

WTE 205 Waterworks Distribution II (3)

3 hours lecture

Prerequisite: A minimum grade of 'C' in WTE 100

Intermediate and advanced instruction in the field of water production, types of reservoirs, water lines, pumps, valves, and related appurtenances. Studies design, proper operation, and facilities repair of a public water system. Provides instruction in methods of record keeping and administrative responsibilities related to water systems. This course prepares students for the California Department of Health Services, Water Distribution Operator certification exams at levels D-3, D-4, and D-5 and the "American Water Works Association" certification exams for Grades II, III, and IV.

WTE 210 Water Treatment Plant Operation II (3)

3 hours lecture

Prerequisite: A minimum grade of 'C' in WTE 105

Advanced water quality control and treatment with emphasis given to state regulations, EPA regulations, advanced mathematics and chemistry. Particular attention will be given to in depth examination of treatment plant processes and the enforcement of the Surface Water Treatment Rule, Total Coliform Rule, Interim Enhanced Surface Water Treatment Rule, Long Term 1 Enhanced Surface Water Treatment Rule, Long Term 2 Enhanced Surface Water Treatment Rule, and Disinfection/Disinfection by Product Rule. This course will be helpful to those preparing for Grade III and IV examinations.

WTE 215 Motors and Pumps, Operation and Maintenance (3)

3 hours lecture

Recommended preparation: WTE/WWT 110

Note: Cross listed as WWT 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.

WTE 225 San Diego Regional Internship (4)

12 hours laboratory

Note: Cross listed as WWT 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.

Web

See CSIS - Web Technology

Welding (WELD)

Contact the Trade and Industry Department for further information.
(760) 744-1150, ext. 2545
Office: T-1

Associate in Arts Degrees -

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

- Welding Technology

Certificates of Achievement -

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

- Welding Technology

Certificates of Proficiency -

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

- Entry-Level Gas Metal Arc/Flux Cored Arc Welding
- Entry-Level Gas Tungsten Arc Welding
- Entry-Level Shielded Metal Arc Welding

PROGRAMS OF STUDY

Entry-Level Gas Metal Arc/Flux Cored Arc Welding

Provides the skills necessary for entry-level employment as a gas metal arc welder/flux cored arc welder.

CERTIFICATE OF PROFICIENCY

Program Requirements		Units
IT/WELD 108	Technical Mathematics	3
WELD 100	Welding I	3
WELD 120	Gas Metal Arc and Flux Cored Arc Welding	3
WELD 135	Print Reading for Welders	3
WELD 160	Metal Layout for Fabrication	3
TOTAL UNITS		15

Entry-Level Gas Tungsten Arc Welding

Introduction to GTAW, GMAW, and SMAW welding process with concentration on GTAW. Basic math, print reading, and layout skills and knowledge will be taught to prepare students for entry-level employment as a GTAW welder.

CERTIFICATE OF PROFICIENCY

Program Requirements		Units
IT/WELD 108	Technical Mathematics	3
WELD 100	Welding I	3
WELD 115	Gas Tungsten Arc Welding	3
WELD 135	Print Reading for Welders	3
WELD 160	Metal Layout for Fabrication	3
TOTAL UNITS		15

Entry-Level Shielded Metal Arc Welding

Provides the skills necessary for entry-level employment as a shielded metal arc welder.

CERTIFICATE OF PROFICIENCY

Program Requirements		Units
IT/WELD 108	Technical Mathematics	3
WELD 100	Welding I	3
WELD 110	Shielded Metal Arc Welding	3
WELD 135	Print Reading for Welders	3
WELD 160	Metal Layout for Fabrication	3
TOTAL UNITS		15

Welding Technology

Provides training for a career in the field of welding. Following the study of basic welding processes, the student may elect to concentrate in one or more of the basic welding processes and to prepare for the industrial certification test.

A.A. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
WELD 100	Welding I	3
WELD 110	Shielded Metal Arc Welding	3
WELD 115	Gas Tungsten Arc Welding	3
WELD 120	Gas Metal Arc and Flux Cored Arc Welding	3
WELD 135	Print Reading for Welders	3
WELD 160	Metal Layout for Fabrication	3
IT/WELD 108	Technical Mathematics	3
CE 100	Cooperative Education	1, 2, 3, 4

Electives (Select 3 units)

WELD 105	Metal Cutting, Brazing, Soldering	3
WELD 150	Welding Inspection	3
WELD 197	Welding Technology Topics	3
TOTAL UNITS		25 - 28

COURSE OFFERINGS

Courses numbered under 50 are non-degree courses.

Courses numbered under 100 are not intended for transfer credit.

WELD 10L Shielded Metal Arc Welding Laboratory (3)

6 hours lecture/laboratory

Note: May be taken 4 times

Non-degree Applicable

Operation of arc welding machines with various electrodes in all positions of welding.

WELD 15L Gas Tungsten Arc Welding Laboratory (3)

6 hours lecture/laboratory

Note: May be taken 4 times

Non-degree Applicable

Operation of Gas Tungsten Arc Welding machines on carbon steel, stainless steel, and aluminum.

WELD 20L Semiautomatic Arc Welding Laboratory (3)

6 hours lecture/laboratory

Note: May be taken 4 times

Non-degree Applicable

Operation of Gas Metal Arc and Flux Cored Arc Welding machines on carbon steel.

WELD 100 Welding I (3)

2 hours lecture-4 hours laboratory

Note: May be taken 2 times

Transfer acceptability: CSU

Introduction to safe practices, setup, and operation of Shielded Metal Arc Welding, Gas Tungsten Arc Welding, Flux Core Arc Welding, and Gas Metal Arc Welding.

WELD 105 Metal Cutting, Brazing, Soldering (3)

2 hours lecture-4 hours laboratory

Note: May be taken 4 times

Transfer acceptability: CSU

Cutting metals with oxyfuel, plasma, carbon air arc gouging, and mechanical methods. Joining of metals and fixtures using the brazing and soldering process.

WELD 108 Technical Mathematics (3)

3 hours lecture

Note: Cross listed as IT 108

Methods and experience in defining and solving mathematical problems in industrial technology. Special emphasis will be given to the application of these basic processes to the solution of the unique mathematical problems encountered in the areas of architecture, automotive, drafting, machine, welding, and woodworking technology.

WELD 110 Shielded Metal Arc Welding (3)

2 hours lecture-4 hours laboratory

Prerequisite: A minimum grade of 'C' in WELD 100

Note: May be taken 4 times

Transfer acceptability: CSU

Welding steel plate in all positions using the Shielded Metal Arc Welding process.

WELD 115 Gas Tungsten Arc Welding (3)

6 hours lecture/laboratory

Prerequisite: A minimum grade of 'C' in WELD 100

Note: May be taken 4 times

Transfer acceptability: CSU

Safe setup, operation, and maintenance of Gas Tungsten Arc Welding equipment. Welding stainless steel, carbon steel, and aluminum in the flat and horizontal positions.

WELD 116 Advanced Gas Tungsten Arc Welding (3)

6 hours lecture/laboratory

Prerequisite: A minimum grade of 'C' in WELD 115

Note: May be taken 4 times

Transfer acceptability: CSU

Safe setup, operation and maintenance of Gas Tungsten Arc Welding equipment. Welding stainless steel, carbon steel, aluminum, and other exotic metals in all positions according to building codes, military specifications, and aerospace standards.

WELD 120 Gas Metal Arc and Flux Cored Arc Welding (3)

2 hours lecture-4 hours laboratory

Prerequisite: A minimum grade of 'C' in WELD 100

Note: May be taken 4 times

Transfer acceptability: CSU

Gas Metal Arc Welding steel and aluminum sheet metal, and plate with short arc and spray arc technique. Flux Cored Arc Welding steel plate in flat, horizontal, and vertical positions.

WELD 130 CAD/CAM Machining (3)

1½ hours lecture - 4½ hours laboratory

Prerequisite: A minimum grade of 'C' in DT 110 and DT 128

Note: Cross listed as as DT 130. May be taken 2 times

Transfer acceptability: CSU

Hands-on operation of importing three-dimensional solid and parametric three-dimensional models into CAD/CAM operations.

WELD 135 Print Reading for Welders (3)

3 hours lecture

Note: May be taken 4 times

Line interpretation, sketching, bill of materials, structural shapes, welding symbols, joint types, weld types, and metric conversions.

WELD 140 Qualification of Welders (3)

2 hours lecture-4 hours laboratory

Prerequisite: A minimum grade of 'C' in WELD 101

Note: May be taken 4 times

This course is designed to train the students to be familiar with the provisions of the various welding standards and codes. Supervised training is provided so that students will be able to qualify for certification on any code or standard.

WELD 145 Pipe Welding (2)

6 hours laboratory

Prerequisite: A minimum grade of 'C' in WELD 110

Note: May be taken 4 times

Transfer acceptability: CSU

Provides a thorough technical understanding of pipe welding nomenclature, weld quality, and pipe fit-up and welding procedures. Provides training to develop welding skills necessary to make high quality welds on steel pipe in the 5G, 2G and 6G positions.

WELD 150 Welding Inspection (3)

2 hours lecture-4 hours laboratory

Note: May be taken 4 times

Transfer acceptability: CSU

This course is designed to improve understanding of the role, duties, and technical requirements of welding inspectors. The course will cover fundamentals of welding, welding symbols, documents used in welding, codes, specification, standards, weld joint geometry, destructive testing methods, nondestructive testing methods, discontinuities, and visual inspection of welds. This class provides knowledge useful for passing the American Welding Society's Certified Welding Inspector's exam.

WELD 160 Metal Layout for Fabrication (3)

6 hours lecture/laboratory

Note: May be taken 4 times

This course provides students with knowledge of basic layout, fitup, fabrication, safe operation of shop equipment. Parallel line, radial line, and triangulation layout will be taught. Students will work from drawings or sketches to prepare, form, or cut multiple parts for assembly.

WELD 196 Special Problems in Welding (1, 2, 3)
 3, 6, or 9 hours laboratory
Prerequisite: A minimum grade of 'C' in WELD 100, or concurrent enrollment in WELD 100
Note: May be taken 4 times
 This course is designed to aid the student in the enrichment of the area of concentration in welding and is of a research nature. Content to be determined by the need of the student under signed contract with the instructor.

WELD 197 Welding Technology Topics (.5-3)
 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
 Topics in Welding Technology. See Class Schedule for specific topic offered. Course title will designate subject covered.

Women's Studies

Contact the Behavioral Sciences Department for further information.
 (760) 744-1150, ext. 2330
 Office: W-1

Associate in Arts Degrees -

AA Degree requirements are listed in Section 6 (green pages).
 • Women's Studies

PROGRAM OF STUDY

Women's Studies

This major offers the student an opportunity to study women and their contributions from a female perspective. It also provides intensive, interdisciplinary lower-division preparation necessary for pursuing advanced coursework in Women's Studies. Transfer students should consult the four-year college or university catalog for specific requirements.

A.A. DEGREE MAJOR

Program Requirements	Units
SOC 115 Introduction to Women's Studies	3
Electives (Select a minimum of 15 units)	
AIS 165 Native Women in the Americas	3
COMM 105 Race, Gender and Media Effects	3
ENG 280 Women and Literature	3
HIST 130 Women in United States History	3
PSYC/SOC 125 Human Sexuality	3
PSYC 130 Psychology of Women	3
PSYC/SOC 145 Psychology and Sociology of Aging	3
TOTAL UNITS	18

Recommended Electives: ENG 100 and 202 with emphasis in Women's Studies issues.

Zoology (ZOO)

Contact the Life Sciences Department for further information.
 (760) 744-1150, ext. 2275
 Office: NS-207A

COURSE OFFERINGS

ZOO 100 General Zoology (4)
 3 hours lecture - 3 hours laboratory
Note: Not open to students with prior credit in ZOO 101 or 101L
Transfer acceptability: CSU; UC - No credit if taken after ZOO 101/101L
 Principles of animal life and body organization. Structural and functional adaptations of major groups of the animal kingdom from protozoans through mammals.

This is a general education course intended for non-science majors.

ZOO 101 Animal Kingdom (3)
 3 hours lecture
Note: Not open to students with prior credit in ZOO 100
Transfer acceptability: CSU; UC - No credit if taken after ZOO 100
 Structural and functional adaptations of major groups of the animal kingdom from protozoans through mammals. ZOO 101L laboratory optional.

ZOO 101L Animal Kingdom Laboratory (1)
 3 hours laboratory
Prerequisite: A minimum grade of 'C' in ZOO 101, or concurrent enrollment in ZOO 101
Note: Not open to students with prior credit in ZOO 100
Transfer acceptability: CSU; UC - No credit for ZOO 101/101L if taken after 100
 Investigations upon living and preserved specimens representative of the major groups of the animal kingdom. This is a general education course intended for non-science majors.

ZOO 115 Natural History of Animal Life (4)
 3 hours lecture - 3 hours laboratory
Note: Not open to students with prior credit in ZOO 116 or 116L
Transfer acceptability: CSU; UC - ZOO 115, 116/116L combined: maximum credit, 4 units
 Consideration of the natural history, adaptations, ecology, behavior, and distribution of animals with reference to major groups of both vertebrates and invertebrates. Weekend field trips are required.

ZOO 116 Natural History of Animal Life (Lecture) (3)
 3 hours lecture
Note: Not open to students with prior credit in ZOO 115
Transfer acceptability: CSU; UC - ZOO 115, 116/116L combined: maximum credit, 4 units
 Consideration of the natural history, adaptations, ecology, behavior, and distribution of animals with reference to major groups of both invertebrates and vertebrates

ZOO 116L Natural History of Animal Life (Laboratory) (1)
 3 hours laboratory
Prerequisite: A minimum grade of 'C' in ZOO 116, or concurrent enrollment in ZOO 116
Note: Not open to students with prior credit in ZOO 115
Transfer acceptability: CSU; UC - ZOO 115, 116/116L combined: maximum credit, 4 units
 The radiative adaptation of representative animals to various habitats and modes of life; field observation of major fauna of littoral, chaparral, desert, and mountain environments. Weekend field trips are required.

ZOO 120 Animal Behavior (3)
 3 hours lecture
Transfer acceptability: CSU; UC
 Biological basis of behavior including behavior genetics, operation of evolutionary processes on species typical behaviors, behavioral ontogeny, functional organization of nervous systems, animal senses, motivation including hormonal effects on drive, and biorhythms; behavioral ecology including social behavior and social living, reproductive behaviors, homing and migration, antipredatory defenses, feeding strategies, and communication.

ZOO 135 Biology of Marine Mammals (3)
 3 hours lecture
Note: Cross listed as BIOL 135
Transfer acceptability: CSU; UC
 The fundamentals of marine mammal biology are explored. Topics include comparative anatomy, evolution, cladistics, mammalian physiology, ecology and zoogeography, behavior and conservation as they apply to the study of marine mammals.