

**TA 197D Stage Crew Workshop (.5-3)**  
 1½ to 9 hours laboratory  
**Prerequisite:** Completion of, or concurrent enrollment in, TA/ENTT105 or TA III  
**Note:** At least one unit of this course is required of all theatre arts majors; may be taken 4 times  
**Transfer acceptability:** CSU; UC  
 Participation in college dramatic and musical productions as a member of the stage crew or house staff.

**TA 197E Management of Theatre Activities (.5-3)**  
 1½ to 9 hours laboratory  
**Note:** May be taken 4 times  
**Transfer acceptability:** CSU  
 The principles of organization, operation, and planning for theatre management including programming, ticket sales, box office records, and promotional news release writing. Practical use applied to theatre productions.

**TA 197F Theatre Topics (.5-4)**  
 Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.  
**Note:** May be taken 4 times  
**Transfer acceptability:** CSU; UC –Credit determined by UC upon review of course syllabus  
 Topics in theatre. See Class Schedule for specific topic offered. Course title will designate subject covered.

**TA 215 Intermediate Acting I: Styles (3)**  
 3 hours lecture  
**Prerequisite:** TA 116  
**Note:** May be taken 2 times  
**Transfer acceptability:** CSU; UC  
 This course emphasizes the application of fundamental acting skills to specific styles. The actors will learn how to accomplish the demands of different styles from Shakespeare to Theatre of the Absurd.

**TA 217 Intensive Actor Training (3)**  
 3 hours lecture  
**Prerequisite:** TA 116 and audition  
**Transfer acceptability:** CSU  
 The application of rigorous actor training techniques to develop the actor's ability to create compelling performances. The coursework will integrate physical, vocal and imagination training with psychological work, text analysis and ensemble training.

**TA 297 Experimental Topics in Theatre (1,2,3)**  
 3, 6, or 9 hours laboratory  
**Prerequisite:** Previous theatre experience  
**Note:** May be taken 4 times  
**Transfer acceptability:** CSU; UC – Credit determined by UC upon review of course syllabus  
 Designed for students with particular interest in advanced projects, including individual research. Tutoring and performance for college classes and community.

## Wastewater Technology Education (WWT)

Contact Occupational & Noncredit Programs for further information.  
 (760) 744-1150, ext. 2284  
 Office: AA-138

**Associate in Arts Degrees -**  
 AA Degree requirements are listed in Section 6 (green pages).  
 • Wastewater Technology Education

**Certificates of Achievement -**  
 Certificate of Achievement requirements are listed in Section 6 (green pages).  
 • Wastewater Technology Education

## PROGRAM OF STUDY

### Wastewater Technology Education

Specifically designed for individuals employed by or seeking employment in water districts in San Diego County.

#### A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

| Program Requirements              |                                  | Units     |
|-----------------------------------|----------------------------------|-----------|
| WWT 100                           | Treatment Plant Operations       | 3         |
| WWT/WTE 110                       | Waterworks Mathematics           | 3         |
| WWT/WTE 120                       | Instrumentation and Controls     | 3         |
| WWT/WTE/                          |                                  |           |
| PWM 125                           | Supervision                      | 3         |
| WWT 150                           | Collection Systems Operator      | 3         |
| WWT 155                           | Treatment Process Control        | 3         |
| WWT/WTE 215                       | Motors/Pumps/Oper/Maintenance    | 3         |
| <b>Electives (Select 6 units)</b> |                                  |           |
| WWT/WTE 135                       | Backflow Prevention              | 3         |
| WWT/WTE 138                       | Cross Connection Specialist      | 3         |
| WWT 197                           | Wastewater Tech Education Topics | 5-4       |
| WWT/WTE 225                       | San Diego Regional Internship    | 4-8       |
| CE 100*                           | Cooperative Education            | 3-4       |
| <b>TOTAL UNITS</b>                |                                  | <b>27</b> |

\*Cooperative Education must be related to this major.

#### COURSE OFFERINGS

Courses numbered under 50 are non-degree courses.  
 Courses numbered under 100 are not intended for transfer credit.

**WWT 45 Vocational Math Skills for WWT/WTE (3)**  
 3 hours lecture

**Note:** Cross listed as WTE 45  
 Introduction to the basic mathematic skills used in water and wastewater calculations. Particular interest is given to industry-relevant problems and examples.

**WWT 100 Treatment Plant Operations (3)**  
 3 hours lecture

**Recommended preparation:** WWT/WTE 45  
**Note:** May be taken 4 times  
 An introductory wastewater treatment plant operations course. Topics covered include: the various origins and characteristics of wastewater; an overview of wastewater collections systems; preliminary treatment; primary treatment; fixed film secondary biological treatment processes; treatment ponds and disinfection. Emphasis is given to the role of the operator and preparation for solving practical problems and problems typical of those found in Operator Certification examinations.

**WWT 110 Waterworks Mathematics (3)**  
 3 hours lecture

**Recommended preparation:** WWT/WTE 45  
**Note:** Cross listed as WTE 110  
 Provides instruction in entry level to intermediate level mathematical calculations used in the operation and evaluation of conventional water and wastewater treatment processes. The course content has been developed to meet training requirements for entry to intermediate level certification (Grade I III) for water treatment plant operators. Also, it will cover wastewater collection, treatment and disposal. Material will parallel some of the problems found on State Certification examination.

**WWT 120 Instrumentation and Controls (3)**  
 3 hours lecture

**Prerequisite:** WTE/WWT 110  
**Note:** Cross listed as WTE 120; may be taken 4 times  
 Introduction to basic electrical theory. Applications and uses of water and wastewater control systems including switches, relays, alarms, motors, instrumentation and telemetering.

**WWT 125 Supervision (3)**

3 hours lecture

**Note:** Cross listed as WTE 125/PWM 125

Managerial aspects of public utilities including organization, decision making, coordination, communication, and public relations. Personnel management including recruiting, training, evaluation, discipline, promotion, morale, and grievances. Safety programs and encouraging safe conditions, actions and attitudes.

**WWT 135 Backflow Prevention (3)**

2½ hours lecture-1½ hours laboratory

**Note:** Cross listed as WTE 135; may be taken 4 times

Concentrated training in recognition and abatement of cross connections in water supply and plumbing systems. Hands on backflow prevention device testing procedures for certification.

**WWT 138 Cross Connection Specialist (3)**

3 hours lecture

**Recommended preparation:** WTE/WWT 135**Note:** Cross listed as WTE 138

The study of the various levels of administrative and technical procedures necessary to operate a cross connection control program. Students will obtain the knowledge to become certified as a "Cross Connection Control Specialist" under the provisions set forth by American Water Works Association.

**WWT 150 Collection Systems Operator (3)**

3 hours lecture

**Note:** May be taken 4 times

Wastewater collection systems and collection system equipment, pipeline cleaning and maintenance, system design, safety procedures, inspecting and testing procedures used in collections systems.

**WWT 155 Treatment Process Control (3)**

3 hours lecture

**Recommended preparation:** WWWT/WTE 110

A wastewater treatment and disposal course with an emphasis on control of these processes. Topics covered include: the activated sludge secondary treatment process and its variations; sludge digestion, treatment and disposal; safety and housekeeping; maintenance and an overview of effluent disposal, tertiary treatment and reclamation. Emphasis is also given to the role of the operator and provides preparation for solving process control calculations and problems typical of those found in Operator Certification examinations.

**WWT 197 Wastewater Technology Education Topics (.5-4)**

Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture, laboratory, or lecture/laboratory may be scheduled by the department. Refer to Class Schedule.

**Note:** May be taken 4 times

Topics in Wastewater Technology Education. See Class Schedule for specific topic offered. Course title will designate subject covered.

**WWT 215 Motors and Pumps, Operation and Maintenance (3)**

3 hours lecture

**Recommended preparation:** WTE/WWT 110**Note:** Cross listed as WTE 215; may be taken 4 times

Identification of problems encountered, causes of problems, corrective solutions, and repairs in the operation of pumps and motors. Implementation of maintenance programs including scheduling and recordkeeping.

**WWT 225 San Diego Regional Internship (4)**

12 hours laboratory

**Note:** Cross listed as WTE 225; Credit/No Credit grading only; may be taken 2 times

This class will provide students with the opportunity to gain work experience in San Diego County water and wastewater agencies through a formal internship. The one-year internship will provide experience in four primary areas: system operations, system maintenance, wastewater treatment and water treatment. Students must apply to the program and be accepted by a regional interview committee comprised of representatives from San Diego County water and wastewater agencies, Cuyamaca and Palomar Colleges and the San Diego County Water Authority.

## Water Technology Education (WTE)

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Office: AA-138

**Associate in Arts Degrees -**

AA Degree requirements are listed in Section 6 (green pages).

• Water Technology Education

**Certificates of Achievement -**

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• Water Technology Education

**PROGRAM OF STUDY****Water Technology Education**

Specifically designed for individuals employed by or seeking employment in water districts in San Diego County.

**A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT**

| Program Requirements              |                                    | Units     |
|-----------------------------------|------------------------------------|-----------|
| WTE 100                           | Waterworks Distribution            | 3         |
| WTE 105                           | Water Treatment Plant Operation I  | 3         |
| WTE/WWT 110                       | Waterworks Mathematics             | 3         |
| WTE/WWT 120                       | Instrumentation and Controls       | 3         |
| WTE/WWT/<br>PWM 125               | Supervision                        | 3         |
| WTE 150                           | Water Quality Monitoring           | 3         |
| WTE/WWT 215                       | Motors/Pumps/Oper/Maintenance      | 3         |
| <b>Electives (Select 9 units)</b> |                                    |           |
| WTE/WWT 135                       | Backflow Prevention                | 3         |
| WTE/WWT 138                       | Cross Connection Specialist        | 3         |
| WTE 197                           | Water Technology Education Topics  | .5-4      |
| WTE 205                           | Waterworks Distribution II         | 3         |
| WTE 210                           | Water Treatment Plant Operation II | 3         |
| WTE/WWT 225                       | San Diego Regional Internship      | 4-8       |
| CE 100*                           | Cooperative Education              | 3,4       |
| <b>TOTAL UNITS</b>                |                                    | <b>30</b> |

\* Cooperative Education must be related to this major.

**COURSE OFFERINGS**

Courses numbered under 50 are non-degree courses.

Courses numbered under 100 are not intended for transfer credit.

**WTE 45 Vocational Math Skills for WWT/WTE (3)**

3 hours lecture

**Note:** Cross listed as WWT 45

Introduction to the basic mathematic skills used in water and wastewater calculations. Particular interest is given to industry-relevant problems and examples.

**WTE 100 Waterworks Distribution (3)**

3 hours lecture

**Recommended preparation:** WTE/WWT 45**Note:** May be taken 4 times

Water utility system operations and maintenance. An introduction to the principles of pressure pipe systems and the hydraulics involved in their operation. Design, installation, operation, and maintenance of basic elements of water systems including pipes, pumps, valves, meters, and related hydraulic units. Operations and maintenance safety considerations emphasized. This course prepares students for the "American Water Works Association" Grade I and Grade II exams.