

## ***DEGREES AND CERTIFICATE PROGRAMS***

<b>Program</b>	<b>Associate Degree</b>	<b>Certificate</b>	<b>Program</b>	<b>Associate Degree</b>	<b>Certificate</b>
ACCOUNTING			ENGLISH .....	•	•
Accounting .....	•	•	ENTREPRENEURSHIP-SMALL BUSINESS MANAGEMENT .....	•	•
Bookkeeping .....	•		ENVIRONMENTAL TECHNOLOGY		
ART-DRAWING AND PAINTING .....	•		Hazardous Materials/Hazardous Waste Management .....	•	•
AUTOMOTIVE TECHNOLOGY .....	•	•	Occupational Health and Safety .....	•	•
Advanced Engine Performance and Emissions .....	•		GENERAL MAJOR .....	•	
ASEP .....	•		GRAPHIC DESIGN .....	•	•
ASSET .....	•		HISTORY .....	•	
Brakes and Front-End .....	•		LIBERAL ARTS .....	•	
Engine Performance and Drive Train .....	•		MANAGEMENT .....	•	•
BIOLOGICAL SCIENCES .....	•		MATHEMATICS .....	•	•
BUSINESS			ORNAMENTAL HORTICULTURE		
Business Administration .....	•	•	Arboriculture .....	•	•
Business Office Technology .....	•	•	Floristry .....	•	•
CHEMISTRY .....	•		Golf Course and Sports Turf Management .....	•	•
CHILD DEVELOPMENT			Irrigation Technology .....	•	•
Infants and Toddlers .....	•	•	Landscape Design .....	•	•
Preschool Children .....	•	•	Landscape Technology .....	•	•
COMPUTER INFORMATION SYSTEMS			Nursery Technology .....	•	•
Applications Software Specialist .....	•	•	PARALEGAL STUDIES .....	•	
Computer Network Administration .....	•	•	PHYSICAL SCIENCE .....	•	
DRAFTING TECHNOLOGY .....	•	•	PHYSICS .....	•	
Technical Illustration Graphics .....	•		REAL ESTATE .....	•	•
ELEMENTARY EDUCATION .....	•		Escrow .....	•	•
ENGINEERING			SPEECH COMMUNICATION		
Aerospace Engineering .....	•		Presentational Communication .....	•	
Civil Engineering .....	•		Professional Communication .....	•	
Electrical Engineering .....	•		Relational Communication .....	•	
Mechanical Engineering .....	•		SUPERVISION .....	•	•
			SURVEYING .....	•	•

## **ACCOUNTING** (Major Code: 50020)

The Associate Degree program with a major in accounting is designed to prepare students to enter the employment field as accounting technicians or as tax technicians. The accounting curriculum is supported by related business courses and a strong general education program for men and women interested in qualifying for responsible positions in accounting. **This program is designed for a two-year degree or certificate only. Students interested in pursuing a bachelor's degree in accounting should consult the catalog of the transfer institution for specific requirements.**

### **Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
BUS 120	Financial Accounting	4
BUS 121	Managerial Accounting	4
BUS 122	Intermediate Accounting	4
BUS 124	Auditing	3
BUS 125	Business Law: Legal Environment of Business	3
BUS 128	Business Communication	3
BUS 150	Individual Income Tax Accounting	3
BUS 162	Analysis of Financial Statements	3
BUS 172	Introduction to Microcomputer	
or	Applications	3
CIS 110ABCD	Introduction to Computing	4
BUS 176	Computerized Accounting Applications	2
	Total Required	32-33
	Plus General Education Requirements	

### **Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Accounting. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

### **BOOKKEEPING CERTIFICATE** (Major Code: 50024)

Any student who completes the seven courses listed below qualifies for a Certificate in Bookkeeping. This certificate program recognizes the need that the student may have for very specific training in the area of bookkeeping/ accounting, either to obtain the necessary skills for an entry level office position, or to provide the technical competence for advancement within the office environment. Note that this certificate program does not require completion of the "core" curriculum; it is designed so that the student may complete the program during two semesters of concentrated study.

### **Certificate Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
BUS 109 or	Elementary Accounting	3
BUS 120	Financial Accounting	4
BUS 121	Managerial Accounting	4
BUS 128	Business Communication	3
BUS 129	Payroll Accounting and Business Taxes	2
BUS 172	Introduction to Microcomputer Applications	3
BUS 176	Computerized Accounting Applications	2
CIS 150ABCD	Spreadsheets	3
	Total	20-21

NOTE: BUS 109 may be taken instead of BUS 120 for the Bookkeeping Certificate only.

## **AEROSPACE ENGINEERING** (SEE ENGINEERING)

## ART-DRAWING AND PAINTING

(Major Code: 53044)

The Associate Degree in Art is designed to provide a fundamental background in the two-dimensional studio arts emphasizing both technique and aesthetic awareness. The student will develop the ability to control line, value, shape, color, perspective and composition in various mediums.

The major in art will provide preparation for transfer to a four-year college in fine art or a vocational area related to art. The curriculum consists of courses in both studio techniques and art history.

### Associate in Arts Degree Requirements:

Course	Title	Units
ART 120	Two-Dimensional Design	3
ART 121	Painting I	3
ART 124	Drawing I	3
ART 125	Drawing II	3
ART 140	History of Western Art I: Prehistoric to 1250 A.D.	3
ART 141	History of Western Art II: 1250 A.D. to Present Time	3
ART 230	Figure Drawing I	<u>3</u>
		21

### Select nine (9) units from the following:

ART 129	Three-Dimensional Design	3
ART 135	Watercolor Painting I	3
ART 220	Painting II	3
ART 231	Figure Drawing II	3
GD 128	Introduction to Computer Graphic Design	3
GD 130	Business Practices for Designers and Artists	3
GD 156	Digital Photography I (Black & White)	<u>3</u>
		9
	Total Required	30
	Plus General Education Requirements	

### Recommended Electives:

FREN 120, HIST 140, HUM 155, RELG 120

## AUTOMOTIVE TECHNOLOGY

The Automotive Technology curriculum provides for entry level skills in the automotive field. The program is designed to impart in-depth technical skills as required in today's highly technical automotive field. Preparation for employment in the automotive and/or transportation trades, with upgrading and specialization skills for those currently employed, will be stressed. Emphasis will be on practical experience in actual repairs under simulated shop conditions.

### I. AUTOMOTIVE TECHNOLOGY (Major Code: 51000)

#### Associate in Science Degree Requirements:

Course	Title	Units
AUTO 120	Automotive Tune-up and Diagnosis	5
AUTO 121	Emission Control License	5
AUTO 122	Automotive Electrical Systems	5
AUTO 123	Computerized Engine Controls	5
AUTO 180	Automotive Service Advisor	1
AUTO 182	Automotive Work Experience	<u>3</u>
		24

#### Select three (3) courses from the following:

AUTO 129	Introduction to Alternative Fuels	3.5
AUTO 130	Automotive Brakes and Brake License	5
AUTO 140	Four-Wheel Alignment	5
AUTO 152	Drive Train Systems	4
AUTO 160	Air Conditioning and Heating Systems	3
AUTO 170	Engine Overhaul	<u>5</u>
		10.5-15

#### Select one (1) course from the following:

AUTO 124	Engine Driveability Laboratory	3
AUTO 125*	Advanced Auto Tune-up and Diagnosis	5
AUTO 135*	Advanced Brakes	5
AUTO 145*	Advanced Four-Wheel Alignment	5
AUTO 155*	Advanced Drive Train Systems	4
AUTO 165*	Advanced Air Conditioning and Heating Systems	3
AUTO 175*	Advanced Engine Overhaul	5
AUTO 176	Engine Machining	<u>5</u>
		3-5
	Total Required	37.5-44
	Plus General Education Requirements	

\*Grade of "B" or better required in prerequisite courses for all advanced courses.

FOR ALL CLASSES: Students are required to provide their own hand tools as required in each course. Students are also required to provide ANSI Z-87.1 (1979) eye protection.

**Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Automotive Technology. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**II. AUTOMOTIVE TECHNOLOGY–ADVANCED  
ENGINE PERFORMANCE AND EMISSIONS**  
(Major Code: 51006)

<i>Course</i>	<i>Title</i>	<i>Units</i>
AUTO 120	Automotive Tune-up and Diagnosis	5
AUTO 121	Emission Control License	5
AUTO 122	Automotive Electrical Systems	5
AUTO 123	Computerized Engine Controls	<u>5</u>
		20

**Select one (1) course from the following:**

AUTO 124	Engine Driveability Laboratory	3
AUTO 125	Advanced Auto Tune-up and Diagnosis	<u>5</u>
		3-5
	Total Required	23-25

**Certificate of Achievement**

Any student who completes the requirements listed above qualifies for a Certificate in Automotive Technology–Advanced Engine Performance and Emissions. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**III. AUTOMOTIVE TECHNOLOGY–ENGINE  
PERFORMANCE AND DRIVE TRAIN**  
(Major Code: 51002)

<i>Course</i>	<i>Title</i>	<i>Units</i>
AUTO 120	Automotive Tune-up and Diagnosis	5
AUTO 152	Drive Train Systems	4
AUTO 170	Engine Overhaul	5
AUTO 180	Automotive Service Advisor	1
AUTO 182	Automotive Work Experience	<u>3</u>
	Total Required	18

**Certificate of Achievement**

Any student who completes the requirements listed above qualifies for a Certificate in Automotive Technology–Engine Performance and Drive Train. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**IV. AUTOMOTIVE TECHNOLOGY–  
BRAKES AND FRONT-END** (Major Code: 51003)

<i>Course</i>	<i>Title</i>	<i>Units</i>
AUTO 130	Automotive Brakes and Brake License	5
AUTO 140	Four-Wheel Alignment	5
AUTO 145	Advanced Four-Wheel Alignment	5
AUTO 180	Automotive Service Advisor	1
AUTO 182	Automotive Work Experience	<u>3</u>
	Total Required	19

**Certificate of Achievement**

Any student who completes the requirements listed above qualifies for a Certificate in Automotive Technology–Brakes and Front-End. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**V. AUTOMOTIVE TECHNOLOGY–ASSET**  
(Major Code: 51005)

The Automotive Technology Ford Sponsored ASSET Program curriculum offers a unique job training opportunity to those students who are accepted. Training will be provided to include all systems of the sponsoring manufacturers' automobiles. In addition, students will be required to further their studies in a sponsoring dealership as a paid (work experience) technician. This program is not offered as a certificate; consequently, all students must complete their general education requirements in addition to the requirements listed below. Candidates who successfully complete these requirements will be granted an Associate Degree.

**NOTE THE FOLLOWING:**

1. A grade point average of "C" (2.0) is required for this major.
2. Students who test low in English, reading or math assessment scores (and are accepted into the program) will be required to take remedial courses in those areas in addition to the general education courses.
3. Students who have previous college credit or an Associate Degree or higher may be exempt from all or part of the general education requirements. (Students should request an appointment with a counselor to have their General Education requirements evaluated.)

**Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
AUTO 190	ASSET—Orientation, PDI and Lubrication	2
AUTO 191	ASSET—Brakes and Alignment	7
AUTO 192	ASSET—Power Train	7
AUTO 193	ASSET—Engine Repair	4.5
AUTO 194	ASSET—Tune-up and Emissions	7
AUTO 195	ASSET—Electronic Engine Controls	4.5
AUTO 196	ASSET—Electrical, Accessories and Air Conditioning	<u>5</u>
		37

**Work Experience:**

AUTO 197*	ASSET—Work Experience	<u>15</u>
	Total Required	52
	Plus General Education Requirements	

\*This course must be repeated 5 times for a total of 15 units.

**VI. AUTOMOTIVE TECHNOLOGY—ASEP**

(Major Code: 51007)

The Automotive Technology General Motors sponsored ASEP program curriculum offers a unique job training opportunity to those students who are accepted. Training will be provided to include all systems of sponsoring manufacturers' automobiles. In addition, students will be required to further their studies in a sponsoring dealership as a paid (work experience) technician. This program is not offered as a certificate; consequently, all students must complete their general education requirements in addition to the requirements listed below. Candidates who successfully complete these requirements will be granted an Associate Degree.

**NOTE THE FOLLOWING:**

1. A grade point average of "C" (2.0) is required for this major.
2. Students who have previous college credit or an Associate Degree or higher may be exempt from all or part of the general education requirements. (Students should request an appointment with a counselor to have their General Education requirements evaluated.)

**Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
AUTO 121	Emission Control License	5
AUTO 200	ASEP—Orientation	1
AUTO 201	ASEP—Electrical	6
AUTO 202	ASEP—Brakes and Alignment	7
AUTO 203	ASEP—Engine Repair	4.5
AUTO 204	ASEP—Power Train	7
AUTO 205	ASEP—Engine Performance and Air Conditioning	<u>7</u>
		37.5

**Work Experience:**

AUTO 206*	ASEP—Work Experience	<u>15</u>
	Total Required	52.5
	Plus General Education Requirements	

\*This course must be repeated for a total of 15 units.

***BIOLOGICAL SCIENCES***

***(Major Code: 59500)***

The curriculum is designed to provide a two-year transfer program with emphasis on the uniformity and diversity of life. The major course requirements outlined below fulfill the lower division requirements for majors in biology, dentistry, medicine, nursing, pharmacy, environmental health, microbiology and ecology.

**Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
BIO 210	Biology II	4
BIO 215	Statistics for Life Sciences	3
BIO 220	Principles of Molecular, Cellular and Evolutionary Biology	3
BIO 221	Principles of Molecular, Cellular and Evolutionary Biology Laboratory	1
CHEM 141	General Chemistry I	5
CHEM 142	General Chemistry II	5
CHEM 231	Fundamentals of Organic Chemistry	4
MATH 180	Analytic Geometry and Calculus	5
PHYC 130	Fundamentals of Physics	4
PHYC 131	Fundamentals of Physics	<u>4</u>
	Total Required	38
	Plus General Education Requirements	

***BROKER'S LICENSE***

***(see Real Estate)***

# BUSINESS

## I. BUSINESS ADMINISTRATION (Major Code: 50041)

The Business Administration curriculum is designed to give students who choose to work toward a bachelor's degree a well-balanced introduction to a professional career in business.

The program outlined below fulfills the lower division requirements for most majors in the School of Business Administration at San Diego State University and is typical of requirements at other four-year schools. For specific requirements, transfer students should consult the four-year college or university catalog of their selected institution.

### Associate in Science Degree Requirements:

Course	Title	Units
BUS 120	Financial Accounting	4
BUS 121	Managerial Accounting	4
BUS 125	Business Law: Legal Environment of Business	3
BUS 128	Business Communication	3
CIS 110ABCD	Introduction to Computing	4
ECON 120	Principles of Macroeconomics	3
ECON 121	Principles of Microeconomics	3
MATH 160	Elementary Statistics	3
MATH 178	Calculus for Business, Social and Behavioral Sciences	4
	Total Required	31
	Plus General Education Requirements	

### Recommended Electives:

BUS 146; BUS 156 or SUPV 110

### Certificate of Achievement

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Business Administration. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

## II. BUSINESS OFFICE TECHNOLOGY

(Major Code: 59501)

The Business Office Technology curriculum 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.

### Associate in Science Degree Requirements:

Course	Title	Units
BUS 100	Basic Keyboarding	1
BUS 102	Intermediate Keyboarding	3
BUS 107	Office Systems and Procedures	3
BUS 128	Business Communication	3
BUS 172	Introduction to Microcomputer Applications	3
BUS 187	Office Automation	3
CIS 130ABCD	Word Processing	3
		19

### Select a minimum of six (6) units from the following:

BUS 109 or	Elementary Accounting	3
BUS 120	Financial Accounting	4
BUS 130	Calculating Machines	3
BUS 156 or	Principles of Management	3
SUPV 110	Principles of Supervision	3
BUS 176	Computerized Accounting Applications	2
CIS 140ABCD	Databases	3
CIS 150ABCD	Spreadsheets	3
GD 128	Introduction to Computer Graphic Design	3
SUPV 126	Principles of Leadership	3
		6
	Total Required	25
	Plus General Education Requirements	

### Certificate of Achievement

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Business Office Technology. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

## ***SMALL BUSINESS MANAGEMENT*** (see *Entrepreneurship*)

## CHEMISTRY (Major Code: 59502)

The chemistry curriculum is designed to give students who chose to work toward a bachelor's degree a well-balanced, lower division program with a strong emphasis on fundamentals and problem-solving. The major course requirements outlined below fulfill the lower division requirements (except for analytical chemistry) for chemistry majors and is typical of the requirements at four-year colleges and universities.

### Associate in Science Degree Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
CHEM 141	General Chemistry I	5
CHEM 142	General Chemistry II	5
CHEM 231	Fundamentals of Organic Chemistry	4
MATH 180	Analytic Geometry and Calculus	5
MATH 280	Analytic Geometry and Calculus	4
MATH 281	Intermediate Calculus	4
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
PHYC 210	Wave Motion and Modern Physics	<u>5</u>
	Total Required	42
	Plus General Education Requirements	

### NOTE THE FOLLOWING:

- Students pursuing an emphasis in Biochemistry should also take the following courses: BIO 210, 220, 221.
- It is recommended that students who intend to enroll at UCSD take MATH 285 and check with the Counseling Center regarding program options.

## CHILD DEVELOPMENT

The Child Development curriculum is designed to prepare students for employment as teachers, directors and aides in preschools and day care centers, including infant/toddler and extended day facilities. Course work in this program meets the educational components of the Department of Social Services license regulations for child care programs. The Associate Degree in Child Development meets the educational requirements of the Regular Children's Center Instructional Permit.

These courses are also appropriate for parents, nurses and administrators. Courses are designed to partially meet lower division course preparation for students planning a bachelor's degree in Child Development.

### Associate Degree Major Requirements

The Child Development major consists of 27 required units of core curriculum. The remaining units will be taken in an area of emphasis that the student selects. Students must choose at least one area of emphasis.

NOTE: All courses in the major must be completed with a grade of "C" or better to receive a certificate.

### Associate in Science Degree Requirements: Core Curriculum

<i>Course</i>	<i>Title</i>	<i>Units</i>
CD 123	Introduction to Programs and Curriculum for Young Children	3
CD 125	Child Growth and Development	3
CD 126	Art for Child Development	3
CD 127	Science and Mathematics for Child Development	3
CD 128	Music and Movement for Child Development	3
CD 129	Language and Literature for Child Development	3
CD 131	Child, Family and Community	3
CD 134	Health and Safety for Teachers of Young Children	3
CD 141	Working with Children with Special Needs	<u>3</u>
	Total	27

**Areas of Emphasis:**

**I. PRESCHOOL CHILDREN (Major Code: 55030)**

CD 130	Curriculum: Developmentally Appropriate Practices	3
CD 132	Observation and Guidance for Child Development	2
CD 133	Field Experience for Child Development	<u>2</u>
		7
	Total Required Including Core Classes Plus General Education Requirements	34

**II. INFANTS AND TODDLERS (Major Code: 55031)**

CD 124	Infant and Toddler Development	3
CD 132	Observation and Guidance for Child Development	2
CD 143	Infant/Toddler Curriculum	3
CD 170	Field Experience with Infants and Toddlers	<u>2</u>
		10
	Total Required Including Core Classes Plus General Education Requirements	37

**Recommended Electives and Continuing Education Units:**

CD 124	Infant and Toddler Development	3
CD 135	Parent-Child Interaction	3
CD 139	Infant/Parent Development	2
CD 145	Child Abuse: Detection, Intervention and Prevention	3
CD 157	Food and Nutrition for Children	3

**Certificate of Achievement**

Any student who chooses to complete only the courses required for the major including an area of emphasis qualifies for a Certificate in Child Development. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**CIVIL ENGINEERING**  
(see Engineering)

**COMPUTER INFORMATION SYSTEMS**

**I. COMPUTER NETWORK ADMINISTRATION (Major Code: 51134)**

This area of emphasis prepares students for careers in computer networking and related fields. Students completing this certificate may find entry-level positions as network administrators, computer technicians, web masters or as help desk service providers. Students with this emphasis will be prepared to work as team members in an Information Technology group that evaluates, tests, installs and maintains corporate networks. Students can advance with more training and experience in this fast-paced, growing industry.

**Associate in Science Degree Requirements:**

Course	Title	Units
CIS 110ABCD	Introduction to Computing	4
CIS 120ABCD	Personal Computer Systems	2
CIS 140ABCD	Databases	3
CIS 190ABCD	Operating Systems	3
CIS 200ABCD	Introduction to Computer Networking	3
CIS 201ABCD	Managing Computer Networks	3
CIS 210ABCD	The Internet	1
CIS 240ABCD	Advanced Databases	3
CIS 290ABCD	Advanced Operating Systems	<u>3</u>
		25

**Select one (1) course from the following:**

CIS 180ABCD	Computer Programming (Visual Basic)	4
CIS 181ABCD	Computer Programming (C++)	<u>4</u>
		4

**Select six (6) units from the following:**

BUS 120	Financial Accounting	4
BUS 128	Business Communication	3
CIS 212ABCD	Web Publishing	3
CIS 214ABCD	Web Management	3
CIS 280ABCD	Advanced Programming (Visual Basic)	4
CIS 281ABCD	Advanced Programming (C++)	4
ENGL 124	Advanced Composition: Critical Reasoning and Writing	<u>3</u>
		6
	Total Required	35
	Plus General Education Requirements	

**Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Computer Network Administration. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**II. APPLICATION SOFTWARE SPECIALIST**

(Major Code: 51135)

This area of emphasis prepares students for careers in application software support roles. Students completing this certificate will be expected to provide software expertise in a general office setting by providing leadership in the selection, installation, training and use of application software packages. Students may find entry-level positions as software consultants, web masters or as help desk service providers.

**Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
CIS 110ABCD	Introduction to Computing	4
CIS 120ABCD	Personal Computer Systems	2
CIS 130ABCD	Word Processing	3
CIS 140ABCD	Databases	3
CIS 150ABCD	Spreadsheets	3
CIS 190ABCD	Operating Systems	3
CIS 210ABCD	The Internet	1
CIS 212ABCD	Web Publishing	<u>3</u>
		22

**Select one (1) course from the following:**

CIS 160ABCD	Group Presentations	3
CIS 170ABCD	Presentation Graphics	<u>3</u>
		3

**Select two (2) courses from the following:**

CIS 180ABCD	Computer Programming (Visual Basic)	4
CIS 181ABCD	Computer Programming (C++)	4
CIS 214ABCD	Web Management	3
CIS 230ABCD	Desktop Publishing	3
CIS 240ABCD	Advanced Databases	3
CIS 250ABCD	Advanced Spreadsheets	3
CIS 270ABCD	Advanced Graphics	<u>3</u>
		6-8
	Total Required	31-33
	Plus General Education Requirements	

**Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Application Software Specialist. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

***DRAFTING TECHNOLOGY***

**I. DRAFTING TECHNOLOGY (Major Code: 53030)**

Occupational preparation as a drafting technologist is the primary purpose of the Drafting Technology program. It is designed to impart in-depth technical drafting and process skills required in the drafting departments of our modern industrial concerns. Adherence to industrial practices and standards is stressed with problem-solving in a simulated industrial environment.

**Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
DTEC/ENGR 124	Basic Drafting	3
DTEC/ENGR 125	Intermediate Drafting– Graphics and Processes	3
DTEC 126	Electronic Drafting	3
DTEC 127	Survey Drafting Technology	3
DTEC 128	Dimensioning and Tolerancing	3
DTEC 129	Advanced Isometrics	3
DTEC 130ABCD	Basic Computer-Aided Drafting	<u>3</u>
	Total Required	21
	Plus General Education Requirements	

**Recommended Elective:**

DTEC 131ABCD

**Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Drafting Technology. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**II. TECHNICAL ILLUSTRATION GRAPHICS**

(Major Code: 50128)

The basic purpose of Technical Illustration Graphics is to equip students with skills to pictorialize three dimensional drawings, illustrations, graphs and visual aids needed in industry, publications and science. This area of graphics demands accuracy and versatility in communicating ideas of various media to achieve the maximum descriptive image for the consumer.

Any student willing to learn the mechanical systems by which three dimensional drawings are made can produce very credible and convincing illustrations needed for service catalogs. All students will have job entry-level skills and basic business graphics knowledge needed in the real world of work.

Course	Title	Units
CIS 110ABCD	Introduction to Computing	4
CIS 170ABCD	Presentation Graphics	3
DTEC/ENGR 124	Basic Drafting	3
DTEC/ENGR 125	Intermediate Drafting– Graphics and Processes	3
DTEC 129	Advanced Isometrics	3
GD 120	Composition and Media	3
GD 128	Introduction to Computer Graphic Design	3
	Total Required	22

**Certificate of Achievement**

Any student who completes the requirements listed above qualifies for a Certificate in Technical Illustration Graphics. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

## ***ELECTRICAL ENGINEERING*** (see *Engineering*)

## ***ELEMENTARY EDUCATION*** (Major Code: 59504)

This Elementary Education program is designed to provide the lower division preparation for transfer to San Diego State University as a Liberal Studies, emphasis in Education major. Students interested in transferring to another college or university should check the requirements of the specific school.

Students who complete the program will receive an Associate Degree in Elementary Education and may request certification of lower division general education course work required by the California State University system.

Because the program emphasizes a strong general education approach, it may be an appropriate major for a variety of career options. Students are encouraged to refer to the San Diego State University catalog and/or consult with an academic advisor before selecting the various options listed below.

**Associate in Arts Degree Requirements:**

Course	Title	Units
<b>1. Composition</b> (minimum 6 units)		
ENGL 120	College Composition and Reading	3
ENGL 124	Advanced Composition: Critical Reasoning and Writing	3
<b>2. Speech</b> (minimum 3 units)		
SPCH 122	Oral Communication: Principles of Oral Composition and Delivery	3
<b>3. Literature</b> (minimum 3 units)		
ENGL 122	Introduction to Literature	3
<b>4. Mathematics</b> (minimum 6 units)		
MATH 125	Structure and Concepts of Elementary Mathematics I	3
MATH 126	Structure and Concepts of Elementary Mathematics II	3
<b>5. Biological Sciences*</b> (minimum 3 units)		
BIO 130	General Biology I	3
BIO 131	General Biology I Laboratory	1
<b>6. Physical Sciences*</b> (minimum 3 units)		
ASTR 110	Descriptive Astronomy	3
ASTR 112	General Astronomy Laboratory	1
CHEM 115	Fundamentals of Chemistry	4
GEOG 120	Elements of Physical Geography	3
GEOG 121	Physical Geography Laboratory	1
GEOL 110	General Geology	3
GEOL 111	General Geology Laboratory	1
GEOL 120	Physical Geology	4
PHYC 110	Introductory Physics	4
<b>7. Global Perspective</b> (minimum 3 units)		
GEOG 130	Human and Cultural Geography	3

**8. Human Growth and Development** (minimum 6 units)

PSY 120	Introductory Psychology	3
PSY 165	Developmental Psychology	3

**9. United States Organization** (minimum 6 units)

HIST 120	Early American Civilization	3
HIST 121	Modern American Civilization	3

**10. Values and Ethics** (minimum 3 units)

PHIL 110	A General Introduction to Philosophy	3
PHIL 115	History of Philosophy I	3
PHIL 117	History of Philosophy II	3
PHIL 140	Problems in Ethics	3
RELG 120	World Religions	3
RELG 130	Scriptures of World Religions	3

**11. Western Civilization** (minimum 3 units)

HIST 140	Early Western Civilization	3
HIST 141	Modern Western Civilization	3

**12. Music** (minimum 4 units)

MUS 118	Introduction to Music	4
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**13. Art/Humanities** (minimum 3 units)

ART 140	History of Western Art I: Prehistoric to 1250 A.D.	3
ART 141	History of Western Art II: 1250 A.D. to Present Time	3

**14. Additional Requirements** (minimum 8-9 units)

HED 110	Essentials of Personal and Community Health	3
PE 253	Physical Education in Elementary Schools	3
PE Activity	(At least two courses)	2-3

**15. Recommended Electives**

BUS 172 or CIS 110ABCD

\*An approved lab course must be included in (5) or (6).

Note: Foreign Language - Competency (equivalent to that which is normally attained through three consecutive courses of college study) is required in one foreign language as part of the preparation for the major. This may be completed at Cuyamaca College or San Diego State University. Please refer to "Graduation Requirements" in the SDSU catalog for further information.

# ENGINEERING

This program is designed to cover the first two years of a four-year program leading to the Bachelor's Degree in Engineering at San Diego State University or other universities and colleges.

**Engineering Certificate Transfer Program**

This program is designed for the certificate only and may not be used as a major for an Associate Degree.

Any student who completes the requirements listed below qualifies for a Certificate in Engineering. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

<i>Course</i>	<i>Title</i>	<i>Units</i>
CHEM 141	General Chemistry I	5
ENGR 120	Engineering Problem Analysis	3
ENGR 200	Engineering Mechanics–Statics	3
ENGR 210	Electric Circuits	3
ENGR 220	Engineering Mechanics–Dynamics	3
MATH 180	Analytic Geometry and Calculus	5
MATH 280	Analytic Geometry and Calculus	4
MATH 281	Intermediate Calculus	4
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
PHYC 210	Wave Motion and Modern Physics	5
		<u>45</u>

*Plus the following courses depending on major:*

**I. AEROSPACE ENGINEERING (Major Code: 53112)**

ENGR/DTEC 124	Basic Drafting	3
ENGR 260	Engineering Materials	3

**II. CIVIL ENGINEERING (Major Code: 53113)**

ENGR/DTEC 124	Basic Drafting	3
ENGR 218	Plane Surveying	4
ENGR 260	Engineering Materials	3
MATH 160	Elementary Statistics	3

**III. ELECTRICAL ENGINEERING (Major Code: 53114)**

MATH 160	Elementary Statistics	3
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**IV. MECHANICAL ENGINEERING (Major Code: 53115)**

ENGR/DTEC 124	Basic Drafting	3
ENGR/DTEC 125	Intermediate Drafting–Graphics and Processes	3
ENGR 260	Engineering Materials	3

## **ENGLISH** (Major Code: 51037)

The English major fulfills lower division requirements at most four-year colleges and universities and thus provides a broad-based foundation for transfer. For particular requirements, transfer students should consult the appropriate four-year college or university catalog.

The study of English gives lifelong pleasure to students in exploring and understanding how language works to express human ideas and feelings. English course work also helps people succeed in such diverse fields as teaching, writing, editing, journalism, advertising, public relations, law, film and video work, politics, business and medicine.

### Associate in Arts Degree Requirements:

#### Core Curriculum

Course	Title	Units
ENGL 120	College Composition and Reading	3
ENGL 122	Introduction to Literature	3
ENGL 124	Advanced Composition: Critical Reasoning and Writing	3
ENGL 126	Beginning Creative Writing	3
ENGL 270	World Literature I	3
ENGL 271	World Literature II	<u>3</u>
		18

#### Select two (2) courses from the following:

ENGL 221	British Literature I	3
ENGL 222	British Literature II	3
ENGL 231	American Literature I	3
ENGL 232	American Literature II	3
<b>ENGL 275</b>	<b>LITERARY PERIOD</b>	<b>3</b>
ENGL 276	Major Author	3
ENGL 277	Literary Theme	<u>3</u>
		6

#### Select one (1) course from the following:

ENGL 201	Introduction to Images of Women in Literature	3
ENGL 202	Introduction to Film as Literature	3
ENGL 214	Masterpieces of Drama	3
ENGL 217	Fantasy and Science Fiction Survey	<u>3</u>
		3

#### Select one (1) course from the following:

ANTH 120	Cultural Anthropology	3
HIST 110	Early World History	3
HIST 111	Modern World History	3
HIST 140	Early Western Civilization	3
HIST 141	Modern Western Civilization	3
HUM 120	European Humanities	3
HUM 140	American Humanities	3
HUM 155	Mythology	3
PHIL 115	History of Philosophy I	3
PHIL 117	History of Philosophy II	3
RELG 215	Introduction to the New Testament	<u>3</u>
		3
	Total Required	30
	Plus General Education Requirements	

#### Recommended Electives:

Students planning to transfer to four-year institutions to complete a bachelor's degree in English are STRONGLY urged to take the following courses, depending on the requirements at those schools:

Two (2) sequential semesters of a single foreign language 10

#### Certificate of Achievement

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in English. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

## **ENTREPRENEURSHIP—SMALL BUSINESS MANAGEMENT** (Major Code: 50047)

The Entrepreneurship curriculum has been designed to provide a course of study for the student who is interested in working toward an Associate Degree or Certificate while developing an appreciation and understanding of the functional areas within the small business environment. As outlined, the Entrepreneurship program provides a working knowledge of small business operations to both the prospective business person as well as the owner/manager of an existing business. This program is cosponsored by the Small Business Administration.

### **Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
BUS 109	Elementary Accounting	3
BUS 111	Entrepreneurship: Starting and Developing a Business	3
BUS 112	Entrepreneurship: Successful Marketing	3
BUS 119	Entrepreneurship: Financing and Writing a Business Plan	3
BUS 125	Business Law: Legal Environment of Business	3
BUS 141	Entrepreneurship: Managing a New Business	<u>3</u>
		18

### **Select six (6) units from the following:**

BUS 128	Business Communication	3
BUS 142	Personal Selling and Persuasion	3
BUS 156	Principles of Management	3
BUS 172	Introduction to Microcomputer Applications	<u>3</u>
		6
	Total Required	24
	Plus General Education Requirements	

### **Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Entrepreneurship—Small Business Management. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

## **ENVIRONMENTAL TECHNOLOGY**

The Environmental Technology certificate/degree provides for entry level skills, upgrading and refining existing skills of individuals employed in the field of Environmental Technology, and prepares students for transfer to four-year institutions in an Environmental Technology or related major. The Environmental Technology certificate/degree has two major areas of emphasis: Hazardous Materials/Hazardous Waste Management and Occupational Health and Safety. Courses are designed for students pursuing careers in training, compliance, consulting, pollution prevention, recycling, remediation, conservation and management.

### **I. HAZARDOUS MATERIALS/HAZARDOUS WASTE MANAGEMENT** (Major Code: 51040)

#### **Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
BIO 112	Contemporary Issues in Environmental Resources	3
BIO 130	General Biology I	3
BIO 131	General Biology I Laboratory	1
CHEM 115	Fundamentals of Chemistry	4
ENVT 100	Introduction to Environmental Technology	4
ENVT 110	Pollution Prevention	3
ENVT 130	Health Effects of Hazardous Materials	3
ENVT 150	Hazardous Waste Management Applications	4
ENVT 200	Hazardous Materials Management Applications	4
ENVT 230	Safety and Emergency Response	4
ENVT 240	Cooperative Work Experience	<u>1-3</u>
		34-36

#### **Select one (1) course from the following:**

CIS 110ABCD	Introduction to Computing	4
SPAN 120	Spanish I	5
SPCH 122	Oral Communication: Principles of Oral Composition and Delivery	<u>3</u>
		3-5
	Total Required	37-41
	Plus General Education Requirements	

### **Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Hazardous Materials/Hazardous Waste Management. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**II. OCCUPATIONAL HEALTH AND SAFETY**

(Major Code: 51041)

**Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
BIO 130	General Biology I	3
BIO 131	General Biology I Laboratory	1
BIO 141	Human Physiology	3
CHEM 115	Fundamentals of Chemistry	4
ENVT 100	Introduction to Environmental Technology	4
ENVT 130	Health Effects of Hazardous Materials	3
ENVT 135	Workplace Health and Safety	3
ENVT 205	Safety and Risk Management Administration	4
ENVT 230	Safety and Emergency Response	4
ENVT 235	Occupational Fire Safety and Prevention	4
ENVT 240	Cooperative Work Experience	<u>1-3</u>
		34-36

**Select one (1) course from the following:**

CIS 110ABCD	Introduction to Computing	4
SPAN 120	Spanish I	5
SPCH 122	Oral Communication: Principles of Oral Composition and Delivery	<u>3</u>
		3-5
	Total Required	37-41
	Plus General Education Requirements	

**Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Occupational Health and Safety. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

***ESCROW*** (see Real Estate)**GENERAL MAJOR**

The primary purpose of the General Major is to meet the needs of the student who has not decided on a specific career path or who wishes to transfer to a four-year institution as an undeclared major while earning an associate degree. Outlined below are the requirements for the General Major in both the Associate in Arts degree and Associate in Science degree.

**GENERAL MAJOR FOR THE ASSOCIATE IN ARTS DEGREE** (Major Code: 59301)

The program of study consists of 18 or more units designed to meet the student's individual needs. Courses in which a "CR" has been earned may not be applied toward the above requirements. The student should consult a counselor for aid in developing this program of study.

The General Major might consist of courses in preparation for transfer to a specific major in another institution or groupings of general, occupational and technical courses which would best prepare the student for employment.

**GENERAL MAJOR FOR THE ASSOCIATE IN SCIENCE DEGREE** (Major Code: 59302)

The program of study consists of 18 or more units in MATH 110 or higher and/or natural science courses. Courses in which a "CR" has been earned may not be applied toward the above requirement.

## GRAPHIC DESIGN

(Major Code: 50127)

The Associate Degree in Graphic Design provides a fundamental background to the field of Graphic Design. The major offers a balance of courses which stress the importance of aesthetics which lead to classes offering state-of-the-art computer knowledge. The student will acquire entry-level skills necessary for employment in positions such as production artist, computer artist or layout artist. The program is also designed to prepare the student for transfer to a four-year college.

### Associate in Science Degree Requirements:

Course	Title	Units
ART 120	Two-Dimensional Design	3
ART 124	Drawing I	3
GD 110	Beginning Graphic Design	3
GD 125	Typography/Identity	3
GD 128	Introduction to Computer Graphic Design	3
GD 129	Intermediate Computer Graphic Design	3
GD 130	Business Practices for Designers and Artists	3
GD 227	Intermediate Graphic Design	<u>3</u>
		24

### Select one (1) course from the following:

GD 120	Composition and Media	3
GD 131	Advanced Computer Graphic Design	3
GD 156	Digital Photography I (Black & White)	3
GD 225	Illustration Techniques	<u>3</u>
		3
	Total Required	27
	Plus General Education Requirements	

### Recommended Electives:

ART 141, 150; DTEC/ENGR 124; GD 157 (ART 150 is offered at Grossmont College)

### Certificate of Achievement

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Graphic Design. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

## HISTORY (Major Code: 54060)

The history major prepares students to transfer to four-year institutions for continued study in the field of history. The program fulfills the lower division requirements for most majors in the History Department at San Diego State University and is typical of requirements at other four-year schools. For special requirements, transfer students should consult the catalog of the college or university of their choice. History classes provide useful background for students in such fields as history, education, political science and law.

### Associate in Arts Degree Requirements:

#### Select 12 units from any two of the following sequences:

Course	Title	Units
HIST 110	Early World History	
HIST 111	Modern World History	6
HIST 114	Comparative Early History of the Americas	
HIST 115	Comparative Modern History of the Americas	6
HIST 120	Early American Civilization	
HIST 121	Modern American Civilization	6
HIST 140	Early Western Civilization	
HIST 141	Modern Western Civilization	<u>6</u>
		12

#### Select six (6) units from the following:

HIST 124	History of California	3
HIST 129	U.S. History: The Chicano Experience	3
HIST 180	U.S. History: Black Perspectives I	3
HIST 181	U.S. History: Black Perspectives II	3
HIST 205	Women in American History I	3
HIST 206	Women in American History II	3
HIST 210	Women in Western Civilization	<u>3</u>
		6

### Foreign Language Requirement:

Competency (equivalent to that which is normally attained through three consecutive courses of college study) is required in one foreign language as part of the preparation for the major. NOTE: One year of a high school foreign language is equivalent to one semester of a college foreign language.

Total Required	33
Plus General Education Requirements	

### Recommended Electives:

ART 140, 141; ENGL 221, 222, 231, 232; GEOG 130; POSC 121, 124, 140; RELG 120, 130

## **LIBERAL ARTS (Major Code: 59303)**

This program is not intended to prepare students for entry into the Liberal Studies major at San Diego State University. Students seeking an Elementary Education Degree from SDSU should refer to the Elementary Education Associate Degree program.

The Associate Degree program with a major in Liberal Arts is designed to provide an excellent lower division, undergraduate preparation for pre-law, teacher education programs and most Liberal Arts majors planning to transfer to four-year colleges and universities. Students who complete the program will be certified as completing all courses necessary for the lower division general education requirement at the California State University and College system.

Students are encouraged to refer to the college catalog of their selected transfer institution and/or consult with an academic advisor before selecting the various options listed below.

### **Associate in Arts Degree Requirements:**

Course	Title	Units
<b>1. Composition</b> (minimum 6 units)		
ENGL 120	College Composition and Reading	3
ENGL 124	Advanced Composition: Critical Reasoning and Writing	3
<b>2. Speech</b> (minimum 3 units)		
SPCH 122	Oral Communication: Principles of Oral Composition and Delivery	3
<b>3. Literature</b> (minimum 3 units)		
ENGL 122	Introduction to Literature	3
<b>4. Mathematics*</b> (minimum 6 units)		
MATH 120 or higher (excluding 130, 199, 298, 299)		3-5
<b>5. Biological Sciences**</b> (minimum 3 units)		
ANTH 130	Introduction to Physical Anthropology	3
BIO 130	General Biology I	3
BIO 131	General Biology I Laboratory	1
<b>6. Physical Sciences**</b> (minimum 3 units)		
ASTR 110	Descriptive Astronomy	3
ASTR 112	General Astronomy Laboratory	1
GEOG 120	Elements of Physical Geography	3
GEOG 121	Physical Geography Laboratory	1
GEOL 110	General Geology	3
GEOL 111	General Geology Laboratory	1
GEOL 120	Physical Geology	4
PHYC 110	Introductory Physics	4
PSC 110	Introduction to the Physical Sciences	3
<b>7. Mathematics/Science Elective</b> (minimum 3 units)		
ANTH 130	Introduction to Physical Anthropology	3
CHEM 115	Fundamentals of Chemistry	4
CHEM 141	General Chemistry I	5
MATH 160 or higher (excluding 199, 298, 299)		3-5

<b>8. Global Perspective</b> (minimum 3 units)		
ANTH 120	Cultural Anthropology	3
GEOG 130	Human and Cultural Geography	3
<b>9. Individual Perspective</b> (minimum 3 units)		
PSY 120	Introductory Psychology	3
<b>10. U.S. Organization</b> (minimum 3 units)		
HIST 120	Early American Civilization	3
HIST 121	Modern American Civilization	3
HIST 129	U.S. History: The Chicano Experience	3
POSC 121	Introduction to U.S. Government and Politics	3
<b>11. Values and Ethics</b> (minimum 3 units)		
PHIL 110	A General Introduction to Philosophy	3
PHIL 140	Problems in Ethics	3
RELG 120	World Religions	3
RELG 130	Scriptures of World Religions	3
<b>12. Western Civilization</b> (minimum 3 units)		
ART 140	History of Western Art I: Prehistoric to 1250 A.D.	3
ART 141	History of Western Art II: 1250 A.D. to Present Time	3
HIST 140	Early Western Civilization	3
HIST 141	Modern Western Civilization	3
<b>13. Art</b> (minimum 3 units)		
ART 120	Two-Dimensional Design	3
ART 124	Drawing I	3
<b>14. Music***</b> (minimum 3 units)		
MUS 110	Great Music Listening	3
MUS 118	Introduction to Music	4
<b>15. Language or Elective</b> (minimum 3 units)		
HUM 110	Principles of the Humanities	3
HUM 140	American Humanities	3
HUM 155	Mythology	3
Any foreign language course		3-5
<b>16. Additional Requirements</b> (minimum 5 units)		
CIS 110ABCD	Introduction to Computing	4
or		
BUS 172	Introduction to Microcomputer Applications	3
Physical Education activity (minimum of two courses)		2-3

\* Education majors should enroll in MATH 125 and 126. All other majors are encouraged to include MATH 160.

\*\* An approved lab course must be included in (5) or (6).

\*\*\* Education majors should enroll in MUS 118.

## **MANAGEMENT** (Major Code: 53047)

The Management curriculum is designed to provide students with the skills necessary for success as a manager in today's demanding organizational climate. The program is of benefit to men or women who aspire to a mid-level or higher management position in any type of organization including business, government and service organizations.

### **Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
BUS 115	Human Relations in Business	3
BUS 120	Financial Accounting	4
BUS 125	Business Law: Legal Environment of Business	3
BUS 128	Business Communication	3
BUS 155	Personnel Management	3
BUS 156	Principles of Management	3
SPCH 122	Oral Communication: Principles of Oral Composition and Delivery	3
		<u>22</u>

### **Plus two (2) of the following:**

BUS 172	Introduction to Microcomputer Applications	3
BUS 176	Computerized Accounting Applications	2
CIS 110ABCD	Introduction to Computing	4
CIS 150ABCD	Spreadsheets	3
		<u>5-7</u>

### **Plus one (1) of the following:**

BUS 110	Introduction to Business	3
BUS 121	Managerial Accounting	4
BUS 142	Personal Selling and Persuasion	3
BUS 146	Marketing	3
BUS 195	Family Income Management	3
ECON 120	Principles of Macroeconomics	3
		<u>3-4</u>

Total Required 30-33  
Plus General Education Requirements

### **Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Management. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

## **MATHEMATICS** (Major Code: 50035)

Since jobs requiring mathematical skills such as data analysis, problem solving, pattern recognition, statistics, and probability are growing at nearly double the rate of overall employment, the mathematics major may benefit both educationally and economically from developing and pursuing an interest in mathematics. Mathematical skills and statistical methods are employed regularly by researchers testing hypotheses, by workers applying quality control in manufacturing, and by informed citizens who must evaluate information from the media in tabular, graphical, and report in order to reach solutions. The mathematics major offers a foundation in these necessary skills. The emphasis of the program is to prepare students for transfer to a four-year institution and/or for career preparation in a vocational or professional field.

### **Associate in Science Degree Requirements: Core Curriculum**

<i>Course</i>	<i>Title</i>	<i>Units</i>
MATH 180	Analytic Geometry and Calculus	5
MATH 280	Analytic Geometry and Calculus	4
MATH 281	Intermediate Calculus	4
MATH 284	Linear Algebra	3
		<u>16</u>

### **Select two (2) courses from the following:**

ENGR 120	Engineering Problem Analysis	3
MATH 160	Elementary Statistics	3
MATH 285	Differential Equations	3
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
PHYC 210	Wave Motion and Modern Physics	5
		<u>6-10</u>
	Total Required	22-26
	Plus General Education Requirements	

### **Recommended Electives:**

Students planning to transfer to a four-year institution to complete a bachelor's degree in Pure Mathematics, Applied Mathematics, or Statistics should emphasize in an applied discipline such as Accounting, Chemistry, Economics, Engineering, or Physics. In particular, transfer students are STRONGLY urged to elect the following physics courses: PHYC 190, 200, 210. Students preparing for a vocational or professional career are strongly encouraged to emphasize in a vocational/professional discipline such as Business, Computer Information Systems, Drafting Technology, or Environmental Technology.

### **Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Mathematics. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

## ORNAMENTAL HORTICULTURE

The Ornamental Horticulture program provides for entry level skills, upgrading of existing skills, as well as preparation for further training. Courses are designed for students interested in careers in nursery and greenhouse management, landscape design and construction, grounds management, retail nursery operations, irrigation system design, installation and maintenance of interior plantscaping and other related fields. Emphasis is placed on "hands-on" experience with student participation in labs. Students will learn modern horticultural methods and procedures as well as the use of tools and equipment common to the field.

### I. ARBORICULTURE (Major Code: 59515)

#### Associate in Science Degree Requirements:

Course	Title	Units
OH 120	Fundamentals of Ornamental Horticulture	3
OH 130	Plant Pest Control	3
OH 140	Soils	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 260	Arboriculture	3
OH 261	Tree Surgery and Specialized Pruning Techniques	1
OH 262	Arboriculture - Palms and Related Plants	1
OH 263	Urban Forestry	1
OH 275	Diagnosing Horticultural Problems	1.5
OH 290*	Cooperative Work Experience Education	<u>3</u>
		22.5

#### Select eleven (11) units from the following:

BUS 111	Entrepreneurship: Starting and Developing a Business	3
OH 102	Xeriscape—Water Conservation in the Landscape	2
OH 172	Introduction to Landscape Design	3
OH 235	Principles of Landscape Irrigation	4
OH 276	Horticultural Equipment Repair and Maintenance	3
SPAN 120	Spanish I	<u>5</u>
		11
	Total Required	33.5
	Plus General Education Requirements	

\*Student must complete 6 units within the major at Cuyamaca College to be eligible for this course.

#### Certificate of Achievement

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Arboriculture. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

### II. FLORISTRY (Major Code: 59505)

This program is designed as an emphasis in the ornamental horticulture major for those individuals seeking careers in the floral industry, or upgrading their existing skills and preparation for further training. The course work is directed toward skills, concepts and practices used in the commercial floral industry with an emphasis on hands-on training.

#### Associate in Science Degree Requirements:

Course	Title	Units
OH 114	Floral Design I	3
OH 116	Floral Design II	3
OH 117	Wedding Design I	3
OH 120	Fundamentals of Ornamental Horticulture	3
OH 180	Plant Materials: Annuals and Perennials	3
OH 240	Greenhouse Plant Production	3
OH 290*	Cooperative Work Experience Education	<u>3</u>
		21

#### Select one (1) of the following:

OH 118	Special Occasion Floristry	3
OH 119	Wedding Design II	<u>3</u>
		3

#### Select nine (9) units from the following:

ART 120	Two-Dimensional Design	3
ART 124	Drawing I	3
ART 141	History of Western Art II: 1250 A.D. to Present Time	3
BUS 111	Entrepreneurship: Starting and Developing a Business	3
OH 118**	Special Occasion Floristry	3
OH 119**	Wedding Design II	3
OH 121	Plant Propagation	3
OH 140	Soils	3
OH 170	Plant Materials: Trees and Shrubs	<u>3</u>
		9
	Total Required	33
	Plus General Education Requirements	

\*Student must complete 6 units within the major at Cuyamaca College to be eligible for this course.

\*\* May not be used for credit as both an elective and as required in previous section.

#### Certificate of Achievement

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Floristry. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**III. GOLF COURSE AND SPORTS TURF MANAGEMENT (Major Code: 53016)**

**Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
OH 120	Fundamentals of Ornamental Horticulture	3
OH 130	Plant Pest Control	3
OH 140	Soils	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 174	Turf and Ground Cover Management	3
OH 220	Landscape Construction - Concrete and Masonry	3
OH 235	Principles of Landscape Irrigation	4
OH 265	Golf Course and Sports Turf Management	3
OH 276	Horticultural Equipment Repair and Maintenance	3
OH 290*	Cooperative Work Experience Education	5
SUPV 110 or	Principles of Supervision	3
BUS 156	Principles of Management	<u>3</u>
	Total Required	36
	Plus General Education Requirements	

\*Student must complete 6 units within the major at Cuyamaca College to be eligible for this course.

**Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Golf Course and Sports Turf Management. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**IV. IRRIGATION TECHNOLOGY (Major Code: 53011)**

**Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
OH 102	Xeriscape–Water Conservation in the Landscape	2
OH 120	Fundamentals of Ornamental Horticulture	3
OH 140	Soils	3
OH 174	Turf and Ground Cover Management	3
OH 221	Landscape Construction - Irrigation and Carpentry	3
OH 235	Principles of Landscape Irrigation	4
OH 238	Irrigation System Design	4
OH 290*	Cooperative Work Experience Education	<u>3</u>
	Total Required	25

**Select eight (8) units from the following:**

DTEC/ENGR 124	Basic Drafting	3
ENGR 218	Plane Surveying	4
OH 130	Plant Pest Control	3
OH 172	Introduction to Landscape Design	3
OH 200	Introduction to Computer-Aided Landscape Design	3
OH 225	Landscape Contracting	3
OH 276	Horticultural Equipment Repair and Maintenance	3
SPAN 120	Spanish I	<u>5</u>
	Total Required	33
	Plus General Education Requirements	

\*Student must complete 6 units within the major at Cuyamaca College to be eligible for this course.

**Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Irrigation Technology. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**V. LANDSCAPE DESIGN (Major Code: 59516)**

**Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
BUS 111	Entrepreneurship: Starting and Developing a Business	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 172	Introduction to Landscape Design	3
OH 173	Intermediate Landscape Design	3
OH 180	Plant Materials: Annuals and Perennials	3
OH 200	Introduction to Computer-Aided Landscape Design	3
OH 220	Landscape Construction - Concrete and Masonry	3
OH 221	Landscape Construction - Irrigation and Carpentry	3
OH 225	Landscape Contracting	3
OH 235	Principles of Landscape Irrigation	4
OH 290*	Cooperative Work Experience Education	<u>3</u>
	Total Required	34
	Plus General Education Requirements	

\*Student must complete 6 units within the major at Cuyamaca College to be eligible for this course.

**Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Landscape Design. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**VI. LANDSCAPE TECHNOLOGY** (Major Code: 53001)

**Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
OH 120	Fundamentals of Ornamental Horticulture	3
OH 130	Plant Pest Control	3
OH 140	Soils	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 172	Introduction to Landscape Design	3
OH 180	Plant Materials: Annuals and Perennials	3
OH 220	Landscape Construction - Concrete and Masonry	3
OH 235	Principles of Landscape Irrigation	4
OH 290*	Cooperative Work Experience Education	<u>3</u>
		28

**Select five (5) units from the following:**

BUS 111	Entrepreneurship: Starting and Developing a Business	3
OH 102	Xeriscape—Water Conservation in the Landscape	2
OH 173	Intermediate Landscape Design	3
OH 174	Turf and Ground Cover Management	3
OH 221	Landscape Construction - Irrigation and Carpentry	3
OH 225	Landscape Contracting	3
OH 276	Horticultural Equipment Repair and Maintenance	3
SPAN 120	Spanish I	<u>5</u>
	Total Required	33
	Plus General Education Requirements	

\*Student must complete 6 units within the major at Cuyamaca College to be eligible for this course.

**Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Landscape Technology. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**VII. NURSERY TECHNOLOGY** (Major Code: 53002)

**Associate in Science Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
OH 120	Fundamentals of Ornamental Horticulture	3
OH 121	Plant Propagation	3
OH 130	Plant Pest Control	3
OH 140	Soils	3
OH 170	Plant Materials: Trees and Shrubs	3
OH 180	Plant Materials: Annuals and Perennials	3
OH 240	Greenhouse Plant Production	3
OH 290*	Cooperative Work Experience Education	<u>3</u>
		24

**Select nine (9) units from the following:**

BIO 122	Plant Structures and Functions	4
BUS 111	Entrepreneurship: Starting and Developing a Business	3
OH 114	Floral Design I	3
OH 172	Introduction to Landscape Design	3
OH 276	Horticultural Equipment Repair and Maintenance	3
SPAN 120	Spanish I	<u>5</u>
		9
	Total Required	33
	Plus General Education Requirements	

\*Student must complete 6 units within the major at Cuyamaca College to be eligible for this course.

**Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Nursery Technology. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

## PARALEGAL STUDIES

(Major Code: 59507)

The legal profession has evolved, like the medical profession, into a profession of specialties. Based on this recent development, lawyers need qualified assistants to better help them provide legal services to their clients. Paralegals are trained, professional technicians able to provide this needed legal assistance.

The Paralegal Studies program is specifically designed to prepare and provide students with the analytical skills and written abilities necessary to assist attorneys in the practice of law. The technical curriculum goals and objectives emphasize three primary areas:

1. Legal Research, Analysis and Writing
2. Ethics and the Mechanics of Law
3. Cooperative Work Experience

The successful paralegal degree candidate will possess a broad educational background with an opportunity to gain specialized skills in specific areas of law. The large curriculum offering also allows practicing paralegals to attend college refresher or new skills development courses.

### Associate in Science Degree Requirements:

<i>Course</i>	<i>Title</i>	<i>Units</i>
BUS 125	Business Law: Legal Environment of Business	3
CIS 130ABCD	Word Processing	3
PARA 100	Introduction to Paralegal Studies	3
PARA 110	Civil Litigation Practice and Procedures	3
PARA 125	Business Organization	3
PARA 130	Legal Research and Writing	3
PARA 250-252*	Internship**	1-3
		<u>18-21</u>

\*Not required with proof of previous law office experience.

\*\*Students must complete 18 units within the major to be eligible for this course.

### Select a minimum of six (6) units from the following:

PARA 120	Administrative Law	3
PARA 132	Computer Assisted Legal Research (CALR)	3
PARA 135	Bankruptcy Law	1
PARA 140	Criminal Law and Procedures	3
PARA 145	Estate Planning	3
PARA 150	Family Law	3
PARA 155	Insurance Law	3
PARA 160	Personal Injury	1
PARA 165	Probate Law	3
PARA 170	Worker's Compensation	1
PARA 175	Sports Law	3
PARA 180	Government and Public Contracts	3
RE 193	Real Estate Legal Aspects	3
		<u>6</u>
	Total Required	24-27
	Plus General Education Requirements	

### Recommended Electives:

BUS 128, 172; ENGL 120

## PHYSICAL SCIENCE

(Major Code: 59508)

The physical science curriculum is designed to give students working toward a bachelor's degree a well-balanced, lower division program. The emphasis is on the fundamental concepts and problem-solving. The physical science major course requirements outlined below are typical of the requirements of other four-year colleges and universities. In particular, they satisfy the requirements of San Diego State University.

### Associate in Science Degree Requirements:

Course	Title	Units
ASTR 110	Descriptive Astronomy	3
CHEM 141	General Chemistry I	5
CHEM 142	General Chemistry II	5
CHEM 231	Organic Chemistry	4
GEOL 110	General Geology	3
MATH 180	Analytical Geometry and Calculus	5
MATH 280	Analytical Geometry and Calculus	4
MATH 281	Intermediate Calculus	4
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
PHYC 210	Wave Motion and Modern Physics	5
	Total Required	48
	Plus General Education Requirements	

## PHYSICS (Major Code: 59509)

Physics is the study of the relationship between matter and energy in the universe. The physics curriculum is designed to give students working toward a bachelor's degree a well-balanced, lower division program. The emphasis is on the fundamental concepts and problem-solving. The physics major course requirements outlined below are typical of the requirements of other four-year colleges and universities. In particular, they satisfy the requirements of San Diego State University.

### Associate in Science Degree Requirements:

Course	Title	Units
CHEM 141	General Chemistry I	5
CHEM 142	General Chemistry II	5
MATH 180	Analytical Geometry and Calculus	5
MATH 280	Analytical Geometry and Calculus	4
MATH 281	Intermediate Calculus	4
PHYC 190	Mechanics and Heat	5
PHYC 200	Electricity and Magnetism	5
PHYC 210	Wave Motion and Modern Physics	5
	Total Required	38
	Plus General Education Requirements	

## REAL ESTATE

### I. REAL ESTATE (Major Code: 50043)

The programs leading to either an Associate Degree or Certificate in Real Estate are designed to prepare students for employment in real estate or related fields. This program will also fill the educational requirements for the California Real Estate Broker's License and will help prepare both the salesperson and the broker for the state examination.

### Associate in Science Degree Requirements:

Course	Title	Units
RE 190	Real Estate Principles	3
RE 191	Real Estate Practice	3
RE 192	Real Estate Finance	3
RE 193	Real Estate Legal Aspects	3
RE 194	Real Estate Appraisal	3
		15

### Select three (3) of the following including one Accounting or Economics course:

BUS 110	Introduction to Business	3
BUS 120	Financial Accounting	4
ECON 120	Principles of Macroeconomics	3
RE 201	Real Estate Property Management	3
RE 250	Real Estate Internship	3
RE 294	Advanced Real Estate Appraisal	3
RE 299	Selected Topics in Real Estate	3
Elective*	(select one elective from below)	3
		9-10

### \*Electives:

BUS 125	Business Law: Legal Environment of Business	3
DTEC 005	Introduction to the Building Codes	3
RE 125	Escrow Procedures I	3
RE 197	Real Estate Economics	3
RE 198	Real Estate Office Administration	3
RE 202	Business Opportunities Sales	3
RE 230	Commercial Real Estate	3

Total Required 24-25  
Plus General Education Requirements

### Certificate of Achievement

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Real Estate. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

**BROKER'S LICENSE**

Students may satisfy the California State Education requirement for a Broker's License by completing the following courses:

<i>Course</i>	<i>Title</i>	<i>Units</i>
RE 190	Real Estate Principles	3
RE 191	Real Estate Practice	3
RE 192	Real Estate Finance	3
RE 193	Real Estate Legal Aspects	3
RE 194	Real Estate Appraisal	3
One Accounting or Economics Course		3
Electives* (select two electives from previous page)		<u>6</u>
Total Required		24

**II. ESCROW (Major Code: 50045)**

<i>Course</i>	<i>Title</i>	<i>Units</i>
RE 125	Escrow Procedures I	3
RE 126	Escrow Procedures II	3
RE 127	Escrow Procedures III	3
RE 190	Real Estate Principles	3
RE 192	Real Estate Finance	3
RE 193	Real Estate Legal Aspects	<u>3</u>
		18

**Select two (2) courses from the following:**

BUS 120	Financial Accounting	4
BUS 121	Managerial Accounting	4
BUS 125	Business Law: Legal Environment of Business	3
ECON 120	Principles of Macroeconomics	3
ECON 121	Principles of Microeconomics	3
RE 191	Real Estate Practice	3
RE 194	Real Estate Appraisal	3
RE 197	Real Estate Economics	3
RE 198	Real Estate Office Administration	3
RE 201	Real Estate Property Management	3
RE 202	Business Opportunities Sales	<u>3</u>
		6-8
Total Required		24-26

**Certificate of Achievement**

Any student who completes the requirements listed above qualifies for a Certificate in Escrow. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

## ***SMALL BUSINESS MANAGEMENT*** (See *Entrepreneurship*)

## ***SPEECH COMMUNICATION***

The Associate in Arts degree in Speech Communication is designed to prepare students for employment as public relations representatives, receptionists, managers, politicians, human resources personnel, motivational speakers, tour guides and other occupations that require an employee to communicate with the public or with co-workers. The areas of study within the degree include public speaking, interpersonal communication, argumentation, group dynamics and intercultural communication, including theoretical concepts as well as practical knowledge in all areas.

The Speech Communication AA degree will offer students the opportunity to learn valuable skills that will make them more successful in employment situations, family relations and other social interactions. The degree, on its own or combined with any other AA, BA or BS degree or other job skills, will significantly increase a prospective employee's desirability. The degree was designed to provide most of the lower division requirements for transfer and eventual BA degree in Speech Communication at SDSU and other universities.

**Associate in Arts Degree Requirements:**

<i>Course</i>	<i>Title</i>	<i>Units</i>
SPCH 120	Elements of Human Communication	3
SPCH 122	Oral Communication: Principles of Oral Composition and Delivery	3
SPCH 124	Intercultural Communication	3
SPCH 137	Discussion: Group Thinking and Decision-Making	3
SPCH 145	Argumentation	<u>3</u>
		15

**Areas of Emphasis:**

**Select six (6) units from one of the following three areas (I, II or III):**

**I. PROFESSIONAL COMMUNICATION**

(Major Code: 59510)

SPCH 147	Communicating at Work	3
SPCH 155	Elements of Human Non-Verbal Communication	3
SPCH 165	Principles of Assertive Communication	<u>3</u>
		6

**II. RELATIONAL COMMUNICATION**

(Major Code: 59511)

SPCH 125	Introduction to General Semantics	3
SPCH 155	Elements of Human Non-Verbal Communication	3
SPCH 158	Couple Communication	3
SPCH 160	Family Communication	<u>3</u>
		6

**III. PRESENTATIONAL COMMUNICATION**  
(Major Code: 59512)

SPCH 123	Advanced Oral Communication	3
SPCH 130	Voice and Diction	3
SPCH 135	Fundamentals of Oral Interpretation	3
SPCH 136	Readers Theatre	<u>3</u>
		6

**Required Elective:** SPCH 240ABCD or three (3) units from any area above 3

Total Required 24  
Plus General Education Requirements

**Recommended Elective:**  
SPCH 240ABCD

***SUPERVISION*** (Major Code: 55081)

The Supervision program has been established to provide the best possible preparation for effectively handling supervisory responsibilities. The core curriculum gives an overall appreciation of the supervisory process as a critical function of the management team. The program is taught so that persons from various fields such as industry, sales organizations, the Internal Revenue Service, military commands, municipal organizations and hospitals may become effective supervisors in the management team. The courses are taught by experienced instructors who have specialized in various aspects of supervision education and work.

**Associate in Science Degree Requirements:**

Course	Title	Units
BUS 128	Business Communication	3
BUS 155	Personnel Management	3
BUS 156 or	Principles of Management	3
SUPV 110	Principles of Supervision	3
BUS 172	Introduction to Microcomputer Applications	3
SUPV 120	Human Relations Skills	3
SUPV 126	Principles of Leadership	<u>3</u>
		18

**Select two (2) of the following:**

SPCH 137	Discussion: Group Thinking and Decision-Making	3
SUPV 129	Career Advancement for the Workplace	3
SUPV 154	Diversity in the Workplace	3
SUPV 220	Total Quality Management	3
SUPV 290	Supervision Internship	<u>1-4</u> 4-7
	Total Required	22-25
	Plus General Education Requirements	

**Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Supervision. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.

***SURVEYING*** (Major Code: 53091)

This program prepares students to enter the civil engineering field. Competency in care and operation of field instruments, solution of problems in the laboratory, drafting of land survey maps and civil engineering plans and application of studies to field practice are thoroughly explored.

**Associate in Science Degree Requirements:**

Course	Title	Units
DTEC 127	Survey Drafting Technology	3
ENGR/DTEC124	Basic Drafting	3
ENGR 218	Plane Surveying	4
ENGR 240	Advanced Surveying	4
MATH 110	Intermediate Algebra for Business, Mathematics, Science and Engineering	5
MATH 170	Analytic Trigonometry	3
PHYC 110	Introductory Physics	<u>4</u>
	Total Required	26
	Plus General Education Requirements	

**Certificate of Achievement**

Any student who chooses to complete only the major requirements listed above qualifies for a Certificate in Surveying. To receive a certificate, an official request must be filed with the Admissions and Records Office prior to the deadline as stated in the Academic Calendar.