

Students may use this emphasis to focus on transfer courses required for such baccalaureate majors as Linguistics, specific foreign language majors, and any other major requiring proficiency in one or more foreign languages.

#### Select 6 units minimum

English 100, 202, 203  
Philosophy 115  
Speech 100, 131

#### Select 12 units minimum

American Sign Language 100, 100L, 101, 101L, 110, 205, 205L, 206, 206L  
Anthropology 107 (pending)  
Arabic 101A, 101B, 102A, 102B, 201A, 201B  
Chinese 101, 101A, 101B, 102, 102A, 102B, 130, 201, 201A, 201B  
English 150  
French 101, 101A, 101B, 102, 102A, 102B, 201, 202  
German 101, 101A, 101B, 102, 102A, 102B, 201, 202  
Italian 101, 102, 201, 201A, 201B  
Japanese 101, 101A, 101B, 102, 201, 202  
Spanish 101, 101A, 101B, 102, 102A, 102B, 201, 201A, 201B, 202  
Tagalog 101, 102, 201

## Upholstery (UP)

Contact the Design and Consumer Education Department for further information.

(760) 744-1150, ext. 2349

Office: ST-49

#### Certificates of Proficiency -

Certificate of Proficiency requirements are listed in Section 6 (green pages).

- Upholstery

### PROGRAM OF STUDY

## Upholstery

Prepares students for variety of positions in upholstery and related industries. Students will master skills and techniques required for furniture upholstery and accessories, antique restoration, custom draperies and window treatments.

In order to earn a certificate, students must achieve a minimum grade of 'C' in each of the certificate program courses.

### CERTIFICATE OF PROFICIENCY

Program Requirements		Units
UP 85	Basic Upholstery	3
UP 86	Advanced Upholstery	3
UP 88	Antique Furniture Restoration	3
UP 90	Automotive Upholstery	3
UP 95 or	Window Treatments	
UP 96	Decorator Accessories	1.5
UP 97	Upholstery Topics	1
ID 135	Fabrics for Designers	3
<b>TOTAL UNITS</b>		<b>17.5</b>

### COURSE OFFERINGS

Courses taken for college credit may be applied toward a certificate or an Associate in Arts degree.

Courses numbered under 100 are not intended for transfer credit.

#### UP 85 Basic Upholstery (3)

1 hour lecture- 6 hours laboratory

**Note:** May be taken 4 times

Upholstering or replacing existing upholstery for various types of furniture. Commercial sewing machines, cushion stuffer, pneumatic tools, and hand tools will be used to complete individual projects.

#### UP 86 Advanced Upholstery (3)

1 hour lecture- 6 hours laboratory

**Recommended preparation:** UP 85

**Note:** May be taken 2 times

Advanced upholstery principles and techniques. Power sewing equipment, pneumatic tools, and specialized hand tools will be used to complete complex upholstery projects. Includes estimating, customer relations, tax laws, and other fundamentals of upholstery business operation.

#### UP 88 Antique Furniture Restoration (3)

1 1/2 hours lecture- 4 1/2 hours laboratory

**Recommended Preparation:** UP 85

**Note:** May be taken 2 times

Covers basic antique furniture restoration techniques, specialized tools, authentic materials, and standard terminology. Students will learn to identify style, approximate age, original fabrics, and types of exterior woods. Essential business concepts and practices will also be addressed.

#### UP 90 Automotive Upholstery (3)

1 hour lecture- 6 hours laboratory

**Note:** May be taken 2 times

Skills and techniques required to replace, repair or customize automotive and related upholstery. Fabrication of interiors and accessories for automobile interiors, watercraft and other recreational vehicles. Techniques and considerations related to auto alarm or sound system installation. Students will complete individual or group projects.

#### UP 95 Window Treatments (1.5)

1 hour lecture- 1 1/2 hours laboratory

**Note:** May be taken 2 times

Design and fabrication of various window treatments. Includes industry standards, design and fabric options, measuring and estimating, and related business concepts. Students will complete sample projects.

#### UP 96 Decorator Accessories (1.5)

1 hour lecture- 1 1/2 hours laboratory

**Note:** May be taken 2 times

Skills and techniques necessary for creation of a variety of decorator accessories: upholstered headboards; designer cushions; custom pillows; lampshades; duvet covers, bedspreads and dust ruffles; table runners and covers; and simple slip-covers. Includes design and fabric/materials selection, industry standards, cost estimating/pricing and other business considerations. Students will complete individual projects.

#### UP 97 Upholstery Topics (.5-4)

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

**Note:** May be taken 3 times

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

## 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

Non-degree Applicable

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:** A minimum grade of 'C' in 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:** WWT/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; Pass/No Pass 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)

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).  
• Water Technology Education

### Certificates of Achievement -

Certificate of Achievement requirements are listed in Section 6 (green pages).  
• 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/		
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  
Non-degree Applicable  
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  
**Prerequisite:** A minimum grade of 'C' in WTE/WWT 110  
**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. De-

sign, 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 State of California - Water Distribution Operator Grade I, Grade II, and Grade III exams.

**WTE 105 Water Treatment Plant Operation I (3)**  
3 hours lecture

**Prerequisite:** A minimum grade of 'C' in WTE/WWT 110

**Note:** May be taken 4 times

Provides an introduction to water treatment plant operations in accordance with the Safe Drinking Water Act (SDWA). Special emphasis is given to implementation of the Surface Water Treatment Rule through USEPA approved filtration technology. Subject matter includes major provisions of the SDWA and its amendments; basic water chemistry; source water assessment; conventional treatment processes; treated water stability; waterborne diseases; public health protection; and an introduction to math skills equivalent to those required of State of California Grade II water treatment plant operators. This class is helpful to those preparing for the Grade I and Grade II state examination.

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

**Recommended preparation:** WTE/WWT 45

**Note:** Cross listed as WWT 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.

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

**Prerequisite:** A minimum grade of 'C' in WTE/WWT 110

**Note:** Cross listed as WWT 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.

**WTE 125 Supervision (3)**  
3 hours lecture

**Note:** Cross listed as WWT 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.

**WTE 135 Backflow Prevention (3)**  
2½ hours lecture-1½ hours laboratory

**Note:** Cross listed as WWT 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.

**WTE 138 Cross Connection Specialist (3)**  
3 hours lecture

**Recommended preparation:** WTE/WWT 135

**Note:** Cross listed as WWT 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.

**WTE 150 Water Quality Monitoring (3)**  
2½ hours lecture-1½ hours laboratory

**Recommended preparation:** WTE /WWT 110

Prepares students to properly monitor public drinking water quality through study of: Federal and State regulations, laboratory analyses, types of contaminants, sample collection techniques and interpretation of monitoring data.