

Section V
CURRICULAR PATTERNS

WORKSHOP COURSES

Each discipline of the college has the option of developing workshop courses that are specifically designated to be experimental courses. (They are developed by faculty members in the discipline and receive curriculum committee approval prior to being offered.) Workshop courses cannot be used to satisfy specific graduation requirements; however, they may be used as elective credit for the Associate degree. Courses with this designation may be periodically found in the semester schedule of classes.

COOPERATIVE WORK EXPERIENCE EDUCATION

The purpose of the Cooperative Work Experience Education Program is to provide students with an opportunity to increase their overall knowledge of their jobs by relating classroom theory with the world of work, while exposing them to the concepts of human relations in their business and personal lives. There are two work experience programs: general and occupational.

GENERAL WORK EXPERIENCE EDUCATION

This program provides career guidance, job information, human relations, and other similar services for employed students. These jobs do not have to be related to the student's major. The job may be salaried or volunteer, but students must have a job before the beginning of the third week of class. The student earns 3 units per semester for 180-225 hours of volunteer or paid work experience, respectively, plus weekly attendance at a one hour lecture class. Students can take two (2) semesters of general work experience for a maximum of six (6) units. Veterans wishing to earn units and VA benefits must take occupational work experience.

OCCUPATIONAL WORK EXPERIENCE EDUCATION

Work Experience is a one hour per week class which allows students to earn up to 4 units per semester for experience gained through employment or volunteer service. Enroll in a general Work Experience section and you will be placed in your choice of one of the disciplines below.

Units Determination:

General Work Experience (not related to one of the occupational disciplines listed below) is 3 units only.

Occupational Work Experience (one of the disciplines shown below) varies from 1-4 units. For every one (1) unit of work experience credit students must complete 75 hours of paid work or 60 hours of volunteer work during the college semester. No more than 20 hours per week may be applied toward this work requirement. Below is a general guide to help students enroll in the appropriate number of units of work experience.

| Hours Worked Per Week | | Students should enroll in: |
|-----------------------|-------------------|----------------------------|
| 20-40 (paid) | 15-40 (volunteer) | up to 4 units |
| 14-19 (paid) | 11-14 (volunteer) | up to 3 units |
| 9-13 (paid) | 7-10 (volunteer) | up to 2 units |
| 5-8 (paid) | 4-6 (volunteer) | 1 unit |

Accounting
 Architecture
 Art
 Business Administration
 Computer Applications and Office Technology
 Computer Information Systems

Construction Technology
 Early Childhood Education
 Electronics
 Engineering
 Kinesiology
 Machine Shop
 Management
 Manufacturing
 Marketing
 Real Estate
 Theater

HIGH SCHOOL COURSES

Foreign Languages

Two years of high school study in the same language with an earned grade of "C" or better for each course are equivalent to the first level of the same language at RCCD (for example, two years of Spanish in high school are equal to Spanish I at RCCD.)

Chemistry

Information regarding validation of high school chemistry courses for prerequisites can be found on the Assessment webpage at www.norcocollege.edu.

Articulated Courses

The Riverside Community College District (RCCD) and Secondary Education District articulation process provides a method by which college credit can be given for articulated high school and ROP courses, thereby creating a seamless transition from secondary to post-secondary education. Articulation means an agreement has been reached and the student will receive college credit for a specific high school or ROP course(s). Not all courses are articulated and some courses require students to receive a "B" or better to qualify for credit. Students can find the most up-to-date listing of articulated courses and correlating grade requirements at RCCD's Tech Prep website, www.rcc.edu/techprep.

1. Students wishing to apply for credit by articulation should first complete a RCCD college application at <http://www.cccapply.org/apply>.
2. Once a student ID# is obtained, students may apply online for articulated credit at www.rcc.edu/techprep.

For further information or assistance, please contact the Career and Technical Education Projects office, 951-222-8963.

ALVORD UNIFIED SCHOOL DISTRICT

Accounting Principles (CAT/ACC 55)
 Anatomy/Physiology (AMY 10)
 Architectural Design 1 (ARE 24)
 CADD Computer Aided Drafting and Design (ENE 30)
 Computer Keyboarding (CAT 53)
 Drafting 2 (ENE 21)
 Web Design (ADM 74)
 Word Processing (CAT 50)

ANTELOPE VALLEY UNION HIGH SCHOOL DISTRICT

EMT (EMS 50 & EMS 51)

COLTON JOINT UNIFIED SCHOOL DISTRICT

Advanced Keyboarding/Computer Literacy (CAT 50)
 Microsoft Word (CAT/CIS 34A)

CORONA NORCO UNIFIED SCHOOL DISTRICT

Anatomy/Physiology 1A/1B (AMY 10)
 Architecture Design 1A-1B (ARE 24 & ARE 25)
 Auto 2A/2B (AUT 50)
 Business Procedures (CAT 61)
 Computer Aided Drafting 2A-2B (ENE 42)
 Design Manufacturing Technology 1A & 1B (MAN 52)
 Electronics 1A-1B (ELE 21)
 Introduction to Engineering & Architecture 1A-1B (ENE 21 & ENE 30)
 Photography 1A & 1B (PHO 8)

COLTON REDLAND YUCAIPA ROP (CRY-ROP)

American Sign Language II (AML 1)
 Automotive General Service Technician (AUT 50)
 CISCO Internetworking Level 1 (CIS 26A)
 CISCO Internetworking Level 2 (CIS 26B)
 CISCO Internetworking Level 3 (CIS 26C)
 CISCO Internetworking Level 4 (CIS 26D)
 Construction Technology (CON 60)
 Desktop Publishing & Printing (ADM 1)
 Fundamental Webpage Design (ADM 74)
 Microsoft Office (CAT/CIS 93)
 Welding Occupations (WEL 15)

CALIFORNIA SCHOOL FOR THE DEAF

Construction Technology (CON 60)

JURUPA UNIFIED SCHOOL DISTRICT

Accounting 1 (CAT/ACC 55)
 Auto 1 (AUT 50)
 Introduction to Business 1 & 2 (BUS 10)
 Photography 1 (PHO 8)
 Photography 2 (PHO 9)
 Television Broadcasting (FTV 67)
 Video Production (FTV 67)
 Web Design (ADM 74)

LAKE ELSINORE UNIFIED SCHOOL DISTRICT

Advanced Engineering Design w/Solidworks (ENE 42)
 Manufacturing & Materials Engineering 1 (WEL 34)
 Manufacturing & Materials Engineering 2 (WEL 35)

MORENO VALLEY UNIFIED SCHOOL DISTRICT

Advanced Engineering Drawing (ENE 31)
 Accounting 1 (CAT/ACC 55)
 Anatomy and Physiology (AMY 10)
 Architecture Design (ARE 24)
 Automotive Technology I & II (AUT 50)
 Digital Electronics (ELE 25)
 Engineering Drawing 1 & 2 (ENE 21)
 Medical Science/Health Careers 1&2 or Preparing to work in Healthcare Level 1&2 (HET 79)
 Photography 101 (PHO 8 & PHO 9)
 Principles of Engineering (ENE 10 & ENE 60)
 Web Design (ADM 74)

MURRIETA VALLEY UNIFIED SCHOOL DISTRICT

Automotive Technology (AUT 50)
 Drafting 1 (ENE 21)

NUVIEW UNION SCHOOL DISTRICT

Anatomy and Physiology (AMY 10)
 Computer 1 (CAT/CIS 93)
 Photography (PHO 20)

RIVERSIDE COUNTY OFFICE OF EDUCATION CTE/ROP

Allied Health Occupations (HET 79)
 Auto Collision & Refinishing (AUB 50)
 Automotive Technology (AUT 50)
 CIS Microsoft Office Tools I (CAT/CIS 34A)
 CIS Microsoft Office Tools II (CAT/CIS 98A)
 Construction Technology (CON 60)
 Digital Imaging (ADM 71)
 Digital Photography I (PHO 20)
 Emergency Medical Tech (EMS 50 & 51)
 Graphics Technology (ADM 1)
 Maintenance Mechanics (MAN 60 & MAN 61)
 Masonry Occupations (CON 81, 82, 83, 84, 85, & 86)
 Nurse Assistant (HET 80)
 TV/Video Level I (FTV 67)
 Website Design & Development (ADM 74)

REDLANDS UNIFIED SCHOOL DISTRICT

Advanced Multimedia Design #0962 (FTV 67)

RIVERSIDE UNIFIED SCHOOL DISTRICT

Advanced Web Design (ADM 74)
 Anatomy and Physiology (AMY 10)
 Beginning Computer Class (CAT/CIS 93)
 CCNA 1 (CIS 26A)
 CCNA 2 (CIS 26B)
 Certified Nursing Assistant (HET 80)
 Digital Electronics (ELE 25)
 Health & Bioscience Academy I (FIT E2A)
 Health & Bioscience Academy II (HET 79 & MDA 1A)
 Keyboarding/Tech Tool I (CAT 50)
 Medical Terminology (MDA 1A)
 Principles of Engineering (ENE 10 & ENE 60)

SAN BERNARDINO CITY UNIFIED SCHOOL DISTRICT

Adobe Prep I & II (ADM 71)
 Automotive Technology A & B (AUT 50)
 CISCO Academy 1A (CIS 26A)
 CISCO Academy 1B (CIS 26B)
 CISCO Academy 2A (CIS 26C)
 CISCO Academy 2B (CIS 26D)
 Construction Occupations A/B (CON 60)
 Introduction to Accounting (CAT/ACC 55)

SAN BERNARDINO COUNTY SUPERINTENDANT OF SCHOOLS (SBCSS) ROP

Computer Aided Drafting (ENE 21 & ENE 30)

TEMECULA VALLEY UNIFIED SCHOOL DISTRICT

American Sign Language 2 (AML 1)

VAL VERDE UNIFIED SCHOOL DISTRICT

Anatomy and Physiology (AMY 10)
 Business Computers (CAT/CIS 3)
 CISCO Academy 1A (CIS 26A)
 CISCO Academy 1B (CIS 26B)
 CISCO Academy 2A (CIS 26C)
 CISCO Academy 2B (CIS 26D)
 Computer Essentials (CAT/CIS 34)
 Web Page Design & Development (ADM 74)

CAREER AND TECHNICAL EDUCATION PROGRAMS

Riverside Community College District offers Associate in Science Degrees and Certificate Programs with an occupational emphasis. Both provide instruction in skills and knowledge needed to enter a skilled or professional occupation. Associate in Science Degree programs require completion of at least 60 units of credit, which normally takes four semesters. Certificate programs, leading to an associate in science degree, require a minimum of 18 units, but vary in number of units required; most can be completed in two semesters. Certificates can lead to employment. Each course required for a certificate must be completed with a "C" grade or better. All certificate courses can be counted toward the degree as well as the major.

Need for Specialized Training

Many find it difficult to secure employment or to advance in current positions and better-paying jobs without specialized training. General education coursework has its value, but in the early stages of a career it is specific, technical skills employers seek. A certificate is the best evidence specialized training has been secured. At times employers actually require certificates as a condition of employment or reclassification for higher pay.

Who Can Enroll in the Career and Technical Education Programs?

Individuals wishing to enroll at Riverside Community College District must file an official application. Admission to Riverside Community College District is regulated by state law as prescribed in the California Education Code.

Certificate Course Requirements

Students should plan to enroll in the specific courses listed under the certificate desired. If a required course for a certificate program is no longer offered, please see the department chair to ascertain an acceptable course substitute. Fifty percent of the coursework required for any certificate pattern must be completed at Riverside Community College District.

ASSOCIATE IN SCIENCE DEGREE

The Associate of Science Degree consists of course work totaling 60 units or more. This includes coursework in a specific college certificate pattern plus general education and elective courses.

STATE-APPROVED CERTIFICATE

(Certificate of Achievement)

The state-approved certificate consists of coursework totaling 18 units or more completed in a specific occupational college certificate pattern. State-approved certificates may lead to employment competency and may lead to an associate degree.

LOCALLY-APPROVED CERTIFICATE


(Certificate of Career Preparation)

The locally-approved certificate consists of coursework totaling between 4 to 17 units completed in a specific occupational certificate pattern. Locally-approved certificates may lead to employment competency, but do not necessarily lead to an associate degree.



STUDENTS ARE ABLE TO COMPLETE THE FOLLOWING CERTIFICATES/DEGREES AT THESE OFF-CAMPUS LOCATIONS:

| LOCATION | PROGRAM AND PROGRAM CODE | LOCALLY APPROVED CERTIFICATE | STATE APPROVED CERTIFICATE | ASSOCIATE DEGREE |
|------------------------------|--|------------------------------|----------------------------|------------------|
| MORENO VALLEY COLLEGE | | | | |
| Ben Clark Training Center | | | | |
| | Administration of Justice MAS504/MCE504 | | • | • |
| | AOJ/Basic Correctional Deputy Academy MCE783 | • | | |
| | AOJ/Basic Public Safety Dispatch Course MCE784 | • | | |
| | Law Enforcement MAS563/MCE563 | | • | • |
| | Emergency Medical Technician MCE801 | • | | |
| | Paramedic MAS585/MCE585 | | • | • |
| | Fire Technology MAS555/MCE555 | | • | • |
| | Chief Officer MAS826/MCE826 | | • | • |
| | Fire Officer MAS827/MCE827 | | • | • |
| | Firefighter Academy MAS669/MCE669 | | • | • |

| Program | Locally Approved Certificate | State Approved Certificate | Associate Degree | Moreno Valley | Norco | Riverside |
|--|------------------------------|----------------------------|------------------|---------------|---------|-----------|
| AREA OF EMPHASIS | | | | | | |
| Administration & Information Systems | | | • | MAA494 | NAA494* | AA494* |
| American Studies | | | • | MAA492 | | AA492* |
| Communications, Media & Languages | | | • | MAA495 | NAA495* | AA495* |
| Fine & Applied Arts | | | • | MAA496 | NAA496* | AA496* |
| Humanities, Philosophy & Arts | | | • | MAA497 | NAA497* | AA497* |
| Kinesiology, Health and Wellness | | | • | MAA498 | NAA498* | AA498* |
| Social & Behavioral Studies | | | • | MAA499 | NAA499* | AA499* |
| Math and Science | | | • | MAS493 | NAS493 | AS493* |
|  Associate Degree for Transfer™ | | | | | | |
| Communication Studies | | | | | | |
| With CSUGE pattern | | | • | MAA587 | NAA587 | AA587 |
| With IGETC pattern | | | • | MAA588 | NAA588 | AA588 |
| Early Childhood Education | | | | | | |
| With CSUGE pattern | | | • | MAS529 | NAS529 | AS529* |
| With IGETC pattern | | | • | MAS530 | NAS530 | AS530* |
| Sociology | | | | | | |
| With CSUGE pattern | | | • | MAA695 | NAA695 | AA695* |
| With IGETC pattern | | | • | MAA696 | NAA696 | AA696* |
| Theatre Arts | | | | | | |
| With CSUGE pattern | | | • | | | AA747 |
| With IGETC pattern | | | • | | | AA748 |
| | | | | | | |
| *50% or more of the certificate/degree may be completed online | | | | | | |

| Certificates and Degrees | Locally Approved Certificates | State Approved Certificates | Associate Degree | Moreno Valley | Norco | Riverside |
|---|-------------------------------------|-----------------------------------|---------------------|---------------|----------------|---------------|
| ADMINISTRATION OF JUSTICE | | • | • | MAS504/MCE504 | NAS504/NCE504 | AS504*/CE504* |
| AOJ/Basic Correctional Deputy Academy | • | | | MCE783 | | |
| AOJ/Basic Public Safety Dispatch Course | • | | | MCE784 | | |
| Crime Scene Investigation | • | | | | NCE619 | CE619 |
| Investigative Assistant | • | | | | NCE785 | CE785 |
| Law Enforcement | | • | • | MAS563/MCE563 | | |
| Victim Services Aide | • | | | | | CE679* |
| AIR CONDITIONING AND REFRIGERATION | | • | • | | | AS596/CE596 |
| APPLIED DIGITAL MEDIA AND PRINTING | | • | • | | | AS653/CE653 |
| Basic Electronic Prepress | • | | | | | CE822 |
| Basic Graphic Design | • | | | | | CE823 |
| New Media and Interactive Design | • | | | | | CE821 |
| ARCHITECTURE | | • | • | | NAS509/NCE509 | |
| Architectural Graphics | • | | | | NCE787 | |
| ART | | | | | | |
| Visual Communications-Animation | • | | | | | CE774 |
| Visual Communications-Illustration | • | | | | | CE825 |
| AUTOMOTIVE TECHNOLOGY | | | | | | |
| Automotive Body Repair | | • | • | | | AS511/CE511 |
| Automotive Trim and Upholstery | | • | • | | | AS516/CE516 |
| Electrical | | • | • | | | AS513/CE513 |
| Ford Specialty | | | • | | | AS519 |
| General Motors Specialty | | | • | | | AS583 |
| Mechanical | | • | • | | | AS515/CE515 |
| BANK OPERATIONS | • | | | | | CE625* |
| BUSINESS ADMINISTRATION | | | | | | |
| Accounting Concentration | | • | • | MAS523/MCE523 | NAS523/NCE523 | AS523/CE523 |
| Banking and Finance Concentration | | • | • | | | AS631*/CE631* |
| General Business Concentration | | • | • | MAS524/MCE524 | NAS524/NCE524* | AS524*/CE524* |
| Human Resources Concentration | | • | • | | NAS623/NCE623* | AS623/CE623 |
| Logistics Management Concentration | | • | • | | NAS580/NCE580* | |
| Management Concentration | | • | • | MAS521/MCE521 | NAS521/NCE521* | AS521*/CE521* |
| Marketing Concentration | | • | • | MAS525/MCE525 | NAS525/NCE525* | AS525*/CE525* |
| Real Estate Concentration | | • | • | MAS527/MCE527 | NAS527/NCE527* | AS527/CE527 |
| Insurance | | • | • | | | AS629*/CE629* |
| International Business | • | | | | | CE627* |
| Operations and Production Mgmt | • | | | | | CE833* |
| Real Estate Salesperson and Transaction | • | | | | NCE854 | |
| COMMERCIAL MUSIC | | • | • | | NAA645/NCE645 | |
| COMMUNITY INTERPRETATION | | • | • | MAS557/MCE557 | | |

*50% or more of the certificate/degree may be completed online

For information about our graduation rates, the median debt of students who complete programs, and other important information, please visit our website at <http://www.rccd.edu/academicprograms/Pages/index.aspx>

| Certificates and Degrees | Certificates Approved Locally | Certificates Approved State | Associate Degree | Moreno Valley | Norco | Riverside |
|---|-------------------------------------|-----------------------------------|---------------------|----------------|----------------|---------------|
| COMPUTER APPLICATIONS & OFFICE TECHNOLOGY | | | | | | |
| Administrative Office Professional | • | | | | | CE637* |
| Executive Office Management | | • | • | | | AS639*/CE639* |
| Executive Office Professional | • | | | | | CE635* |
| Legal Administrative Professional | • | | | | | CE611* |
| Office Assistant | • | | | | | CE633* |
| Office Fast-Track | • | | | | | CE812* |
| Virtual Assistant | • | | | | | CE677* |
| COMPUTER INFORMATION SYSTEMS | | | | | | |
| C++ Programming | • | | | | NCE803 | CE803* |
| CISCO Networking | • | | | | | CE810* |
| Computer Applications | | • | • | MAS726/MCE726 | NAS726/NCE726 | AS726*/CE726* |
| Computer Programming | | • | • | MAS728/MCE728 | NAS728/NCE728 | AS728*/CE728* |
| Desktop Publishing | | • | • | | NAS647/NCE647* | |
| E-Commerce | • | | | | | CE807* |
| Java Programming | • | | | | NCE809 | CE809* |
| Relational Database Mgmt Tech | • | | | | | CE816* |
| Simulation and Gaming | | • | • | MAS739/MCE739 | NAS739/NCE739 | |
| Systems Development | • | | | | | CE806* |
| Web Master - Web Designer | • | | | MCE820 | NCE820 | CE820* |
| Web Master - Web Developer | • | | | MCE843 | NCE843 | CE843 |
| CONSTRUCTION TECHNOLOGY | | • | • | | NAS532/NCE532 | |
| COSMETOLOGY | | • | • | | | AS534/CE534 |
| Cosmetology Business Admin – Entrepreneurial Concentration | | • | • | | | AS537*/CE537* |
| Cosmetology Business Admin – Mgmt and Supervision Concentration | | • | • | | | AS535*/CE535* |
| Cosmetology, Instructor Training | • | | | | | CE675 |
| Esthetician | • | | | | | CE673 |
| CULINARY ARTS | | • | • | | | AS561/CE561 |
| DENTAL ASSISTANT | | • | • | MAS621/MCE621 | | |
| DENTAL HYGIENE | | | • | MAS724 | | |
| DENTAL LABORATORY TECHNOLOGY | | • | • | MAS723/MCE723 | | |
| DRAFTING TECHNOLOGY | | • | • | | NAS539/NCE539 | |
| EARLY CHILDHOOD EDUCATION | | • | • | MAS544/MCE544 | NAS544/NCE544 | AS544*/CE544* |
| ECE/Asst Teacher | • | | | MCE795 | NCE795 | CE795* |
| ECE/Twelve Core Units | • | | | MCE797 | NCE797 | CE797* |
| Early Childhood Intervention Asst | | • | • | MAS601/MCE601 | NAS601/NCE601 | AS601/CE601* |
| Infant and Toddler Specialization | • | | | MCE681 | NCE681 | CE681 |
| EDUCATION PARAPROFESSIONAL | | • | • | MAS603/MCE603* | | AS603*/CE603* |

*50% or more of the certificate/degree may be completed online

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| Certificates and Degrees | Locally Approved Certificates | State Approved Certificates | Associate Degree | Moreno Valley | Norco | Riverside |
|---|-------------------------------------|-----------------------------------|---------------------|---------------|---------------|-------------|
| ELECTRONICS TECHNOLOGY | | | | | | |
| Electronics Technology | | • | • | | NAS546/NCE546 | |
| EMERGENCY MEDICAL SERVICES | | | | | | |
| Emergency Medical Technician | • | | | MCE801 | | |
| Paramedic | | • | • | MAS585/MCE585 | | |
| ENGINEERING | | | | | | |
| Civil Engineering Technician | | • | • | | NAS550/NCE550 | |
| Engineering Graphics | • | | | | NCE796 | |
| Engineering Technology | | | • | | NAS551 | |
| FILM, TELEVISION AND VIDEO | | | | | | |
| Basic Television Production | • | | | | | CE842 |
| Production Specialist | | • | • | | | AS641/CE641 |
| FIRE TECHNOLOGY | | • | • | MAS555/MCE555 | | |
| Chief Officer | | • | • | MAS826/MCE826 | | |
| Fire Officer | | • | • | MAS827/MCE827 | | |
| Firefighter Academy | | • | • | MAS669/MCE669 | | |
| HUMAN SERVICES | | • | • | MAS663/MCE663 | | AS663/CE663 |
| Employment Support Specialization | • | | | MCE802 | | CE802 |
| KINESIOLOGY/EXERCISE, SPORT & WELLNESS | | | | | | |
| Athletic Training Emphasis | | • | • | | | AS597/CE597 |
| Coaching Emphasis | | • | • | | | AS599/CE599 |
| Fitness Professions Emphasis | | • | • | | | AS595/CE595 |
| MANUFACTURING TECHNOLOGY | | | | | | |
| Automated Systems Technician | | • | • | | NAS737/NCE737 | |
| Computer-Aided Production Technology | • | | | | NCE799 | |
| MEDICAL ASSISTING | | | | | | |
| Admin/Clinical Medical Assisting | | • | • | MAS718/MCE718 | | |
| Medical Transcription | | • | • | MAS701/MCE701 | | |
| MUSIC | | | • | MAA564 | | AA680 |
| Jazz Performance | • | | | | | CE852 |
| Music Performance | • | | | | | CE851 |
| Music Technology | • | | | | | CE850 |
| Piano Performance | • | | | | | CE853 |
| NURSING | | | | | | |
| Critical Care Nurse | • | | | | | CE581 |
| Nursing Assistant | • | | | | | CE584 |
| Registered Nursing | | | • | | | AS586 |
| Vocational Nursing | | • | • | | | AS588/CE588 |

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| Certificates and Degrees | Locally Approved Certificates | State Approved Certificates | Associate Degree | Moreno Valley | Norco | Riverside |
|--|-------------------------------|-----------------------------|------------------|---------------|---------------|---------------|
| PARALEGAL STUDIES | | | • | | | AS591* |
| PHOTOGRAPHY | | • | • | | | AS592/CE592 |
| PHYSICIAN ASSISTANT | | • | • | MAS501/MCE501 | | |
| RETAIL MANAGEMENT/WAFC | | • | • | | NAS536/NCE536 | AS536*/CE536* |
| SIGN LANGUAGE INTERPRETING | | • | • | | | AS505/CE505 |
| SIMULATION AND GAME DEVELOPMENT | | | | | | |
| Game Art: 3D Animation | | • | • | | NAS686/NCE686 | |
| Game Art: Character Modeling | | • | • | | NAS687/NCE687 | |
| Game Art: Environments and Vehicles | | • | • | | NAS688/NCE688 | |
| Game Art Core | • | | | | NCE855 | |
| Game Audio | | • | • | | NAS684/NCE684 | |
| Game Design | | • | • | | NAS685/NCE685 | |
| SPEECH LANGUAGE PATHOLOGY ASSISTANT | | • | • | MAS697/MCE697 | | |
| WELDING TECHNOLOGY | | • | • | | | AS606/CE606 |
| Stick Welding (SMAW) | • | | | | | CE824 |
| TIG Welding (TGAW) | • | | | | | CE819 |
| Wire Welding (FCAW, GMAW) | • | | | | | CE818 |



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PROGRAMS AND CERTIFICATES

R=Riverside; M=Moreno Valley; N=Norco

ACCOUNTINGSee [BUSINESS ADMINISTRATION](#)**ADMINISTRATION OF JUSTICE****ADMINISTRATION OF JUSTICE (MNR) NAS504/NCE504**

This program focuses on the criminal justice system, its organizational components and processes, as well as its legal and public policy contexts. This includes instruction in criminal law and policy, police and correction systems organization, the administration of justice and the judiciary, and public attitudes regarding criminal justice issues.

Certificate Program**Program Learning Outcomes**

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

- Demonstrate knowledge of the breadth, scope and interconnectivity of the criminal justice system.
- Demonstrate an understanding of the theories and research in the area of crime, criminality and criminal justice.
- Demonstrate a basic knowledge of criminal law.
- Demonstrate a knowledge of the implications of legal evidence in the processing of criminal cases.
- Demonstrate a knowledge of the role of policing and the maintenance of favorable community relations.

| Required Courses (27 units) | | Units |
|-----------------------------|---|-------|
| ADJ-1 | Introduction to the Administration of Justice | 3 |
| ADJ-2 | Principles and Procedures of the Justice System | 3 |
| ADJ-3 | Concepts of Criminal Law | 3 |
| ADJ-4 | Legal Aspects of Evidence | 3 |
| ADJ-5 | Community Relations | 3 |
| Electives | Choose from elective courses in the discipline | 12 |

Associate in Science Degree

The Associate in Science Degree in Administration of Justice will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

The following certificate may lead to employment competency, but does not lead to an Associate in Science Degree:

CRIME SCENE INVESTIGATION (NR) NCE619**Certificate Program****Program Learning Outcomes**

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

- Demonstrate an advanced knowledge of the principle components of criminal law and the criminal justice system.
- Demonstrate an advanced knowledge of the procedures and process of collecting, preserving, and cataloging physical evidence from a crime scene.
- Demonstrate an advanced ability to use computer technology to report the collection, preservation, and presentation of crime scene evidence.

| Required Courses (15 units) | | Units |
|-----------------------------|---|-------|
| ADJ-2 | Principles and Procedures of the Justice System | 3 |
| ADJ-3 | Concepts of Criminal Law | 3 |
| ADJ-13 | Criminal Investigation | 3 |
| ADJ-14 | Advanced Criminal Investigation | 3 |
| ANT-10 | Forensic Anthropology | 3 |

INVESTIGATIVE ASSISTANT (NR)**NCE785****Certificate Program****Program Learning Outcomes**

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

- Demonstrate a basic knowledge of the principle components of criminal law and the criminal justice system.
- Demonstrate a basic knowledge of the procedures and process of collecting, preserving, and cataloging physical evidence from a crime scene.
- Demonstrate the ability to properly write official reports related to the collection, preservation, and presentation of crime scene evidence.
- Demonstrate the ability to employ computer technology to facilitate student learning outcomes 1 through 3 above.

| Required Courses (15 units) | | Units |
|-----------------------------|--|-------|
| ADJ-3 | Concepts of Criminal Law | 3 |
| ADJ-4 | Legal Aspects of Evidence | 3 |
| ADJ-13 | Criminal Investigation | 3 |
| ADJ-23 | Criminal Justice Report Writing ¹ | 3 |
| CIS-1A | Introduction to Computer Information Systems | 3 |

¹ Successful completion of ENG-1A may substitute for this course.

ARCHITECTURE**ARCHITECTURE (N)****NAS509/NCE509**

This program prepares individuals to apply technical knowledge and skills to develop working drawings and electronic simulations for architectural and related construction projects. This includes instruction in basic construction and structural design, architectural rendering, architectural-aided drafting (CAD), layout and designs, architectural industrial print interpretation, building materials, and basic structural wiring diagramming.

Certificate Program**Program Learning Outcomes**

Upon successful completion of this program should be able to demonstrate:

- An ability to apply and integrate computer technology in the design process exhibiting skills necessary for entry-level employment in the architecture profession.
- Knowledge of architecture theory, and practice in the solution of Architectural design problems related to industry.
- An ability to work effectively in small and large group situations similar to those found in industry.
- The ability to apply the problem solving process to create and present design solutions.

| Required Courses (27 units) | | Units |
|-----------------------------|--|-------|
| ARE-24 | Architectural Drafting | 3 |
| ARE-25 | Advanced Architectural Drafting | 3 |
| ARE-26 | Architectural Rendering | 3 |
| ARE-35 | History of Architecture-Beginnings of Architecture through Gothic Architecture | 3 |
| or | | |
| ARE-36 | History of Architecture-Renaissance through the 20th Century | 3 |
| ARE-37 | Architectural Design I | 3 |
| or | | |
| ART-22 | Basic Design | 3 |
| ENE-21 | Drafting | 3 |
| ENE-30 | Computer-Aided Drafting (CAD) | 3 |
| ENE-60 | Math for Engineering Technology | 3 |
| Electives | (Choose from list below) | 3 |

Electives (3 units)

| | | |
|------------|------------------------------------|---|
| ART-17 | Beginning Drawing | 3 |
| ART-23 | Design and Color | 3 |
| ART-24 | Three Dimensional Design | 3 |
| CON-60 | Introduction to Construction | 3 |
| CON-61 | Materials of Construction | 3 |
| ENE-26 | Civil Engineering Drafting | 3 |
| ENE/ELE-27 | Technical Communication | 3 |
| ENE-31 | Computer-Aided Drafting and Design | 3 |

Associate in Science Degree

The Associate in Science Degree in Architecture will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

Program Learning Outcomes

In addition to achieving the program learning outcomes for the architecture certificate program, students who complete the Associate in Science Degree in Architecture will demonstrate proficiency in general education student learning outcomes and proficiency in subject matter student learning outcomes.

The following certificate may lead to employment competency, but does not lead to an Associate in Science Degree:

ARCHITECTURAL GRAPHICS (N)**NCE787****Certificate Program****Program Learning Outcomes**

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

- Complete a set of residential working drawings, which may include first floor drawings, second floor drawings, foundation drawings, elevations, cross-sections, framing, electrical drawings, and structural detail.
- Demonstrate an ability to apply and integrate computer technology into the design process to achieve a desired result.

| Required Courses (9 units) | | Units |
|----------------------------|-------------------------|-------|
| ARE-24 | Architectural Drafting | 3 |
| ENE-21 | Drafting | 3 |
| ENE-30 | Computer-Aided Drafting | 3 |

BUSINESS ADMINISTRATION**Certificate Program****Program Learning Outcomes**

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

- Use technology to analyze business decisions and to enhance business communications.
- Apply basic business and accounting calculations and analyses.
- Have an understanding of legal practices relating to business.
- Apply sound management practices.

Major Core Requirements:

| Required Courses (18 units) | | Units |
|-----------------------------|--|-------|
| ACC-1A | Principles of Accounting I | 3 |
| BUS-10 | Introduction to Business | 3 |
| BUS-18A | Business Law I | 3 |
| BUS-20 | Business Mathematics | 3 |
| BUS-22 | Management Communications | 3 |
| CIS-1A | Introduction to Computer Information Systems | 3 |
| or | | |
| BUS/CIS/CAT-3 | Computer Applications for Business | 3 |

Major Concentration Requirements (12 units)

(In addition to Business Administration Major Core Requirements of 18 units noted above choose another 12 units selected from list below.)

| | |
|----------------------|----|
| Accounting | 12 |
| General Business | 12 |
| Human Resources | 12 |
| Logistics Management | 12 |
| Management | 12 |
| Marketing | 12 |

NOTE: Students must complete all Business Administration Major Core Requirements and must complete Major Concentration Requirements (total of 30 units) in order to receive the certificate in the concentration area of their choice.

Associate in Science Degree

The Associate in Science Degree in Business Administration with a Major Concentration will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

ACCOUNTING CONCENTRATION (MNR) NAS523/NCE523

This program prepares individuals to practice the profession of accounting and to perform related business functions. This includes instruction in accounting principles and theory, financial accounting, managerial accounting, cost accounting, budget control, tax accounting, legal aspects of accounting, reporting procedures, statement analysis, planning and consulting, business information systems, accounting research methods, professional standards and ethics, and applications to specific for-profit, public, and non-profit organizations.

Program Learning Outcomes

In addition to outcomes for the Business Administration certificate, on successful completion of the Accounting concentration, students should be able to accomplish at least three of the following eight tasks:

- Explain the managerial applications of accounting reports and ratios to the business enterprise.
- Understand the major role financial reporting plays in fulfilling government's duty to be publicly accountable in a democratic society.
- Apply cost accounting principles to manufacturing and service enterprises within a global society.
- Analyze and solve problems associated with the calculation and reporting of payroll.
- Analyze data and apply appropriate principles of federal income tax law.
- Analyze and solve accounting problems with application software.
- Prepare the detailed financial reports for governments and not-for-profit entities that stress the need for the public to understand and evaluate the financial activities and management of these organizations.
- Develop and apply principles of moral judgment and ethical behavior to business situations.

| | |
|---|---------|
| Business Administration Major Core Requirements | 18 |
| Required for this concentration | 3 |
| <hr/> | |
| ACC-1B Principles of Accounting II | 3 |
| and | |
| Select another 9 units from the following: | 9 |
| <hr/> | |
| ACC-61 Cost Accounting | 3 |
| ACC-62 Payroll Accounting | 3 |
| ACC-63 Income Tax Accounting | 3 |
| ACC-65 Computerized Accounting | 3 |
| ACC-66 Non-Profit and Governmental Accounting | 3 |
| ACC-200 Accounting Work Experience | 1-2-3-4 |
| BUS/MAG-47 Applied Business and Management Ethics | 3 |

GENERAL BUSINESS CONCENTRATION (MNR) NAS524/NCE524

This program focuses on the general study of business, including domestic, international and electronic, and the important ways in which business impacts our daily lives. The program will prepare individuals to apply business principles and techniques in various career settings and to gain an understanding of business situations that affect their personal and working lives. This includes the buying, selling and production of goods and services, understanding business organizations, general management, and employee motivation strategies, basic accounting principles, the economy, and marketing.

Program Learning Outcomes

In addition to outcomes for the Business Administration certificate, on successful completion of the General Business concentration, students should be able to accomplish four of the following seven tasks:

- Explain the managerial applications of accounting reports and ratios to the business enterprise.
- Analyze the law as it pertains to business organizations and to determine the legal management of the various forms of law.
- Analyze the business elements that comprise the logistics function.
- Develop and apply principles of moral judgment and ethical behavior to business situations.
- Anticipate and pose problems relative to understanding and supervising personnel.
- Identify and analyze human relations techniques appropriate to a managerial role.
- Explain and develop the marketing mix, including an analysis of the marketing mix variables—product, place, price, and promotion.

| | |
|---|---------|
| Business Administration Major Core Requirements | 18 |
| Select another 12 units from the following: | 12 |
| <hr/> | |
| ACC-1B Principles of Accounting II | 3 |
| or | |
| ACC-38 Managerial Accounting | 3 |
| BUS-18B Business Law II | 3 |
| BUS-40 International Business-Principles | 3 |
| BUS/MAG-47 Applied Business and Management Ethics | 3 |
| BUS-80 Principles of Logistics | 3 |
| BUS-200 Business Administration Work Experience | 1-2-3-4 |
| MAG-51 Elements of Supervision | 3 |
| MAG-53 Human Relations | 3 |
| MKT-20 Principles of Marketing | 3 |

HUMAN RESOURCES CONCENTRATION (NR) NAS623/NCE623

This program prepares individuals to manage the development of human capital in an organization, and to provide related services to individuals and groups. This includes instruction in personnel and organization policy, human resources dynamics and flows, labor relations, sex roles, civil rights, human resources law and regulations, motivation and compensation systems, work systems, career management, employee testing and assessment, recruitment and selection, managing employee and job training programs, and the management of human resources programs and operations.

Program Learning Outcomes

In addition to outcomes for the Business Administration certificate, on successful completion of the Human Resources Management concentration, students should be able to:

- Apply sound human resources management practices.
- Identify, describe and analyze the role of training and development, along with key influences that impact this function within human resources management.
- Describe and analyze the role of employee labor relations in human resources management, along with key influences impacting labor relations today.
- Understand the role that Human Resources Management plays in the successful operations of a business or organization.
- Analyze and explain various human resources laws and policies required for a professional in the field to know and understand.

| | |
|--|----|
| Business Administration Major Core Requirements | 18 |
| Required for this concentration | 3 |
| <hr/> | |
| MAG-56 Human Resources Management and | 3 |
| Select another 9 units from the following: | 9 |
| <hr/> | |
| MAG-51 Elements of Supervision | 3 |
| MAG-52 Employee Training and Development | 3 |
| MAG-54 Employee Labor Relations | 3 |
| MAG/BUS-70 Introduction to Organizational Behavior | 3 |

LOGISTICS MANAGEMENT CONCENTRATION (N) NAS580/NCE580

This program prepares students for entry into or career growth within the logistics industry, and ongoing study of the field. The focus is on integrated logistics, a necessity for management of effective and efficient supply chains. Logistics disciplines covered include warehousing, transportation, service contracting, purchasing, global logistics, etc.

Program Learning Outcomes

In addition to outcomes from the core Business Administration courses, and upon successful completion of the Logistics concentration, students should be able to do four to five of the following eight things:

- Compare roles and objectives of the logistics disciplines;
- Understand how logistics functions can interact to efficiently use total personnel, facilities and equipment;
- Contribute knowledge needed by multidisciplinary teams to effectively integrate and exceed end user (customer) expectations;
- Analyze, prepare, file and process claims when unavoidable freight disputes arise;
- Explain how the overall flow of goods, services and information can be optimized to satisfy customer and business goals;
- Identify 3rd party logistics provider and client needs in negotiations, bidding and contracts, as well as legal and regulatory constraints to integrated logistics;
- Describe roles and value added by global logistics intermediaries.

| | |
|---|-----|
| Business Administration Major Core Requirements | 18 |
| Required for this concentration | 3 |
| <hr/> | |
| BUS-80 Principles of Logistics and | 3 |
| Select another 9 units from the following: | 9 |
| <hr/> | |
| BUS-82 Freight Claims | 1.5 |
| BUS-83 Contracts | 1.5 |
| BUS-85 Warehouse Management | 3 |
| BUS-86 Transportation and Traffic Management | 3 |
| BUS-87 Introduction to Purchasing | 3 |
| BUS-90 International Logistics | 3 |

MANAGEMENT CONCENTRATION (MNR) NAS521/NCE521

This program generally prepares individuals to plan, organize, direct, and control the functions and processes of a firm or organization with an emphasis on people as the most important asset of a business. This program will prepare individuals seeking management positions to be better candidates for promotion, and those already in management positions to improve their management skills and effectiveness. This includes instruction in management practice and theory, human resources management and behavior, interpersonal communications in a business setting, marketing management, and business decision making.

Program Learning Outcomes

In addition to outcomes for the Businesses Administration certificate, on successful completion of the Management concentration, students should be able to:

- Apply sound management practices.
- Analyze and apply appropriate managerial practices in one or more areas of ethics, human resources, quality management, operations, motivation, etc.

| | |
|---|---------|
| Business Administration Major Core Requirements | 18 |
| Required for this concentration | 3 |
| <hr/> | |
| MAG-44 Principles of Management and | 3 |
| Select another 9 units from the following: | 9 |
| <hr/> | |
| MAG-46 Contemporary Quality Systems Management | 3 |
| MAG/BUS-47 Applied Business and Management Ethics | 3 |
| MAG-53 Human Relations | 3 |
| MAG-56 Human Resources Management | 3 |
| MAG-60 Introduction to Hospitality Management | 3 |
| MAG-200 Management Work Experience | 1-2-3-4 |
| BUS-48 International Management | 3 |

MARKETING CONCENTRATION (MNR) NAS525/NCE525

This program prepares individuals to undertake and manage the process of developing both consumer and business markets, and communicating product benefits to targeted market segments. This includes instruction in buyer behavior and dynamics, sales promotions, building customer relationships, effective pricing, marketing campaigns, principles of marketing research, strategic market planning, advertising methods, customer service, retailing, and applications for specific products and markets.

Program Learning Outcomes

In addition to outcomes for the Businesses Administration certificate, on successful completion of the Marketing concentration, students should be able to:

- Develop and implement marketing strategies.
- Develop a comprehensive marketing plan.
- Construct and implement a promotional program.
- Research and analyze consumer decision parameters.

| | | |
|---|----------------------------------|---------|
| Business Administration Major Core Requirements | | 18 |
| Required for this concentration | | 3 |
| <hr/> | | |
| MKT-20 | Principles of Marketing | 3 |
| and | | |
| Select another 9 units from the following: | | 9 |
| <hr/> | | |
| MKT-40 | Advertising | 3 |
| MKT-41 | Techniques of Selling | 3 |
| MKT-42 | Retail Management | 3 |
| MKT-200 | Marketing Work Experience | 1-2-3-4 |
| BUS-43 | International Business-Marketing | 3 |
| BUS-51 | Principles of E-Commerce | 3 |
| BUS-80 | Principles of Logistics | 3 |

REAL ESTATE CONCENTRATION (MNR) NAS527/NCE527

This program prepares individuals to develop, buy, sell, appraise, and manage real property. This includes instruction in land use development policy, real estate law, real estate marketing procedures, agency management, brokerage, property inspection and appraisal, real estate investing, leased and rental properties, commercial real estate, and property management.

Program Learning Outcomes

In addition to outcomes for the Businesses Administration certificate, on successful completion of the Real Estate concentration, the student should be able to do the following:

- Demonstrate the ability to analyze ethical and procedural problems that arise in residential real estate sales transactions from the prospective of buyers, sellers, brokers, appraisers, lenders, and escrow officers.
- Discuss and evaluate real estate marketing and sales techniques.
- Discuss and calculate real estate taxes and solve basic real estate mathematics problems.
- Explain and evaluate methods of financing real estate purchases and securing loans with real estate.
- Demonstrate the ability to analyze the factors that affect real estate values.
- Discuss and evaluate real estate markets and trends.

| | | |
|---|------------------------------|---------|
| Business Administration Major Core Requirements | | 18 |
| Select another 12 units from the following: | | 12 |
| <hr/> | | |
| RLE-80 | Real Estate Principles | 3 |
| RLE-81 | Real Estate Practices | 3 |
| RLE-82 | Legal Aspects of Real Estate | 3 |
| RLE-83 | Real Estate Finance | 3 |
| RLE-84 | Real Estate Appraisal | 3 |
| RLE-85 | Real Estate Economics | 3 |
| RLE-86 | Escrow Procedures I | 3 |
| RLE-200 | Real Estate Work Experience | 1-2-3-4 |

REAL ESTATE SALESPERSON AND TRANSACTION (N) NCE854

This program prepares students to buy, sell and lease, and to represent others to buy, sell and lease residential and commercial real estate property. Prepares students to qualify for the California Real Estate Salesperson license and to successfully take the California Real Estate Salesperson exam. Instruction includes analysis of ethical and procedural real estate problems; types of real estate property ownership and leases; sales contracts and associated documents; required disclosures; land use policy; real estate marketing; real estate financing; and state and federal statutes, regulations and court cases affecting California real estate sales and leases.

Certificate Program**Program Learning Outcomes**

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

- Demonstrate the ability to analyze ethical and procedural problems that arise in real estate transactions.
- Discuss and evaluate real estate marketing and sales techniques.
- Explain and evaluate methods of financing and evaluating real estate.
- Demonstrate the ability to analyze state and federal statutes, regulations, and court cases affecting real estate sales.

| | | |
|----------------------------|------------------------|-------|
| Required Courses (9 units) | | Units |
| RLE-80 | Real Estate Principles | 3 |
| RLE-81 | Real Estate Practices | 3 |

Select 3 units from the following:

| | | |
|---------|------------------------------|---|
| ACC-1A | Principles of Accounting I | 3 |
| BUS-18A | Business Law I | 3 |
| RLE-82 | Legal Aspects of Real Estate | 3 |
| RLE-83 | Real Estate Finance | 3 |
| RLE-85 | Real Estate Economics | 3 |

COMMERCIAL MUSIC

PERFORMANCE (N)

NAA645/NCE645

The *Commercial Music: Performance* certificate is a program designed to provide students with the knowledge and skills necessary for studio recording and live performance in the commercial music industry. Courses allow students to become proficient on an instrument or voice, gain experience as an ensemble member, study the fundamentals of music including sight-reading and piano skills, become familiar with music technology and record in a state-of-the-art recording studio. Classes are taught utilizing industry-standard software and equipment in state-of-the-art facilities. The program prepares students for a wide variety of careers as instrumentalists and vocalists in studio or live performance settings.

Associate in Arts Degree

Program Learning Outcomes

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

- Understand and employ fundamentals of music and musicianship such as melody, harmony, chord structure, rhythm, key signatures, phrasing, sight-singing and scalar patterns.
- Identify and discuss the origins of commercial music and explain how it relates to society today.
- Create and manipulate vocal or instrumental technique in a studio and live performance setting such as fingerings, dynamics, diction, breathing, rhythm, phrasing and vowel or finger placement.
- Memorize and recall standard commercial music literature in a live ensemble performance.

| Required Courses (32 units) | | Units |
|---|--|-------|
| MUC-1 | Performance Techniques for Studio Recording (take 3 times/2 units) | 6 |
| MUC-7 | Introduction To Music Technology | 3 |
| MUS-3 | Fundamentals of Music | 4 |
| MUS-32 | Class Piano | 1 |
| MUS-38 | Beginning Applied Music Training (take 3 times/2 units) | 6 |
| MUS-65 | Basic Musicianship | 2 |
| Electives (choose from the lists below) | | 10 |

Select 6 units from the following:

| | | |
|--------|--|---|
| MUC-3 | Introduction to Pro Tools: MIDI and Audio Production | 3 |
| MUS-19 | Music Appreciation | 3 |
| MUS-23 | History of Rock and Roll | 3 |
| MUS-93 | The Business of Music | 3 |

Select 4 units from the following:

| | | |
|--------|----------------------|---|
| MUC-10 | Norco Choir | 2 |
| MUC-11 | Studio Arts Ensemble | 2 |

Associate of Arts Degree

The Associate of Arts Degree in Commercial Music: Performance will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

GAME AUDIO

See [SIMULATION AND GAME DEVELOPMENT](#)

COMPUTER INFORMATION SYSTEMS

This program focuses on computers, computing problems and solutions, and design of computers systems and user interfaces from a scientific perspective. This includes instruction in their principles of computation science, and computing theory; computer hardware design; computer development and programming; and application to a variety of end-use situations.

COMPUTER APPLICATIONS (MNR)

NAS726/NCE726

This program prepares individuals to perform basic data and text entry using standard and customized software products. This includes instruction in keyboarding skills, personal computer and work station operation, reading draft texts and raw data forms, and various interactive software programs used for tasks such as word processing, spreadsheets, databases, and others.

Certificate Program

Program Learning Outcomes

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

- Describe and use operating system software
- Describe and use Word processing software.
- Write structured programs using C++, or Java.
- Describe and use graphics software to manipulate digital images.
- Describe and use database software to construct 3NF databases.
- Construct a visually appealing web site including database structures within the design.
- Design and use spreadsheets that have embedded equations/formulas utilizing different data types.

| Required Courses (31.5 units) | | Units |
|-------------------------------|---|-------|
| CIS-1A | Introduction to Computer Information Systems | 3 |
| CIS-1B | Advanced Concepts in Computer Information Systems | 3 |
| CIS/CSC-5 | Fundamentals of Programming Logic using C++ | 3 |
| or | | |
| CIS/CSC-28A | MS Access Programming | 3 |
| CIS/CSC-21 | Introduction to Operating Systems | 3 |
| CIS-95A | Introduction to the Internet | 1.5 |
| CAT-31 | Business Communications | 3 |
| or | | |
| BUS-22 | Management Communications | 3 |
| Electives 1 | (Choose from list below) | 7.5 |
| Electives 2 | (Choose from list below) | 7.5 |

Electives 1 (7.5 units)

| | | |
|-------------|---|-----|
| CIS/CSC-2 | Fundamentals of Systems Analysis | 3 |
| CIS-23 | Software and End User Support | 3 |
| CIS/CSC-25 | Data Communications | 3 |
| CIS/CSC-61 | Introduction to Databases | 3 |
| CIS/CAT-80 | Word Processing: Microsoft Word for Windows | 3 |
| CIS/CAT-84 | Word Processing: WordPerfect for Windows | 3 |
| CIS/CAT-98B | Advanced Excel | 1.5 |

Electives 2 (7.5 units)

| | | |
|-------------|---|-----|
| CIS/CSC-12 | PHP Dynamic Web Site Programming | 3 |
| CIS/CSC-14A | Web Programming: Java Script | 3 |
| CIS-14B | Web Programming: Active Server Pages | 3 |
| CIS/CAT-54A | Introduction to Flash | 3 |
| CIS/CAT-56A | Designing Web Graphics | 3 |
| CIS-72A | Introduction to Web Page Creation | 1.5 |
| CIS-72B | Intermediate Web Page Creation using Cascading Style Sheets (CSS) | 1.5 |
| CIS/CAT-76A | Introduction to Microsoft Expression Web | 3 |
| CIS/CAT-76B | Introduction to DreamWeaver | 3 |
| CIS/CAT-78A | Introduction to Adobe PhotoShop | 3 |
| CIS/CAT-79 | Introduction to Adobe Illustrator | 3 |
| CIS/CAT-81 | Introduction to Desktop Publishing using Adobe InDesign | 3 |

Associate in Science Degree

The Associate in Science Degree in Computer Information Systems, Computer Applications will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

COMPUTER PROGRAMMING (MNR)**NAS728/NCE728**

This program focuses on the general writing and implementation of generic and customized programs to drive operating systems that generally prepare individuals to apply the methods and procedures of software design and programming to software installation and maintenance. This includes instruction in software design; low and high level languages and program writing; program customization and linking; prototype testing; troubleshooting; and related aspects of operating systems and networks.

Certificate Program**Program Learning Outcomes**

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

- Design structured programs using C++, Javascript, or Java.
- Design and use object oriented programs in one of these languages C++, Java or PHP.
- Design and use advanced programming techniques in C++ or Java.

Required Courses (25.5 units)

Units

| | | |
|------------|--|-----|
| CIS-1A | Introduction to Computer Information Systems | 3 |
| CIS/CSC-2 | Fundamentals of Systems Analysis | 3 |
| CIS/CSC-5 | Fundamentals of Programming Logic Using C++ | 3 |
| CIS/CSC-21 | Introduction to Operating Systems | 3 |
| CIS-72A | Introduction to Web Page Creation | 1.5 |
| Electives | From Group 1 | 6 |
| Electives | From Group 2 | 6 |

Electives - Group 1 (6 units)

| | | |
|-------------|--------------------------------------|---|
| CIS/CSC-12 | PHP Dynamic Web Site Programming | 3 |
| CIS/CSC-14A | Web Programming: JavaScript | 3 |
| CIS-14B | Web Programming: Active Server Pages | 3 |
| CIS/CSC-17A | C++ Programming: Objects | 3 |
| CIS/CSC-18A | Java Programming: Objects | 3 |

Electives - Group 2 (6 units)

| | | |
|-------------|--------------------------------------|---|
| CIS/CSC-11 | Computer Programming using Assembler | 3 |
| CIS/CSC-17B | C++ Programming: Advanced Objects | 3 |
| CIS/CSC-17C | C++ Programming: Data Structures | 3 |
| CIS/CSC-18B | Java Programming: Advanced Objects | 3 |
| CIS/CSC-18C | Java Programming: Data Structures | 3 |

Associate in Science Degree

The Associate in Science Degree in Computer Information Systems, Computer Programming will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

DESKTOP PUBLISHING (N)**NAS647/NCE647**

This program is designed for students who wish to pursue training in desktop publishing. Training will focus on using a computer to design page layouts, develop presentations, and create advertising campaigns. Students will learn to design, integrate, and format all forms of digital images into printable media.

Certificate Program**Program Learning Outcomes**

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

- Design and create images used for printed media in advertising;
- Understand and apply the techniques used to create and modify artwork using a vector-based program or bit-mapped program;
- Integrate text and graphics in a document layout program to create professional-quality, full-color documents;
- Format and combine text, numerical data, photographs, charts, and other visual graphic elements to produce publication-ready material;
- Demonstrate the knowledge of workflow process in the creation of printed media in advertising;
- Demonstrate the knowledge of design principles in advertising and layout design, type, and lettering applications;
- Incorporate two dimensional design visual media of printed media in advertising.

Required Courses (18 units)

Units

| | | |
|-------------|-----------------------------------|---|
| CIS/CAT-78A | Introduction to Adobe Photoshop | 3 |
| CIS/CAT-78B | Advanced Adobe Photoshop | 3 |
| CIS/CAT-79 | Introduction to Adobe Illustrator | 3 |
| CIS/CAT-81 | Introduction Adobe InDesign | 3 |
| ART-22 | Basic Design | 3 |
| ART-39 | Design and Graphics | 3 |

Associate in Science Degree

The Associate in Science Degree in Computer Information Systems, Desktop Publishing will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

SIMULATION AND GAMING: GAME ART (MN) NAS739/NCE739

This is a comprehensive program that puts equal emphasis on the artistic and technical sides of 3D modeling and animation. Courses cover material that will take the student through the whole production process and workflow of 3D modeling and animation, from conceptualization to the final delivery of the rendered product. Curriculum spans traditional drawing techniques, life drawing and the technical fundamentals of 3D animation and modeling. Classes are taught in a state-of-the-art computer studio with the latest versions of industry-standard software packages.

Certificate Program**Program Learning Outcomes**

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

- Identify and differentiate the game development project lifecycle and associated documents such as the Pitch Document, Game Design Document, Technical Design Document, Art Production Plan, Project Plan and Game Prototype.
- Identify and employ proper use of color media and associated materials as well as define, outline, and discuss basic to complex color theory for 2D artwork.
- Create, manipulate, animate, and implement 3D art assets for real time interactive simulations or video games.

| Required Courses (36 units) | | Units |
|-----------------------------|---|-------|
| CIS/GAM-35 | Introduction to Simulation and Game Development | 3 |
| CIS/GAM-38A | Simulation and Gaming/3D Modeling | 4 |
| CIS/GAM-38B | Simulation and Gaming/3D Animation | 4 |
| CIS/GAM-38C | Simulation and Gaming/3D Dynamics and Rendering | 4 |
| CIS/CAT-78A | Introduction to Adobe Photoshop | 3 |
| ART-17 | Beginning Drawing | 3 |
| ART-18 | Intermediate Drawing | 3 |
| ART-22 | Basic Design | 3 |
| ART-40 | Figure Drawing | 3 |
| Electives | (Choose from list below) | 6 |

Electives (6 units)

| | | |
|-------------|---|---|
| CIS 36 | Introduction to Computer Game Design | 3 |
| CIS/GAM-37 | Beginning Level Design for Computer Games | 3 |
| CIS/GAM-39 | Current Techniques in Game Art | 4 |
| CIS/CAT-54A | Introduction to Flash | 3 |
| CIS/CAT-79 | Introduction to Adobe Illustrator | 3 |
| ART-23 | Design and Color | 3 |
| ART-36 | Computer Art | 3 |
| ART-44 | Animation | 3 |

Associate in Science Degree

The Associate in Science Degree in Simulation and Gaming: Game Art will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

The following certificates may lead to employment competency, but do not lead to an Associate in Science Degree:

C++ PROGRAMMING (NR)**NCE803**

Create structured and Object code in C++ for business, gaming, mathematical and scientific problems by identifying the information input requirements, synthesizing the algorithmic steps needed to transform the data input into the required output information, and organizing the output format to facilitate user communication.

Certificate Program**Program Learning Outcomes**

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

- Create structured and Object code in C++ for business, gaming, mathematical and scientific problems by identifying the information input requirements, synthesizing the algorithmic steps needed to transform the data input into the required output information, and organizing the output format to facilitate user communication.
- Using C++ libraries create and run C++ programs that incorporate the following:
 - Multiprocessors
 - Multimedia
 - ODBC
 - SQL
 - Establish client/server relationship
- OR Using C++ libraries create and run C++ programs that incorporate data structures.

Required Courses (12 units)

| Required Courses (12 units) | | Units |
|-----------------------------|---|-------|
| CIS/CSC-5 | Fundamentals of Programming Logic using C++ | 3 |
| CIS/CSC-17A | C++ Programming: Objects | 3 |
| CIS/CSC-17B | C++ Programming: Advanced Objects | 3 |
| CIS/CSC-17C | C++ Programming: Data Structures | 3 |

JAVA PROGRAMMING (NR)**NCE809**

Completion of this certificate provides the student with skills a new programmer would need to obtain employment programming Java applications.

Certificate Program**Program Learning Outcomes**

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

- Create structured and Object code in Java for business, gaming, mathematical and scientific problems by identifying the information input requirements, synthesizing the algorithmic steps needed to transform the data input into the required output information, and organizing the output format to facilitate user communication.
- Using Java libraries create and run Java programs that incorporate the following:
 - Multiprocessors
 - Multimedia
 - JDBC
 - SQL
 - Establish client/server relationship.

- Using Java libraries create and run Java programs that incorporate data structures.

| Required Courses (12 units) | | Units |
|-----------------------------|---|-------|
| CIS/CSC-5 | Fundamentals of Programming Logic using C++ | 3 |
| CIS/CSC-18A | Java Programming: Objects | 3 |
| CIS/CSC-18B | Java Programming: Advanced Objects | 3 |
| CIS/CSC-18C | Java Programming: Data Structures | 3 |

WEB MASTER (MNR)

The Web Master certificate program prepares a student to be a valuable member of a professional web design or development team. The successful student will become a competent HTML and CSS coder, and be proficient enough in Dreamweaver to streamline the development cycle and effectively integrate all the typical technologies within a web site. Depending on the chosen emphasis, the student will also become more skilled at designing sites with web graphics and animation or more skilled at developing web applications with programming in Javascript and PHP.

Certificate Program

Core Program Learning Outcomes

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

- Create valid, properly structured web pages using a variety of HTML features to form a typical 5-10 page site.
- Create external style sheets that effectively control an entire web site's formatting and layout.
- Use a variety of Dreamweaver features to design, create, test, upload and manage an accessible and standards compliant interactive web site that includes the use of text, graphics, and multimedia.

| Required Courses (17 units) | | Units |
|---|---|-------|
| Core Requirements (6 units) | | |
| CIS-72A | Introduction to Web Page Creation | 1.5 |
| CIS-72B | Intermediate Web Page Creation using Cascading Style Sheets (CSS) | 1.5 |
| CIS/CAT-76B | Introduction to DreamWeaver | 3 |
| or | | |
| ADM-74 | Dreamweaver for Graphic Designers | 3 |
| In addition, choose one of the concentrations below | | 11 |

Web Designer Concentration NCE820

Concentration Program Learning Outcomes

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

- Apply design and visual communication principles to web site, page, and interface design.
- Use Photoshop to create and edit images for use on the web, including photographs, logos, navigation buttons, background images, image maps, and web page design mockups (tracing images).
- Use Flash to create web animations and interactive web sites.

| Concentration Required Courses (11 units) | | Units |
|---|---------------------------------|-------|
| CIS/CAT-54A | Introduction to Flash | 3 |
| or | | |
| ADM-67 | WEB Animation with Flash and | 3 |
| CIS/CAT-56A | Designing Web Graphics | 3 |
| or | | |
| CIS-CAT-78A | Introduction to Adobe Photoshop | 3 |
| or | | |
| ADM-71 | Adobe Photoshop | 3 |
| Electives | Choose from the list below | 5 |

Concentration Electives (5 units)

| | | |
|------------|---|---|
| CIS/CAT-81 | Introduction to Desktop Publishing using Adobe InDesign | 3 |
| or | | |
| ADM-63 | Adobe InDesign | 3 |
| CIS/CAT-79 | Introduction to Adobe Illustrator | 3 |
| or | | |
| ADM-77A | Adobe Illustrator | 3 |
| ADM-64 | Ethics and Legalities of Digital Manipulation | 1 |
| ADM-65 | Cross Platform File Management | 1 |
| ADM-89 | Applied Digital Media Portfolio | 1 |

Web Developer Concentration NCE843

Concentration Program Learning Outcomes

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

- Apply programming principles to develop a fully functioning and customized web site experience for both the site user and site administrator.
- Use JavaScript to enhance a web site's interactivity using the DOM.
- Use PHP to enhance a web site's capabilities by creating data driven web page content, custom form validation and processing, and database manipulation.

| Concentration Required Courses (11 units) | | Units |
|---|----------------------------------|-------|
| CIS/CSC-12 | PHP Dynamic Web Site Programming | 3 |
| CIS/CSC-14A | Web Programming: Java Script | 3 |
| Electives | (Choose from the list below) | 5 |

Concentration Electives (5 units)

| | | |
|-------------|---|-----|
| CIS/CAT-56A | Designing Web Graphics | 3 |
| or | | |
| CIS/CAT-78A | Introduction to Adobe Photoshop | 3 |
| or | | |
| ADM-71 | Adobe Photoshop | 3 |
| CIS/CAT-54A | Introduction to Flash | 3 |
| or | | |
| ADM-67 | Web Animation with Flash | 3 |
| CIS-54B | Flash Scripting | 3 |
| CIS-72C | Introduction to XML | 1.5 |
| ADM-64 | Ethics and Legalities of Digital Manipulation | 1 |
| ADM-65 | Cross Platform File Management | 1 |
| ADM-89 | Applied Digital Media Portfolio | 1 |

CONSTRUCTION TECHNOLOGY

This program prepares individuals with the technical knowledge and skills in the area of building construction. This includes instruction enabling students to better understand and interpret construction codes, as well as clarifying processes and materials used in construction; and the basic physical laws which are used to formulate the prescriptive code regulations. Management and inspection skills are also examined.

CONSTRUCTION TECHNOLOGY (N)

NAS532/NCE532

Certificate Program

Program Learning Outcomes

Graduates will be able to identify and describe the materials and methods currently being employed in today's construction industry. Graduates will be able to interpret the major construction codes currently adopted by the state, county, and city which regulate construction installations. Graduates will be able to evaluate the basic concepts of engineering and soil design as they relate to structures.

| Required Courses (30 units) | | Units |
|-----------------------------|--|---------|
| CON-63A | Uniform Building Codes and Ordinances | 3 |
| CON-64 | Office Procedure and Field Inspection | 3 |
| CON-65 | Plumbing Code | 3 |
| CON-66 | National Electrical Code | 3 |
| CON-67 | Mechanical Codes | 3 |
| CON-68 | Simplified Engineering for Building Inspectors | 3 |
| CON-70 | Fundamentals of Soil Technology | 3 |
| CON-71 | Energy Conservation Standards | 1.5 |
| CON-72 | California State Accessibility Standards | 1.5 |
| Electives | (Choose from list below) | 6 |
| Electives | | |
| CON-60 | Introduction to Construction | 3 |
| CON-61 | Materials of Construction | 3 |
| CON-62 | Blueprint Reading | 3 |
| CON-63BCD | Analysis of Revisions to the Uniform Building Code | 3-3-3 |
| CON-73 | Project Planning for Site Construction | 3 |
| CON-200 | Construction Work Experience | 1-2-3-4 |

Associate in Science Degree

The Associate in Science Degree in Construction Technology will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

Program Learning Outcomes

In addition to achieving the program learning outcomes for the construction technology certificate program, students who complete the Associate in Science Degree in Construction Technology will demonstrate proficiency in general education student learning outcomes and proficiency in subject matter student learning outcomes.

DRAFTING TECHNOLOGY

This program prepares individuals to apply technical skills and advanced computer software and hardware to the creation of graphic representations and simulation in support of drafting and engineering design problems typical of industry. This includes instruction in engineering graphics, computer-aided drafting (CAD), two-dimensional and three-dimensional engineering design, solids modeling, rapid prototyping and engineering animation.

DRAFTING TECHNOLOGY (N)

NAS539/NCE539

Certificate Program

Program Learning Outcomes

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

- An ability to apply and integrate computer technology in the design process, exhibiting skills necessary for entry-level employment, as a designer in the drafting industry.
- Knowledge of engineering drawing skills and practice in the solution of industry related design projects.

| Required Courses (24-25 units) | | Units |
|--------------------------------|--|-------|
| ENE-21 | Drafting | 3 |
| ENE-22 | Engineering Drawing | 3 |
| ENE-28 | Technical Design | 3 |
| ENE-30 | Computer Aided Drafting (CAD) | 3 |
| ENE-31 | Computer Aided Drafting and Design | 3 |
| ENE-51 | Blueprint Reading | 2 |
| ENE-52 | Geometric Dimensioning and Tolerancing | 2 |
| ENE-60 | Math for Engineering Technology | 3 |
| Electives | (Choose from list below) | 2-3 |
| Electives (2-3 units) | | |
| ARE-24 | Architectural Drafting | 3 |
| ENE-23 | Descriptive Geometry | 3 |
| ENE-26 | Civil Engineering Drafting | 3 |
| ELE/ENE-27 | Technical Communication | 3 |
| ENE-42 | SolidWorks I | 3 |
| WEL-34 | Metal Joining Processes | 2 |

Associate in Science Degree

The Associate in Science Degree in Drafting Technology will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

Program Learning Outcomes

In addition to achieving the program learning outcomes for the drafting technology certificate program, students who complete the Associate in Science Degree in Drafting Technology will demonstrate proficiency in general education student learning outcomes and proficiency in subject matter student learning outcomes.

EARLY CHILDHOOD EDUCATION

This program focuses on the theory and practice of learning and teaching children from birth to age eight; the basic principles of educational and developmental psychology; the art of observing, teaching and guiding young children; planning and administration of developmentally appropriate inclusive educational activities; school safety and health issues; and the social and emotional foundations of early care and education.

EARLY CHILDHOOD EDUCATION (MNR) NAS544/NCE544

This program provides an educational and practical foundation for students interested in working with children from infancy to third grade. In addition to theoretical principles the curriculum offers practical skills and on-site training that will prepare students for employment in the field of Early Childhood Education. As students progress through the program they fulfill required coursework for the California Child Development permit and for the Early Childhood education/Assistant certificate, and Early Childhood Education 12 Core Units certificate.

Certificate Program

Program Learning Outcomes

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

- Use observation to assess child development, curriculum success, an environmental standards of quality, and then implement program adjustments based on assessment outcomes.
- Identify the patterns of development for children ages zero to three in the areas of physical, cognitive and psychosocial domains.
- Understand and implement health and safety practices in environmental concerns and in individual child cleansing and feeding routines.
- Create and maintain an environment of care and learning specific to young infants and newly mobile children.
- Select equipment and materials conducive to the physical, cognitive and psychosocial needs of infants and toddlers.
- Plan and implement a curriculum based on a blend of routine and play activities.

| Required Courses (31 units) | | Units |
|-----------------------------|---|-------|
| EAR-19 | Observation and Assessment in Early Childhood Education | 3 |
| EAR-20 | Child Growth and Development | 3 |
| EAR-24 | Introduction to Curriculum | 3 |
| EAR-25 | Teaching in a Diverse Society | 3 |
| EAR-26 | Health, Safety and Nutrition | 3 |
| EAR-28 | Principles and Practices of Teaching Young Children | 3 |
| EAR-30 | Practicum in Early Childhood Education | 4 |
| EAR-42 | Child, Family, and Community | 3 |
| Electives | (Choose from list below) | 6 |

Electives (6 units)

| | | |
|--------|--|----|
| EAR-23 | Family Home Child Care Program | 3 |
| EAR-31 | Home Visiting | 3 |
| EAR-33 | Caring for Infants and Toddlers in Group Settings | 3 |
| EAR-34 | Curriculum Activities for Infants and Toddlers | 3 |
| EAR-37 | School Age Child Care | 3 |
| EAR-38 | Adult Supervision in ECE/CD Classrooms | 3 |
| EAR-39 | Mentor Seminar | .5 |
| EAR-40 | Introduction to Infants and Children with Disabilities and Other Special Needs | 3 |
| EAR-41 | Internship in Early Intervention/Special Education | 4 |
| EAR-43 | Children with Challenging Behaviors | 3 |
| EAR-44 | Administration Of Early Childhood Programs I | 3 |
| EAR-45 | Administration Of Early Childhood Programs II | 3 |
| EAR-47 | Childhood Stress and Trauma | 3 |
| EAR-52 | Parenting: Parents as Teachers | 1 |
| EAR-53 | Parenting: Guiding Young Children-Approaches to Discipline | 2 |
| EAR-54 | Parenting: Contemporary Parenting Issues | 1 |
| EAR-55 | Parenting: Common Problems in Infancy and Childhood | 1 |
| ART-3 | Art for Teachers | 3 |
| EDU-1 | Teaching in the Multicultural Classroom | 3 |
| EDU-3 | Introduction to Literacy Instruction | 3 |
| EDU-4 | Introduction to Literacy/Service Learning | 1 |
| ENG-30 | Children's Literature | 3 |
| KIN-6 | Introduction to Physical Education for Preschool and Elementary Children | 3 |
| KIN-30 | First Aid and CPR | 3 |
| MUS-1 | Teaching Music to Young Children | 3 |
| SOC-45 | Childhood and Culture | 3 |

Child Development Permit

The Early Childhood Education program provides an educational and practical foundation for students interested in working with children from infancy through third grade. In addition to theoretical principles, the curriculum offers practical skills and on-site training that will prepare students for employment in the field of Early Childhood Education. The program leads to certificates in Early Childhood Education and/or an Associate in Science Degree. The EAR courses will also fulfill the required child development coursework for the state issued Child Development Permit. Information regarding this permit and/or the Early Childhood Education Certificates are available from the Early Childhood Education Department.

Upon completion of the requirements for the certificate program and 16 units of special courses in general education, the student has fulfilled the course requirements for the Child Development Permit, teacher level. See the State guidelines for experience qualifications and additional levels. For child development interactive video information, see www.academic.rcc.edu/earlychild/permit.jsp

Associate in Science Degree

The Associate in Science Degree in Early Childhood Education will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.



EARLY CHILDHOOD INTERVENTION (MNR) NAS601/NCE601

ASSISTANT

Certificate Program

Program Learning Outcomes

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

- Demonstrate an understanding of family function and structure, along with familial need for information and support that respects and values diverse cultures, values, beliefs and behaviors.
- Demonstrate basic knowledge of laws and regulations pertaining to and protecting children with disabilities and their families. Understand and identify the process of accessing community agencies, referral systems and procedures for specialized support, specialized documents, resources and placement options.
- Describe the typical child development milestones of children birth to adolescence and identify the strengths and special needs of the child in the context of his/her family, early childhood classroom, or early intervention setting.
- Describe the developmental assessment process and outline its role in identifying, planning and intervening for a child with special needs and his/her family, including the process of curriculum development.
- Demonstrate an understanding of the purpose and intent of an inclusive environment that supports the whole child while meeting the individual needs of children with disabilities.

| Required Courses (31 units) | | Units |
|-----------------------------|--|-------|
| EAR-20 | Child Growth and Development | 3 |
| EAR-24 | Introduction to Curriculum | 3 |
| EAR-28 | Principles and Practices of Teaching Young Children | 3 |
| EAR-33 | Caring for Infants and Toddlers in Group Settings | 3 |
| EAR-40 | Introduction to Infants and Children with Disabilities and Other Special Needs | 3 |
| EAR-41 | Internship in Early Intervention/Special Education | 4 |
| EAR-42 | Child, Family, and Community | 3 |
| EAR-43 | Children with Challenging Behaviors | 3 |
| Electives | (Choose from list below) | 6 |

| Electives (6 units) | | Units |
|---------------------|---|-------|
| EAR-19 | Observation and Assessment in Early Childhood Education | 3 |
| EAR-26 | Health, Safety and Nutrition | 3 |
| EAR-31 | Home Visiting | 3 |
| EAR-34 | Curriculum Activities for Infants and Toddlers | 3 |
| EAR-38 | Adult Supervision in ECE/CD Classrooms | 3 |
| EAR-44 | Administration Of Early Childhood Programs I | 3 |
| EAR-47 | Childhood Stress and Trauma | 3 |

Associate in Science Degree

The Associate in Science Degree in Early Childhood Intervention Assistant will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

The following certificates may lead to employment competency, but do not lead to an Associate in Science Degree:

EARLY CHILDHOOD EDUCATION (MNR) NCE795

ASSISTANT TEACHER

Certificate Program

Program Learning Outcomes

- Demonstrate an understanding of the theoretical perspectives in human development and education.
- Appraise the role of the child as an active learner.
- Integrate child growth and development into practical and meaningful applications.

Required Courses (6 units) Units

| Complete two courses from the list below: | | |
|---|---|---|
| EAR-20 | Child Growth and Development | 3 |
| EAR-24 | Introduction to Curriculum | 3 |
| EAR-28 | Principles and Practices of Teaching Young Children | 3 |
| EAR-42 | Child, Family, and Community | 3 |

EARLY CHILDHOOD EDUCATION / (MNR) NCE797

TWELVE CORE UNITS

Certificate Program

Program Learning Outcomes

- Demonstrate an understanding of the theoretical perspectives in human development and education.
- Appraise the role of the child as an active learner.
- Integrate child growth and development into practical and meaningful applications.

Required Courses (12 units) Units

| | | |
|--------|---|---|
| EAR-20 | Child Growth and Development | 3 |
| EAR-24 | Introduction to Curriculum | 3 |
| EAR-28 | Principles and Practices of Teaching Young Children | 3 |
| EAR-42 | Child, Family, and Community | 3 |

INFANT AND TODDLER SPECIALIZATION (MNR) NCE681

The Infant and Toddler Specialization certificate represents a composite of child development knowledge, skills, and responsibilities integral to working with children ages zero to three. Specific courses emphasize a responsive approach to the care and education of infants and toddlers in center-based programs and family child care homes.

Certificate Program

Program Learning Outcomes

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

- Identify the patterns of development for children ages zero to three in the areas of the physical, cognitive and psychosocial domains.
- Understand and implement health and safety practices in environmental concerns and in individual child cleansing and feeding routines.
- Create and maintain an environment of care and learning specific to young infants and newly mobile children.
- Select equipment and materials conducive to the physical, cognitive and psychosocial needs of infants and toddlers.

- Plan and implement a curriculum based on a blend of routine and play activities.
- Use observation to assess child development, curriculum success, and environmental standards of quality, and then implement program adjustments based on assessment outcomes.

| Required Courses (12 units) | | Units |
|-----------------------------|---|-------|
| EAR-20 | Child Development | 3 |
| EAR-33 | Caring for Infants and Toddlers in Group Settings | 3 |
| EAR-34 | Curriculum Activities for Infants and Toddlers | 3 |
| EAR-35 | Internship in Infant and Toddler Care | 3 |

ELECTRONICS TECHNOLOGY

This program prepares individuals to apply basic engineering principles and technical skills in support of electrical, electronics, and communication engineers. Includes instruction in electrical circuitry, prototype development and testing; systems analysis and testing, systems maintenance, instrument calibration, and report preparation.

ELECTRONICS TECHNOLOGY (N) NAS546/NCE546 Certificate Program

Program Learning Outcomes

Students will demonstrate proficiency sufficient to apply for and obtain entry-level employment in the field of electronics technology by completing a design and construction project that utilizes analog power and signal processing circuitry, as well as digital hardware and software, to perform specific tasks according to a project framework. As part of this project, students will include wireless, bidirectional communications, proper selection and use of measurement equipment, good test procedures, circuit analysis, simulation tools and troubleshooting techniques.

| Required Courses (28 units) | | Units |
|-----------------------------|--------------------------------------|-------|
| ELE-21 | DC-AC Electronics | 4 |
| ELE-23 | Electronics Devices and Circuits | 4 |
| ELE-25 | Digital Techniques | 4 |
| ELE-26 | Microprocessors and Microcontrollers | 4 |
| ELE/ENE-27 | Technical Communication | 3 |
| Electives | (Choose from list below) | 9 |

Electives (9 units)

| | | |
|-------------|---|-----|
| CIS/CSC-5 | Fundamentals of Programming Logic using C++ | 3 |
| CIS/CSC-17A | C++ Programming: Objects | 3 |
| CIS/CSC-17B | C++ Programming: Advanced Objects | 3 |
| ELE-22 | Passive Circuit Analysis | 3 |
| ELE-24 | Active Circuit Analysis | 3 |
| ELE-36 | Advanced Microprocessors | 4 |
| ELE-38 | Computer Systems Troubleshooting | 4 |
| ELE-39 | PCM and Digital Transmissions | 3 |
| ELE-40 | Fiber Optic Basics | 3 |
| ELE-200 | Electronics Work Experience | 1-4 |
| ENE-22 | Engineering Drawing | 3 |
| ENE-31 | Computer-Aided Drafting and Design | 3 |
| ENE-60 | Math for Engineering Technology | 3 |
| MAN-60 | Hydraulic and Pneumatic Systems | 3 |
| MAN-75A | Robotic Systems | 4 |

Associate in Science Degree

The Associate in Science Degree in Electronics Technology will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

Program Learning Outcomes

In addition to achieving the program learning outcomes for the electronics technology certificate program, students who complete the Associate in Science Degree in Electronics Technology will demonstrate proficiency in general education student learning outcomes and proficiency in subject matter student learning outcomes.

ENGINEERING TECHNOLOGY

This program generally prepares individuals to apply basic engineering principles and technical skills in support of engineers engaged in a wide variety of projects. This includes instruction in various engineering support functions for research, production, and operation, and application to specific engineering specialties. This discipline focuses on Engineering Technology, Mechanical Engineering and Civil Engineering (Engineering Technicians).

CIVIL ENGINEERING TECHNICIAN (N) NAS550/NCE550 Certificate Program

Program Learning Outcomes

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

- An ability to apply and integrate computer technology, such as Computer-Aided Drafting (CAD) and total station, in the field of civil engineering to qualify for entry-level position as a land surveyor and/or CAD technician.
- An ability to apply the problem solving process to create and present design solutions.

| Required Courses (27 units) | | Units |
|-----------------------------|-------------------------------|-------|
| ENE-1A | Plane Surveying I | 3 |
| ENE-1B | Plane Surveying II | 3 |
| ENE-21 | Drafting | 3 |
| ENE-22 | Engineering Drawing | 3 |
| ENE-30 | Computer-Aided Drafting (CAD) | 3 |
| MAT-35 | Intermediate Algebra | 5 |
| MAT-36 | Trigonometry | 4 |
| Electives | (Choose from list below) | 3 |

Electives (3 units)

| | | |
|--------|------------------------------------|---|
| ARE-24 | Architectural Drafting | 3 |
| ENE-23 | Descriptive Geometry | 3 |
| ENE-26 | Civil Engineering Drafting | 3 |
| ENE-31 | Computer-Aided Drafting and Design | 3 |

Associate in Science Degree

The Associate in Science Degree in Engineering Technician will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

Program Learning Outcomes

In addition to achieving the program learning outcomes for the engineering technician certificate program, students who complete the Associate in Science Degree in Engineering Technician will demonstrate proficiency in general education student learning outcomes and proficiency in subject matter student learning outcomes.

ENGINEERING TECHNOLOGY (N) NAS551

Associate in Science Degree

Program Learning Outcomes

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

- An ability to integrate computer technology in the field of Engineering Technology at a sufficient level for entry-level employment.
- Knowledge of engineering principles necessary for transfer to a four-year engineering institution.
- An ability to apply the problem solving process to create and present design solutions.

| Required Courses (32-34 units) | | Units |
|--------------------------------|-------------------------------|-------|
| ENE-21 | Drafting | 3 |
| ENE-22 | Engineering Drawing | 3 |
| ENE/ELE-27 | Technical Communication | 3 |
| ENE-30 | Computer Aided Drafting (CAD) | 3 |
| ELE-21 | DC-AC Electronics | 4 |
| MAT-11 | College Algebra | 4 |
| MAT-36 | Trigonometry | 4 |
| WEL-34 | Metal Joining Processes | 2 |
| Electives | (Choose from list below) | 6-8 |

Electives (6-8 units)

| | | |
|--------|--------------------------|---|
| CHE-2A | Introductory Chemistry I | 4 |
| ENE-23 | Descriptive Geometry | 3 |
| MAT-5 | Calculus, A Short Course | 4 |
| MAT-12 | Statistics | 3 |
| PHY-2A | General Physics I | 4 |

Associate in Science Degree

The Associate in Science Degree in Engineering Technology will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

Program Learning Outcomes

Students will demonstrate proficiency sufficient to apply for and obtain entry-level employment in the field of engineering technology by completing a portfolio, which may include sketches, Computer Aided Drafting (CAD), 3-D models, and rapid prototyping.

Students who complete the Associate in Science Degree in Engineering Technology will demonstrate proficiency in general education student learning outcomes and proficiency in subject matter student learning outcomes.

The following certificate may lead to employment competency, but does not lead to an Associate in Science Degree:

ENGINEERING GRAPHICS (N) NCE796

Certificate Program

Program Learning Outcomes

Students will demonstrate proficiency sufficient to apply for and obtain entry-level employment in the field of engineering by completing a portfolio, which may include sketches, Computer Aided Drafting (CAD), 3-D models, and rapid prototyping.

| Required Courses (9 units) | | Units |
|----------------------------|-------------------------------|-------|
| ENE-21 | Drafting | 3 |
| ENE-22 | Engineering Drawing | 3 |
| ENE-30 | Computer-Aided Drafting (CAD) | 3 |

GENERAL BUSINESS

See [BUSINESS ADMINISTRATION](#)

LOGISTICS MANAGEMENT

This program prepares individuals to manage business logistics functions, ranging from acquisitions to receiving and handling, through internal allocation of resources to operations units, and delivery to the final customer. This includes instruction in the domestic and international aspects of logistics contracts and purchasing, computerized logistics systems, inventory control, warehousing, transportation, and freight claims. Emphasis is placed on the efficient and effective integration of all logistics activities.

LOGISTICS MANAGEMENT (N) NAS579/NCE579

This program prepares students for entry into or career growth within the logistics industry, and ongoing study of the field. The focus is integrated logistics, a necessity for management of effective and efficient supply chains. Logistics disciplines covered include warehousing, transportation, service contracting, purchasing, global logistics, etc.

Certificate Program

Program Learning Outcomes

- Compare roles and objectives of the logistics disciplines;
- Understand how logistics functions can interact to efficiently use total personnel, facilities and equipment;
- Contribute knowledge needed by multidisciplinary teams to effectively integrate and exceed end user (customer) expectations;
- Analyze, prepare, file and process claims when unavoidable freight disputes arise;
- Explain how the overall flow of goods, services and information can be optimized to satisfy customer and business goals;
- Identify 3rd party logistics provider and client needs in negotiations, bidding and contracts, as well as legal and regulatory constraints to integrated logistics;
- Describe roles and value added by global logistics intermediaries.

| Required Courses (18 units) | | Units |
|-----------------------------|---------------------------------------|-------|
| BUS-80 | Principles of Logistics | 3 |
| BUS-82 | Freight Claims | 1.5 |
| BUS-83 | Contracts | 1.5 |
| BUS-85 | Warehouse Management | 3 |
| BUS-86 | Transportation and Traffic Management | 3 |
| BUS-87 | Introduction to Purchasing | 3 |
| BUS-90 | International Logistics | 3 |

Associate in Science Degree

The Associate in Science Degree in Logistics Management will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

Program Learning Outcomes

In addition to achieving the program learning outcome for the logistics management certificate program, students who complete the Associate in Science Degree in Logistics Management will demonstrate proficiency in general education student learning outcomes and proficiency in subject matter student learning outcomes.

MANAGEMENT

See [BUSINESS ADMINISTRATION](#)

MANUFACTURING TECHNOLOGY

This program prepares individuals to apply basic engineering principles and technical skills to the identification and resolution of production problems in the manufacture of products. This includes instruction in machine operations, production line operations, engineering analysis, systems analysis, instrumentation, physical controls, automation, computer-aided manufacturing (CAM), manufacturing planning, quality control, and informational infrastructure.

AUTOMATED SYSTEMS TECHNICIAN (N) **NAS737/NCE737**

Certificate Program

Program Learning Outcomes

Students will demonstrate proficiency sufficient to apply for and obtain entry-level employment in the field of automated systems by compiling a portfolio of their work, which may include sample parts accompanied by drawings and digital pictures.

| Required Courses (24 units) | | Units |
|-----------------------------|---|-------|
| ELE-10 | Survey of Electronics | 4 |
| ELE-26 | Microprocessors and Microcontrollers | 4 |
| ELE/ENE-27 | Technical Communications | 3 |
| ENE-51 | Blueprint Reading | 2 |
| ENE-60 | Math for Engineering Technology | 3 |
| MAC/MAN-55 | Occupational Safety and Health Administration (OSHA) Standards for General Industry | 2 |
| MAN-60 | Hydraulics and Pneumatic Systems | 3 |
| MAN/ELE-64 | Programmable Logic Controllers | 3 |

Associate in Science Degree

The Associate in Science Degree in Manufacturing Technology, Automated Systems Technician will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

Program Learning Outcomes

In addition to achieving the program learning outcomes for the automated systems technician certificate program, students who complete the Associate in Science Degree in manufacturing technology will demonstrate proficiency in general education student learning outcomes and proficiency in subject matter student learning outcomes.

The following certificate may lead to employment competency, but does not lead to an Associate in Science Degree:

COMPUTER-AIDED PRODUCTION TECHNOLOGY (N) **NCE799**

Certificate Program

Program Learning Outcomes

Students will demonstrate proficiency sufficient to apply for and obtain entry-level employment in the field of computer-aided production technology by completing the following: a Steam or Stirling Engine that involves parts using both the mill and lathe; a portfolio which may include printouts of Mastercam part file drawings, numerical code files, operation sheets, and writing assignment on occupational safety in the general industry.

| Required Courses (14-15 units) | | Units |
|--------------------------------|---|-------|
| ENE-51 | Blueprint Reading | 2 |
| ENE-60 | Math for Engineering Technology | 3 |
| MAN/MAC-55 | Occupational Safety and Health Administration (OSHA) Standards for General Industry | 2 |
| MAN/MAC-56 | CNC Machine Set-up and Operation | 4 |
| Electives | (Choose from list below) | 3-4 |
| Electives (3-4 units) | | |
| MAN-52 | Computer-Aided Manufacturing-Mastercam | 4 |
| MAN/MAC-57 | CNC Program Writing | 3 |
| MAN-59 | Computer-Aided Manufacturing-GibbsCAM | 4 |

MARKETING

See [BUSINESS ADMINISTRATION](#)

REAL ESTATE

See [BUSINESS ADMINISTRATION](#)

RETAIL MANAGEMENT/WAFC

This program prepares individuals to perform operations associated with retail sales in a variety of settings. This includes instruction in over-the counter and other direct sales operations in business settings, basic bookkeeping principles, customer service, team/staff leadership and supervision, floor management, and applicable technical skills.

RETAIL MANAGEMENT/WAFC (NR) NAS536/NCE536
(WESTERN ASSOCIATION OF FOOD CHAINS)

Certificate Program

Program Learning Outcomes

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

- Use Generally Accepted Accounting Principles or International Accounting Standards guidelines to review and interpret financial documents.
- Calculate pricing models for mark-ups, profit margins for perishable and lost goods, discounts, and sinking funds.
- Prepare and deliver effective oral and written communications through multiple modes in multiple situations.
- Create and use basic word processing documents, spread sheets and visual (power point) presentations.
- Create and present a research paper on selected topics.
- Effectively apply basic management principles to actual and role-played work situations.
- Analyze and assess the legal and productivity implications of work conflicts.
- Effectively communicate in small groups.
- Analyze the effectiveness of marketing decisions and use marketing principles to assess market potential.

| Required Courses (30 units) | | Units |
|-----------------------------|--|-------|
| ACC-1A | Principles of Accounting I | 3 |
| or | | |
| ACC/CAT-55 | Applied Accounting/Bookkeeping | 3 |
| BUS-20 | Business Mathematics | 3 |
| BUS-22 | Management Communications | 3 |
| CIS-1A | Introduction to Computer Information Systems | 3 |
| or | | |
| CIS/CAT/BUS-3 | Computer Applications for Business | 3 |
| COM-1/1H | Public Speaking | 3 |
| or | | |
| COM-9/9H | Interpersonal Communication | 3 |
| or | | |
| MAG-57 | Oral Communications | 3 |
| MAG-56 | Human Resources Management | 3 |
| MAG-44 | Principles of Management | 3 |
| or | | |
| MAG-51 | Elements of Supervision | 3 |
| MAG-53 | Human Relations | 3 |
| MKT-20 | Principles of Marketing | 3 |
| MKT-42 | Retail Management | 3 |

Associate in Science Degree

The Associate in Science Degree in Retail Management/WAFC will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

SIMULATION AND GAME DEVELOPMENT

GAME ART: 3D ANIMATION (N) NAS686/NCE686

The Game Art: 3D Animation program is designed to provide students with the knowledge and skills necessary for an entry level job in the video games industry and animation industry. Courses cover fundamental artistic preparation and animation principles, as well as industry-standard production tools and techniques. Students are provided a solid foundation in traditional and digital art techniques which are then applied to 3D animation applications. Students learn to plan, set-up, execute, fine tune, and finally import character animations into a game engine. The final course of this program is a capstone project where students work in an interdisciplinary team with students from the other tracks of the game development programs to create a complete, original game ready to publish. Students will complete the program with a polished portfolio. Classes are taught in state-of-the-art computer studios with the latest versions of industry-standard software packages. Students will be prepared to enter the field as a junior character animator, previsualization artist, layout artist, or concept artist.

Certificate Program

Program Learning Outcomes

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

- Create accurate, scaled, well-constructed character and environment drawings for use in traditional 2D animation, Flash animation, and storyboards.
- Demonstrate competent skill in 3D character animation including thoughtful application of the 12 principles of animation.
- Utilize character animation cycles effectively within a game engine including the use of forward and inverse kinematics.
- Demonstrate effective professional communication skills while working with colleagues in an industry standard production project.
- Create an industry standard portfolio and demo reel containing 3D animations developed in class projects.

| Required Courses (40 units) | | Units |
|-----------------------------|---|-------|
| ART-17 | Beginning Drawing | 3 |
| ART-44 | Animation | 3 |
| CIS-54A | Introduction to Flash | 3 |
| GAM-31 | Introduction to 3D Modeling | 3 |
| GAM-35 | Introduction to Simulation and Game Development | 3 |
| GAM-42 | Photoshop for Game Art and Animation | 3 |
| GAM-44 | Portfolio Production | 2 |
| GAM-47 | Introduction to 3D Animation | 3 |
| GAM-48 | 3D Character Animation | 3 |
| GAM-70 | Computer Skills for Game Art | 1 |
| GAM-71 | Perspective for Game and Animation | 3 |
| GAM-72 | Anatomy for Game Art | 3 |

| | | |
|--------|-------------------------|---|
| GAM-73 | Storyboarding for Games | 3 |
| GAM-79 | Game Studio Production | 4 |

Associate in Science Degree

The Associate in Science Degree in Game Art: 3D Animation will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

GAME ART: CHARACTER MODELING (N) NAS687/NCE687

The Game Art: Character Modeling program is designed to provide students with the knowledge and skills necessary for an entry level job in the video games industry and animation industry. Courses cover fundamental artistic skills, human and animal anatomy, character design, 3D modeling, and rigging a character for animation. The final course of this program is a capstone project where students work in an interdisciplinary team with students from the other tracks of the game development programs to create a complete, original game ready to publish. Students will complete the program with a polished portfolio. Classes are taught in state-of-the-art computer studios with the latest versions of industry-standard software packages. Students will be prepared to enter the field as a character modeler, environment modeler, lighting artist, or 3D artist.

Certificate Program Program Learning Outcomes

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

- Understand and utilize the production pipeline and workflow between Maya and ZBrush for modeling characters for use in Game, Animation and Simulation.
- Analyze and construct bipedal, quadruped and anthropomorphic character models for use in Game, Animation and Simulation.
- Utilize the industry standard techniques of Maya and ZBrush to create both low poly and high poly models for use in Game, Animation and Simulation.
- Produce industry quality character models that demonstrate a thorough understanding of anatomy and proportion as well as proper topology flow as it pertains to modeling characters for use in Game, Animation and Simulation.
- Analyze, differentiate, and construct character models that demonstrate an understanding of standard industry artistic styles such as hyper-realism, cartoony and stylized design.
- Demonstrate mastery of interdisciplinary communication and team skills while working with colleagues in an industry standard production project.
- Create an industry standard portfolio and demo reel containing 3D character models developed in class projects.

| Required Courses (37 units) | | Units |
|-----------------------------|---|-------|
| ART-17 | Beginning Drawing | 3 |
| GAM-31 | Introduction to 3D Modeling | 3 |
| GAM-32 | Designing Game Characters | 3 |
| GAM-33 | Advanced Digital Sculpting | 3 |
| GAM-34 | Character Rigging | 3 |
| GAM-35 | Introduction to Simulation and Game Development | 3 |
| GAM-42 | Photoshop for Game Art and Animation | 3 |
| GAM-44 | Portfolio Production | 2 |
| GAM-45 | Materials and Lighting | 3 |

| | | |
|--------|------------------------------------|---|
| GAM-70 | Computer Skills for Game Art | 1 |
| GAM-71 | Perspective for Game and Animation | 3 |
| GAM-72 | Anatomy for Game Art | 3 |
| GAM-79 | Game Studio Production | 4 |

Associate in Science Degree

The Associate in Science Degree in Game Art: Character Modeling will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

GAME ART: ENVIRONMENTS AND VEHICLES (N) NAS688/NCE688

The Game Art: Environments and Vehicles program is designed to provide students with the knowledge and skills necessary for an entry level job in the video games industry. Students completing the program will be well qualified to create large scale models including environments, props, and vehicles, as well as indoor and specialized enclosures in video game worlds. The final course of this program is a capstone project where students work in an interdisciplinary team with students from the other tracks of the game development programs to create a complete, original game ready to publish. Students will complete the program with a polished portfolio. Classes are taught in state-of-the-art computer studios with the latest versions of industry-standard software packages. Students will be prepared to enter the field as a 3D environments artist, prop modeler, level builder or junior modeler.

Certificate Program Program Learning Outcomes

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

- Employ the proper use of industry standard terminology to describe geometry and scenes in a 3D environment.
- Utilize both polygonal and nurbs modeling to create 3D hard surface and organic objects for use in game, animation and simulation environments.
- Create digital vehicles, terrains and environments to scale according to a specific art style direction containing aspects of realism, futuristic and fantasy based design and function.
- Demonstrate mastery of interdisciplinary communication and team skills while working with colleagues in an industry standard production project.
- Create an industry standard portfolio and demo reel containing 3D environments and vehicle models developed in class projects.

| Required Courses (31 units) | | Units |
|-----------------------------|---|-------|
| ART-17 | Beginning Drawing | 3 |
| GAM-31 | Introduction to 3D Modeling | 3 |
| GAM-35 | Introduction to Simulation and Game Development | 3 |
| GAM-42 | Photoshop for Game Art and Animation | 3 |
| GAM-44 | Portfolio Production | 2 |
| GAM-45 | Materials and Lighting | 3 |
| GAM-46 | Environment and Vehicle Modeling | 3 |
| GAM-49 | Game Modeling and Texturing | 3 |
| GAM-70 | Computer Skills for Game Art | 1 |
| GAM-71 | Perspective for Game and Animation | 3 |
| GAM-79 | Game Studio Production | 4 |



Associate in Science Degree

The Associate in Science Degree in Game Art: Environments and Vehicles will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

GAME AUDIO (N)

NAS684/NCE684

The Game Audio program is designed to provide students with the knowledge and skills necessary for an entry-level job in the video games industry or recording industry. Students will gain foundational skills in both the creative and technical side of game and multimedia audio design as well as an overview of the game industry. Courses cover fundamental skills in music, computer programming, recording, game development and sound design. Students will be prepared to enter the field as a sound designer, audio director, folio artist, composer, audio programmer or producer. The final course of this program is a capstone project with students from the other tracks of the game design program. Classes are taught in state-of-the-art facilities with the latest versions of industry-standard software packages.

Certificate Program

Program Learning Outcomes

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

- Understand the basic elements of game development and design including group working processes, game strategy, theory and gameplay.
- Diagram and describe the major elements of video games from its beginning through the present.
- Create multi-track MIDI and audio recordings utilizing basic and advanced editing techniques in Pro Tools.
- Create and implement audio assets for a video game utilizing industry-standard software, hardware, game engines and audio engine middleware.
- Create an industry-standard portfolio containing audio samples from class projects.
- Demonstrate professional communication skills effectively with colleagues in an industry production project.

| Required Courses (37 units) | | Units |
|-----------------------------|--|-------|
| CIS-5 | Fundamentals of Programming Logic Using C++ | 3 |
| GAM-21 | History of Video Games | 3 |
| GAM-35 | Introduction to Simulation and Game Development | 3 |
| GAM-44 | Portfolio Productions | 2 |
| GAM-79 | Game Studio Production | 4 |
| MUC-3 | Introduction to Pro Tools: MIDI and Audio Production | 3 |
| MUC-4 | Intermediate Pro Tools: 110 | 3 |
| MUC-5 | Sound Design I | 3 |
| MUC-6 | Sound Design II | 3 |
| MUC-8 | Composing Music for Video Games | 3 |
| MUS-3 | Music Fundamentals | 4 |
| Electives | Choose from the list below | 3 |

Electives (3 units)

| | | |
|--------|-------------------------------------|---|
| GAM-22 | Game Design Principles | 3 |
| MUC-9 | Voice Acting and Dialogue for Games | 3 |

Associate in Science Degree

The Associate in Science Degree in Game Audio will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

GAME DESIGN (N)

NAS685/NCE685

Students completing the Game Design program will be well qualified in the game design process, including game design documentation, standard game design techniques and tools for rapid prototyping including both non-digital and digital methods. Students will be prepared to enter the field as an independent designer, assistant producer, or junior level designer. The final course of this program is a capstone project where students work in an interdisciplinary team with students from the other tracks of the game development programs to create a complete, original game ready to publish. Students will complete the program with a polished portfolio and be prepared to enter the workforce.

Certificate Program

Program Learning Outcomes

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

- Apply the principles of theoretically sound game design including gameplay, core mechanics, game balancing, and iterative rapid prototyping to produce both non-digital and digital original games.
- Create a comprehensive game design document which facilitates team management including communication, milestones/ deadlines and responsiveness.
- Develop content that contributes to a milestone based studio pipeline.
- Demonstrate mastery of interdisciplinary communication and team skills while working with colleagues in an industry standard production project.
- Create an industry standard portfolio containing game design projects and documents developed in class projects.

| Required Courses (30 units) | | Units |
|-----------------------------|---|-------|
| GAM-21 | History of Video Games | 3 |
| GAM-22 | Game Design Principles | 3 |
| GAM-23 | Digital Game Design | 3 |
| GAM-35 | Introduction to Simulation and Game Development | 3 |
| GAM-37 | Beginning Level Design for Computer Games | 3 |
| GAM-44 | Portfolio Production | 2 |
| GAM-79 | Game Studio Production | 4 |
| Electives | Choose from the list below | 9 |

| Elective Courses (9 units) | | Units |
|----------------------------|---|-------|
| CIS-5 | Fundamentals of Programming Logic Using C++ | 3 |
| CIS-17A | C++ Programming: Objects | 3 |
| GAM-31 | Introduction to 3D Modeling | 3 |
| GAM-42 | Photoshop for Game Art and Animation | 3 |
| GAM-47 | Introduction to 3D Animation | 3 |

Associate in Science Degree

The Associate in Science Degree in Game Design will be awarded upon completion of the degree requirements, including general education and other graduation requirements as described in the college catalog.

GAME ART CORE (N)**NCE855**

Students completing the Game Art Core will have a broad background in art concepts and digital media and an overview of the games industry. Foundational skills prepare the student to focus on the advanced courses in one or more concentration areas: Environments and Vehicles, Character Modeling and/or 3D Animation.

Certificate Program**Program Learning Outcomes**

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

- Navigate a computer operating system and utilize standard file management techniques such as creating, naming, copying, and saving files and folders and backing up files.
- Demonstrate competency in traditional illustration techniques through the creation of perspective and still life drawings.
- Demonstrate appropriate use of industry standard terminology and understand the game industry's primary production processes.
- Create and manipulate simple 3D models and assets which are ready to import into game engines or simulations.

| Required Courses (16 units) | | Units |
|-----------------------------|---|-------|
| GAM-31 | Introduction to 3D Modeling | 3 |
| GAM-35 | Introduction to Simulation and Game Development | 3 |
| GAM-42 | Photoshop for Game Art and Animation | 3 |
| GAM-70 | Computer Skills for Game Art | 1 |
| GAM-71 | Perspective for Game and Animation | 3 |
| ART-17 | Beginning Drawing | 3 |

