

AE 603 Vocational Training IV**Units:** .0 **Hours:** 3.0 Laboratory

AE 603 is a job readiness course which provides opportunities for individuals with disabilities to participate in service-learning activities and job readiness training leading to job development and placement in a community setting.

AE 605 Vocational Training VI**Units:** .0 **Hours:** .5 Lecture and 1.0 Laboratory

This course is designed for students with disabilities. The purpose of this course is to improve the student's ability to participate in the community, by increasing independence through acquisition of survival vocabulary, and practice in functional reading. Students will read stories written or revised for adults with limited reading skills. NOTE: Students are required to register with the DRC Counselor for this course.

AE 613 Independence Training IV**Units:** .0 **Hours:** .5 Lecture and 1.0 Laboratory

This course is designed for students with disabilities. The purpose of this course is to improve the student's ability to build math competencies related to independence in daily living and the work site. The focus of the class is basic computation, consumer awareness, money management, banking and purchasing. NOTE: Students are required to register with a DRC Counselor for this course.

AE 636 Adapted Physical Education**Units:** .0 **Hours:** .0 Lecture and 3.0 Laboratory

An individualized program of adapted physical education activities designed to meet the needs of students who have physical limitations or disabilities. The course assists in the development and appreciation of physical activity as a regular planned contribution to one's overall physical fitness. This course is for the non-matriculating student, is not graded and is without college credit. ADVISORY: Students must be able to document a physical disability.

WATER RESOURCES MANAGEMENT**WTRM 101 Introduction to Water / Wastewater Technology****Units:** 3.0 **Hours:** 3.0 Lecture**Transferable:** CSU

This course constitutes an introduction to Water-Wastewater- Distribution Industry. Topics include industry careers, required certifications, hydrologic cycle, watersheds, water/wastewater treatment methods, valves and equipment, as well as industry standard math formulas and conversion factors. ADVISORY: Eligible for Mathematics 205.

WTRM 102 Beginning Water / Wastewater / Distribution Math**Units:** 3.0 **Hours:** 3.0 Lecture**Transferable:** CSU

This course covers basic math concepts used in the water- wastewater-distribution industry. Topics include industry standard formulas, conversion factors, fractions, decimals, percentages, ratios, area and volume. ADVISORY: Eligible for Mathematics 205.

WTRM 103 Introduction to Electrical and Instrumentation Processes**Units:** 3.0 **Hours:** 3.0 Lecture**Transferable:** CSU

Introduction to basic electrical theory, applications, common uses and real world examples of control systems and instrumentation used in water distribution, water, and wastewater treatment plants including switches, relays, alarms, motors, instrumentation, valve actuators, computers and communications. ADVISORY: WTRM 101 Introduction to Water-Wastewater Technology; WTRM 102 Beginning Water-Wastewater Mathematics.

WTRM 104 Motors and Pumps / Operation and Maintenance**Units:** 3.0 **Hours:** 3.0 Lecture**Transferable:** CSU

Theory of pumps and motors, identification of problems encountered, causes of problems, corrective solutions and repair procedures. Implementation of maintenance programs including scheduling and record keeping. ADVISORY: WTRM 101 Introduction to Water-Wastewater Technology; and WTRM 102 Beginning Water-Wastewater Mathematics.

WTRM 105 Water Distribution 1**Units:** 3.0 **Hours:** 3.0 Lecture**Transferable:** CSU

This is a comprehensive course that teaches basic principles of operation and maintenance of a water distribution system. It course covers the sources of water; principles of design; installation, operation and maintenance of pipes, pumps, valves, meters, and other regulated hydraulic units. Operation and maintenance safety considerations are emphasized. This course is designed to prepare the student to take the State of California Water Distribution Operator exam. ADVISORY: WTRM 101 Introduction to Water-Wastewater Technology; WTRM 102 Beginning Water-Wastewater Mathematics.

WTRM 106 Beginning Water Treatment Plant Operation**Units:** 3.0 **Hours:** 3.0 Lecture**Transferable:** CSU

This is a comprehensive course that teaches basic principles of operation and maintenance of water treatment plant. The course covers sources of water; public health aspects of water supply; physical and bacteriologic standards of water quality; types of water treatment plants, water treatment procedures, operation, storage and distribution. This course is designed to prepare the student to take the State of California Water Treatment Operator exam. (T1, T2) ADVISORY: WTRM 101 Introduction to Water/Wastewater Technology; WTRM 102 Beginning Water/Wastewater Mathematics.

WTRM 107 Beginning Wastewater Treatment Operations**Units:** 3.0 **Hours:** 3.0 Lecture**Transferable:** CSU

This course covers an introduction to the operations and maintenance of a wastewater treatment facility. Topics include industry careers, certifications, advanced wastewater treatment methods, valves and equipment, as well as industry standard math formulas and conversion factors. ADVISORY: Eligible for Math 205.

WTRM 108 Water Distribution 2**Units:** 3.0 **Hours:** 3.0 Lecture**Transferable:** CSU

Designed as the second part of an integrated sequence of two courses covering water distribution systems. Enables students to gain a more comprehensive understanding of the operation and maintenance of waterworks distribution system, including advanced calculations, management, safety and emergency response issues. Contemporary issues facing the water and wastewater industry are also explored in depth. This course is part of a series required for eligibility to take the State certification examinations; supports certification examinations for CDPH grade levels D3, D4 and D5. ADVISORY: WTRM 105 Water Distribution 1; WTRM 102 Beginning Water/Wastewater Mathematics.

WTRM 109 Advanced Water Treatment Plant Operation**Units:** 3.0 **Hours:** 3.0 Lecture**Transferable:** CSU

This course focuses on advanced water quality control and treatment with emphasis on state regulations, EPA regulations, advanced mathematics and water chemistry. The course will include an in-depth study of treatment plant processes and their relation to current water quality regulations. This course will be helpful to those preparing for the CDPH Grade T3 and T4. ADVISORY: WTRM 102 Beginning Water/Wastewater Mathematics; WTRM 106 Beginning Water Treatment Plant Operation.

WTRM 110 Advanced Water / Wastewater / Distribution Math

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU

This course is a continuation of the Beginning Water/Wastewater Mathematics course WTRM 102 and covers advanced math concepts used in the Water/Wastewater/Distribution industry. Topics include industry standard formulas, conversion factors, MCRT, SVI, waste/return, horsepower, well drawdown, capacitance, yield, belt press cake/filtrate, SDI, sludge age, gas production and digestion rates. ADVISORY: Math 205 Elementary Algebra and WTRM 102 Beginning Water/Wastewater Mathematics.

WTRM 111 Advanced Wastewater Treatment Plant Operation

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU

This course is designed to familiarize students with advanced wastewater treatment systems, including secondary and tertiary treatment, solids handling, disinfection, reclamation of wastewater, as well as laboratory study. The course prepares students for the CSWRB Wastewater Treatment Plant Operator examinations. ADVISORY: WTRM 101 Introduction to Water/Wastewater Technology; WTRM 107 Beginning Wastewater Treatment Plant Operation.

WTRM 112 Applied Hydraulics

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU

Study of the hydraulics necessary in the operation of water and maintenance plants and systems. Consideration of the types of pumps used in water/wastewater service, their operational characteristics, required maintenance and the problems common to their use. ADVISORY: WTRM 101 Introduction to Water/Wastewater Technology; WTRM 102 Beginning Water/Wastewater Mathematics.

WTRM 113 Beginning Wastewater Collection

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU

This course covers the proper installation, inspection, operation, maintenance and repair of wastewater collection systems. It provides the knowledge and skills required to effectively operate and maintain collection systems. This course also provides knowledge as to why collection systems affect treatment facilities and how they have a significant impact on the operation and maintenance costs and effectiveness of these systems. ADVISORY: WTRM 101 Introduction to Water/Wastewater Technology; WTRM 102 Beginning Water/Wastewater Mathematics.

WTRM 114 Laboratory Analysis for Water / Wastewater

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU

This course is designed to support and understanding and application of water quality laboratory basics in a practical setting. It prepares students to perform chemical, physical and bacteriological examination of water and wastewater. ADVISORY: WTRM 102 Beginning Water/Wastewater Mathematics or Eligible for Mathematics 205.

WTRM 115 Supervision

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU

Supervisory aspects of public agencies and investor-owned utilities, including organization, decision-making, coordination, communication and public relations. Personnel supervision, including coaching, training, evaluation, discipline, team building, morale and grievances. Safety programs, as well as encouragement of safe conditions, actions and attitudes is also covered. ADVISORY: WTRM 101 Introduction to Water/Wastewater Technology.

WTRM 116 Advanced Wastewater Collections

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU

This course provides an in-depth understanding of the components of wastewater collection systems and includes the design, operation, monitoring, maintenance and repair of lift pump stations as well as equipment maintenance, safety/survival systems, administration and organization principles. ADVISORY: WTRM 101: Introduction to Water/Wastewater Technology, WTRM 113: Beginning Wastewater Collections

WTRM 117 Water Use Efficiency Practitioner

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU

This course focuses upon the efficient use and conservation of water in the following contexts: overall supply and demand; utility operations and measures; residential uses and measures; commercial, institutional uses and measures; and landscape uses and measures.

WTRM 118 Introduction to Occupational Health and Safety

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU

This course covers the fundamentals of the health and safety associated with water treatment, distribution and waste water treatment operations. Subjects covered include introduction to safety, confined space, lockout- tagout, respiratory protection, heat stress, fall protection and traffic control. Each section will satisfy existing Cal/OSHA and other water industry related training requirements.

WTRM 119 Industrial Wastewater Management & Treatment

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU

Industrial Wastewater Management and Treatment reviews various industries and their associated wastewater. The course introduces the characteristics of wastewater such as pH, total suspended solids, total dissolved solids, etc., and then reviews basic treatment methods that are used to remove the particular characteristic from the water. By the end of the course, students will be able to design a wastewater treatment plant by developing block flow diagrams which utilize basic treatment methods to achieve the desired wastewater quality. ADVISORY: WTRM 101: Introduction to Water/Wastewater Technology, WTRM 107: Beginning Wastewater Treatment Plant Operation

WTRM 120 Pollution Prevention and Storm Water Management

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU

Pollution Prevention and Storm Water Management reviews methods and regulations to prevent pollutants from reaching the waters of our rivers, streams and aquifers. It reviews methods of reducing pollutants in industrial wastewater, water reuse and water recycling. Additionally, it reviews the methods and regulations for storing hazardous wastes and materials. Lastly, it reviews the general stormwater permits for municipalities, industry and construction. At the end of this course, the student will have a fundamental knowledge of how to reduce pollution in our wastewater through effective water and process management, as well as appropriate hazardous materials and waste storage. This course also covers the implementation of methods required by the State's general permits to prevent pollution from entering stormwater runoff. ADVISORY: WTRM 101: Introduction to Water/Wastewater Technology; WTRM 107: Beginning Wastewater Treatment Plant Operation.

WTRM 121 Mechanical Maintenance

Units: 3.0 Hours: 3.0 Lecture

Transferable: CSU

This course is designed to familiarize students with the basic principles of mechanical equipment design, installation, operation, maintenance, repair, overhaul and replacement. The course emphasizes understanding the value of preventative maintenance techniques such as equipment monitoring, lubrication analysis, machine alignment and scheduled overhaul. ADVISORY: WTRM 101: Introduction to Water/Wastewater Technology.

WTRM 190 Occupational Work Experience / Water / Wastewater Technology

Units: 1.0 TO 4.0 Hours: 5.0 TO 20.0 Laboratory

Transferable: CSU

Occupational work experience for students who have a job related to their major. A training plan is developed cooperatively between the employer, college and student. (P/NP grading) 75 hours per semester paid work = 1 unit. 60 hours non-paid (volunteer) work per semester = 1 unit. May be taken for a maximum total of 16 units. Minimum 2.00 GPA REQUIRED: Declared vocational major.

Word Processing: see CSIS

Work Experience: see Cooperative Work Experience
