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CERTIFICATES/ DEGREES MODIFICATIONS

**AMERICAN SIGN LANGUAGE
ASSOCIATE IN ARTS**

The American Sign Language (ASL) Program at Cerritos College is an interdisciplinary program that fosters an awareness of the Deaf community and cultural awareness. The program consist of study goals that takes students with little or no knowledge of ASL and Deaf Culture and provides them with the skills needed to communicate comfortably in a wide variety of situations in the Deaf community.

<u>Core Requirements: (19 units)</u>		<u>Units</u>
ASL 110	American Sign Language I	4.0
ASL 111	American Sign Language II	4.0
ASL 210	American Sign Language III	4.0
ASL 211	American Sign Language IV	4.0
ASL 220	Deaf Culture	3.0

Total Degree Requirements: 19.0

Associate in Arts Degree Requirements:

Meet the requirements above and complete General Education courses to achieve a minimum of 60 units.

**APPRENTICESHIP: FIRE SPRINKLERS
CERTIFICATE OF ACHIEVEMENT**

The Certificate of Achievement Apprenticeship: Fire Sprinklers will prepare the student to become a journeyman in the field of fire sprinklers with the required skills in hand and power tools; construction plans; steel pipe; copper tube systems and underground pipe. In today's workforce having an industry certificate and journeyman license is required for employment in these positions. In addition, these workforce skills are necessary to maintain well-paying and sustainable jobs. The certificate takes the student through four levels of expertise.

FSAP 72.01	Introduction to Sprinklers	0.5
FSAP 72.02	Fire Sprinklers Hand and Power Tools	0.5
FSAP 72.03	Fire Sprinklers Construction Plans	0.5
FSAP 72.04	Fire Sprinklers Steel Pipe	1.0
FSAP 72.05	Fire Sprinklers CPVC	0.5
FSAP 72.06	Fire Sprinklers Copper Tube Systems	0.5
FSAP 72.07	Fire Sprinklers Underground Pipe	1.0
FSAP 72.08	Fire Sprinklers Residential	2.5
FSAP 72.09	Fire Sprinklers Supports and Attachments	0.5
FSAP 72.10	Fire Sprinklers Flanged, Grooved, and Plain End Pipe	0.5
FSAP 72.11	Fire Sprinklers General Trade Math	1.0
FSAP 72.12	Fire Sprinklers Shop Drawings	1.5
FSAP 72.13	Standard Spray Fire Sprinklers	1.5
FSAP 72.14	Fire Sprinklers Wet Pipe Systems	1.0
FSAP 72.15	Fire Sprinklers Dry Pipe Systems	1.0
FSAP 72.16	Fire Sprinklers Preaction and Deluge	2.0
FSAP 72.17	Fire Sprinklers Standpipes	1.0
FSAP 72.18	Fire Sprinklers Water Supplies	0.5
FSAP 72.19	Fire Sprinklers Fire Pumps	2.0
FSAP 72.20	Specific Sprinklers and Nozzles Application	1.5
FSAP 72.21	Fire Sprinklers System Layout	2.5
FSAP 72.22	Fire Sprinklers Inspection, Testing, and Maintenance	1.0
FSAP 72.23	Fire Sprinklers Extinguishing Systems	2.5
FSAP 72.24	Fire Sprinklers Foremanship	1.0
FSAP 72.25	Fire Sprinklers Procedures and Documentation	1.0
Total		29 Units

**BUSINESS ADMINISTRATION
ASSOCIATE IN SCIENCE DEGREE IN BUSINESS ADMINISTRATION FOR TRANSFER (AS-T)**

This coursework prepares majors for an Associate in Science Degree in Business Administration for transfer. The AS-T is for seamless transfer to a CSU. It also prepares students for college work in upper division Business courses at the four-year institution.

REQUIRED CORE (15-17 units)

ACCT 101	Fundamentals of Accounting I	4
ACCT 102	Fundamentals of Accounting II	4
ECON 202M	Principles of Microeconomics	3
ECON 201M	Principles of Macroeconomics	3
BA 113	Legal Environment of Business	3
OR		
LAW 110	Business Law	3

LIST A (Select 1 course) 3-4 units

MATH 116	Calculus for Managerial, Biological and Social Sciences	4
MATH 112	Elementary Statistics	4
MATH 115	Finite Mathematics	4

LIST B (Select 2 courses) 6 units

Any course from List A not already used		3-4
CIS 101	Introduction to Computer Information Systems	3
BA 100	Fundamentals of Business	3
BCOT 247	Business Communication for Managers	3

Total Units for the Major: 27/28

Associate in Science Degree in Business Administration for Transfer Requirements:

Complete the following (1) 60 semester or 90 quarter CSU-transferable units (2). The California State University-General Education-Breadth pattern (CSU GE-Breadth); or the Intersegmental General Education Transfer Curriculum (IGETC) pattern (3) A minimum of 18 semester or 27 quarter units in the major or area of emphasis as determined by the community college district (4) Obtainment of a minimum grade point average (GPA) of 2.0 (5) Earn a grade of "C" or better in all courses required for the major or area of emphasis.

**BUSINESS ADMINISTRATION
CERTIFICATE OF ACHIEVEMENT**

DIVISION/DEPARTMENT REQUIREMENTS (15 UNITS)		UNITS
BA 113	Legal Environment of Business	3
or LAW 111	Business Law	(3)
BA 114	Marketing	3
or ECON 201*	Principles of Macroeconomics	(3)
BA 115	Management-Business	3
BA 120	Management-Accounting and Internal Control	3
or ACCT 100*	Introduction to Accounting	(3)
BA 205	Organizational Leadership	3
or BA 208*	Leadership for Women in Business	(3)

BUSINESS ESSENTIAL COURSES: (9-9.5 UNITS)

BA 100	Fundamentals of Business	3
BA 132	Computer Applications for Managers	3
or CIS 101*	Introduction to Computer Information Systems	(3)
or BCOT 114	Introduction to Microsoft Office	(3.5)
BA 156	Motivational Presentation Skills for Managers	3
or SPCH 100*	Fundamentals of Oral Communication	(3)
or SPCH 130*	Fundamentals of Speaking	(3)
or BCOT 148	Effective Business Presentations	(3)
or BCOT 247*	Managerial Business Communications	(3)

TOTAL CERTIFICATE REQUIREMENTS: 24-24.5

ASSOCIATE IN ARTS DEGREE REQUIREMENTS

By substituting classes with (*), you can meet both Certificate of Achievement and the AA Degree requirements.

Certificate of Achievement – Complete the Business Essential courses (9-9.5) and Department Requirements (15 units) with a grade of “C” or higher.

Associate in Arts Degree Requirements – Students must meet the Math, Reading, Writing, and Health and Wellness Proficiencies, complete the required Certificate of Achievement classes listed above and the requirements for the Associate in Arts Degree under Plan A, B, or C. Students must earn a 2.0 grade point average and earn a grade of “C” or higher in major/emphasis courses.

Plan A: To obtain a Plan A Associates in Arts Degree, complete the Business Administration Certificate of Achievement classes, the General Education (GE) requirements (18 units) for Plan A (Degree and/or Career Option) in the Cerritos College Catalog, 9 units (not used above) from the following classes: ACCT 101, BA 101, BA 104, BA 108, BA 109, BA 110, BA 113, BA 116, BA 121, BA 124, BA 125, BA 126, BA 152, BA 153, BA 155, BA 156, BA 173, BA 204, BA 205, BA 208, BA 233, ECON 201, or ECON 201M, ECON 202 or ECON 202M, any additional courses to reach a minimum of 60 degree applicable units.

Plan B: To obtain a Plan B Associates in Arts Degree, complete the Business Administration Certificate of Achievement classes, the General Education (GE) requirement for Plan B (CSU) in the Cerritos College Catalog, and any additional courses to reach a minimum of 60 degree applicable units.

Plan C: To obtain a Plan C Associates in Arts Degree, complete the Business Administration of Certificate of Achievement classes, the General Education (GE) requirements for Plan C Intersegmental General Education Transfer Curriculum (IGETC) for transfer to UC and CSU in the Cerritos College Catalog, and any additional courses to reach a minimum of 60 degree applicable units.

**BUSINESS MANAGEMENT
CERTIFICATE OF ACHIEVEMENT**

DIVISION/DEPARTMENT REQUIREMENTS (15 UNITS)		UNITS
BA 101	International Business	3
or BA 116	Managing Green: Sustainability and Innovation	(3)
or BA 155	Introduction to Global Logistics	(3)
or BA 204	Project Management	(3)
BA 113	Legal Environment of Business	3
or LAW 111	Business Law	(3)
BA 114	Marketing	3
BA 115	Management-Business	3
BA 120	Management-Accounting and Internal Control	3
or ACCT 100*	Introduction to Accounting	(3)
BUSINESS ESSENTIAL COURSES: (9-9.5 UNITS)		
BA 100	Fundamentals of Business	3
BA 132	Computer Applications for Managers	3
or CIS 101*	Introduction to Computer Information Systems	(3)
or BCOT 114	Introduction to Microsoft Office	(3.5)
BA 156	Motivational Presentation Skills for Managers	3
or SPCH 100*	Fundamentals of Oral Communication	(3)
or SPCH 130*	Fundamentals of Speaking	(3)
or BCOT 148	Effective Business Presentations	(3)
or BCOT 247*	Managerial Business Communications	(3)
TOTAL CERTIFICATE REQUIREMENTS		24-24.5

ASSOCIATE IN ARTS DEGREE REQUIREMENTS

By substituting classes with (*), you can meet both Certificate of Achievement and the AA Degree requirements.

Certificate of Achievement – Complete the Business Essential courses (9-9.5) and Department Requirements (15 units) with a grade of “C” or higher.

Associate in Arts Degree Requirements – Students must meet the Math, Reading, Writing, and Health and Wellness Proficiencies, complete the required Certificate of Achievement classes listed above and the requirements for the Associate in Arts Degree under Plan A, B, or C. Students must earn a 2.0 grade point average and earn a grade of “C” or higher in major/emphasis courses.

Plan A: To obtain a Plan A Associates in Arts Degree, complete the Business Management Certificate of Achievement classes, the General Education (GE) requirements (18 units) for Plan A (Degree and/or Career Option) in the Cerritos College Catalog, 9 units (not used above) from the following classes: ACCT 101, BA 101, BA 104, BA 108, BA 109, BA 110, BA 116, BA 121, BA 124, BA 125, BA 126, BA 153, BA 155, BA 173, BA 204, BA 205, BA 208, BA 233, ECON 201, or ECON 201M, ECON 202 or ECON 202M, any additional courses to reach a minimum of 60 degree applicable units.

Plan B: To obtain a Plan B Associates in Arts Degree, complete the Business Management Certificate of Achievement classes, the General Education (GE) requirement for Plan B (CSU) in the Cerritos College Catalog, and any additional courses to reach a minimum of 60 degree applicable units.

Plan C: To obtain a Plan C Associates in Arts Degree, complete the Business Management of Certificate of Achievement classes, the General Education (GE) requirements for Plan C Intersegmental General Education Transfer Curriculum (IGETC) for transfer to UC and CSU in the Cerritos College Catalog, and any additional courses to reach a minimum of 60 degree applicable units.

**BUSINESS MARKETING
CERTIFICATE OF ACHIEVEMENT**

DIVISION/DEPARTMENT REQUIREMENTS (15 UNITS)		UNITS
BA 101	International Business	3
or BA 155	Introduction to Global Logistics	(3)
BA 110	Advertising	3
BA 114	Marketing	3
BA 121	Sales	3
BA 157	Principles of Public Relations	3
or JOUR 157	Principles of Public Relations	(3)
BUSINESS ESSENTIAL COURSES: (9-9.5 units)		
BA 100	Fundamentals of Business	3
BA 132	Computer Applications for Managers	3
or CIS 101*	Introduction to Computer Information Systems	(3)
or BCOT 114	Introduction to Microsoft Office	(3.5)
BA 156	Motivational Presentation Skills for Managers	3
or SPCH 100*	Fundamentals of Oral Communication	(3)
or SPCH 130*	Fundamentals of Speaking	(3)
or BCOT 148	Effective Business Presentations	(3)
or BCOT 247*	Managerial Business Communications	(3)
 TOTAL CERTIFICATE REQUIREMENTS		 24-24.5

ASSOCIATE IN ARTS DEGREE REQUIREMENTS

By substituting classes with (*), you can meet both Certificate of Achievement and the AA Degree requirements.

Certificate of Achievement – Complete the Business Essential courses (9-9.5) and Department Requirements (15 units) with a grade of “C” or higher.

Associate in Arts Degree Requirements – Students must meet the Math, Reading, Writing, and Health and Wellness Proficiencies, complete the required Certificate of Achievement classes listed above and the requirements for the Associate in Arts Degree under Plan A, B, or C. Students must earn a 2.0 grade point average and earn a grade of “C” or higher in major/emphasis courses.

Plan A: To obtain a Plan A Associates in Arts Degree, complete the Business Marketing Certificate of Achievement classes, the General Education (GE) requirements (18 units) for Plan A (Degree and/or Career Option) in the Cerritos College Catalog, 9 units (not used above) from the following classes: ACCT 101, BA 101, BA 104, BA 108, BA 109, BA 116, BA 121, BA 124, BA 125, BA 126, BA 152, BA 153, BA 155, BA 157, BA 173, BA 204, BA 205, BA 208, BA 233, ECON 201, or ECON 201M, ECON 202 or ECON 202M, any additional courses to reach a minimum of 60 degree applicable units.

Plan B: To obtain a Plan B Associates in Arts Degree, complete the Business Marketing Certificate of Achievement classes, the General Education (GE) requirement for Plan B (CSU) in the Cerritos College Catalog, and any additional courses to reach a minimum of 60 degree applicable units.

Plan C: To obtain a Plan C Associates in Arts Degree, complete the Business Marketing of Certificate of Achievement classes, the General Education (GE) requirements for Plan C Intersegmental General Education Transfer Curriculum (IGETC) for transfer to UC and CSU in the Cerritos College Catalog, and any additional courses to reach a minimum of 60 degree applicable units.

**INTERNATIONAL BUSINESS
CERTIFICATE OF ACHIEVEMENT**

DIVISION/DEPARTMENT REQUIREMENTS (15 UNITS)		UNITS
BA 101	International Business	3
BA 102	International Business Law	3
or BA 113	Legal Environment of Business	(3)
or LAW 111	Business Law	(3)
BA 114	Marketing	3
BA 120	Management-Accounting and Internal Control	3
or ACCT 100*	Introduction to Accounting	(3)
BA 152	Fundamentals of Importing and Exporting	3
or BA 155	Introduction to Global Logistics	(3)

BUSINESS ESSENTIAL COURSES: (9-9.5 UNITS)

BA 104	Managing Cultural Diversity	3
BA 132	Computer Applications for Managers	3
or CIS 101*	Introduction to Computer Information Systems	(3)
or BCOT 114	Introduction to Microsoft Office	(3.5)
BA 156	Motivational Presentation Skills Managers	3
or SPCH 100*	Fundamentals of Oral Communication	(3)
or SPCH 130*	Fundamentals of Speaking	(3)
or BCOT 247*	Managerial Business Communications	(3)

TOTAL CERTIFICATE REQUIREMENTS: 24-24.5

ASSOCIATE IN ARTS DEGREE REQUIREMENTS

By substituting classes with (*), you can meet both Certificate of Achievement and the AA Degree requirements.

Certificate of Achievement – Complete the Business Essential courses (9-9.5) and Department Requirements (15 units) with a grade of “C” or higher.

Associate in Arts Degree Requirements – Students must meet the Math, Reading, Writing, and Health and Wellness Proficiencies, complete the required Certificate of Achievement classes listed above and the requirements for the Associate in Arts Degree under Plan A, B, or C. Students must earn a 2.0 grade point average and earn a grade of “C” or higher in major/emphasis courses.

Plan A: To obtain a Plan A Associates in Arts Degree, complete the International Business Certificate of Achievement classes, the General Education (GE) requirements (18 units) for Plan A (Degree and/or Career Option) in the Cerritos College Catalog, 9 units (not used above) from the following classes: ACCT 101, BA 100, BA 104, BA 108, BA 109, BA 110, BA 116, BA 121, BA 124, BA 125, BA 126, BA 152, BA 153, BA 155, BA 173, BA 204, BA 205, BA 208, BA 233, ECON 201, or ECON 201M, ECON 202 or ECON 202M, any additional courses to reach a minimum of 60 degree applicable units.

Plan B: To obtain a Plan B Associates in Arts Degree, complete the International Business Certificate of Achievement classes, the General Education (GE) requirement for Plan B (CSU) in the Cerritos College Catalog, and any additional courses to reach a minimum of 60 degree applicable units.

Plan C: To obtain a Plan C Associates in Arts Degree, complete the International Business of Certificate of Achievement classes, the General Education (GE) requirements for Plan C Intersegmental General Education Transfer Curriculum (IGETC) for transfer to UC and CSU in the Cerritos College Catalog, and any additional courses to reach a minimum of 60 degree applicable units.

**RETAIL MANAGEMENT
CERTIFICATE OF ACHIEVEMENT**

DIVISION/DEPARTMENT REQUIREMENTS (15 UNITS)		UNITS
BA 106	Human Resource Management	3
BA 114	Marketing	3
BA 115	Management-Business	3
or BA 205	Organizational Leadership	(3)
or BA 208*	Leadership for Women in Business	(3)
BA 120	Management-Accounting and Internal Control	3
or ACCT 100*	Introduction to Accounting	(3)
BA 118	Retail Management	3
or BA 123	Fundamentals of Retailing	3

BUSINESS ESSENTIAL COURSES: (9-9.5 UNITS)

BA 107	Human Relations in Business	3
BA 132	Computer Applications for Managers	3
or CIS 101*	Introduction to Computer Information Systems	(3)
or BCOT 114	Introduction to Microsoft Office	(3.5)
BA 156	Motivational Presentation Skills for Managers	3
or SPCH 100*	Fundamentals of Oral Communication	(3)
or SPCH 130*	Fundamentals of Speaking	(3)
or BCOT 148	Effective Business Presentations	(3)
or BCOT 247*	Managerial Business Communications	(3)

TOTAL CERTIFICATE REQUIREMENTS: 24-24.5

ASSOCIATE IN ARTS DEGREE REQUIREMENTS

By substituting classes with (*), you can meet both Certificate of Achievement and the AA Degree requirements.

Certificate of Achievement – Complete the Business Essential courses (9-9.5) and Department Requirements (15 units) with a grade of “C” or higher.

Associate in Arts Degree Requirements – Students must meet the Math, Reading, Writing, and Health and Wellness Proficiencies, complete the required Certificate of Achievement classes listed above and the requirements for the Associate in Arts Degree under Plan A, B, or C. Students must earn a 2.0 grade point average and earn a grade of “C” or higher in major/emphasis courses.

Plan A: To obtain a Plan A Associates in Arts Degree, complete the Retail Management Certificate of Achievement classes, the General Education (GE) requirements (18 units) for Plan A (Degree and/or Career Option) in the Cerritos College Catalog, 9 units (not used above) from the following classes: ACCT 101, BA 100, BA 101, BA 104, BA 108, BA 109, BA 110, BA 116, BA 121, BA 124, BA 125, BA 126, BA 152, BA 153, BA 155, BA 173, BA 204, BA 205, BA 208, BA 233, ECON 201, or ECON 201M, ECON 202 or ECON 202M, any additional courses to reach a minimum of 60 degree applicable units.

Plan B: To obtain a Plan B Associates in Arts Degree, complete the Retail Management Certificate of Achievement classes, the General Education (GE) requirement for Plan B (CSU) in the Cerritos College Catalog, and any additional courses to reach a minimum of 60 degree applicable units.

Plan C: To obtain a Plan C Associates in Arts Degree, complete the Retail Management of Certificate of Achievement classes, the General Education (GE) requirements for Plan C Intersegmental General Education Transfer Curriculum (IGETC) for transfer to UC and CSU in the Cerritos College Catalog, and any additional courses to reach a minimum of 60 degree applicable units.

**SMALL BUSINESS MANAGEMENT/ ENTREPRENEURSHIP
CERTIFICATE OF ACHIEVEMENT**

DIVISION/DEPARTMENT REQUIREMENTS (15 UNITS)		UNITS
BA 113	Legal Environment of Business	3
or LAW 111	Business Law	(3)
BA 114	Marketing	3
BA 115	Management-Business	3
or BA 117	Introduction to Supervision	(3)
BA 120	Management-Accounting and Internal Control	3
or ACCT 100*	Introduction to Accounting	(3)
BA 153	Small Business Management	3

BUSINESS ESSENTIAL COURSES: (9-9.5 UNITS)

BA 106	Human Resource Management	3
BA 132	Computer Applications for Managers	3
or CIS 101*	Introduction to Computer Information Systems	(3)
or BCOT 114	Introduction to Microsoft Office	(3.5)
BA 156	Motivational Presentation Skills for Managers	3
or SPCH 100*	Fundamentals of Oral Communication	(3)
or SPCH 130*	Fundamentals of Speaking	(3)
or BCOT 148	Effective Business Presentations	(3)
or BCOT 247*	Managerial Business Communications	(3)

TOTAL CERTIFICATE REQUIREMENTS: 24-24.5

ASSOCIATE IN ARTS DEGREE REQUIREMENTS

By substituting classes with (*), you can meet both Certificate of Achievement and the AA Degree requirements.

Certificate of Achievement – Complete the Business Essential courses (9-9.5) and Department Requirements (15 units) with a grade of “C” or higher.

Associate in Arts Degree Requirements – Students must meet the Math, Reading, Writing, and Health and Wellness Proficiencies, complete the required Certificate of Achievement classes listed above and the requirements for the Associate in Arts Degree under Plan A, B, or C. Students must earn a 2.0 grade point average and earn a grade of “C” or higher in major/emphasis courses.

Plan A: To obtain a Plan A Associates in Arts Degree, complete the Small Business Management/Entrepreneurship Certificate of Achievement classes, the General Education (GE) requirements (18 units) for Plan A (Degree and/or Career Option) in the Cerritos College Catalog, 9 units (not used above) from the following classes: ACCT 101, BA 100, BA 101, BA 104, BA 106, BA 108, BA 109, BA 110, BA 116, BA 121, BA 124, BA 125, BA 126, BA 152, BA 153, BA 155, BA 173, BA 204, BA 205, BA 208, BA 233, ECON 201, or ECON 201M, ECON 202 or ECON 202M, any additional courses to reach a minimum of 60 degree applicable units.

Plan B: To obtain a Plan B Associates in Arts Degree, complete the Small Business Management/Entrepreneurship Certificate of Achievement classes, the General Education (GE) requirement for Plan B (CSU) in the Cerritos College Catalog, and any additional courses to reach a minimum of 60 degree applicable units.

Plan C: To obtain a Plan C Associates in Arts Degree, complete the Small Business Management/Entrepreneurship Certificate of Achievement classes, the General Education (GE) requirements for Plan C Intersegmental General Education Transfer Curriculum (IGETC) for transfer to UC and CSU in the Cerritos College Catalog, and any additional courses to reach a minimum of 60 degree applicable units.

CLIENT-SIDE WEB PAGE DEVELOPMENT CERTIFICATE OF ACHIEVEMENT

Upon completion of the client-side Web page development certificate of achievement, students will be able to use their newly-learned skills to gain entry-level jobs, and use the certificate for professional growth, salary increases, job promotions, or career changes in the area of information technology.

DIVISION/DEPARTMENT REQUIREMENTS:	UNITS
CIS 103 Computer Programming Logic	3.5
or CIS 180 Programming in C/C++	(3)
or CIS 183 Programming in Java	(3)
CIS 160 Web Page Development	3.5
CIS 162 HTML and CSS	3.5
CIS 164 JavaScript Programming	3.5
ART 192 PhotoShop/Digital Imaging	3

TOTAL CERTIFICATE OF ACHIEVEMENT REQUIREMENTS: 16.5-17

COMPUTER AND INFORMATION SCIENCES - SYSTEMS ANALYST CERTIFICATE OF COMPLETION

Upon completion of the systems analyst certificate of completion students will be able to use their newly learned skills to gain entry-level jobs and use the certificate for professional growth, salary increases, job promotions, or career changes in the area of information technology. The path is: 1) certificate of completion, and 2) certificate of achievement.

DIVISION/DEPARTMENT REQUIREMENTS		UNITS
CIS 103	Computer Programming Logic	3.5
CIS 162	HTML and CSS	3.5
or CIS 180	Programming in C/C++	(3)
or CIS 183	Java Programming	(3)
CIS 201	Systems Analysis and Design	3
CIS 202A	Project Management for Information Technology	3.5
CIS 202B	Microsoft Project	3.5

TOTAL CERTIFICATE OF COMPLETION REQUIREMENTS: 16.5-17

The systems analyst certificate of completion prepares students to gain entry-level jobs and use the certificate for professional growth, salary increases, job promotions, or career changes in the area of information technology. The path is: 1) certificate of completion, and 2) certificate of achievement.

Career opportunities include entry level positions in all types of business and governmental organizations in the information technology and support departments. Common job titles are:

- Systems Analyst, Junior
- Technical Support
- Business Systems Analyst, Junior
- Microcomputer Support Analyst
- Programmer/Analyst, Junior

**COSMETOLOGY
CERTIFICATE OF ACHIEVEMENT**

		Units
COS 60A	Introductory Cosmetology I	10.0
COS 60B	Introductory Cosmetology II	10.0
or COS 70A	Introductory Cosmetology	(8.0)
COS 61A	Intermediate Cosmetology I	10.0
and COS 61B	Intermediate Cosmetology II	10.0
or COS 70B	Intermediate Cosmetology	(8.0)
or COS 54	Introductory Esthetician	10
and COS 54A	Advanced Esthetician	10
MINIMUM UNITS REQUIRED		38-40

**CYBERSECURITY
CERTIFICATE OF ACHIEVEMENT**

Upon completion of the Cybersecurity Certificate of Achievement students will be able to use their newly learned skills to gain entry level jobs, use the certificate for professional growth, salary increases, job promotions or career changes in the area of information security/assurance.

DIVISION/DEPARTMENT REQUIREMENTS:		UNITS
REQUIRED COURSES		
CIS 103	Computer Programming Logic	3.5
CIS 170A	Networking Fundamentals	3.5
CIS 170H	TCP/IP Fundamentals	3.0
CIS 170L	Cybersecurity Fundamentals	3.5
CIS 170P	Introduction to Ethical Hacking	3.5
CIS 170R	Computer and Digital Forensics	3.5
CIS 213F	Microsoft Windows Server Administration	3.5
CIS 214	Unix	3.5
Choose 3.5 units from the following courses:		
CIS 170S	Network Defense	3.5
CIS 170I	Cisco Network Security	3.5
TOTAL CERTIFICATE REQUIREMENTS:		31.0

**CYBERSECURITY
ASSOCIATE OF SCIENCE**

The program is designed to prepare students for the high growth profession – information security, by offering training on the cutting-edge skills and knowledge sought by the industry, aiming to provide students opportunities for career change or advancement.

Graduates of the program will have a comprehensive understanding of the current security challenges in the cyberspace, and will be equipped with the knowledge and skills needed to help design and implement policies and systems able to support a dependable organization's information infrastructure.

Possible career opportunities include entry level cybersecurity analyst, cybersecurity specialist, and cybersecurity engineer, etc.

DIVISION/DEPARTMENT REQUIREMENTS: REQUIRED COURSES		UNITS
CIS 103	Computer Programming Logic	3.5
CIS 170A	Networking Fundamentals	3.5
CIS 170H	TCP/IP Fundamentals	3.0
CIS 170L	Cybersecurity Fundamentals	3.5
CIS 170P	Introduction to Ethical Hacking	3.5
CIS 170R	Computer and Digital Forensics	3.5
CIS 213F	Microsoft Windows Server Administration	3.5
CIS 214	Unix	3.5

Choose 3.5 units from the following courses:

CIS 170S	Network Defense	3.5
CIS 170I	Cisco Network Security	3.5

TOTAL CERTIFICATE REQUIREMENTS: 31.0

ASSOCIATE OF SCIENCE DEGREE REQUIREMENTS

Complete a minimum of 60 units to include (1) the above course requirements, (2) A.S. Degree General Education requirements, and (3) electives as needed.

**ENGINEERING DESIGN AND PRODUCTION TECHNOLOGY
CERTIFICATE OF ACHIEVEMENT**

Graduates of the ENGT program from Cerritos College find their work in such diverse areas as designing components for tooling and production systems for spaceships and medical devices / artificial organs to designing oil refineries equipment, robots, manufacturing systems, automotive and general merchandise products.

Required Courses	Units
ENGT 116 Blueprint Reading	2.0
ENGT 117 Geometrical Dimensioning and Tolerancing	2.0
ENGT 131 Design Fundamentals Including AutoCAD	3.0
ENGT 237 Statics and Strength of Materials	3.0
MTT 62 Fixture Tooling	2.0
MTT 68 Computer-Assisted Inspection Using Verisurf	2.0
NPD 103 Tooling and Materials for New Product Development	3.0
NPD 105 Mechatronics Integration in New Product Development	3.0
PMT 100 Plastics Technology	2.5
[ENGT 259 SolidWorks	(4.0)
and ENGT 260 Advanced Modeling Using SolidWorks	(4.0)]
[or ENGT 257 Advanced Modeling Using Inventor	(4.0)
and ENGT 103 Introduction to Engineering Design Using Inventor	(3.0)]
[or ENGT 138 AutoCAD	(4.0)
and ENGT 153 Machine Design Applications Using Solid Modeling	(3.0)]
 Total Certificate	 29.5-30.5

RECOMMENDED ELECTIVES: ENGT 104, Principles of Aerospace Design Technology or ENGT 105, Product Design, Development, and Prototype Fabrication or ENGT 258, Design and Production technology Using Solid Modeling

(Students that take the ENGT 259 and ENGT 260 will take a total of 30.5 units. Students that take ENGT 257 and ENGT 103 OR ENGT 138 and ENGT 153 will take a total of 29.5 units)

**ENGINEERING DESIGN TECHNOLOGY
CERTIFICATE OF ACHIEVEMENT**

**RECOMMENDED HIGH SCHOOL PREPARATION:
ONE YEAR ALGEBRA, ONE YEAR OF MECHANICAL DRAFTING**

	UNITS
ENGT 103 Introduction to Engineering Design Using Inventor	3
ENGT 116 Blueprint Reading	2
ENGT 117 Geometrical Dimensioning and Tolerancing	2
ENGT 131 Design Fundamentals Including AutoCAD	3
ENGT 133 Sheet Metal Layout and Applications Using Solid Modeling	2
ENGT 138 AutoCAD	4
ENGT 153 Machine Design Applications Using Solid Modeling	3
ENGT 237 Statics and Strength of Materials	3
PMT 100 Plastics Technology	2.5
TOTAL CERTIFICATE REQUIREMENTS	24.5

ENGINEERING DESIGN AND PRODUCTION TECHNOLOGY OPTION

Above courses required plus

	UNITS
ENGT 258 Design and Production Technology Using Solid Modeling	4
ENGT 265 CATIA I	4
and ENGT 266 CATIA II	4
or ENGT 259 SolidWorks	(4)
and ENGT 260 Advanced Modeling Using SolidWorks	(4)
or ENGT 257 Advanced Modeling Using Inventor	(4)
and PMT 72 Tooling for Plastics	(2.5)
TOTAL CERTIFICATE REQUIREMENTS	36.5 (35)

ASSOCIATE IN ARTS DEGREE REQUIREMENTS

Meet the above requirements as listed for the Certificate of Achievement in Engineering Design and Production. A student must also complete electives and A.A. Degree General Education requirements to achieve a minimum of 60 units.

RECOMMENDED ELECTIVES: MFGT 51, MFGT 100, MTT 100, BA 117, MATH 60.

See Cerritos College Graduation requirements.

**ENGINEERING TECHNOLOGY
ASSOCIATE OF ARTS DEGREE**

The Engineering Technology program prepares students for transfer to Engineering Technology programs at a four-year university and for employment in technical fields. By completing the certificate, students acquire knowledge of the fundamentals of engineering technology and are able to specialize in one of three options. The first option is Electrical and Electronic Engineering Technology, the second option is Mechanical Engineering Technology and the third option is Industrial Engineering Technology. Careers in engineering technology involve assisting engineers in researching, developing, manufacturing, servicing, and maintaining a wide variety of products.

Engineering Technology Certificates of Achievement are available under three options: Electrical and Electronic Engineering Technician, Mechanical Engineering Technician, and Industrial Engineering Technician. The basic core courses must be taken for all three certificate options:

***Upon completion of the Certificate of Achievement requirements along with the Associate of Arts Degree Requirements, students will receive an Associate of Arts Degree in Engineering Technology.**

ENGINEERING TECHNOLOGY BASIC CORE COURSES		Units
ET 93L	Process Control Laboratory	1.0
ET 101	Principles of Engineering Technology	3.0
ET 102	Electronics for Engineering Technologists	3.0
ET 103	Industrial Process Control	<u>2.0</u>
		9.0
ELECTRICAL AND ELECTRONIC ENGINEERING TECHNICIAN		
ET 91L	Engineering Technology Project Laboratory	1.0
ET 104	Engineering Technology Project Development	1.0
ET 105	Industrial Motor Control	2.0
ENGT 103	Introduction to Engineering Design Using Inventor	3.0
MTT 180	Robotics for Computer Numerically Controlled Machines	<u>3.0</u>
		19.0
MECHANICAL ENGINEERING TECHNICIAN		
ENGT 103	Introduction to Engineering Design Using Inventor	3.0
MTT 100	Machine Tool Introduction	2.0
MTT 180	Robotics for Computer Numerically Controlled Machines	3.0
NPD 104	Programmable Logic Controllers in New Product Development	3.0
PMT 50	Survey of Hydraulics and Pneumatics	1.5
PMT 100	Plastics Technology	2.5
WELD 100	Welding Fundamentals	2.5
WMT 101	Introduction to Woodworking	<u>3.0</u>
		29.5
INDUSTRIAL ENGINEERING TECHNICIAN		
ET 91L	Engineering Technology Project Laboratory	1.0
ET 104	Engineering Technology Project Development	1.0
ET 105	Industrial Motor Control	2.0
NPD 104	Programmable Logic Controllers in New Product Development	3.0
NPD 106	Safety in New Product Development	<u>2.0</u>
		18.0

ASSOCIATE OF ARTS DEGREE REQUIREMENTS:

Complete 60 units to include (1) the above requirements for a Certificate of Achievement; (2) MATH 140; (3) the Associate of Arts Degree General Education requirements; and (4) electives as needed.

***Upon completion of the Certificate of Achievement requirements along with the Associate of Arts Degree Requirements, students will receive an Associate of Arts Degree in Engineering Technology.**

**FILM PRODUCTION
ASSOCIATE IN ARTS**

CAREER OPPORTUNITIES:

Producer	Production Manager
Director	Assistant Director
Production Assistant	Storyboard Artist
Location Manager/Scout	Casting Director
Camera Operator	Assistant Camera Operator
Lighting Director (Gaffer)	Director of Photography/Cinematographer
Grip	Prop Master
Art Fabrication (making fake props)	Set Dresser
Hair & Makeup Artist	Script Supervisor
Wardrobe Stylist	Costumer
Food Stylist	Music Composer
Editor	Post-Production Supervisor

**ASSOCIATE IN ARTS DEGREE REQUIREMENTS
TOTAL OF 30 UNITS**

COMPLETE 12 CORE UNITS		UNITS
FILM 101	Motion Picture Production	3
FILM 102	Television Production	3
FILM 104	Digital and Motion Picture Cinematography	3
FILM 107	Motion Picture Editing	3

PLUS A MINIMUM OF 18 UNITS FROM THE FOLLOWING

ART 114	Storyboarding & Graphic Novel Illustration	3
ART 192	Photoshop/Digital Imaging	3
ART 193	Motion Picture Editing	3
FILM 103	TV Commercial & PSA Production	3
FILM 159	World Film	3
FILM 160	Great Film Directors	3
FILM 241 or	Screenwriting	3
ENGL 241	Screenwriting	(3)
FILM 256	Documentary & Reality TV Production	3
FILM 271	Music Video Production	3
FILM 293	Advanced Motion Picture Editing	3
FILM 294	Advanced Motion Picture Production	3
FILM 298	Directed Studies	1
FILM 299	Directed Studies	2
MUS 100	Music Appreciation	3
MUS 104B	History of Rock Music	3
PHOT 100	Introductory Photography	3
PHOT 110	Intro to Digital Photo	3
PHOT 160	History of Photography	3
TH 150	Appreciation & History of Motion Pictures	3
TH 151 or	Motion Pictures/Radio & TV	3
RTV 151	Motion Pictures/Radio & TV	(3)

ASSOCIATE IN ARTS DEGREE REQUIREMENTS

Complete a minimum of 60 units to include (1) the above courses and units, (2) AA Degree General Education requirements, and (3) electives as needed.

**NEW PRODUCT DEVELOPMENT
 AUTOMOTIVE AFTERMARKET PRODUCT DEVELOPMENT OPTION
 ASSOCIATE IN SCIENCE**

The New Product Development (NPD) program at Cerritos College addresses the competencies needed for technicians in the fields of automotive aftermarket, and professional, scientific, and technical service companies of Southern California. Particular emphasis is either on Automotive Aftermarket Product Development and New Product Development and Fabrication.

The program goals are multiple. The first goal is to provide students with the academic preparation needed for a career in the automotive aftermarket industries or other industries using similar technology. Students can do that by learning the program objectives from the set of classes that will allow them to take a virtual new product idea to market. Another goal of the program is to enable current students to get a double competency (3D inspection/NPD, Machining/NPD, Auto/NPD, Welding/NPD, Plastics/NPD, and Engineering Design/NPD). Finally the last goal of the program is to provide continuous learning opportunities for industry employees. This in turn will provide industry with a framework of classes to further employee development and/or provide validation of professional experience and a path to an AA degree for current employees.

CAREER OPPORTUNITIES: Design Modeler, Automotive Stylist, Fabrication Craftsman

PROGRAM REQUIREMENTS

NPD 100	Product Development in a Global Economy	3.0
NPD 101	Innovation Using Rapid Prototyping	3.0
NPD 103	Advanced Tooling and Materials for New Product Development	3.0
NPD 105	Mechatronics Integration in New Product Development	3.0
AUTO 100	Automotive Maintenance and Operation	4.0
or AB 51	Non-Structural Repair	(4.5)
NPD 108	Human Man Interfaces in New Product Development	2.0

18.0 (18.5)

ASSOCIATE IN SCIENCE DEGREE REQUIREMENTS: Completion of a minimum of 60 semester units to include (1) the courses listed above, (2) the associate in science degree general education requirements, and (3) a grade of "C" or better in all courses required by major.

RECOMMENDED ELECTIVES: MTT 177 – Advanced Gibbscam (2.5), MTT 278 – Mastercam Advanced (3.5), PMT 221 - Modelmaking (2.5), WELD 130 – Gas Tungsten Arc Welding Fundamentals (5.0), WMT 111L - Introduction to Woodworking Lab (1.0)

**NEW PRODUCT DEVELOPMENT
NEW PRODUCT DEVELOPMENT AND FABRICATION OPTION
ASSOCIATE IN SCIENCE**

Students in this option will focus their studies to the development of new or modified designs for the industries other than automotive. Students need to have a basic understanding of the electronic and robotic requirements of many new products and take classes to gain that familiarity. Students are also required to take an engineering technology project development class. Students then proceed to take classes to allow them to both finalize their product design and obtain quotations. Other classes in the associate in science requirements are product development related.

The program goals are multiple. The first goal is to provide students with the academic preparation needed for a career in the automotive aftermarket industries or other industries using similar technology. Students can do that by learning the program objectives from the set of classes that will allow them to take a virtual new product idea to market. Another goal of the program is to enable current students to get a double competency (3D inspection/NPD, Machining/NPD, Auto/NPD, Welding/NPD, Plastics/NPD, and Engineering Design/NPD). Finally the last goal of the program is to provide continuous learning opportunities for industry employees. This in turn will provide industry with a framework of classes to further employee development and/or provide validation of professional experience and a path to an AA degree for current employees.

CAREER OPPORTUNITIES: Design Modeler, Automotive Stylist, Fabrication Craftsman

PROGRAM REQUIREMENTS

NPD 100	Product Development in a Global Economy	3.0
NPD 101	Innovation Using Rapid Prototyping	3.0
NPD 103	Advanced Tooling and Materials for New Product Development	3.0
ENGT 116	Blueprint Reading	2.0
ET 102	Electronics for Engineering Technologists	3.0
NPD 104	Programmable Logic Controllers in New Product Development	3.0
NPD 108	Human Man Interfaces in New Product Development	2.0
ET 104	Engineering Technology Project Development	1.0
MTT 180	Robotics for Computer Numerically Controlled Machines	3.0
		18.0

ASSOCIATE IN SCIENCE DEGREE REQUIREMENTS: Completion of a minimum of 60 semester units to include (1) the courses listed above, (2) the associate in science degree general education requirements, and (3) a grade of "C" or better in all courses required by major.

RECOMMENDED ELECTIVES: MTT 177 – Advanced Gibbscam (2.5), MTT 278 – Mastercam Advanced (3.5), PMT 221 – Modelmaking (2.5), WELD 130 – Gas Tungsten Arc Welding Fabrication (5.0), WMT 111L – Introduction to Woodworking Lab (1.0).

**PARALEGAL
ASSOCIATE IN ARTS DEGREE (Minimum of 33 units required)**

<u>Section A — Paralegal Core Requirements for AA Degree Candidates:</u>		UNITS
LAW 56	Introduction to Computerized Legal Software	3.0
LAW 100*	Introduction to California Civil Procedures	3.0
LAW 101	Introduction to Law	3.0
LAW 102*	Advanced California Civil Procedures	3.0
or LAW 113*	Fundamentals of Alternate Dispute Resolutions	(3.0)
LAW 103*	Legal Research	3.0
LAW 111	Business Law	3.0
LAW 120*	Legal Ethics	3.0
LAW 290*	Capstone Course — Paralegal Program	1.0
Total Requirements for Section A		22.0

Section B — Elective Courses

Select an additional 11.0 units from the courses listed below in section B, six of which must be courses marked with an asterisk (*). If either LAW 102 or LAW 103 is applied in Section A, the same course cannot be applied to Section B.

LAW 52	Law Office Management	3.0
LAW 57	Law Document Production	3.0
LAW 65	Advanced Legal Technology	3.0
LAW 102*	Advanced California Civil Procedures	3.0
LAW 104*	Advanced Legal Research	3.0
LAW 105*	Introduction to Federal & California Employment, Labor, & Workers' Compensation Law	3.0
LAW 106*	Bankruptcy Law	3.0
LAW 107*	Probate Procedures	3.0
LAW 108*	Family Law Procedures	3.0
LAW 109*	Torts & Personal Injury Law and Procedures	3.0
LAW 110	Business Law	3.0
LAW 112*	Estate Planning for the Paralegal	3.0
LAW 113*	Fundamentals of Alternate Dispute Resolutions	3.0
LAW 114	Law on the Internet	3.0
LAW 115*	Elder Law	3.0
LAW 116*	Criminal Law	3.0
LAW 119	Legal Aspects of Mass Communications	1.0
LAW 171-174*	Legal Occupational Work Experience	1.0-4.0
LAW 220*	Landlord & Tenant Law	3.0
LAW 150*	Intellectual Property Law	3.0
LAW 260*	Immigration Law	3.0
Total Requirements:		33.0

*Denotes legal specialty courses. The ABA requires a minimum of 18 units of legal specialty courses for AA degree candidates.

AA Degree Candidates must complete a total of 22.0 units of Core Requirements, 6.0 units of Legal Specialty courses designated by an (*) in Section "B", and a minimum 5.0 units of any other courses from Section "B".

Complete the 33.0 units for the major listed above, General Education requirements and additional degree-applicable electives as needed to total a minimum of 60 units. No course may be taken as "Credit by Exam."

This program is approved by the American Bar Association (ABA)

Department Recommendation: It is strongly recommended that all graduates who wish to be assisted with job placement through the Law department complete LAW 171-174 Legal Occupational Work Experience with a letter of recommendation from their employer.

Note: Paralegal means a person who holds himself or herself out to be a paralegal, who is qualified by education, training, or work experience, who either contracts with or is employed by an attorney, law firm, corporation, government agency, or other entity, and who performs substantial legal work under the direction and supervision of an active member of the State Board of California. A paralegal shall not provide legal advice or engage in conduct that constitutes the unauthorized practice of law (Business & Professional Code Section 6450).

The Legal Minor does not prepare students for a career as a Paralegal and is not approved by the American Bar Association.

**PHYSICAL EDUCATION
ASSOCIATE IN ARTS**

An Associate in Arts degree in Physical Education provides students with an introductory knowledge of the fundamental principles of Physical Education, Physical Activity, Sport, and Exercise as well as the application of these principles to overall health, wellness, and quality of life. Students also may gain knowledge leading to employment in parks and recreation, fitness, and coaching. Additionally the degree provides the skills necessary to pursue upper division coursework at a four-year level and the courses are consistent with the transfer requirements.

ASSOCIATE IN ARTS DEGREE REQUIREMENTS

In order to qualify for an A.A. degree in Physical Education the following requirements must be met:

- 1) Completion of the A.A. degree general education and proficiency requirements;
- 2) Completion of a minimum of 60 degree applicable units;
- 3) Completion of at least 25 units of physical education coursework from the following;

a. Required Core Courses	16/20/22	Units
b. Required Activity Courses	6	Units
c. Required PE Elective Courses	3	Units

See Cerritos College Graduation Requirements.

REQUIRED CORE COURSES	UNITS
KIN 100 Introduction to Kinesiology	3
KIN 102 Introduction to Athletic Training	3
KIN 104 Fitness and Wellness	3
HED 110 Community First Aid and CPR	3
A&P 120 Introduction to Human Anatomy and Physiology	4
or A&P 150 Introduction to Human Anatomy	(4)
and A&P151 Introduction to Human Physiology	(4)
or A&P 200 Human Anatomy	(5)
and A&P 201 Human Physiology	(5)

(A&P 150 & 151 or A&P 200 & AP 201 recommended for transfer students)

REQUIRED ACTIVITY COURSES (6 Units)

Activity courses must include at least 1 (one) unit from each of the following 5 (five) areas, for a total of 6 (six) units.

(1) Aerobic Fitness

PEX 102 Adapted Cardiovascular Exercise	1
PEX 110 Aerobic Activities	1.5
PEX 111 Low Impact Aerobics	1.5
PEX 112 Step Aerobics	1.5
PEX 116 Water Aerobics	1
PEX 118 Triathlon Basics	1
PEX 119 Basic Training and Physical Conditioning	1
PEX 124 Personal Fitness Program	1
PEX 126 Physical Fitness Training	1.5
PEX 132 Indoor Cycling	1
PEX 138 Walking for Fitness	1
PEX 139 Walking/Jogging for Fitness	1
PEX 140 Jogging, Basics	1
PEX 141 Jogging for Fitness, Beginning	1
PEX 240 Jogging for Fitness, Intermediate	2

(2) Fitness

PEX 103	Adapted Strength Training	1
PEX 104	Adapted Stretching and Relaxation	1
PEX 130	Weight Management	1
PEX 134	Body Sculpting	1
PEX 136	Stretch and Relaxation	1
PEX 145	Circuit Weight Training, Beginning	1
PEX 151	Yoga	1
PEX 152	Restorative Yoga	1
PEX 155	PiYo: Introduction to Pilates and Yoga	1
PEX 156	Pilates Conditioning	1
PEX 157	Pilates Conditioning for Dancers	1
PEX 245	Circuit Weight Training, Intermediate/Advanced	2
PEX 246	Olympic Weights-Power Lifting	2

(3) Aquatics

PEX 105	Adapted Swimming	1
PEX 184	Swimming, Novice	1
PEX 185	Swimming, Beginning	1
PEX 186	Water Polo	2
PEX 284	Swimming, Intermediate	2
PEX 285	Swimming, Advanced	2

(Participation in Intercollegiate Swimming or Water Polo will satisfy this requirement)

(4) Team Activities

PEX 101	Wheelchair Activities	1
PEX 107	Adapted Team Sports	1
PEX 163	Baseball, Beginning	1
PEX 165	Basketball, Novice	1
PEX 166	Basketball, Beginning	1
PEX 172	Flag Football	1
PEX 177	Futsal – Indoor Soccer	1
PEX 178	Soccer, Beginning	1
PEX 181	Softball, Beginning	1
PEX 191	Volleyball, Introduction	1
PEX 192	Volleyball, Beginning	1
PEX 263	Baseball, Intermediate/Advanced	2
PEX 265	Basketball, Intermediate	2
PEX 266	Basketball, Advanced	2
PEX 272	Football, Intermediate/Advanced	2
PEX 278	Soccer, Intermediate/Advanced	2
PEX 281	Softball, Intermediate/Advanced	2
PEX 282	Competitive Slow Pitch Softball	1
PEX 291	Volleyball, Intermediate	2
PEX 292	Volleyball, Advanced	2

(Participation in Intercollegiate Athletics excluding swimming and water polo will fulfill this requirement)

(5) Individual Activities

PEX 100	Sedentary Activities for Students with Disabilities	1
PEX 108	Adapted Individual Sports	1
PEX 147	Personal Self Defense	1
PEX 149	Tae Kwon Do, Beginning	1
PEX 161	Badminton, Beginning	1
PEX 167	Bowling, Beginning	1
PEX 176	Golf, Beginning	1

PEX 188	Tennis, Introduction	1
PEX 189	Tennis, Beginning	1
PEX 194	Wrestling	1
PEX 249	Tae Kwon Do, Intermediate/Advanced	2
PEX 261	Badminton, Intermediate/Advanced	2
PEX 267	Bowling, Intermediate/Advanced	2
PEX 276	Golf, Intermediate/Advanced	2
PEX 288	Tennis, Intermediate	2
PEX 289	Tennis, Advanced	2
DANC 105	Introduction to Dance Movement	3
DANC 106A	Beginning Ballet	2
DANC 106B	Intermediate Ballet	2
DANC 108A	Dance, Modern, Beginning	2
DANC 108B	Dance, Modern, Intermediate	2
DANC 108C	Dance, Modern, Advanced	2
DANC 109	Introduction to Dance Cultures of the World	2
DANC 110	Commercial Dance	2
DANC 112	Dance, Contemporary Modern	2
DANC 121	Latin Social Dance	2
DANC 122	Middle Eastern Dance	2
DANC 123	African Dance	2
DANC 124	Introduction to Hip Hop Dance	2
DANC 125	Introduction to Ballroom Dance	2
DANC 126	Hip Hop Dance Trends	2

PE ELECTIVE COURSES (3 Units Minimum)

KIN 120	Sports Officiating for Football	1
KIN 121	Sports Officiating for Men's and Women's Basketball	1
KIN 122	Sports Officiating for Baseball	1
KIN 123	Sports Officiating for Men's and Women's Track & Field	1
KIN 130	Theory of Coaching	3
KIN 106	Student Athlete in Society	2
KIN 131	Theory of Coaching Baseball	2
KIN 132	Theory of Coaching Softball	2
KIN 108	Women in Sports	3
KIN 200	Sports Psychology	3
KIN 202	Measurement and Interpretation of Fitness	3
KIN 203	Programs and Principles of Conditioning	3
KIN 206	Athletic Injury Assessment and Reconditioning	2
KIN 207	Athletic Injury Taping, Bandaging & Immobilization	1
KIN 211	Sport Management	3
HED 200	Nutrition for Health, Fitness and Physical Conditioning	3
DANC 100	Dance Appreciation	3
DANC 101	History of Dance	3
DANC 132	Dance and Digital Technology	3

RECOMMENDED GENERAL EDUCATION ELECTIVES

PSYC 101	General Introduction to Psychology	3
HED 100	Contemporary Health Problems	3
SOC 101	Introductory Sociology Principles	3

**WOODWORKING MANUFACTURING TECHNOLOGY – CABINETMAKING
CERTIFICATE OF ACHIEVEMENT**

WMT Basic Core Courses		UNITS
WMT 151	Introduction to Faceframe Cabinetmaking	4
WMT 153	32mm System of Cabinetmaking	4
WMT 155	Architectural Millwork	4
WMT 181	Introduction to Computer Operations for Cabinetmaking and Design	3
or WMT 185	AlphaCAM for CNC Woodworking	(3)
WMT 250	Intermediate Faceframe Cabinetmaking	4
or WMT 252	Intermediate 32mm System Cabinetmaking	(4)
WMT 268	Production Cabinetmaking A or C	5
Choose from the following for four to seven (4-7) units:		
WMT 80	Running a Woodworking Business	3
WMT 102	Introduction to Solid Wood Casegoods	4
WMT 107	Wood Finishing	3
WMT 144	Jigs and Fixtures	2
WMT 157	Passage Door	4
WMT 159	Solid Surface Fabrication	4
WMT 184	Vectric Aspire for CNC Woodworking	3
WMT 186	CNC Router for Woodworking	3
WMT 189L	CNC Woodworking Lab	1
WMT 201	Woodworking with Hand Tools	4
WMT 203	Wood Veneering	4
WMT 285	Intermediate AlphaCAM for CNC Woodworking	3
WMT 286	Intermediate CNC Router for Woodworking	3
WMT 287	5-Axis CNC Woodworking	3
WMT 289L	Intermediate CNC Woodworking Lab	1
Total Certificate Units		28-31

RECOMMENDED ELECTIVES:

WMT 80	Running A Woodworking Business	3
WMT 203	Wood Veneering	4
WMT 258	Mantels and Wall Systems	4

The Department of Woodworking Manufacturing Technologies provides students with high quality woodworking education leading to job opportunities in the wood industry. Vocational programs in both cabinetmaking and furniture making are offered. Certificates and degrees are available in General Woodworking, Cabinetmaking, and Furniture Making.

The Cabinetmaking program option prepares students for employment in the woodworking industry, primarily in cabinet shops. Through courses focusing on different forms cabinetmaking including casegoods, faceframe, and CNC, students learn how to use traditional woodworking machinery and hand tools as well as CNC machines. Core topics include CNC and cabinetmaking as well as design. Electives include wood finishing, veneering, and running a woodworking business. Graduates are employed as cabinet makers, general woodworkers, CNC operators, or are self-employed. Spatial intelligence, cognitive ability, and hand-eye coordination are recommended for those entering the program.

**WOODWORKING MANUFACTURING TECHNOLOGY – CABINETMAKING
ASSOCIATE OF ARTS**

WMT Basic Core Courses		UNITS
WMT 151	Introduction to Faceframe Cabinetmaking	4
WMT 153	32mm System of Cabinetmaking	4
WMT 155	Architectural Millwork	4
WMT 181	Introduction to Computer Operations for Cabinetmaking and Design	3
or WMT 185	AlphaCAM for CNC Woodworking	(3)
WMT 250	Intermediate Faceframe Cabinetmaking	4
or WMT 252	Intermediate 32mm System Cabinetmaking	(4)
WMT 268	Production Cabinetmaking A or C	5

Choose from the following for four to seven (4-7) units:

WMT 80	Running a Woodworking Business	3
WMT 102	Introduction to Solid Wood Casegoods	4
WMT 107	Wood Finishing	3
WMT 144	Jigs and Fixtures	2
WMT 157	Passage Door	4
WMT 159	Solid Surface Fabrication	4
WMT 184	Vectric Aspire for CNC Woodworking	3
WMT 186	CNC Router for Woodworking	3
WMT 189L	CNC Woodworking Lab	1
WMT 201	Woodworking with Hand Tools	4
WMT 203	Wood Veneering	4
WMT 285	Intermediate AlphaCAM for CNC Woodworking	3
WMT 286	Intermediate CNC Router for Woodworking	3
WMT 287	5-Axis CNC Woodworking	3
WMT 289L	Intermediate CNC Woodworking Lab	1
Total Certificate Units		28-31

ASSOCIATE OF ARTS DEGREE REQUIREMENTS

Complete a minimum of 60 units to include the above Certificate of Achievement requirements, the Associate of Arts Degree requirements, and electives as needed.

RECOMMENDED ELECTIVES:

WMT 80	Running A Woodworking Business	3
WMT 203	Wood Veneering	4
WMT 258	Mantels and Wall Systems	4

The Department of Woodworking Manufacturing Technologies provides students with high quality woodworking education leading to job opportunities in the wood industry. Vocational programs in both cabinetmaking and furniture making are offered. Certificates and degrees are available in General Woodworking, Cabinetmaking, and Furniture Making.

The Cabinetmaking program option prepares students for employment in the woodworking industry, primarily in cabinet shops. Through courses focusing on different forms cabinetmaking including casegoods, faceframe, and CNC, students learn how to use traditional woodworking machinery and hand tools as well as CNC machines. Core topics include CNC and cabinetmaking as well as design. Electives include wood finishing, veneering, and running a woodworking business. Graduates are employed as cabinet makers, general woodworkers, CNC operators, or are self-employed. Spatial intelligence, cognitive ability, and hand-eye coordination are recommended for those entering the program.

NON-CREDIT CERTIFICATE OF COMPETENCY IN ADVANCED ENGLISH AS A SECOND LANGUAGE

The Non-Credit Certificate of Competency in Advanced English as a Second Language is designed for students successfully transitioning from the AED High Intermediate English as a Second Language course and for students who assess with moderate to high English language skills. English listening, speaking, reading, and writing will be taught using an integrated skills approach with the main objective being to help students advance in fluency and proficiency. Special emphasis will be placed on effective communication, and on developing critical thinking skills to prepare students for success in High Advanced ESL courses, success in GED courses, and success in their community and in their workplace.

DEPARTMENT REQUIREMENTS

REQUIRED CORE

AED 42.16 ESL Low Intermediate

AED 42.17 ESL High Intermediate

AED 42.18 ESL Low Advanced English as a Second Language

CAREER OPPORTUNITIES:

In today's workforce having a fluency in the English language is essential. The certificate in Advanced English as a Second Language will provide the English language competency skills to continue their education and obtain high school equivalency and/or continue in higher education programs.

Career Pathways:

The Non-Credit Certificate of Competency in Advanced English as a Second Language will prepare the student to transition to mainstream programs at the college and secure their continued success. This will allow them to obtain the necessary skills to enter certificate programs, pursue AA or transfer degrees.

COURSE MODIFICATIONS

AED 42.18

LOW ADVANCED ENGLISH AS A SECOND LANGUAGE 0.0 UNIT

Class hours: 6.0 Lecture

This course is designed for students successfully transitioning from the AED High Intermediate English as a Second Language course and for students who assess with moderate to high English language skills. English listening, speaking, reading and writing will be taught using an integrated skills approach with the main objective being to help students advance in fluency and proficiency. Special emphasis will be placed on effective communication, on developing critical thinking skills to prepare students for success in High Advanced ESL courses, success in GED courses and success in their community and in their workplace.

FSAP 72.01

INTRODUCTION TO SPRINKLERS 0.5 UNIT

Class hours: 0.7 Lecture/0.1 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course will introduce apprentices to sprinkler fitter career opportunities and typical work environments. Trade-specific safety hazards will be examined as well as shop plans specific to the sprinkler fitting industry. Workplace safety, material handling, and common tools will also be introduced. The course will review the characteristics of common sprinkler heads, state the important characteristics of aboveground pipe, including wall thickness and joining methods.

FSAP 72.02

FIRE SPRINKLERS HAND AND POWER TOOLS 0.5 UNIT

Class hours: 0.6 Lecture/0.1 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course will introduce apprentices to hand and power tools that are widely used in the construction industry, such as hammers, saws, levels, pullers, clamps, drills, power saws, grinders, and sanders. Specific applications of each tool and how to use them properly will be covered and demonstrated. Important safety and maintenance issues related to hand and power tools will also be reviewed.

FSAP 72.03

FIRE SPRINKLERS CONSTRUCTION PLANS 0.5 UNIT

Class hours: 0.6 Lecture/0.1 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course will familiarize apprentices with basic terms for construction drawings, components, and symbols. This course explains the different types of drawings (civil, architectural, structural, mechanical, plumbing/piping, electrical, and fire protection) and instructs apprentices on how to interpret and use drawing dimensions.

FSAP 72.04

FIRE SPRINKLERS STEEL PIPE 1.0 UNIT

Class hours: 1.3 Lecture/0.3 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course will cover steel piping materials along with tools used to cut and thread steel pipe. This course also describes methods for threading, cutting and grooving pipe, including how to determine pipe length between fittings (takeouts). Discusses threaded, plain-end, and flanged fittings. The course will also review grooved pipe and fittings including installation techniques.

FSAP 72.05

FIRE SPRINKLERS CPVC 0.5 UNIT

Class hours: 0.6 Lecture/0.1 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course describes handling and storing of CPVC pipe. CPVC safety concerns and cautions will be covered as well as methods and tools for cutting, chamfering, and cleaning CPVC pipe. Joining techniques are described, particularly the solvent-cement (one-step) method. Rules for using plastic pipe hangers are explained.

FSAP 72.06

FIRE SPRINKLERS COPPER TUBE SYSTEMS 0.5 UNIT

Class hours: 0.6 Lecture/0.1 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

Students will be introduced to copper tubing and fittings along with cutting and bending tools. The soldering process is described along with techniques for measuring, cutting, reaming and cleaning. Brazing is described as are brazing metals, fluxes and brazing equipment. Support bracing for copper tube is discussed as are grooved couplings for copper pipe.

FSAP 72.07

FIRE SPRINKLERS UNDERGROUND PIPE 1.0 UNIT

Class hours: 1 Lecture/0.2 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course will review the types and properties of soil required when installing fire sprinklers underground. Guidelines and methods are presented for digging trenches and for making them safe. Underground piping installations are detailed for various types of pipe. Thrust blocks and restraints are explained, in-building risers, hydrants, yard valves and hydrant houses are discussed, as are testing, inspection, flushing and chlorinating.

FSAP 72.08

FIRE SPRINKLERS RESIDENTIAL 2.5 UNITS

Class hours: 2.7 Lecture/0.6 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course will review the techniques for residential fire sprinkler system installation. Some of the topics addressed include: basic safety, basic construction math, metric conversion processes, system overview, piping system configurations, residential sprinkler system design criteria, residential sprinkler types, sprinkler system types, sprinkler system components, hydraulic calculations, special applications, electrolysis, plans, water supplies, tool types, threaded pipe, CPVC, copper, sprinkler installation, special systems, multi-purpose systems, typical sprinkler system water supply, microbiologically influenced corrosion (MIC), and air/water interface structures.

FSAP 72.09

FIRE SPRINKLERS SUPPORTS AND ATTACHMENTS 0.5 UNIT

Class hours: 0.8 Lecture/0.2 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course will cover strength and spacing requirements, types, and installation of pipe hangers, supports, restraints, and guides. The apprentice will learn about types and installation of earthquake bracing and will be able to explain sleeving and firestopping. Cutting hangers to specified lengths is also covered.

FSAP 72.10

FIRE SPRINKLERS FLANGED, GROOVED, AND PLAIN END PIPE 0.5 UNIT

Class hours: 0.8 Lecture/0.2 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course covers the various types of valves and valve applications used in the sprinkler industry, including service procedures for standard valves. The apprentice will learn how to install OS& Y valves, butterfly grooved valves, and tamper switches. Procedures to disassemble, service, and reassemble check valves are outlined.

FSAP 72.11

FIRE SPRINKLERS GENERAL TRADE MATH 1.0 UNIT

Class hours: 1.1 Lecture/0.2 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course is designed to teach students to use basic math principles relevant to fire sprinkler systems. Students will learn to solve problems, convert fundamental measurement quantities from the English system to the metric system and from metric to English. The course will cover the effects of temperature on sprinkler systems, as well as how to calculate 45-degree offsets and tank volume, center sprinkler heads using the target, square offset and geometric methods, and solve sprinkler system problems relating to changes in elevation, sprinkler, discharge, and hanger sizing.

FSAP 72.12

FIRE SPRINKLERS SHOP DRAWINGS 1.5 UNITS

Class hours: 1.8 Lecture/0.4 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

In this course, the student will learn to read the drawing legend and will be able to identify drawing symbols including common structural and standard sprinkler system symbols. Reading drawings to identify materials, calculating the square footage and number of sprinklers required, laying out sprinkler hanger locations and identifying sprinkler orifice sizes will also be reviewed. Students will learn how to identify pipe size and cut length shown on installation drawings.

FSAP 72.13

STANDARD SPRAY FIRE SPRINKLERS 1.0 UNIT

Class hours: 1.1 Lecture/0.2 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

The student will learn how to identify the differences between obstructed and unobstructed sprinkler installations. Standard spray sprinklers are discussed relative to occupancies and to maximum coverage calculations. Sprinkler spacing is calculated using the small room rule. Maximum spacing of sidewall sprinklers is calculated using the protection area rule. The student will learn how to identify sprinkler manufacturer and type using the Sprinkler Identification Number (SIN).

FSAP 72.14

FIRE SPRINKLERS WET PIPE SYSTEMS 1.0 UNIT

Class hours: 1.4 Lecture/0.3 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course will review the purpose, function, and operation of wet pipe system components. The following will be covered: riser check valves, alarm check valves, and trim; flow, tamper, and pressure switches; fire department connections and hose stations; antifreeze systems; faulty pressure gauges; inspector's test connections and auxiliary drains; and hydrostatic testing and test pumps. The apprentices will learn how to trim an alarm check valve, perform a hydrostatic test, calculate the specific gravity of an antifreeze solution, and complete a contractor's material and test certificate.

FSAP 72.15

FIRE SPRINKLERS DRY PIPE SYSTEMS 1.0 UNIT

Class hours: 1.4 Lecture/0.3 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course explains the purpose, function, and operation of components used in a dry-pipe system. Components discussed are dry-pipe valves and trim, air supplies, accelerators and exhausters (quick-opening devices-QODs), and fire department connections. The trainee learns to install pressure gauges on alarm valves and accelerators, to set and adjust an air maintenance device, and to reset and troubleshoot dry-pipe systems. Dry-pipe pitch is also discussed.

FSAP 72.16

FIRE SPRINKLERS PREACTION AND DELUGE 2.0 UNITS

Class hours: 2.2 Lecture/0.4 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course describes deluge and preaction systems and explains installation techniques and troubleshooting. Various methods of activating electrical release and supervision, including detection systems, are discussed. It also covers hydraulic and pneumatic release mechanisms, non-interlocked and interlocked preaction systems and Firecycle Systems.

FSAP 72.17

FIRE SPRINKLERS STANDPIPES 1.0 UNIT

Class hours: 1.4 Lecture/0.3 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course is designed to identify the different types and classifications of standpipes, the requirements for standpipes in buildings under construction, the basic requirements for sizing standpipes hydraulically and by schedule, the hose rack assembly, roof manifolds, fire department connections, hose valves and adapters, flow test, and pressure reducing valves (PVR). Students will learn to demonstrate LINK-SEAL installation procedures.

FSAP 72.18

FIRE SPRINKLERS WATER SUPPLIES 0.5 UNIT

Class hours: 0.9 Lecture/0.2 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course is designed to give an overview of the various water supply systems, the equipment necessary for their operation, and the applicable regulations and standards.

FSAP 72.19

FIRE SPRINKLERS FIRE PUMPS 2.0 UNITS

Class hours: 2.2 Lecture/0.4 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course covers fire pump categories and components and describes fire pump controller requirements and fire pump performance and alignment. Furthermore, pump and driver characteristics and performance curves are explained. Controllers, sensing lines, supervision, and starting methods are also explained. Project requirements, installation, maintenance, and troubleshooting are outlined. Inspection and maintenance of existing pump rooms is also covered.

FSAP 72.20

SPECIFIC SPRINKLERS AND NOZZLES APPLICATION 1.5 UNITS

Class hours: 1.5 Lecture/0.3 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course provides details on application specific sprinkler types, their requirements, and the physical characteristics of these sprinklers, along with information about how to use the various types of special sprinklers.

FSAP 72.21

FIRE SPRINKLERS SYSTEM LAYOUT 2.5 UNITS

Class hours: 2.5 Lecture/0.5 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

The course identifies and explains basic hydraulic concepts and selection of hydraulic methods. System configuration, design criteria, discharge characteristics, and types of pressure loss are explained. Performing fire sprinkler system hydraulic calculations is also covered in this course.

FSAP 72.22

FIRE SPRINKLERS INSPECTION, TESTING, AND MAINTENANCE 1.0 UNIT

Class hours: 0.9 Lecture/0.2 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course identifies and explains initial and periodic testing and inspection requirements. Maintenance and repair of wet pipe systems, dry pipe systems, preaction and deluge systems, as well as special systems are covered.

FSAP 72.23

FIRE SPRINKLERS EXTINGUISHING SYSTEMS 2.5 UNITS

Class hours: 2.4 Lecture/0.5 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course identifies and explains the following extinguishing exposure systems: water spray, foam, carbon dioxide, Halon, auxiliary, and local alarm. Limited water systems, fire extinguishers, and water mist suppression systems are also covered.

FSAP 72.24

FIRE SPRINKLERS FOREMANSHIP 1.0 UNIT

Class hours: 1.1 Lecture/0.2 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course will introduce students to foremanship and covers responsibilities, leadership, and safety. Also covered are the project documentation and reports related to materials tracking and labor tracking

FSAP 72.25

FIRE SPRINKLERS PROCEDURES AND DOCUMENTATION 1.0 UNIT

Class hours: 1.1 Lecture/0.2 Laboratory

Prerequisite: Student is a registered State indentured apprentice.

This course will recognize the consequences of improper system installation, identify proper documentation, recognize unsafe acts and conditions on a worksite, identify the hazards associated with specific tasks, and discuss the procedures for responding to an accident. The student will also learn the procedures for emergency response to water damage and explain how to handle a water damage claim.

ATH 205LE

BASKETBALL, WOMEN, OFF-SEASON, INTERCOLLEGIATE 1.5 UNITS

Class hours: 4.5 Laboratory

This course is designed to provide off-season training for intercollegiate competition in basketball for women. Conditioning, skills, techniques, court strategy, and rules of play will be emphasized.

DANC 126

HIP HOP DANCE TRENDS 2.0 UNITS

Class hours: 1.0 Lecture/3.0 Laboratory

This course encompasses the study of today's evolving hip hop dance trends and includes a contemporary history of hip hop dance. Study will focus on the current movement styles and include the vocabulary, terminology, and social/theatrical codifications as it is demonstrated in formal (theater) and informal (studio) settings.

PEX 107

ADAPTED TEAM SPORTS 1.0 UNIT

Class hours: 0.5 Lecture/1.5 Laboratory

Recommendation: Completed adapted physical education physician health clearance for participation, adapted physical education health history questionnaire, intake interview assessment procedures.

This course is designed for students with disabilities requiring assistance and equipment adaptation to participate in team sports. The course will provide activities to develop general fitness as well as skill and knowledge in a variety of team sports.

PEX 108

ADAPTED INDIVIDUAL SPORTS 1.0 UNIT

Class hours: 0.5 Lecture/1.5 Laboratory

Recommendation: Completed adapted physical education physician health clearance for participation, adapted physical education health history questionnaire, intake interview assessment procedures.

This course is designed for students with disabilities requiring assistance and equipment adaptation to participate in individual sports. The course will provide activities to develop general fitness as well as skill and knowledge in a variety of individual sports.

PEX 155

PIYO INTRODUCTION TO PILATES AND YOGA 1.0 UNIT

Class hours: 0.5 Lecture/1.5 Laboratory

This course is an introduction to the basic principles of both Hatha Yoga practice and Pilates mat techniques. Instruction will include yoga postures, guided relaxation, and breathing practices and level 1 Pilates mat exercises. Benefits of yoga include increased flexibility, strength, balance, and body awareness, as well as stress reduction. The benefits of Pilates include increased circulation, flexibility and muscular strength.

WMT 184

VECTRIC ASPIRE FOR CNC WOODWORKING 3.0 UNITS

Class hours: 3.0 Lecture/1.0 Laboratory

Recommendation: Students should have a basic knowledge of computers and file management.

This course introduces the student to Vectric Aspire CAD/CAM software and its use in woodworking operations on the computer numerical control (CNC) router. Topics include software operations, preparing G-Code instructions for the machine, and use of the CNC router. Emphasis is placed on design, planning, safety, and efficiency.

WMT 189L

CNC WOODWORKING LAB 1.0 UNIT

Class hours: 4.0 Laboratory

Prerequisite: WMT 185 or WMT 186 or equivalent with a grade of "C" or higher or "Pass."

This course is a project-based learning opportunity which students will design, document, machine, and program a sign, furniture, or cabinet. In this lab, students will choose one project to be completed using AlphaCAM and a CNC router.

WMT 287

5-AXIS CNC WOODWORKING 3.0 UNITS

Class hours: 3.0 Lecture/1.0 Laboratory

Prerequisite: WMT 185 and WMT 186 or equivalent with grades of "C" or higher or "Pass."

Recommendation: Students should have a basic knowledge of computers and file management.

This course advances the student's skills in the programming of 5-axis functions of AlphaCAM software and operating a 5-axis computer numerical control (CNC) router. Topics include software operations, constrained parametric sketching, three dimensional (3D) drawing, 3D surface machining and 5-axis machining. Emphasis is placed on design, planning, safety, and efficiency.

WMT 289L

INTERMEDIATE CNC WOODWORKING LAB 1.0 UNIT

Class hours: 4.0 Laboratory

Prerequisite: WMT 285 or WMT 286 or equivalent with a grade of "C" or higher or "Pass."

This course allows students to perfect and hone intermediate level skills acquired during WMT 285 and/or WMT 286. In this lab, students will design sign, furniture or cabinet components of their choice, in AlphaCAM, to be produced from solid wood materials on a CNC router.