Addendum to the 2018-2019 Catalog

Additions, Modifications and Corrections occurring after publication of the Catalog (June 28, 2018). Unless otherwise noted, all Additions, Modifications and Corrections are effective Fall 2018.

November 20, 2018
CUYAMACA COLLEGE ADMINISTRATION

Julianna Barnes, Ed.D. ................................................................. President
Sahar Abushaban ................................................................. Vice President, Administrative Services
Patrick Setzer ................................................................. Vice President, Instruction
Jessica Robinson, Ed.D. ........................................................ Senior Dean, Institutional Effectiveness, Success & Equity
Nicole Jones ................................................................. Dean, Counseling Services
Kerry Kilber Rebman ........................................................ Dean, Learning & Technology Resources
Larry McMmore ................................................................. Dean, Career & Technical Education
Pamela Kersey, Ed.D. ................................................................. Dean, Math, Science & Engineering
Alicia Muñoz ................................................................. Dean, Arts, Humanities & Social Sciences
Lauren Vaknin, Ed.D. ................................................................. Dean, Student Affairs
Terry Davis ................................................................. Interim Associate Dean, Athletics
Jesús Miranda ................................................................. Associate Dean, Student Equity & Engagement
Agustin Orozco ................................................................. Associate Dean, Student Services and Special Programs
Gregory Vega ................................................................. Director, Admissions & Records
Francisco Gonzalez# ........................................................ Interim Director, Campus Facilities, Operations & Maintenance
Ray Reyes ................................................................. Director, Financial Aid
John Escobedo, Ph.D. ................................................................. Director, Title V Activities
Michael Gilchrist ................................................................. Manager, Campus Bookstore
Richard CamposΔ ................................................................. Manager, Sodexo

GROSSMONT–CUYAMACA COMMUNITY COLLEGE DISTRICT ADMINISTRATION

Cindy L. Miles, Ph.D. ................................................................. Chancellor
Sue Rearic ................................................................. Vice Chancellor, Business Services
Tim Corcoran ................................................................. Vice Chancellor, Human Resources
Sean Hancock, Ed.D.# ........................................................ Vice Chancellor, Student and Institutional Success
Craig Leedhan, Ph.D.Δ ........................................................ Associate Vice Chancellor, Human Resources
Christopher Tarman ........................................................ Sr. Director, Purchasing, Contracts & Ancillary Services
Linda Bertolucci ................................................................. Sr. Director, Research, Planning & Technology
Ken Emmons ................................................................. Sr. Director, Districtwide Facilities
Jennifer Fujimoto ................................................................. Sr. Director, Fiscal Services
Nicole Conklin ................................................................. Director, Public Safety
Anne Krueger ................................................................. Director, Communications & Public Information
Myra Lomahan# ................................................................. Interim Director, Community & Workforce Development
Jerry Williamson ................................................................. Director, Computer Services
Alyssa Brown, Ed.D.Δ ........................................................ Director, Human Resources
Janet Snelling ................................................................. Director, Human Resources
Steve Abat ................................................................. Director, Technical Services
Sally Cox ................................................................. Chief Executive Officer, Foundation for Grossmont & Cuyamaca Colleges
Dana Rivers ................................................................. Director of Development, Foundation for Grossmont & Cuyamaca Colleges
Chito Gutierrez ................................................................. Director of Operations, Foundation for Grossmont & Cuyamaca Colleges
TBDΔ ................................................................. GCCCD Sheriff's Team Sergeant

Date added to Addendum: #Sept 25, 2018, ΔNov 20, 2018
FINANCIAL AID PROGRAMS

GRANTS

California College Promise Grant
(formerly the Board of Governor’s fee waiver)

The promise grant is a state program that waives the enrollment fee for students who are residents of California (or are eligible under AB540 or AB 1899) and have financial need. Students will be considered for a promise grant as part of the financial aid application process and may apply by completing a financial aid application (FAFSA or California Dream Act application). Please note that refunds are not retroactive to a prior semester.

Minimum requirements for maximum success.
Once you’ve qualified for the fee waiver, it’s important to ensure that you’re meeting the academic and progress standards in order to avoid losing the fee waiver.

Academic – Sustain a GPA of 2.0 or higher
If your cumulative GPA falls below 2.0 for two consecutive primary terms (fall/spring semesters, or fall/winter/spring quarters), you may lose your fee waiver eligibility.

Progress – Complete at least 50% of your coursework
If the cumulative number of courses you successfully complete falls below 50% in two consecutive primary terms (fall/spring semesters or fall/winter/spring quarters), you may lose your fee waiver.

Combination of Academic and Progress Standards
Any combination of two consecutive terms of cumulative GPA below 2.0, and/or cumulative course completion less than 50% may result in loss of fee waiver eligibility.

How to regain eligibility.
If you lose eligibility for the fee waiver, there are a few ways that you can have it reinstated:

• Improve your GPA or Course Completion measures to meet the academic and progress standards.
• Successful appeal regarding extenuating circumstances.
• Not attending your school district for two consecutive primary terms.

The appeals process for extenuating circumstances includes:
• Verified accidents, illness or other circumstances beyond your control
• Changes in economic situation
• Evidence of inability to obtain essential support services
• Special consideration factors for CalWORKs, EOPS, DSPS.

• Disability accommodations not received in a timely manner.
Students appeal through the Admissions & Records Office.
Please note that foster youth and former foster youth (age 24 years and younger) are not subject to loss of the fee waiver under these regulations.
Admissions and Records Office prior to the deadline as stated in the Academic Calendar. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar. Students who complete the requirements above qualify for a Certificate in Bookkeeping. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**ACCOUNTING**

**BOOKKEEPING CERTIFICATE**

This certificate is for students who need very specific training in the area of bookkeeping/accounting, either to obtain the necessary skills for an entry level position, or to provide technical competence for advancement within the office environment.

**Program Learning Outcomes**

Upon successful completion of this certificate, students will be able to:

- Apply bookkeeping concepts, principles, standards and processes.
- Demonstrate information technology skills as they apply to today’s business environment to solve business problems and to communicate those solutions.
- Use personal and ethical frameworks to respond to ethical dilemmas.

**Certificate Requirements**:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOT 174</td>
<td>Computer Concepts and Applications</td>
<td>3</td>
</tr>
<tr>
<td>BUS 109</td>
<td>Elementary Accounting</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>BUS 120</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td>BUS 121</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td>BUS 128</td>
<td>4</td>
</tr>
<tr>
<td>BUS 129</td>
<td>Payroll Accounting and Business</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>BUS 176</td>
<td>2</td>
</tr>
<tr>
<td>or</td>
<td>Comprehensive Accounting Applications</td>
<td>2</td>
</tr>
<tr>
<td>Total Required</td>
<td></td>
<td>20-21</td>
</tr>
</tbody>
</table>

Note: BUS 109 may be taken instead of BUS 120 for the Bookkeeping certificate only.

**Certificate of Achievement**

Students who complete the requirements above qualify for a Certificate in Bookkeeping. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

---

**BUSINESS**

**BUSINESS—GENERAL**

This degree program is designed to develop and foster those skills and understandings which can be utilized for employment in an increasingly challenging business environment. The curriculum provides students with a broad preparation for a career in business. Business courses are included which provide a solid background for future promotion in a chosen occupational area. The degree is designed for students who do not plan to transfer to a four-year college or university.

**Program Learning Outcomes**

Upon successful completion of this program, students will be able to:

- Apply accounting concepts and methods to interpret financial statements for evaluating the financial position and performance of organizations.
- Recognize and appropriately respond to ethical and legal concerns relating to human resource and organizational management.
- Identify and analyze business problems or opportunities and effectively communicate recommendations for courses of actions.

**CAREER OPPORTUNITIES**

- Administrative Assistant
- Bookkeeper
- Budget Consultant
- Buyer
- Conciliator
- Credit Analyst
- Employment Interviewer
- Hospital Administrator
- Sales Agent
- Trust Officer
- Bachelor Degree or higher required

**Associate in Business Degree Requirements**:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 109</td>
<td>Elementary Accounting</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>BUS 120</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td>BUS 110</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>BUS 115</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>BUS 125</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>BUS 128</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>BUS 195</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>BOT 174</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>CIS 110</td>
<td>4</td>
</tr>
<tr>
<td>or</td>
<td>ECON 120</td>
<td>3</td>
</tr>
<tr>
<td>Total Required</td>
<td></td>
<td>24-26</td>
</tr>
</tbody>
</table>

**Certificate of Achievement**

Students who complete only the major requirements above qualify for a Certificate in Business—General. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

---

**BUSINESS OFFICE TECHNOLOGY**

**I. BUSINESS OFFICE TECHNOLOGY**

This degree program prepares students for employment in today’s business offices which are technology intensive. The curriculum is also appropriate for those wishing to update current skills. Emphasis is on the computerized office and development into supervisory positions.

**Program Learning Outcomes**

Upon successful completion of this program, students will be able to:

- Explain the basic language and concepts within the field of business office technology.
- Use computer input devices (e.g., keyboard and mouse) to properly and efficiently create and edit documents in word processing, spreadsheet, and presentation programs such as Word, Excel, and PowerPoint, and electronic communications such as email.
CAREER OPPORTUNITIES

Account Clerk
Administrative Assistant
Bank Teller
Billing Clerk
Bookkeeper
Brokerage Clerk
Computer Operator
Court Clerk
Customer Service Representative
Executive Assistant
Executive Secretary
File Clerk
General Office Clerk
Hotel/Motel Desk Clerk
Information Clerk
Insurance Clerk
Legal Secretary
Loan/Credit Clerk
Medical Secretary
Office Manager
Personnel Clerk
Real Estate Clerk
Secretary
Word Processing Specialist

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOT 100</td>
<td>Basic Keyboarding</td>
<td>1</td>
</tr>
<tr>
<td>BOT 101AB</td>
<td>Keyboarding/Document Processing I-II</td>
<td>3</td>
</tr>
<tr>
<td>BOT 102AB</td>
<td>Intermediate Keyboarding/Document Processing I-II</td>
<td>3</td>
</tr>
<tr>
<td>BOT 107</td>
<td>Office Systems and Procedures</td>
<td>2</td>
</tr>
<tr>
<td>BOT 120-122</td>
<td>Comprehensive Word Levels I-III</td>
<td>3</td>
</tr>
<tr>
<td>BOT 174</td>
<td>Computer Concepts and Applications</td>
<td>3</td>
</tr>
<tr>
<td>BUS 128</td>
<td>Business Communication</td>
<td>3</td>
</tr>
<tr>
<td>Select at least six units from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOT 119</td>
<td>Windows for the Information Worker</td>
<td>2</td>
</tr>
<tr>
<td>BOT 123-125</td>
<td>Comprehensive Excel Levels I-III</td>
<td>3</td>
</tr>
<tr>
<td>BOT 223-225</td>
<td>Office Work Experience</td>
<td>1-3</td>
</tr>
<tr>
<td>BUS 109</td>
<td>Elementary Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 120</td>
<td>Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Total Required</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Business Office Technology. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

II. ADMINISTRATIVE ASSISTANT

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Explain the basic language and concepts within the field of business office technology.
- Use computer input devices (e.g., keyboard and mouse) to properly and efficiently create and edit documents in word processing, spreadsheet, and presentation programs such as Word, Excel, and PowerPoint, and electronic communications such as email.

Select at least three units from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOT 132-135</td>
<td>Comprehensive Word Levels I-II</td>
<td>3-4</td>
</tr>
<tr>
<td>BUS 109</td>
<td>Elementary Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 110</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 115</td>
<td>Human Relations in Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 120</td>
<td>Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 125</td>
<td>Business Law: Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>Total Required</td>
<td>3-4</td>
<td></td>
</tr>
</tbody>
</table>

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOT 100AB</td>
<td>Intermediate Keyboarding/Document Processing I-II</td>
<td>3</td>
</tr>
<tr>
<td>BOT 104</td>
<td>Filing and Records Management</td>
<td>1</td>
</tr>
<tr>
<td>BOT 106</td>
<td>Effective Job Search</td>
<td>1</td>
</tr>
<tr>
<td>BOT 107</td>
<td>Office Systems and Procedures</td>
<td>2</td>
</tr>
<tr>
<td>BOT 114</td>
<td>Essential Word</td>
<td>1</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOT 120-122</td>
<td>Comprehensive Word Levels I-III</td>
<td>3</td>
</tr>
<tr>
<td>BOT 115</td>
<td>Essential Excel</td>
<td>1</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOT 123-125</td>
<td>Comprehensive Excel Levels I-III</td>
<td>3</td>
</tr>
<tr>
<td>BOT 116</td>
<td>Essential Access</td>
<td>1</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOT 125-128</td>
<td>Comprehensive Access Levels I-III</td>
<td>3</td>
</tr>
<tr>
<td>BOT 117</td>
<td>Essential PowerPoint</td>
<td>1</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOT 129-130</td>
<td>Comprehensive PowerPoint Levels I-II</td>
<td>2</td>
</tr>
<tr>
<td>BOT 118</td>
<td>Integrated Office Projects</td>
<td>1</td>
</tr>
<tr>
<td>BOT 223-225</td>
<td>Office Work Experience</td>
<td>1-3</td>
</tr>
<tr>
<td>BUS 128</td>
<td>Business Communication</td>
<td>3</td>
</tr>
<tr>
<td>Total Required</td>
<td>21-30</td>
<td></td>
</tr>
</tbody>
</table>

Select at least five units from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOT 103ABC</td>
<td>Building Keyboarding Skill I, II, III</td>
<td>1-3</td>
</tr>
<tr>
<td>BOT 132-135</td>
<td>Comprehensive Word Levels I-III</td>
<td>3-4</td>
</tr>
<tr>
<td>BUS 120</td>
<td>Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>Total Required</td>
<td>16-25</td>
<td></td>
</tr>
</tbody>
</table>

Certificate of Achievement

Students who complete the requirements below qualify for a certificate in that area of emphasis. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

III. EXECUTIVE ASSISTANT

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Explain the basic language and concepts within the field of business office technology.
- Use computer input devices (e.g., keyboard and mouse) to properly and efficiently create and edit documents in word processing, spreadsheet, and presentation programs such as Word, Excel, and PowerPoint, and electronic communications such as email.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWS 100</td>
<td>Career Pathways in Water &amp; Wastewater</td>
<td>3</td>
</tr>
<tr>
<td>CWS 101</td>
<td>Fundamentals of Water &amp; Wastewater</td>
<td>3</td>
</tr>
<tr>
<td>CWS 102</td>
<td>Calculations in Water &amp; Wastewater</td>
<td>3</td>
</tr>
<tr>
<td>CWS 107</td>
<td>Safety in Water &amp; Wastewater</td>
<td>3</td>
</tr>
<tr>
<td>Total Required</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

WATER DISTRIBUTION OPERATIONS

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Water Distribution System Operations-1 – Identify sources and characteristics of water common to water distribution systems.
- Water Distribution System Operations-4 – Using calculations and conversions, determine water flow, pressure, volume, velocity and force, and chemical dosage used in water distribution systems.
- Water Distribution System Operations-10 – Specify necessary procedures needed to safely complete field work in a water distribution system.

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOT 102AB</td>
<td>Intermediate Keyboarding/Document Processing I-II</td>
<td>3</td>
</tr>
<tr>
<td>BOT 104</td>
<td>Filing and Records Management</td>
<td>1</td>
</tr>
<tr>
<td>BOT 106</td>
<td>Effective Job Search</td>
<td>1</td>
</tr>
<tr>
<td>BOT 107</td>
<td>Office Systems and Procedures</td>
<td>2</td>
</tr>
<tr>
<td>BOT 114</td>
<td>Essential Word</td>
<td>1</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOT 120-122</td>
<td>Comprehensive Word Levels I-III</td>
<td>3</td>
</tr>
<tr>
<td>BOT 115</td>
<td>Essential Excel</td>
<td>1</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOT 123-125</td>
<td>Comprehensive Excel Levels I-III</td>
<td>3</td>
</tr>
<tr>
<td>BOT 116</td>
<td>Essential Access</td>
<td>1</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOT 125-128</td>
<td>Comprehensive Access Levels I-III</td>
<td>3</td>
</tr>
<tr>
<td>BOT 117</td>
<td>Essential PowerPoint</td>
<td>1</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOT 129-130</td>
<td>Comprehensive PowerPoint Levels I-II</td>
<td>2</td>
</tr>
<tr>
<td>BOT 118</td>
<td>Integrated Office Projects</td>
<td>1</td>
</tr>
<tr>
<td>BOT 223-225</td>
<td>Office Work Experience</td>
<td>1-3</td>
</tr>
<tr>
<td>BUS 128</td>
<td>Business Communication</td>
<td>3</td>
</tr>
<tr>
<td>Total Required</td>
<td>21-30</td>
<td></td>
</tr>
</tbody>
</table>

Select at least three units from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOT 132</td>
<td>Google Applications for Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 109</td>
<td>Elementary Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 110</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 115</td>
<td>Human Relations in Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 120</td>
<td>Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 125</td>
<td>Business Law: Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>Total Required</td>
<td>3-4</td>
<td></td>
</tr>
</tbody>
</table>

Certificate of Achievement

Students who complete all the major requirements above qualify for a Certificate in Executive Assistant. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

Cuyamaca College 2018-2019 Catalog Addendum

Date added to Addendum: Sept 25, 2018, Nov 20, 2018
types of pumps used in water distribution systems including common problems, necessary adjustments, and typical packing gland problems.

**Certificate Requirements:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWS 106</td>
<td>Electrical &amp; Instrumentation Processes</td>
<td>3</td>
</tr>
<tr>
<td>CWS 130</td>
<td>Water Distribution Systems</td>
<td>3</td>
</tr>
<tr>
<td>CWS 134</td>
<td>Pumps, Motors &amp; Valves</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Required</td>
<td>9</td>
</tr>
</tbody>
</table>

**ADVANCED WATER DISTRIBUTION OPERATIONS**

**Program Learning Outcomes**

Upon successful completion of this program, students will be able to:

- Water Distribution System Operations-5 – Identify and compare methods used to handle, install and repair water distribution pipe.
- Water Distribution System Operations-7 – Explain the electrical principles involved in control circuits common to water distribution systems.
- Water Distribution System Operations-8 – Explain the required safe handling and storage of chlorine used in water distribution systems.
- Water Distribution System Operations-11 – Compare and contrast factors considered in the selection of pipe and different types of water meters.

**Certificate Requirements:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWS 110</td>
<td>Laboratory Analysis for Water &amp; Wastewater</td>
<td>3</td>
</tr>
<tr>
<td>CWS 204</td>
<td>Applied Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>CWS 230</td>
<td>Advanced Water Distribution Systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Required</td>
<td>9</td>
</tr>
</tbody>
</table>

**WATER TREATMENT PLANT OPERATIONS**

**Program Learning Outcomes**

Upon successful completion of this program, students will be able to:

- Water Treatment Plant Operator-2 – Compare the basic principles of each water treatment process and list them in order performed.
- Water Treatment Plant Operator-5 – Compare and contrast the basic principles of each water treatment process and list them in order performed.
- Water Treatment Plant Operator-9 – Demonstrate through testing basic knowledge of the regulations for monitoring water quality and performing water treatment.

**Certificate Requirements:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWS 106</td>
<td>Electrical &amp; Instrumentation Processes</td>
<td>3</td>
</tr>
<tr>
<td>CWS 110</td>
<td>Laboratory Analysis for Water &amp; Wastewater</td>
<td>3</td>
</tr>
<tr>
<td>CWS 112</td>
<td>Water Treatment Plant Operations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Required</td>
<td>9</td>
</tr>
</tbody>
</table>

**ADVANCED WATER TREATMENT PLANT OPERATIONS**

**Program Learning Outcomes**

Upon successful completion of this program, students will be able to:

- Water Treatment Plant Operator-5 – Compare and contrast the basic principles of each water treatment process and list them in order performed.
- Water Treatment Plant Operator-6 – Explain and prepare a plan for the use of chlorine including the characteristics of and methods for storing, feeding and measuring chlorine including the effects of moisture, pH and temperature on feed rate, and the health and safety effects, procedures and personal protective requirements.
- Water Treatment Plant Operator-7 – Determine the methods used for coagulation, flocculation and sedimentation including common chemicals used, feed systems, effects of time temperature, turbidity and pH, and the measurement of turbidity and color.
- Water Treatment Plant Operator-9 – Demonstrate through testing basic knowledge of the regulations for monitoring water quality and performing water treatment.

**Certificate Requirements:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWS 134</td>
<td>Pumps, Motors &amp; Valves</td>
<td>3</td>
</tr>
<tr>
<td>CWS 204</td>
<td>Advanced Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>CWS 212</td>
<td>Advanced Water Treatment Plant Operations</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Total Required</td>
<td>9</td>
</tr>
</tbody>
</table>
Associate Degree Programs and Certificates

and basic principles involved in hydraulic and mechanical cleaning methods.

- Wastewater Collection Systems-2
  - Identify the types and functions of pipes and fittings used in wastewater collection system design and management.

- Wastewater Collection Systems-4
  - Describe in detail basic underground location and leak detection, trenching and shoring, and backfill and compaction methods of construction used in the field.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWS 106</td>
<td>Electrical &amp; Instrumentation Processes</td>
<td>3</td>
</tr>
<tr>
<td>CWS 204</td>
<td>Applied Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>CWS 232</td>
<td>Advanced Wastewater Collection Systems</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>Required</td>
<td>9</td>
</tr>
</tbody>
</table>

WASTEWATER TREATMENT OPERATIONS, STACKABLE CERTIFICATES OF SPECIALIZATION

WATER & WASTEWATER FUNDAMENTALS

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Wastewater Treatment Operator-1
  - Identify in detail characteristics and sources of ground water and surface water supplies including the chemical, physical and bacterial characteristics, and explain the effects on quality of geological formations, stratifications, and watershed management.

- Wastewater Treatment Operator-2
  - Perform basic mathematical calculations and conversions relating to water flow, pressure, volume, velocity, chemical dosage, and hydraulic and organic loading.

- Wastewater Treatment Operator-3
  - Recognize and comment on safety procedures applicable to service and operation of wastewater collection and treatment systems, including potential problems.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWS 100</td>
<td>Career Pathways in Water &amp; Wastewater</td>
<td>3</td>
</tr>
<tr>
<td>CWS 101</td>
<td>Fundamentals of Water &amp; Wastewater</td>
<td>3</td>
</tr>
<tr>
<td>CWS 102</td>
<td>Calculations in Water &amp; Wastewater</td>
<td>3</td>
</tr>
<tr>
<td>CWS 107</td>
<td>Safety in Water &amp; Wastewater</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>Required</td>
<td>12</td>
</tr>
</tbody>
</table>

WASTEWATER TREATMENT OPERATIONS

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Wastewater Treatment Operator-4
  - Identify the characteristics and sources of municipal sewage.

- Wastewater Treatment Operator-6
  - Describe the basic principles of conventional wastewater treatment.

- Wastewater Treatment Operator-8
  - Recognize and comment on safety procedures applicable to service and operation of wastewater collection and treatment systems, including potential problems.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWS 106</td>
<td>Electrical &amp; Instrumentation Processes</td>
<td>3</td>
</tr>
<tr>
<td>CWS 110</td>
<td>Laboratory Analysis for Water &amp; Wastewater</td>
<td>3</td>
</tr>
<tr>
<td>CWS 114</td>
<td>Wastewater Treatment Plant Operations</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>Required</td>
<td>9</td>
</tr>
</tbody>
</table>

ADVANCED WASTEWATER TREATMENT OPERATIONS

Program Learning Outcomes
Upon successful completion of this program, students will be able to:

- Wastewater Treatment Operator-7
  - Perform basic mathematical calculations and conversions relating to water flow, pressure, volume, velocity, chemical dosage, and hydraulic and organic loading.

- Wastewater Treatment Operator-3
  - Describe the specifications, installation, and operation of typical devices used in backflow prevention and testing and explain their proper installation.

- Wastewater Treatment Operator-6
  - Explain the basic principles of preliminary, primary, secondary and tertiary treatment.

- Wastewater Treatment Operator-6
  - Compare and contrast wastewater treatment unit processes including preliminary, primary, secondary and tertiary treatment.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWS 134</td>
<td>Pumps, Motors &amp; Valves</td>
<td>3</td>
</tr>
<tr>
<td>CWS 204</td>
<td>Applied Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>CWS 214</td>
<td>Advanced Wastewater Treatment Plant Operations</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>Required</td>
<td>9</td>
</tr>
</tbody>
</table>

COMPUTER SCIENCE

MECHATRONICS
This certificate is designed for students interested in designing automatic electromechanical devices and systems. The curriculum is intended primarily for students interested in working in advanced manufacturing. It also provides the foundation for further studies in the skills required for the Internet of Things (physical computing and control systems).

Program Learning Outcomes
Upon successful completion of this certificate, students will be able to:

- Write computer programs in high-level languages such as C++ and, when appropriate, in assembly language to control the operation of a microcontroller. In particular, students will be able to apply the following microcontroller capabilities: memory-mapped I/O (input/output), analog-to-digital (A/D) conversion, and volatile and non-volatile memory.

- Design automatic devices and control systems which can respond to inputs from sensors with appropriate outputs in the form of motion, light, and sound.

- Design mechanical components and devices, and create prototype versions of them.

- Combine the above capabilities to design integrated electro-mechanical devices of arbitrary complexity.

Certificate Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CADD 125</td>
<td>3D Solid Modeling</td>
<td>3</td>
</tr>
<tr>
<td>or CADD 129</td>
<td>Engineering Solid Modeling</td>
<td>3</td>
</tr>
<tr>
<td>or CS/ENGR 175</td>
<td>Mechatronics: Introduction to Microcontrollers and Robotics</td>
<td>3</td>
</tr>
<tr>
<td>or CS/ENGR 176</td>
<td>Mechatronics: Prototype Design</td>
<td>3</td>
</tr>
<tr>
<td>or CS 181</td>
<td>Introduction to C++ Programming</td>
<td>4</td>
</tr>
<tr>
<td>or CIS 267</td>
<td>Directed Work Experience in CIS</td>
<td>1</td>
</tr>
<tr>
<td>or ENGR 182</td>
<td>Work Experience in Engineering Technology</td>
<td>3</td>
</tr>
<tr>
<td>or ENGR 100</td>
<td>Introduction to Engineering and Design</td>
<td>4</td>
</tr>
<tr>
<td>or ET 110</td>
<td>Introduction to Basic Electronics</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>Required</td>
<td>22-25</td>
</tr>
</tbody>
</table>

Pages: 75

Comments:
Moved the program from Engineering to Computer Science. Added CADD 125 (cross-listed with ENGR 125), 3D Solid Modeling, CADD 129 (cross-listed with ENGR 129), Engineering Sold Modeling as options to the requirements; also added CS 175 (cross-listed with ENGR 175), Mechatronics: Prototype Design, CS 181, Introduction to C++ Programming, and CIS 267, Directed Work Experience in CIS to the requirements.
Associate Degree Programs and Certificates

Certificate of Achievement
Students who complete the requirements above qualify for a Certificate in Mechatronics. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

Pages: 76
Comments:
Added BUS 112, Craft Entrepreneur and BUS 115, Human Relations in Business to the first list of elective options in the requirements. Added BOT 132, Google Applications for Business and BOT 174, Computer Concepts and Applications to the second list of elective options in the requirements; removed BOT 100, Basic Keyboarding, BOT 101AB, Keyboarding/Document Processing I-II, BOT 102AB, Intermediate Keyboarding/Document Processing I-II, CIS 105, Introduction to Computing, and CIS 110, Principles of Information Systems from the second list of elective options in the requirements.Δ

ENTREPRENEURSHIP-SMALL BUSINESS MANAGEMENT

This degree program provides a course of study for students who are interested in developing an appreciation and understanding of the functional areas within the small business environment. The degree provides a working knowledge of small business operations to both the prospective business person as well as the owner/manager of an existing business, and is co-sponsored by the Small Business Administration.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
- Recognize and appropriately respond to ethical and legal concerns relating to human resource and organizational management.
- Identify and analyze business problems or entrepreneurial opportunities and effectively communicate recommendations for courses of action.
- Demonstrate an understanding of the requirements to start a new venture, including the basics of leadership, team building, finance, marketing and management.

CAREER OPPORTUNITIES
Administrative Assistant
Assistant Manager
Bookkeeper
Small Business Owner/Manager

Associate in Science Degree Requirements:
Course   Title   Units

BUS 111  Entrepreneurship: Starting and Developing a Business  3
BUS 125  Business Law: Legal Environment of Business  3
BUS 128  Business Communication  3

Select two of the following:
BUS 112  Craft Entrepreneur  2
BUS 115  Human Relations in Business  3
BUS 156  Principles of Management  3
BUS 176  Computerized Accounting Applications  2

Select at least three units from the following:
BOT 114  Essential Word  1
BOT 115  Essential Excel  1
BOT 116  Essential Access  1
BOT 117  Essential PowerPoint  1
BOT 132  Google Applications for Business  3
BOT 174  Computer Concepts and Applications  3

Total Required 22-25
Plus General Education Requirements

Certificate of Achievement
Students who complete only the major requirements above qualify for a Certificate in Entrepreneurship–Small Business Management. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

Page: 81
Comments:
Revisions made to Exercise Science Associate in Science Degree Requirements#

KINESIOLOGY

II. EXERCISE SCIENCE
This degree program is designed to prepare students for a variety of careers including education, physical therapy, coaching, personal training and other allied health professions by providing classes oriented toward fitness, wellness and health promotion throughout the lifespan. The major also provides preparation for transfer to a four-year college in physical education, exercise physiology, kinesiology, nutrition or athletic training, as well as teacher credentialing programs.

Program Learning Outcomes
Upon successful completion of this program, students will be able to:
- List and define the five basic components of physical fitness.
- Describe the concepts of frequency, intensity and time, and how they relate to personal fitness goals.
- Outline a basic strategy for achieving fitness through the lifespan.
- List options within the community for continued lifelong physical activity.
- List benefits of daily physical activity.
- Demonstrate competence in acquiring sound nutritional information.
- Demonstrate improvement in sport skills.
- Outline appropriate goals and activities for increasing the fitness of children.
- Describe appropriate preventive measures as well as treatments for various sport injuries.
- List and describe opportunities for employment in the field.
- Describe their field of interest and a course of instruction that will meet their professional needs.

CAREER OPPORTUNITIES
Aerobics Instructor
Athletics Coach
- Athletics Trainer
- Cardiac Rehab
- College Professor
- Elementary School Teacher
- Exercise Physiologist
- Health Club Manager
- Personal Trainer
- Physical Therapist/Assistant
- Registered Dietician
- Secondary School Teacher
- Teaching
- Bachelor Degree or higher required

Associate in Science Degree Requirements:
Course   Title   Units

BIO 130  General Biology I  3
BIO 131  General Biology I Laboratory  1
BIO 140  Human Anatomy  5
CHEM 102  Introduction to General, Organic and Biological Chemistry#  5
or CHEM 115  Fundamentals of Chemistry  4
or CHEM 120  Preparation for General Chemistry#  4
or CHEM 141  General Chemistry #  5
COMM 122  Public Speaking  3
ES 014ABC  Body Building  1.5
or ES 019ABC Physical Fitness#  1.5
ES 250  Introduction to Kinesiology  3
ES 255  Care and Prevention of Athletic Injuries  3
HED 158  Nutrition for Fitness and Sports  3
or HED 255*  Science of Nutrition  3
PSY 120  Introductory Psychology  3
SOC 120  Introductory Sociology  3

Total Required 32.5-33.5#

Select one of the following:
BIO 215  Statistics for Life Sciences  3
MATH 160  Elementary Statistics  4
PSY 215  Statistics for the Behavioral Sciences  4

Select two of the following (fulfills the activity requirement for the associate degree):
ES 001  Adapted Physical Exercise  1
ES 009ABC  Aerobic Dance Exercise  1
ES 019ABC Physical Fitness  1.5
ES 060ABC Badminton  1
ES 076ABC Tennis  1
ES 125ABC Golf  1-1.5
ES 155ABC Basketball  1
ES 170ABC Soccer  1
ES 171ABC Softball  1
ES 175ABC Volleyball  1

Total Required 2-3
Plus General Education Requirements

*Students planning to transfer to SDSU must take HED 255.
MANAGEMENT

This degree program is designed to provide students with the skills necessary to be successful as a manager in today’s demanding organizational climate. The curriculum is beneficial to men or women who aspire to mid-level or higher management positions in any type of organization including business, government and service organizations.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Recognize and appropriately evaluate the ethical and legal concerns inherent in various business practices.
- Identify the differences in leadership and management theories and how they facilitate the overall effectiveness of domestic and multinational business operations.
- Identify and assess business problems from a subordinate and managerial perspective.
- Identify and analyze business problems or entrepreneurial opportunities and effectively communicate recommendations for courses of actions.

CAREER OPPORTUNITIES

- Bank Officer
- Claim Adjuster
- Computer Operations Supervisor
- Director, Research and Development Employment Interviewer
- Financial Planner
- Hospital Administrator Import-Export Agent Management Trainee Management Consultant Office Manager Stock Broker Teacher, College Bachelor Degree or higher required Bachelor Degree normally recommended

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 115</td>
<td>Human Relations in Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 120</td>
<td>Financial Accounting</td>
<td>4</td>
</tr>
<tr>
<td>BUS 125</td>
<td>Business Law: Legal Environment</td>
<td>3</td>
</tr>
<tr>
<td>BUS 128</td>
<td>Business Communication</td>
<td>3</td>
</tr>
<tr>
<td>BUS 155</td>
<td>Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>BUS 156</td>
<td>Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>ECON 110</td>
<td>Economics and Policies</td>
<td>3</td>
</tr>
<tr>
<td>ECO 120</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two of the following:

- BUS 123-125 Comprehensive Excel Levels I–II 3
- BUS 174 Computer Concepts and Applications 3
- BUS 176 Computerized Accounting Applications 2
- CIS 110 Principles of Information Systems 4

Select a minimum of three units of the following:

- BUS 110 Introduction to Business 3
- BUS 121 Managerial Accounting 4
- BUS 161 Business Internship 1-3
- BUS 195 Principles of Money Management for Success 3
- COMM 122 Public Speaking 3-4

Total Required 30-33

Plus General Education Requirements

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Management. An official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

Page: 87

Comments:

Revisions made to Landscape Technology Associate in Science Degree Requirements

ORNAMENTAL HORTICULTURE

VI. LANDSCAPE TECHNOLOGY

Landscape installation and management forms the focus of this program. Students will learn the latest methods, materials and techniques in the landscape industry. Those seeking careers in landscape technology are entering a challenging career field that requires knowledge of plant material, turfgrass, landscape and irrigation design, soils, pest control and landscape construction. A professional in the field has the opportunity to be involved in working with people as well as plants as the manager must direct and supervise employees, deal with clients and suppliers, and may become involved in professional organizations. Students entering the landscape industry, those already employed but seeking to upgrade their skills, and those wishing to transfer to Cal Poly or other four-year degree programs will benefit from the curriculum. Graduates are employed by landscape contractors, public agencies or may be self-employed.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Understand the principles of plant function and plant growth.
- Identify 175 trees, shrubs, annuals, perennials and turf grass species commonly used in Southern California landscapes.
- Using standard industry practices, develop guidelines and demonstrate the ability to perform proper fertilizing, pruning, mulch application and irrigation of Southern California landscapes.
- Understand the elements of water management of a large landscape site.
- Identify common biotic and abiotic problems common to Southern California landscapes and list appropriate control measures.
- Gain practical experience working in the landscape industry.

Associate in Science Degree Requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>OH 120</td>
<td>Fundamentals of Ornamental Horticulture</td>
<td>3</td>
</tr>
<tr>
<td>OH 130</td>
<td>Plant Pest Control</td>
<td>3</td>
</tr>
<tr>
<td>OH 140</td>
<td>Soils</td>
<td>3</td>
</tr>
<tr>
<td>OH 170</td>
<td>Plant Materials: Trees and Shrubs</td>
<td>3</td>
</tr>
<tr>
<td>OH 180</td>
<td>Plant Materials: Annuals and Perennials</td>
<td>3</td>
</tr>
<tr>
<td>OH 235</td>
<td>Principles of Landscape Irrigation</td>
<td>4</td>
</tr>
<tr>
<td>OH 250</td>
<td>Landscape Water Management</td>
<td>2</td>
</tr>
<tr>
<td>OH 290*</td>
<td>Cooperative Work Experience</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following:

- BUS 110 Introduction to Business 3
- BUS 111 Entrepreneurship: Starting and Developing a Business 3
- BUS 125 Business Law: Legal Environment of Business 3

Select five units from the following:

- OH 102 Xeriscape. Water Conservation in the Landscape 2
- OH 105 Edibles in Urban Landscapes 4.5
- OH 125 Landscape Technicians Principles 1
- OH 126 Landscape Technician Principles 2
- OH 127 Landscape Technician Principles 3
- OH 172 Introduction to Landscape Design 3
- OH 173 Intermediate Landscape Design 3
- OH 174 Turf and Ground Cover Management 3
- OH 220 Landscape Construction: Concrete and Masonry 3
- OH 221 Landscape Construction: Irrigation and Carpentry 3
- OH 222 Japanese Garden Design and Construction 4
- OH 225 Landscape Contracting 3
- OH 255 Sustainable Urban Landscapes 3
- OH 260 Arboriculture 3
- OH 275 Diagnosing Horticultural Problem 3
- OH 276 Horticultural Equipment Repair and Maintenance 3
- OH 278 Business Management for Ornamental Horticulture 3
- SPAN 120 Spanish I 5

Total Required 32

Plus General Education Requirements

*Student must complete six units within the major at Cuyamaca College to be eligible for this course.

Certificate of Achievement

Students who complete only the major requirements above qualify for a Certificate in Landscape Technology. An official request
must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

Page: 95-96

Comments:
Corrections from Associate in Science to Associate in Arts for University Studies; Area B. Communications and Language Arts, Area C. Humanities and Fine Arts, and Area E. Social and Behavioral Sciences.

UNIVERSITY STUDIES

B. Communication and Language Arts
Courses for the Associate in Arts in University Studies with an Emphasis in Communication and Language Arts focus on the study of how language works to express human ideas and feelings. Students will explore and analyze written and verbal communication methods, as well as develop and advance their oral and written communication skills. Students completing this area may be interested in the following baccalaureate majors: communication, English, foreign language, literature, journalism, and linguistics. Students must complete a minimum of six units in Communication and six units in Language Arts. The remaining six units may be taken from either category.

C. Humanities and Fine Arts
Courses for the Associate in Arts in University Studies with an Emphasis in Humanities and Fine Arts focus on the study of cultural, humanistic activities, and artistic expression of human beings. Students will evaluate and interpret the ways in which people through the ages in different cultures have responded to themselves and the world around them through artistic and cultural creation. Students will develop an aesthetic awareness and incorporate these concepts when constructing value judgments. Students completing this area may be interested in the following baccalaureate majors: art, humanities, music, philosophy, religious studies, and theatre arts. Students must complete a minimum of six units in Humanities and six units in Fine Arts. The remaining six units may be taken from either category.

E. Social and Behavioral Sciences
Courses for the Associate in Arts in University Studies with an Emphasis in Social and Behavioral Sciences focus on the study and understanding of human behavior. Students will evaluate and interpret human societies; the institutions, organizations, and the groups that form them; the ways in which individuals and groups relate to one another; and various approaches and methodologies of the disciplines. Students completing this area may be interested in the following baccalaureate majors: anthropology, child development, education, history, nutrition, political science, psychology, social work, and sociology. Students must complete a minimum of six units in Social Science and six units in Behavioral Science. The remaining six units may be taken from either category.
### Course Descriptions

**Pages: 102-151**

**Comments:**

Courses approved as UC Transferable effective fall 2018:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARBC 254</td>
<td>Conversational Iraqi Dialect</td>
<td>3</td>
</tr>
<tr>
<td>ART 148</td>
<td>Applied Design And Crafts</td>
<td>3</td>
</tr>
<tr>
<td>ART 149</td>
<td>History of Graphic Design</td>
<td>3</td>
</tr>
<tr>
<td>ART 177</td>
<td>Digital Drawing and Painting</td>
<td>3</td>
</tr>
<tr>
<td>CS 175</td>
<td>Mechatronics: Introduction to Microcontrollers and Robotics</td>
<td>3</td>
</tr>
<tr>
<td>CS 176</td>
<td>Mechatronics: Prototype Design</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 236</td>
<td>Chicano/Chicana Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 238</td>
<td>Black Literature</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Page 150:

**Comments:**

Water/Wastewater Technology (WWTR) program renamed Center for Water Studies, effective Spring 2019. Three new courses added, CWS 100, Career Pathways in Water & Wastewater, CWS 107, Safety in Water & Wastewater, and CWS 210 Advanced Laboratory Analysis for Water & Wastewater. All other WWTR courses have been changed to CWS numbering. Please see individual courses for more information.

#### CENTER FOR WATER STUDIES

**100 CAREER PATHWAYS IN WATER & WASTEWATER**

- **Prerequisite:** None
- **3 hours lecture**

This course introduces students to Cuyamaca’s Center for Water Studies and the career pathways in the water and wastewater field in San Diego County and throughout California. The goal of the course is to develop in each student the skills they need to succeed at Cuyamaca and in their careers in water. This will be the first course in the Center for Water Studies’ new Fundamentals of Water module – a series of four introductory courses -- and students will be encouraged to begin their studies in water and wastewater with the 100 course.

**CSU**

**101 FUNDAMENTALS OF WATER & WASTEWATER**

- **Prerequisite:** None
- **3 hours lecture**

This course provides a broad overview of the water and wastewater fields and issues confronting the industry. Students will learn how source waters are obtained, treated, and distributed and how wastewater is collected, transported, and disposed of in the area. Contemporary issues facing the water and wastewater industry will be explored. Not open to students with credit in WWTR 101.

**CSU**

**102 CALCULATIONS IN WATER & WASTEWATER**

- **3 units**

(formerly WWTR 102)

Recommended Preparation: Competency in basic math skills

- **3 hours lecture**

Study of the mathematical principles and methods involved in solving problems related to water and wastewater treatment, distribution, and collection systems, including volume, flow rate, velocity, pressure, force, unit conversions, dimensional analysis, chemical dose rates, dilutions, filter loading and backwash rates as related to water/wastewater technology. Not open to students with credit in WWTR 102.

**CSU**

**103 WATER RESOURCES MANAGEMENT**

- **3 units**

(formerly WWTR 103)

- **3 hours lecture**

With the ever increasing demands for safe and reliable supplies of potable water, combined with decreasing supplies and over commitments of our existing water resources, we are facing a serious water crisis in the western United States. This course explores the history and development of California water resources, legal and financial issues, water portfolio diversification, the role of groundwater recharge and management, wastewater reclamation and reuse, desalination, and energy conservation. Not open to students with credit in WWTR 103.

**CSU**

**105 WATER CONSERVATION**

- **3 units**

(formerly WWTR 105)

- **3 hours lecture**

This course provides theoretical and practical training in applied water use efficiency and a foundation in the need for and major components of comprehensive water conservation programs. Topics include residential, commercial, and landscape customers; water uses; budgets; demand management; water audits; Best Management Practices; rate structures; and program design and management. Not open to students with credit in WWTR 105.

**CSU**

**106 ELECTRICAL & INSTRUMENTATION PROCESSES**

- **3 units**

(formerly WWTR 106)

- **3 hours lecture**

An introductory course in basic electronic, electrical, and control system principles. Electrical safety precautions, component identification, schematic interpretation, motors, transformers, relays and test equipment will be studied. Automated process control devices and an overview of current technologies will be discussed. Not open to students with credit in WWTR 106.

**CSU**

**107 SAFETY IN WATER & WASTEWATER**

- **3 units**

(formerly WWTR 101)

- **3 hours lecture**

This course provides a broad overview of Occupational Safety and Health issues in the water and wastewater industry. Students will learn the history of safety related laws and regulations for the Construction and General Industry. Contemporary safety related issues facing the water and wastewater industry will be explored with an emphasis on the Occupational Safety and Health Administration of the California Department of Industrial Relations.

**CSU**

**110 LABORATORY ANALYSIS FOR WATER & WASTEWATER**

- **3 units**

(formerly WWTR 110)

- **3 hours lecture**

Examines basic fundamentals of laboratory analysis with an emphasis on applied chemical and microbiological procedures for water and wastewater plant operators. Includes procedures and techniques used in physical, chemical, bacteriological and biological examination of water/wastewater. Completion of CWS 110 and CWS 210 provides the foundation necessary to obtain a CWFA Grade 1 Laboratory Analyst Certificate. Not open to students with credit in WWTR 110.

**CSU**

**112 WATER TREATMENT PLANT OPERATIONS**

- **3 units**

(formerly WWTR 112)

- **3 hours lecture**

An introduction to the basic principles involved in the operation of conventional public wastewater treatment plants. Provides information on plant hydraulics, preliminary, primary and secondary treatment processes, disinfection, as well as environmental and safety regulation compliance. Not open to students with credit in WWTR 114.

**CSU**

**115 WATER RECLAMATION AND REUSE**

- **3 units**

(formerly WWTR 115)

- **3 hours lecture**

This course covers the fundamentals of wastewater reclamation and reuse. Topics include the history of wastewater treatment and reclamation; total resource recovery including bio-solids/biogas harvesting; planning, design, and construction of reclamation plants; and reclaimed wastewater distribution. Problems regarding regulations, marketing, and public perception of using reclaimed wastewater will be discussed, along with public safety issues. Not open to students with credit in WWTR 115.

**CSU**

**130 WATER DISTRIBUTION SYSTEMS**

- **3 units**

(formerly WWTR 130)

- **3 hours lecture**

Recommended Preparation: “C” grade or higher or “Pass” in CWS 102 or equivalent

Study of the operation and maintenance of a water supply and distribution system. Water sources, water quality, treatment methods, distribution operations, customer metering, pipeline installation and repair, valves and appurtenances, storage tanks, and maintenance topics will be discussed. Includes mathematical and hydraulic formulas and principles to determine volume, flow, pressure and force. Part of a series required for the California Board of Industrial Relations Water/Wastewater Technology (WWTR) program.
for eligibility to take the California Department of Public Health (CDPH) Water Distribution Operator certification examinations; supports certification examinations for CDPH Water Distribution Operator grade D1 and D2. Not open to students with credit in WWTR 130.

CSU

132 WASTEWATER COLLECTION SYSTEMS 3 UNITS (formerly WWTR 132) 3 hours lecture Study of the components of wastewater collection systems. Overview of design, installation, operation, monitoring, maintenance and repair of sewer pipelines, pump stations and related facilities. Not open to students with credit in WWTR 132.

CSU

134 PUMPS, MOTORS & VALVES 3 UNITS (formerly WWTR 134) 3 hours lecture Overview of the basic principles of mechanical equipment design, installation, operation, maintenance, repair, overhaul and replacement. Emphasis on understanding the value of preventative maintenance techniques such as equipment monitoring, lubrication analysis, machine alignment and scheduled overhaul. Not open to students with credit in WWTR 134.

CSU

204 APPLIED HYDRAULICS 3 UNITS (formerly WWTR 104) Recommended Preparation: "C" grade or higher or "Pass" in CWS 102 or equivalent Study of the hydraulic principles involved in the operation of water and wastewater distribution and collection systems. The behavior of water in closed-conduit pressure systems and open channel delivery systems, and the types of facilities and infrastructure utilized in water and wastewater service and their operational characteristics will be explored. Not open to students with credit in WWTR 104.

CSU

210 ADVANCED LABORATORY ANALYSIS FOR WATER & WASTEWATER 3 UNITS Prerequisite: "C" grade or higher or "Pass" in CWS 110 or equivalent course 3 hours lecture Examines the fundamentals of laboratory analysis with an emphasis on applied chemical and microbiological procedures for water and wastewater plant operators. Includes procedures and techniques used in physical, chemical, bacteriological and biological examination of water/wastewater. Covers State Department of Public Health and Federal EPA, Clean Water and Safe Drinking Water Act regulations related to the operation of a water or wastewater laboratory. Completion of CWS 110 and CWS 210 provides the foundational knowledge and skills necessary to test for the California Water Environment Association (CWEA) Grade 1 Laboratory Analyst Certificate.

CSU

212 ADVANCED WATER TREATMENT PLANT OPERATIONS 3 UNITS (formerly WWTR 117) Prerequisite: "C" grade or higher or "Pass" in CWS 112 or equivalent 3 hours lecture The study of water quality control and treatment. Aspects of public health as it relates to the water supply will be highlighted. Sources of contamination and methods of control will be emphasized as well as maintenance of water treatment facilities, safety, cost, and environmental factors. Not open to students with credit in WWTR 117.

CSU

214 ADVANCED WASTEWATER TREATMENT PLANT OPERATIONS 3 UNITS (formerly WWTR 120) Prerequisite: "C" grade or higher or "Pass" in CWS 114 or equivalent This course examines how modern wastewater treatment plants are operated to maximize efficiency and reliability in processing municipal wastewater. Emphasis on wastewater treatment plant facilities, equipment, preventative maintenance procedures, plant process monitoring & control, and safety & regulatory compliance. Not open to students with credit in WWTR 120.

CSU

230 ADVANCED WATER DISTRIBUTION SYSTEMS 3 UNITS (formerly WWTR 265) Prerequisite: "C" grade or higher or "Pass" in CWS 130 or equivalent 3 hours lecture The second of an integrated sequence of courses covering water distribution systems. Students will gain a more comprehensive understanding of the operation and maintenance of a water supply and distribution system including advanced calculations, management, safety, and emergency response issues. Contemporary issues facing the water and wastewater industry will be explored in depth. Expands on topics covered in the introductory course, WWTR 130. Part of a series required for eligibility to take the California Department of Public Health (CDPH) Water Distribution Operator certification examinations; prepares students to take and pass CDPH Water Distribution Operator certification examinations for grades D3, D4 and D5. Not open to students with credit in WWTR 265.

CSU

252 ADVANCED WASTEWATER COLLECTION SYSTEMS 3 UNITS (formerly WWTR 257) Prerequisite: "C" grade or higher or "Pass" in CWS 132 or equivalent 3 hours lecture Provides an in-depth understanding of the operation and maintenance of wastewater collection systems. Includes the design, operation, monitoring, maintenance and repair of collection systems and pump stations; equipment maintenance; safety and survival systems; and administration and organizational principles. Not open to students with credit in WWTR 257.

CSU

268 MEMBRANE PLANT OPERATION 3 UNITS (formerly WWTR 268) Prerequisite: "C" grade or higher or "Pass" in CWS 112 or 114 or equivalent 3 hours lecture Study of basic membrane technology and the application of this technology to water and wastewater treatment. This course explores the operation and maintenance of membrane components within a water and wastewater treatment system, as well as pre and post treatment. Not open to students with credit in WWTR 268.

CSU

270 PUBLIC WORKS SUPERVISION 3 UNITS (formerly WWTR 270) Prerequisite: "C" grade or higher or "Pass" in CWS 101 or equivalent 3 hours lecture Introduction to the principles and practices of modern supervision and management with an emphasis on contemporary issues facing supervisors and managers in the water utilities industry. Not open to students with credit in WWTR 270.

CSU

280 BACKFLOW TESTER TRAINING 2 UNITS (formerly WWTR 280) 1.5 hours lecture, 1.5 hours laboratory Preparation for the American Water Works Association (AWWA) and the American Backflow Prevention Association (ABPA) certification for Backflow Prevention Assembly Tester Certification. Includes backflow device installation and testing procedures required for the certification testing. Not open to students with credit in WWTR 280.

CSU

282 CROSS-CONNECTION CONTROL SPECIALIST 3 UNITS (formerly WWTR 282) 3 hours lecture Study of the administrative and technical procedures required for a cross connection program, including system inspections, hazard evaluation, identification of cross connection problems and backflow prevention devices, shut-down tests, and reclaimed water systems. Not open to students with credit in WWTR 282.

CSU

284 CROSS-CONNECTION CONTROL SPECIALIST–RECYCLED WATER 3 UNITS (formerly WWTR 284) 3 hours lecture Study of the administrative and technical procedures concerning the production, use and distribution of recycled water including backflow protection, legal, administrative and permitting issues, the treatment process, health and safety aspects, and the cross connection control (shutdown) test as conducted in San Diego County. Various aspects of cross connection control recycled water shut down testing will be demonstrated. Not open to students with credit in WWTR 284.

CSU

290 COOPERATIVE WORK EXPERIENCE 1-4 UNITS (formerly WWTR 290) Recommended Preparation: Successful completion of at least three Water/Wastewater technology courses prior to enrolling in Cooperative Work Experience is highly recommended. 75 hours paid or 60 hours non-paid work experience per unit, 1-4 units Practical application of principles and procedures learned in the classroom to the various phases of water and wastewater treatment, distribution or collection. Work experience will be paid or non-paid at appropriate curriculum-related work sites. Two on-campus sessions will be scheduled. Occupational cooperative work experience credit may accrue at the rate of one to eight units per semester for a total of sixteen units, and students must work 75 paid hours or 60 non-paid hours per unit earned. May be taken for a maximum of 12 units. Not open to students with credit in WWTR 290.
Comments:
(effective Spring 2019) New course added:

**ENGLISH AS A SECOND LANGUAGE**

**026 ESL COMPUTER SKILLS INTRODUCTION AND VOCABULARY**
2 UNITS

Prerequisite: None
2 hours lecture

This course is designed as an ESL companion for BOT 100. It focuses on the vocabulary and culture of the computer lab and all the integrated skills needed to successfully submit assignments in future classes. ESL 026 will be “hands-off” any actual computers, emphasizing instead all the language elements that are required for success in a computer skills class teaching proper formatting and software use for preparing assignments. The actual practice of the content of this course will occur in BOT 100, a course which the student must be concurrently enrolled in with ESL 026.
Pass/No Pass only. Non-degree applicable.
C U Y A M A C A  C O L L E G E

900 Rancho San Diego Parkway
El Cajon, California  92019-4369
(619) 660-4000
www.cuyamaca.edu

Building C/Library - reopened
Building I/Heath & Wellness Center - Lactation Room added
Building L/Water Studies - remodeled