Mind

The Current Plight of our Water Infrastructure and Workforce and Training Programs at Bristol Community College, Fall River, MA

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“Water infrastructure is the lifeblood of our economy”…
“We must have reliable and resilient water infrastructure systems to attract and retain industry, business, and qualified workers”.

Water Environment Federation President Cordell Samuel

, National Water infrastructure Summit: Reinvest, and Revive April 16, 2013

Our water treatment and delivery systems provide public health protection, fire protection, economic prosperity and the high quality of life we enjoy.

Buried No Longer:
Confronting America’s Water Infrastructure Challenge 2012

Statistics we usually hear about:

1.2 million miles of water supply pipes

155,693 public water systems in the US

700,000 to 800,000 miles of public sewer pipelines

14,780 public wastewater treatment facilities

Some of these pipelines are over 100 years old and every mile of water pipeline suffers a break every 6 years and 1 out of 7 gallons of drinking water is lost to leaks

We will have to spend over a trillion dollars in the next 25 years to maintain these systems

Some statistics you don't generally hear about:

There are currently 117,000 water and wastewater operators

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coming ye

25 to 50%

retire in th

Management"

The Northeast region's water workforce will be hit harder than other regions because the water quality workforce is older than the national average. Also the average experience of those retiring is 24 years, so there will be a great loss of

knowledge and experience.

Water Research Foundation and the American

Water Works Association 2010 report

There is a "critical need to expand and update water and wastewater environmental programs at the community college level to meet the demands for water quality and conservation in the coming years". *2013*
NSF funded report

"Defining Water Management"


Bristol Community College
Engineering Technology Program/
Environmental Technology Career
Associate of Science Degree
Water Quality Professional
Certificate Program

Engineering Technology/Environmental Technology Career Associate Degree Program

Semester 1 Recommended Sequence

Course	Credits	
CSS 101 College Success Seminar	1	
ENG 101 Composition 1: College Writing	3	
CHM 111 General College Chemistry	4	OR
CHM 113 Fundamentals of Chemistry I	4	OR
CHM 116 Health Science Chemistry	4	
MTH 152 College Algebra	3	OR
MTH 172 Precalculus with Trigonometry	4	OR
MTH 214 Calculus I	4	
EGR 141 Introduction to the Environment	3	
Total	14/15	

Semester 2 Recommended Sequence

Course		Credits	
EGR 140	OSHA 40 Hr. Hazardous Waste Operations and Emergency Response (HAZWOPER)	3	
EGR 102	Introduction to Sustainable and Green Energy Technologies	3	OR
EGR 103	Computer Skills for Engineers and Technicians	3	
ENG 102	Composition II: Writing About Literature	3	
MTH 172	Precalculus with Trigonometry	4	OR
MTH 214	Calculus I	4	OR
MTH 214	Calculus II	4	
Global Awareness Elective		3	OR
Humanities Elective		3	
	Total	16	

Semester 3 Recommended Sequence

Course		Credits
GIS 101	Introduction to GIS	3
HST 114	United States History From 1877	3
Global	Awareness Elective	3 OR
Humanities Elective		3
Technical Elective		3/4
Technical Elective		3/4
	Total	15/17

Recommended Technical Electives for Water treatment

GLG 101	Introduction to Physical Geology	4 credits
EGR 140	OSHA 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER)	3 credits
EGR 151	Electrical Machinery	3 credits
SCI 112	Principles of Ecology	4 credits

Recommended Technical Electives for Wastewater Treatment

GLG 101	Introduction to Physical Geology	4 credits
SCI 112	Principles of Ecology	4 credits
GLG 101	Introduction to Physical Geology	4 credits
EGR 151	Electrical Machinery	3 credits
EGR 140	OSHA 40-Hour Hazardous Waste Operations and Emergency Response (HAZWOPER)	3 credits
EGR 241	Wastewater Technology I	3 credits
EGR 242	Wastewater Technology II	4 credit

Water Quality Professional Certificate

Semester 1 Recommended Course Sequence

EGR 141	Introduction to Environment	3 credits
EGR 241	Wastewater Technology I	3 credits

Semester 2 Recommended Course Sequence

EGR 103	Computer Skills for Engineers and Technicians	3 credits
	And	
EGR 242	Wastewater Technology II	4 credits
	Or	
EGR 244	Water Supply and Hydrology	4 credits

NEWTT

New England Water Treatment Training

Award # 1601840

National Science Foundation

Advanced Technological Education Grant

$602,000 for 3 Years

1. Develop a Curriculum Framework that maps skill, knowledge and licensing requirements needed to prepare for careers in two major areas of water management: 1) Drinking Water Operations; 2) Wastewater Treatment Operations

2. Design an educational pathway and hybrid (online and onsite) curriculum that articulate with associate degrees

3. Increase the supply of qualified water technicians throughout New England through duplication of programs at other community colleges and expansion of the participation of groups under-represented in STEM studies including women, people of color, Veterans and displaced workers.

4. Conduct formative and summative evaluation activities to determine project outcomes

Fall of 2016 30 members of the Water and Wastewater Industry from throughout New England came together for 2 days at Whites of Westport to participate in a modified DACUMs (Developing a Curriculum) workshops for Drinking Water and Wastewater

The DRINKING WATER QUALITY PROFESSIONAL/TECHNICIAN operates, monitors, and maintains a public or private water system in compliance with local, state, and federal regulations, beginning at the source and continuing through treatment, storage, distribution, and use.

The WATER QUALITY PROFESSIONAL/TECHNICIAN applies scientific and mechanical skills to monitor, manage, and process wastewater into reusable water to protect public health and the environment.

Recommended **Water Quality Professional Certificate** Course Sequences

Begins in Fall Semester

Wastewater Option

Semester 1

EGR 141 Introduction to the Environment (3 Cr)
MTH 143 Technical Math for Environmental Technicians (3 Cr)
EGR 103 Computer Skills for Engineers and Technicians (3 Cr)
EGR 241 Wastewater Technology 1 (4 Cr)

Semester 2

ENG 101 College Writing (3 Cr)
EGR 145 SCADA, CMMS, GIS, and WIMS
EGR 242 Wastewater Technology 2 (4 Cr)
EGR 245 Collections Systems (3 Cr)

Begins in Spring Semester

Drinking Water Option

Semester 1

EGR 141 Introduction to the Environment (3 Cr)
MTH 143 Technical Math for Environmental Technicians (3 Cr)
EGR 103 Computer Skills for Engineers and Technicians (3 Cr)
EGR 244 Basic Water Treatment (4 Cr)

Semester 2

ENG 101 College Writing (3 Cr)
EGR 145 SCADA, CMMS, GIS and WIMS (3 Cr)
EGR 248 Advanced Water Treatment (4 Cr)
EGR 249 Distribution Systems (3 Cr)

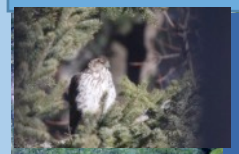
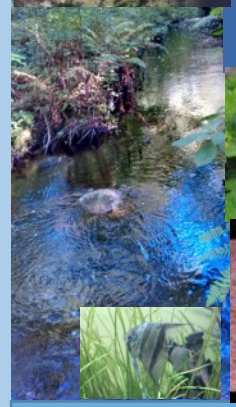
Credit through Prior Learning Assessment (PLA)

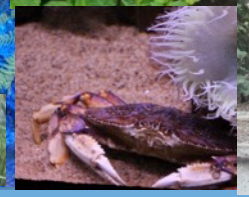
- Operators can received credit for their State Certifications for the courses that are designed to prepared them for those certification examinations
- Operators who have taken non-credit educational experiences through selected Drinking Water and Wastewater organizations will be able to receive credit for those modules of a course that the training covers.

Bristol Community College
Blue Center for Water Technologies

A MODEL HANDS-ON DRINKING WATER AND WASTEWATER OPERATOR TRAINING FACILITY

CLEAN WATER for LIFE


Every Living Creature needs Clean Water
so
Every Living Creature needs
YOU!

Be a part of the SOLUTION
Become a WATER QUALITY PROFESSIONAL




NEWTT
New England Water Treatment Training
Award # 1601840

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Bristol Community College NEWTT Equipment Lending Lab

Equipment that is not currently being used at the college can be loaned out for training purposes to high schools and colleges

This can be done through our Website: https://sites.google.com/view/bccbluecenter

High School Laboratory Experiences at the BCC Blue Center