



KANSAS STATE DEPARTMENT OF EDUCATION

KANSAS **CAREER** **CLUSTER** **GUIDANCE** **HANDBOOK**

Kansas Career and Technical Education
Kansas Career Cluster Pathway Design
Models

Effective School Year
2019-2020



Career, Standards and
Assessment Services



Kansas State Board of Education
 Landon State Office Building
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Mission

To prepare Kansas students for lifelong success through rigorous, quality academic instruction, career training and character development according to each student's gifts and talents.

Vision

Kansas leads the world in the success of each student.

Motto

Kansans CAN.

Successful Kansas High School Graduate

A successful Kansas high school graduate has the

- Academic preparation,
- Cognitive preparation,
- Technical skills,
- Employability skills and
- Civic engagement

to be successful in postsecondary education, in the attainment of an industry recognized certification or in the workforce, without the need for remediation.

Outcomes for Measuring Progress

- Social-Emotional growth measured locally
- Kindergarten readiness
- Individual Plan of Study focused on career interest
- High school graduation
- Postsecondary success



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KANSAS CAREER AND TECHNICAL EDUCATION

Kansas' secondary Career and Technical Education (CTE) Division has adopted the National Career Clusters model of 16 career clusters and has developed 37 pathways within these clusters. Technological advances and global competition have transformed the nature of work. Tomorrow's jobs will require more knowledge, better skills, and highly flexible workers who continually update their knowledge and skills. Our goal is to provide students with relevant contexts for learning through pathways to postsecondary success. Career Clusters link what students learn in school to the knowledge and skills they need for success in postsecondary education and careers.



Career cluster pathways are designed to provide a smooth transition from high school to postsecondary education (technical colleges, community colleges and universities), apprenticeship opportunities, the military, and/or the workplace. Kansas stakeholders from education, business and industry developed the courses that enable this transition. Kansas has developed 37 pathways that address the need for high skill, high wage, and high demand careers in the 21st Century.

The following pages present the Career Cluster Pathways developed for local education agency implementation for school year 2019-2020. For assistance with the Authenticated Application Pathways System, contact the Pathways Helpdesk at: pathwayshelpdesk@ksde.org.

Middle School level course codes are available for introductory level courses in some pathways. Please check with the KSDE Consultant responsible for that Pathway for details. Otherwise, use high school codes for introductory courses taught at the Middle School level.

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TABLE OF CONTENTS

| | |
|---|-----------|
| KANSAS CTE CAREER PATHWAYS INFOGRAPHICS | 1 |
| • Elementary school level graphic | 2 |
| • Middle school level graphic..... | 2 |
| • Secondary school level graphic | 3 |
| KSDE SECONDARY LEVEL CTE CONTACTS 2018-2019 | 5 |
| KANSAS CAREER CLUSTERS | 7 |
| • Cluster/Pathway Classification of Instructional Program (CIP) codes | 9 |
| AGRICULTURE, FOOD AND NATURAL RESOURCES | 11 |
| • Agribusiness Systems..... | 11 |
| • Animal Science | 12 |
| • Biotechnology in Agriculture | 13 |
| • Comprehensive Agricultural Science..... | 14 |
| • Food Products and Processing Systems..... | 15 |
| • Natural Resources and Environmental Systems | 16 |
| • Plant Systems | 17 |
| • Power, Structural and Technical Systems | 18 |
| ARCHITECTURE AND CONSTRUCTION..... | 19 |
| • Construction and Design | 19 |
| ARTS, A/V AND COMMUNICATION | 20 |
| • Digital Media Pathway | 20 |
| • Graphic Design Pathway | 21 |
| BUSINESS MANAGEMENT AND ADMINISTRATION..... | 22 |
| • Business Management and Entrepreneurship Pathway..... | 22 |
| EDUCATION AND TRAINING | 23 |
| • Teaching/Training Pathway | 23 |
| ENGINEERING | 24 |
| • Aviation Production Pathway | 24 |
| • Cartography/Geospatial/Spatial Mathematics Pathway | 25 |
| • Energy Pathway | 26 |
| • Engineering and Applied Mathematics Pathway | 27 |
| FINANCE..... | 28 |
| • Business Finance Pathway..... | 28 |
| GOVERNMENT AND PUBLIC ADMINISTRATION | 29 |
| • Government and Public Administration Pathway..... | 29 |
| HEALTH AND BIO SCIENCES | 30 |
| • Biochemistry Pathway..... | 30 |
| • Biomedical Pathway..... | 31 |
| • Health Science Pathway | 32 |
| HOSPITALITY AND TOURISM | 33 |
| • Restaurant and Event Management Pathway | 33 |
| • Travel and Tourism Pathway | 34 |
| HUMAN SERVICES..... | 35 |
| • Early Childhood Development and Services Pathway | 35 |
| • Family, Community and Consumer Services Pathway..... | 36 |
| • Fashion, Apparel, Interior Design (FAID) Pathway..... | 37 |

| | |
|---|----|
| INFORMATION TECHNOLOGY | 38 |
| • Information Support and Services Pathway | 38 |
| • Network Systems Pathway | 39 |
| • Programming and Software Development Pathway | 40 |
| • Web and Digital Communications Pathway | 41 |
| LAW, PUBLIC SAFETY, CORRECTIONS AND SECURITY | 42 |
| • Emergency and Fire Management Services | 42 |
| • Corrections, Security, Law and Law Enforcement Services | 43 |
| MANUFACTURING | 44 |
| • Manufacturing Pathway | 44 |
| MARKETING | 45 |
| • Marketing Pathway | 45 |
| TRANSPORTATION | 46 |
| • Aviation Maintenance Pathway | 46 |
| • Mobile Equipment Maintenance Pathway | |
| • Automotive Collision Strand | 47 |
| • Automotive Technology Strands | 48 |
| KANSAS CAREER CLUSTERS TERMINOLOGY | 49 |
| ADVISORY COMMITTEE INFORMATION | 55 |
| PATHWAY CROSSOVER COURSE INFORMATION | 59 |
| PATHWAY CROSSOVER COURSE CHART | 60 |

KANSAS CTE CAREER PATHWAYS INFOGRAPHICS

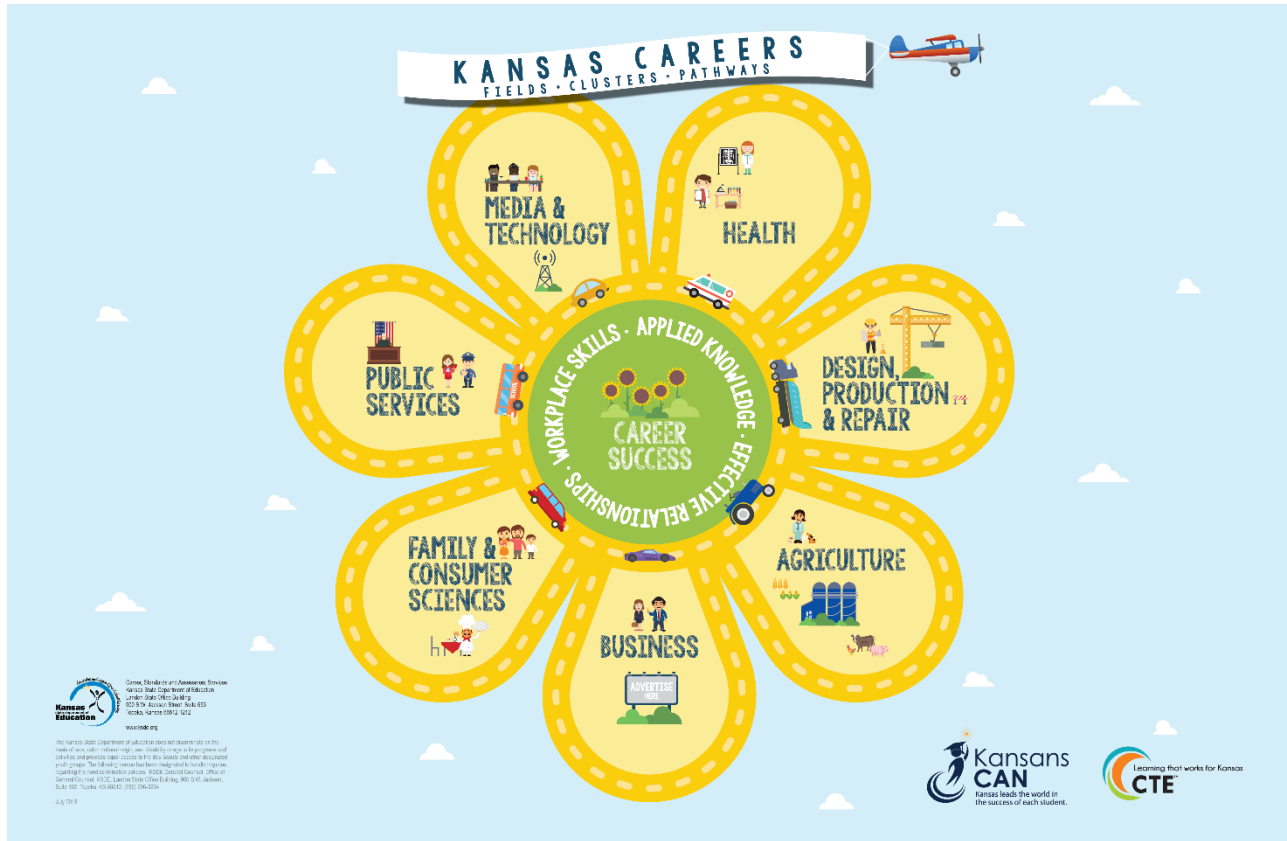
The following two pages contain the new Kansas College and Technical Education (CTE) Career Pathways infographics.

- Elementary Version – shows the seven Career Fields
- Middle School Version – shows the seven Career Fields and the 16 Career Clusters
- Secondary Version - shows the seven Career Fields, the 16 Career Clusters and the 37 Pathways of study

The goal of the Kansas State Department of Education (KSDE) CTE Team is to make these infographics interactive so that at each level teachers, students and parents will be able to click on a field, cluster or pathway to learn more about the opportunities for careers and career training in Kansas.

Look for this exciting opportunity coming soon to the KSDE website!

Elementary school level graphic



Middle school level graphic



Secondary school level graphic



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KSDE SECONDARY LEVEL

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Office of Civil Rights Visits
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Perkins Reserve Grant Management
Contact appropriate pathway consultant.

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kreed@ksde.org

Kansas Course Code Management System (KCCMS)
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Kansas Individual Data on Students (KIDS)/Student Course (STCO)
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Pathways Authenticated Application Assistance
pathwayshelpdesk@ksde.org

Teacher Licensure and Accreditation/ Educator Data Collection System (EDCS)
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KANSAS CAREER CLUSTER GUIDANCE HANDBOOK

KANSAS CAREER CLUSTER PATHWAYS



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PATHWAY CLASSIFICATION OF INSTRUCTIONAL PROGRAM (CIP) CODES

■ AGRICULTURE, FOOD AND NATURAL RESOURCES

| | |
|--|---------|
| Agribusiness Systems* | 01.0101 |
| Comprehensive Agriculture Science | 01.9999 |
| Animal Science* | 01.0901 |
| Biotechnology in Agriculture* | 26.1201 |
| Food Products and Processing Systems* | 01.0401 |
| Natural Res. and Environmental Systems* | 03.0101 |
| Plant Systems* | 01.1101 |
| Power, Structural and Technical Systems* | 01.0201 |

■ ARCHITECTURE AND CONSTRUCTION

| | |
|--------------------------|---------|
| Construction and Design* | 46.0000 |
|--------------------------|---------|

■ ARTS, A/V TECHNOLOGY AND COMMUNICATIONS

| | |
|----------------|---------|
| Digital Media* | 09.0702 |
| Graphic Design | 50.0499 |

■ BUSINESS MANAGEMENT AND ADMINISTRATION

| | |
|---|---------|
| Business Entrepreneurship and Management* | 52.0799 |
|---|---------|

■ EDUCATION AND TRAINING

| | |
|---------------------|---------|
| Teaching/Training** | 13.0101 |
|---------------------|---------|

■ ENGINEERING

| | |
|--------------------------------------|---------|
| Aviation Production | 15.0000 |
| Cartography/Geospatial/Spatial Math* | 15.1102 |
| Engineering and Applied Mathematics* | 14.0101 |
| Energy* | 17.2071 |

■ FINANCE

| | |
|--------------------|---------|
| Business Finance** | 52.0801 |
|--------------------|---------|

■ GOVERNMENT AND PUBLIC ADMINISTRATION

| | |
|---------------------------------------|---------|
| Government and Public Administration* | 44.0401 |
|---------------------------------------|---------|

■ HEALTH AND BIO SCIENCES

| | |
|------------------|---------|
| Biochemistry* | 14.1401 |
| Biomedical* | 14.0501 |
| Health Science** | 51.9999 |

■ HOSPITALITY AND TOURISM

| | |
|----------------------------------|---------|
| Restaurant and Event Management* | 12.0504 |
| Travel and Tourism** | 52.0901 |

■ HUMAN SERVICES

| | |
|--|---------|
| Early Childhood Development and Services** | 19.0709 |
| Family, Community and Consumer Services | 19.0799 |
| Fashion, Apparel, Interior Design (FAID) | 19.0999 |

■ INFORMATION TECHNOLOGY

| | |
|---------------------------------------|---------|
| Information Support and Services* | 11.0301 |
| Network Systems* | 11.0901 |
| Programming and Software Development* | 11.0201 |
| Web and Digital Communications | 11.1004 |

■ LAW, PUBLIC SAFETY, CORRECTIONS AND SECURITY

| | |
|--|---------|
| Corrections, Security, Law and Law Enforcement Services* | 43.0199 |
| Emergency and Fire Management Services* | 43.0299 |

■ MANUFACTURING

| | |
|----------------|---------|
| Manufacturing* | 48.0000 |
|----------------|---------|

■ MARKETING

| | |
|-----------|---------|
| Marketing | 52.1402 |
|-----------|---------|

■ TRANSPORTATION, DISTRIBUTION AND LOGISTICS

| | |
|-------------------------------|---------|
| Aviation Maintenance | 47.0000 |
| Mobile Equipment Maintenance* | 47.0608 |

* = non-traditional female

** = non-traditional male

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APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

AGRICULTURE, FOOD AND NATURAL RESOURCES CAREER CLUSTER DESIGN

Agribusiness Systems Pathway

CIP Code 01.0101

INTRODUCTORY LEVEL

| | | |
|---|----------------|----------------------|
| *Exploratory Agriculture or *Introduction to Agriculture | 68001 18001 | 1 credit 1 credit |
|---|----------------|----------------------|

TECHNICAL LEVEL

| | | |
|---------------|-------|----------|
| Agriscience | 18002 | 1 credit |
| *Agribusiness | 18201 | 1 credit |

APPLICATION LEVEL

| | | |
|-----------------------------------|-------|----------|
| *Applications in Agribusiness | 18220 | 1 credit |
| Research in Agriculture | 18206 | 1 credit |
| Agriculture Entrepreneurship | 18202 | 1 credit |
| Agricultural Leadership and Comm. | 18203 | 1 credit |
| Advanced Internship | 18049 | 1 credit |
| Internship | 18048 | 1 credit |

**Required courses in pathway*



AGRICULTURE, FOOD AND NATURAL RESOURCES CAREER CLUSTER DESIGN

Animal Science Pathway

CIP Code 01.0901

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|------------------------------|-------|----------|
| *Exploratory Agriculture | 68001 | 1 credit |
| or | | |
| *Introduction to Agriculture | 18001 | 1 credit |

TECHNICAL LEVEL

| | | |
|-----------------|-------|----------|
| Agriscience | 18002 | 1 credit |
| *Animal Science | 18101 | 1 credit |

APPLICATION LEVEL

ONE of the following boxed courses is required.

| | | |
|-----------------------------------|-------|----------|
| Advanced Animal Science | 18103 | 1 credit |
| Equine Science | 18104 | 1 credit |
| Small Animal Care | 18102 | 1 credit |
| Animal Health/Vet Tech | 18105 | 1 credit |
| Research in Agriculture | 18206 | 1 credit |
| Agricultural Entrepreneurship | 18202 | 1 credit |
| Agricultural Business | 18201 | 1 credit |
| Agricultural Leadership and Comm. | 18203 | 1 credit |
| Advanced Internship | 18049 | 1 credit |
| Internship | 18048 | 1 credit |

** Required courses in pathway.*

AGRICULTURE, FOOD AND NATURAL RESOURCES CAREER CLUSTER DESIGN

Biotechnology in Agriculture Pathway

CIP Code 26.1201



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|------------------------------|-------|----------|
| *Exploratory Agriculture | 68001 | 1 credit |
| or | | |
| *Introduction to Agriculture | 18001 | 1 credit |

TECHNICAL LEVEL

| | | |
|--|-------|----------|
| Agricultural Food Science | 18305 | 1 credit |
| Agriscience | 18002 | 1 credit |
| Animal Science | 18101 | 1 credit |
| *Biotechnology in Agriculture | 18308 | 1 credit |
| Horticulture | 18052 | 1 credit |
| Plant and Soil Science | 18058 | 1 credit |
| Application Level | | |
| *Applications in Biotechnology | 18320 | 1 credit |
| Agricultural Business | 18201 | 1 credit |
| Agricultural Entrepreneurship | 18202 | 1 credit |
| Research in Agriculture | 18206 | 1 credit |
| Agricultural Leadership and Communications | 18203 | 1 credit |
| Advanced Internship | 18049 | 1 credit |
| Internship | 18048 | 1 credit |

** Required courses in pathway.*

AGRICULTURE, FOOD AND NATURAL RESOURCES CAREER CLUSTER DESIGN

Comprehensive Agricultural Science Pathway

CIP Code 01.9999



APPROVED PATHWAY:

1. Includes minimum of four secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|------------------------------|-------|----------|
| *Exploratory Agriculture | 68001 | 1 credit |
| or | | |
| *Introduction to Agriculture | 18001 | 1 credit |

TECHNICAL LEVEL

Must select at least **TWO** of the courses below:

| | | |
|------------------------------|-------|----------|
| Agricultural Food Science | 18305 | 1 credit |
| Agriscience | 18002 | 1 credit |
| Animal Science | 18101 | 1 credit |
| Biotechnology in Agriculture | 18308 | 1 credit |
| Horticulture | 18052 | 1 credit |
| Natural Resource Management | 18504 | 1 credit |
| Plant and Animal Science | 18301 | 1 credit |
| Plant and Soil Science | 18058 | 1 credit |

APPLICATION LEVEL

| | | |
|--|-------|----------|
| Advanced Plant and Animal Science | 18302 | 1 credit |
| Agricultural Entrepreneurship | 18202 | 1 credit |
| Agricultural Leadership and Communications | 18203 | 1 credit |
| Agribusiness | 18201 | 1 credit |
| Advanced Internship | 18049 | 1 credit |
| Internship | 18048 | 1 credit |
| Research in Agriculture | 18206 | 1 credit |

** Required courses in pathway.*

AGRICULTURE, FOOD AND NATURAL RESOURCES CAREER CLUSTER DESIGN

Food Products and Processing Systems Pathway

CIP Code 01.0401



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|--------------------------------|-------|----------|
| *Exploratory Agriculture or | 68001 | 1 credit |
| *Introduction to Agriculture | 18001 | 1 credit |

TECHNICAL LEVEL

| | | |
|------------------------|-------|----------|
| Agriscience | 18002 | 1 credit |
| *Ag Food Science or | 18305 | 1 credit |
| *Food Science | 22203 | 1 credit |
| Animal Science | 18101 | 1 credit |
| Plant and Soil Science | 18058 | 1 credit |
| Horticulture | 18052 | 1 credit |

APPLICATION LEVEL

| | | |
|--|-------|----------|
| *Advanced Food Science | 18317 | 1 credit |
| Research in Agriculture | 18206 | 1 credit |
| Agricultural Entrepreneurship | 18202 | 1 credit |
| Internship | 18048 | 1 credit |
| Agricultural Leadership and Communications | 18203 | 1 credit |
| Advanced Internship | 18049 | 1 credit |
| Agricultural Business | 18201 | 1 credit |

** Required courses in pathway.*

AGRICULTURE, FOOD AND NATURAL RESOURCES CAREER CLUSTER DESIGN

Natural Resources and Environmental Systems Pathway

CIP Code 03.0101



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|------------------------------|-------|----------|
| *Exploratory Agriculture | 68001 | 1 credit |
| <i>or</i> | | |
| *Introduction to Agriculture | 18001 | 1 credit |

TECHNICAL LEVEL

| | | |
|-------------------------------|-------|----------|
| Agriscience | 18002 | 1 credit |
| *Natural Resources Management | 18504 | 1 credit |

APPLICATION LEVEL

| | | |
|---|-------|----------|
| Agricultural Business | 18201 | 1 credit |
| Research in Agriculture | 18206 | 1 credit |
| Agricultural Entrepreneurship | 18202 | 1 credit |
| *Environmental Resources and Wildlife Science | 37506 | 1 credit |
| Agricultural Leadership and Communications | 18203 | 1 credit |
| Advanced Internship | 18049 | 1 credit |
| Internship | 18048 | 1 credit |

** Required courses in pathway.*

AGRICULTURE, FOOD AND NATURAL RESOURCES CAREER CLUSTER DESIGN

Plant Systems Pathway

CIP Code 01.1101



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|------------------------------|-------|----------|
| *Exploratory Agriculture | 68001 | 1 credit |
| or | | |
| *Introduction to Agriculture | 18001 | 1 credit |

TECHNICAL LEVEL

| | | |
|-------------------------|-------|----------|
| Agriscience | 18002 | 1 credit |
| *Plant and Soil Science | 18058 | 1 credit |
| or | | |
| *Horticulture | 18052 | 1 credit |

APPLICATION LEVEL

| | | |
|--|-------|----------|
| Agricultural Entrepreneurship | 18202 | 1 credit |
| Agricultural Leadership and Communications | 18203 | 1 credit |
| Agribusiness | 18201 | 1 credit |
| *Applications in Horticulture | 18071 | 1 credit |
| or | | |
| *Crop and Range Management | 18081 | 1 credit |
| or | | |
| *Floriculture and Greenhouse Management | 18057 | 1 credit |
| Advanced Internship | 18049 | 1 credit |
| Internship | 18048 | 1 credit |
| Research in Agriculture | 18206 | 1 credit |

** Required courses in pathway.*

AGRICULTURE, FOOD AND NATURAL RESOURCES CAREER CLUSTER DESIGN

Power, Structural and Technical Systems Pathway

CIP Code 01.0201



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|------------------------------|-------|----------|
| *Exploratory Agriculture | 68001 | 1 credit |
| *Introduction to Agriculture | 18001 | 1 credit |

TECHNICAL LEVEL

| | | |
|-------------------------|-------------|----------|
| Agriscience | 18002 | 1 credit |
| *Agricultural Mechanics | 18401 | 1 credit |
| *Agricultural Welding I | 18404/39207 | 1 credit |
| *Small Engines | 18410 | 1 credit |

APPLICATION LEVEL

| | | |
|--|-------------|----------|
| *Advanced Agricultural Mechanics | 18402 | 1 credit |
| *Advanced Agricultural Power | 18411 | 1 credit |
| Agricultural Business | 18201 | 1 credit |
| Agricultural Entrepreneurship | 18202 | 1 credit |
| *Agricultural Fabrication | 18409 | 1 credit |
| Agricultural Leadership and Communications | 18203 | 1 credit |
| *Agricultural Structures | 18403 | 1 credit |
| *Agricultural Welding II | 18407/39208 | 1 credit |
| Research in Agricultural | 18206 | 1 credit |
| Advanced Internship | 18049 | 1 credit |
| Internship | 18048 | 1 credit |

** A minimum of one starred course from each level is required for pathway approval.*



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

ARCHITECTURE AND CONSTRUCTION CAREER CLUSTER DESIGN

Construction and Design Pathway

CIP Code 46.0000

INTRODUCTORY LEVEL

| | | |
|---|-------|-----------|
| **Introduction to Industrial Technology | 38001 | .5 credit |
| Drafting | 21102 | .5 credit |

TECHNICAL LEVEL

Design Strand

| | | |
|---------------------|-------|----------|
| Architecture Design | 21103 | 1 credit |
| Drafting/CAD | 21107 | 1 credit |

Construction Strand

| | | |
|---------------------------|-------|-----------|
| Carpentry | 17002 | 1 credit |
| Skilled Mechanical Crafts | 17062 | .5 credit |
| Woodworking Principles | 17007 | 1 credit |

APPLICATION LEVEL

Design Strand

| | | |
|---|-------|-----------|
| Advanced Studies | 38050 | .5 credit |
| Commercial and Industrial Interior Design | 38212 | .5 credit |
| Research and Design for Pre-construction | 21109 | 1 credit |
| Residential Interior Design | 22212 | .5 credit |

Construction Strand

| | | |
|---|-------|-----------|
| ***Advanced Materials Technology | 38010 | 1 credit |
| *Carpentry II | 38002 | 1 credit |
| *Electrical and Security Systems | 17113 | .5 credit |
| Furniture and Cabinetry Fabrication | 38007 | 1 credit |
| *HVAC Technology | 17056 | .5 credit |
| *Pipefitting Technology | 17061 | 1 credit |
| *Plumbing Technology | 17058 | .5 credit |
| *Remodel and Building Maintenance | 17009 | .5 credit |
| *Research and Design in Building Trades | 17005 | 1 credit |
| *Sheet Metal | 13205 | .5 credit |
| *Sheet Metal and HVACR | 38012 | 1 credit |

**Has a prerequisite.*

*** Required for construction strand.*

**** 17007 and 38007 are prerequisites.*



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

ARTS, A/V AND COMMUNICATION CAREER CLUSTER DESIGN

Digital Media Pathway

CIP Code 09.0702

INTRODUCTORY LEVEL

| | | |
|-----------------------|-------------|-----------|
| Business Essentials | 12050 | .5 credit |
| Computer Applications | 10004/60004 | 1 credit |

TECHNICAL LEVEL

| | | |
|--------------------------------------|-------------|-----------|
| *21 st Century Journalism | 30100 | .5 credit |
| Digital Media Technology | 30104 | .5 credit |
| Media and Public Relations | 43115 | .5 credit |
| Audio/Video Production Fund | 30103 | .5 credit |
| Photo Imaging | 30105 | .5 credit |
| Graphic Design Fundamentals | 30102 | .5 credit |
| Graphic Design | 05162/11154 | 1 credit |
| Digital Marketing | 35162 | .5 credit |
| Sports and Entertainment Marketing | 12163 | .5 credit |

APPLICATION LEVEL

| | | |
|-------------------------------------|-------|----------|
| Digital Media Project Management | 31091 | 1 credit |
| Video Production | 30150 | 1 credit |
| Digital Media Design and Production | 30151 | 1 credit |

**Required for pathway approval.*



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

ARTS, A/V AND COMMUNICATION CAREER CLUSTER DESIGN

Graphic Design Pathway

CIP Code 50.0499

INTRODUCTORY LEVEL

| | | |
|------------------------------------|-------------|-----------|
| Introduction To Drawing and Design | 30006 | .5 credit |
| Computer Applications | 10004/60004 | 1 credit |

TECHNICAL LEVEL

| | | |
|------------------------------|-------------|-----------|
| Principles of Illustration | 30101 | .5 credit |
| Photo Imaging | 30105 | .5 credit |
| *Graphic Design Fundamentals | 30102 | .5 credit |
| Computer Graphics | 10202 | 1 credit |
| Graphic Design | 05162/11154 | 1 credit |

APPLICATION LEVEL

| | | |
|---|-------|----------|
| Graphic Design Project Management | 31090 | 1 credit |
| Media Technology – Workplace Experience | 10248 | 1 credit |

**Required for pathway approval.*



BUSINESS MANAGEMENT AND ADMINISTRATION CAREER CLUSTER DESIGN

Business Management and Entrepreneurship Pathway

CIP Code 52.0799

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

*Business Essentials 12050** .5 credit

TECHNICAL LEVEL

*Entrepreneurship 12053 .5 credit

*Business Communications 12009 .5 credit

*Business Management 12052 .5 credit

Optional technical courses

Supportive Business and Entrepreneurship Technical

Business Economics 12105 .5 credit

Accounting 12104 1 credit

Business Law 12054 .5 credit

Principles of Marketing 12164 1 credit

IB Business and Management 12059 1 credit

Supportive Entrepreneurship Technical

Web Page Design 10201 1 credit

Internet Marketing 12162 1 credit

Woodworking Principles 17007 1 credit

Drafting/CAD 21107 1 credit

Agricultural Welding I 18404 1 credit

Production Welding 39207 1 credit

Remodel and Building Maintenance 17009 .5 credit

Residential Carpentry 17002 1 credit

Culinary Essentials 16052 .5 credit

Foundations of Early Childhood 19052 1 credit

Engineering Design and Development 21007 1 credit

Consumer and Personal Finance 22210 .5 credit

APPLICATION LEVEL

*Applied Business Development 32200 1 credit

**Required for pathway approval.*

***Business Essentials 12050 may be integrated with Computer Applications 10004*



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

EDUCATION AND TRAINING CAREER CLUSTER DESIGN

Teaching/Training Pathway

CIP Code 13.0101

INTRODUCTORY LEVEL

| | | |
|--|-------|-----------|
| Career and Life Planning | 22207 | .5 credit |
| Introduction to Family and Consumer Sciences | 45001 | 1 credit |

TECHNICAL LEVEL

| | | |
|---------------------------------|---------|-----------|
| *Teaching as a Career | 19151 | 1 credit |
| *Human Growth and Development A | 45004** | .5 credit |
| or | | |
| *Human Growth and Development B | 45014** | 1 credit |
| Teaching Observation | 42251 | 1 credit |
| Family Studies | 22208** | .5 credit |

APPLICATION LEVEL

| | | |
|---------------------|-------|----------|
| Teaching Internship | 19152 | 1 credit |
| Educational Trainer | 10260 | 1 credit |

**Required for pathway approval.*

***Alternative course (19051) maybe allowed with prior approval.*



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

ENGINEERING CAREER CLUSTER DESIGN

Aviation Production Pathway

CIP Code 15.0000

INTRODUCTORY LEVEL

| | | |
|---------------------------------------|-------|-----------|
| Introduction to Industrial Technology | 38001 | .5 credit |
| Production Blueprint Reading | 21108 | .5 credit |

TECHNICAL LEVEL

| | | |
|--|-------|-----------|
| *Hand and Power Tools (prerequisite for Tooling I) | 40400 | .5 credit |
| *Aviation Fundamentals | 40410 | .5 credit |
| Aviation Systems | 40420 | 1 credit |

Design Strand

| | | |
|--|-------|----------|
| Drafting/Computer-aided Drafting (CAD) (prerequisite for Part Design-41500) | 21107 | 1 credit |
|--|-------|----------|

Production Strand

| | | |
|-------------------|-------|----------|
| Mass Production I | 13052 | 1 credit |
|-------------------|-------|----------|

APPLICATION LEVEL

Design Strand

| | | |
|---|-------|-----------|
| Part Design | 41500 | .5 credit |
| Assembly Design | 41505 | .5 credit |
| Wireframe and Surfaces | 41510 | .5 credit |
| Aerospace Drawings | 41515 | .5 credit |
| Workplace Experience in Engineering | 41048 | .5 credit |
| Workplace Experience | 21048 | 1 credit |
| **Special Projects and Research in Aviation | 41520 | 1 credit |

Production Strand

| | | |
|-------------------------------------|-------|-----------|
| ***Tooling I | 40600 | 1 credit |
| Tooling II | 40610 | 1 credit |
| ***Aerostructures I | 40620 | 1 credit |
| Aerostructures II | 40630 | 1 credit |
| ***Composites I | 40640 | 1 credit |
| Composites II | 40650 | 1 credit |
| Workplace Experience in Engineering | 41048 | .5 credit |
| Workplace Experience | 21048 | 1 credit |

Required for pathway approval. ** Must offer 41500, 41505, 41510 and 41515 before offering this course. *Pre-requisite for Level II courses.*



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

ENGINEERING CAREER CLUSTER DESIGN

**Cartography/Geospatial/
Spatial Mathematics Pathway**

CIP Code 15.1102

INTRODUCTORY LEVEL

| | | |
|----------------------------------|-------------|----------|
| Computer Applications (8-9) | 10004/60004 | 1 credit |
| Computing Systems (8-9) | 10002/60002 | 1 credit |
| *Earth Science or | 03001 | 1 credit |
| *Earth Space Science | 53008/03008 | 1 credit |
| Engineering Application (8-9) | 21002/71002 | 1 credit |
| Engineering Technology (8-9) | 21003/71003 | 1 credit |
| Physical Geography | 03007 | 1 credit |
| Pre-engineering Technology (8-9) | 21001 | 1 credit |
| Principles of Technology (8-9) | 53153/03153 | 1 credit |

TECHNICAL LEVEL

| | | |
|----------------------|-------|----------|
| Aerospace Technology | 21055 | 1 credit |
| Animation | 10210 | 1 credit |
| GIS Technology | 21058 | 1 credit |
| *Meteorology | 03006 | 1 credit |
| Robotics | 21009 | 1 credit |

APPLICATION LEVEL

| | | |
|------------------------------------|-------|----------|
| *Aerospace Engineering | 21013 | 1 credit |
| Civil Engineering and Architecture | 21012 | 1 credit |
| Civil Engineering or | 21011 | 1 credit |
| Emerging Technologies | 21053 | 1 credit |
| GIS Spatial Applications | 21112 | 1 credit |
| Particular Topics in Engineering | 21015 | 1 credit |
| Workplace Experience | 21048 | 1 credit |

**Course is eligible for Regents Qualified Admissions – Natural Science*



ENGINEERING CAREER CLUSTER DESIGN

Energy Pathway

CIP Code 17.2071

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|-------------------------|-------|-----------|
| Environmental Science | 41207 | .5 credit |
| *Introduction to Energy | 41100 | .5 credit |

TECHNICAL LEVEL

| | | |
|--|-------|-----------|
| *Energy Industry Fundamentals | 41105 | 1 credit |
| Principles Of Applied Engineering | 41320 | 1 credit |
| Fundamentals of Electricity and Electronics | 41170 | 1 credit |
| AP Environmental Science | 03207 | 1 credit |
| Energy, Power and Society | 41150 | 1 credit |
| Wind Energy Operations | 41160 | 1 credit |
| Mechanical Power Transmission and Conveyor Systems | 13302 | .5 credit |
| Meteorology | 03006 | 1 credit |

APPLICATION LEVEL

| | | |
|---|-------|-----------|
| Research and Development for Energy | 41250 | .5 credit |
| Research and Development for Energy Comprehensive | 41260 | 1 credit |
| Advanced Electricity and Electronics | 41270 | .5 credit |
| Materials Science in Engineering | 41355 | .5 credit |
| Hydraulics and Pneumatics | 39302 | .5 credit |
| HVAC Technology | 17056 | .5 credit |

**Course required for pathway approval.*



ENGINEERING CAREER CLUSTER DESIGN

Engineering and Applied Mathematics Pathway

CIP Code 14.0101

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|------------------------------|-------|-----------|
| *Introduction to Engineering | 41310 | 1 credit |
| Chemistry | 03101 | 1 credit |
| Production Blueprint Reading | 21108 | .5 credit |

TECHNICAL LEVEL

| | | |
|-----------------------------------|-------|----------|
| Principles of Applied Engineering | 41320 | 1 credit |
| **Engineering Design | 21006 | 1 credit |
| or | | |
| **Drafting / CAD | 21107 | 1 credit |
| Robotics | 21009 | 1 credit |
| Foundations of Electronics | 21201 | 1 credit |

APPLICATION LEVEL

| | | |
|-------------------------------------|-------|-----------|
| Emerging Technologies | 21053 | 1 credit |
| Digital Electronics | 21008 | 1 credit |
| Computer Integrated Manufacturing | 21010 | 1 credit |
| Project Management | 41350 | .5 credit |
| Materials Science and Engineering | 21252 | 1 credit |
| Civil Engineering and Architecture | 21012 | 1 credit |
| Aerospace Engineering | 21013 | 1 credit |
| Particular Topics in Engineering | 21015 | 1 credit |
| Engineering Design and Development | 21007 | 1 credit |
| Workplace Experience in Engineering | 41048 | .5 credit |
| Workplace Experience | 21048 | 1 credit |

**Required for pathway approval*

***May offer 21006 or 21107, but not both in this pathway*



FINANCE CAREER CLUSTER DESIGN

Business Finance Pathway

CIP Code 52.0801

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|----------------------|-------|-----------|
| *Business Essentials | 12050 | .5 credit |
|----------------------|-------|-----------|

TECHNICAL LEVEL

| | | |
|-------------|-------|----------|
| *Accounting | 12104 | 1 credit |
|-------------|-------|----------|

| | | |
|--------------------------------|-------|-----------|
| *Consumer and Personal Finance | 22210 | .5 credit |
|--------------------------------|-------|-----------|

Supportive (Optional)

| | | |
|--------------------|-------|-----------|
| Business Economics | 12105 | .5 credit |
|--------------------|-------|-----------|

| | | |
|--------------|-------|-----------|
| Business Law | 12054 | .5 credit |
|--------------|-------|-----------|

| | | |
|------------------|-------|-----------|
| Entrepreneurship | 12053 | .5 credit |
|------------------|-------|-----------|

APPLICATION LEVEL

Banking Services Strand**

| | | |
|---------------------|-------|-----------|
| Banking and Finance | 12101 | .5 credit |
|---------------------|-------|-----------|

| | | |
|-----------|-------|-----------|
| Investing | 12107 | .5 credit |
|-----------|-------|-----------|

Accounting Strand**

| | | |
|---------------------|-------|----------|
| Advanced Accounting | 33108 | 1 credit |
|---------------------|-------|----------|

| | | |
|--------------------|-------|----------|
| College Accounting | 33109 | 1 credit |
|--------------------|-------|----------|

Securities and Investments Strand**

| | | |
|-----------|-------|-----------|
| Investing | 12107 | .5 credit |
|-----------|-------|-----------|

| | | |
|-------------------------------|-------|-----------|
| Risk Management and Insurance | 12106 | .5 credit |
|-------------------------------|-------|-----------|

Supportive (Optional)

| | | |
|--------------------------------|-------|-----------|
| Finance – Workplace Experience | 12148 | .5 credit |
|--------------------------------|-------|-----------|

* Required course for pathway approval.

** One credit from at least one strand is required.

GOVERNMENT AND PUBLIC ADMINISTRATION CAREER CLUSTER DESIGN

Government and Public Administration Pathway

CIP Code 44.0401



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|---|-------|-----------|
| *Introduction to Government and Public Administration | 43001 | .5 credit |
| Career and Life Planning | 22207 | .5 credit |

TECHNICAL LEVEL

| | | |
|--|-------|-----------|
| *Government and Public Administration Fundamentals | 43105 | .5 credit |
| Human Growth and Development A | 45004 | .5 credit |
| IT for Service Professions | 44010 | .5 credit |

Business Strand

| | | |
|---------------------|-------|-----------|
| Business Economics | 12105 | .5 credit |
| **Business Law | 12054 | .5 credit |
| Business Management | 12052 | .5 credit |
| Accounting | 12104 | 1 credit |

Pre-Law Legal Assistance Strand

| | | |
|----------------------------|-------|-----------|
| Business Economics | 12105 | .5 credit |
| **Business Law | 12054 | .5 credit |
| **Practical Law | 44300 | .5 credit |
| Media and Public Relations | 43115 | .5 credit |

APPLICATION LEVEL

| | | |
|-------------------------|-------|-----------|
| Foundations in Law | 44305 | 1 credit |
| Career Connections | 22275 | .5 credit |
| Governance Applications | 43250 | 1 credit |
| Youth Court | 44310 | 1 credit |

**Required for pathway approval.*

***Required in the strand.*



HEALTH AND BIO SCIENCES CAREER CLUSTER DESIGN

Biochemistry Pathway

CIP Code 14.1401

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|-----------------------------|-------------|----------|
| Environmental Science | 03003 | 1 credit |
| Computing Systems (8-9) | 10002/60002 | 1 credit |
| Computer Applications (8-9) | 10004/60004 | 1 credit |
| Chemistry | 03101 | 1 credit |
| Engineering Applications | 21002/71002 | 1 credit |
| Engineering Technology | 21003/71003 | 1 credit |

TECHNICAL LEVEL

| | | |
|---------------------------------|-------|----------|
| Wildlife Management | 18501 | 1 credit |
| Marine Science | 03005 | 1 credit |
| IB Environmental Systems | 03208 | 1 credit |
| Human Body Systems <i>or</i> | 14102 | 1 credit |
| Anatomy and Physiology | 03053 | 1 credit |
| Environmental Law | 04170 | 1 credit |
| Biotechnology in Agriculture | 18308 | 1 credit |
| AP Environmental Science | 03207 | 1 credit |
| Applied Biochemistry | 03203 | 1 credit |
| Pharmacology | 14253 | 1 credit |
| Plant and Soil Science | 18058 | 1 credit |

APPLICATION LEVEL

| | | |
|---|-------|----------|
| Emerging Technologies | 21053 | 1 credit |
| Bioengineering <i>or</i> | 21020 | 1 credit |
| Biotechnical Engineering | 21014 | 1 credit |
| Natural Resources Management | 18504 | 1 credit |
| Workplace Experience | 21048 | 1 credit |
| Particular Topics in Engineering | 21015 | 1 credit |
| Research in Environmental Science and Engineering | 21016 | 1 credit |
| Environmental Resources and Wildlife Science | 37506 | 1 credit |



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

HEALTH AND BIO SCIENCES CAREER CLUSTER DESIGN

Biomedical Pathway

CIP Code 14.0501

INTRODUCTORY LEVEL

| | | |
|-------------------------------|-------------|----------|
| Biology | 03051/03052 | 1 credit |
| Engineering Application (8-9) | 21002/71002 | 1 credit |
| Engineering Tech (8-9) | 21003/71003 | 1 credit |
| Computing Systems (8-9) | 10002/60002 | 1 credit |
| Computer Application (8-9) | 10004/60004 | 1 credit |

TECHNICAL LEVEL

| | | |
|---------------------------------|-------|----------|
| Prin. of Biomedical Science | 14251 | 1 credit |
| Medical Interventions | 14105 | 1 credit |
| Human Body Systems <i>or</i> | 14102 | 1 credit |
| Anatomy and Physiology | 03053 | 1 credit |
| Robotics | 21009 | 1 credit |
| Pharmacology | 14253 | 1 credit |
| Food Science <i>or</i> | 22203 | 1 credit |
| Agricultural Food Science | 18305 | 1 credit |
| AP Biology | 03056 | 1 credit |

APPLICATION LEVEL

| | | |
|-----------------------------|-------|----------|
| Biomedical Innovation | 14255 | 1 credit |
| Bioengineering <i>or</i> | 21020 | 1 credit |
| Biotechnical Engineering | 21014 | 1 credit |
| Emerging Technologies | 21053 | 1 credit |
| HealthCare Sciences - Other | 14999 | 1 credit |
| Workplace Experience | 14998 | 1 credit |



HEALTH AND BIO SCIENCES CAREER CLUSTER DESIGN

Health Science Pathway

CIP Code 51.9999

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | | | | | |
|-------------------|-----------------|-----------|-----------|-------------------|-------|----------|
| Health Science IA | 14000 | .5 credit | or | Health Science IB | 14001 | 1 credit |
| Biology | 03052/ 03051 | 1 credit | | Chemistry | 03101 | 1 credit |

TECHNICAL LEVEL

General:

| | | | | | | |
|---------------------------------|-------|-----------|-----------|-------------------------|-------|----------|
| *Human Body Systems | 14102 | 1 credit | or | *Anatomy and Physiology | 03053 | 1 credit |
| *Health Science II | 14002 | 1 credit | | | | |
| Nutrition and Wellness | 08057 | .5 credit | | | | |
| Medical Terminology A | 14154 | .5 credit | or | Medical Terminology B | 36154 | 1 credit |
| Health Information (HIT) | 14157 | 1 credit | | | | |
| Forensic Science | 44224 | .5 credit | | | | |
| Forensic Science Comprehensive | 44225 | 1 credit | | | | |
| Special Health Science Topics A | 14254 | .5 credit | | | | |
| Special Health Science Topics B | 36254 | 1 credit | | | | |
| AP Biology | 03056 | 1 credit | | | | |

Sports Care and Rehabilitation:

| | | | | | | |
|--------------------------|--------------|------------------|--|--|--|--|
| Physical Therapy | 14060 | .5 credit | | | | |
| Sports Medicine I | 14072 | 1 credit | | | | |
| Care of Athletes | 14062 | .5 credit | | | | |

Medical:

| | | | | | | |
|------------------------------|-------|-----------|-----------|-------------------------|-------|----------|
| Emer. Medical Technology A | 14055 | .5 credit | or | Emer. Med. Technology B | 36055 | 1 credit |
| Medical Imaging A | 14103 | .5 credit | or | Medical Imaging B | 14149 | 1 credit |
| Medical Interventions | 14105 | 1 credit | | | | |
| Biotechnology I A | 14252 | .5 credit | or | Biotechnology I B | 36252 | 1 credit |
| Pharmacology | 14253 | 1 credit | | | | |
| Principles of Biomed Science | 14251 | 1 credit | | | | |

Health Care:

| | | | | | | |
|--------------------------|--------------|------------------|--|--|--|--|
| Nursing I | 14051 | .5 credit | | | | |
| Home Health Care | 14053 | .5 credit | | | | |
| First Aid/CPR/EMR | 44050 | .5 credit | | | | |
| EMT | 44060 | 1 credit | | | | |

APPLICATION LEVEL

| | | | | | | |
|------------------------------------|--------------|------------------|--|--|--|--|
| Forensic Science II | 44226 | 1 credit | | | | |
| Nursing II | 14052 | .5 credit | | | | |
| Biomedical Innovation | 14255 | 1 credit | | | | |
| Biotechnology II | 14256 | 1 credit | | | | |
| Health Science III | 36991 | 1 credit | | | | |
| Health Science IV (Shadow/Work) | 36992 | 1 credit | | | | |
| Health Science V (Shadow / Work) | 36993 | 2 credit | | | | |
| Healthcare Science – Other | 14999 | 1 credit | | | | |
| Sports Medicine II | 14073 | 1 credit | | | | |
| Phlebotomy Technician | 14104 | .5 credit | | | | |
| Certified Nursing Assistant | 14997 | .5 credit | | | | |
| Certified Medication Aide | 36156 | .5 credit | | | | |
| Home Health Aide | 36053 | .5 credit | | | | |

**Select one for pathway approval.*

Boldfaced courses may require specialized teacher certification and/or offer professional certification.



HOSPITALITY AND TOURISM CAREER CLUSTER DESIGN

Restaurant and Event Management Pathway

CIP Code 12.0504

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|--|-------|-----------|
| Career and Life Planning | 22207 | .5 credit |
| Business Essentials | 12050 | .5 credit |
| Introduction to Family and Consumer Sciences | 45001 | 1 credit |

TECHNICAL LEVEL *(Select a strand at division.)*

| | | |
|------------------------|-------|-----------|
| *Culinary Essentials | 16052 | .5 credit |
| Nutrition and Wellness | 08057 | .5 credit |

Event Planning and Management Strand

| | | |
|--------------------------------|-------|-----------|
| *Event Planning and Management | 34052 | .5 credit |
| Found. of Travel and Tour | 34053 | .5 credit |

Culinary Arts and Management Strand

| | | |
|---|-------|-----------|
| *Culinary Arts I (Pre-requisite for 34058) | 34056 | 1 credit |
| Culinary Arts II | 34058 | .5 credit |
| Baking and Pastry I (Pre-requisite for 34059) | 34057 | .5 credit |
| Baking and Pastry II | 34059 | .5 credit |
| Food Science | 22203 | 1 credit |
| Event Plan and Management | 34052 | .5 credit |

These may be offered after 3 credits have been selected:

| | | |
|-------------------------|-------|-----------|
| Principles of Marketing | 12164 | 1 credit |
| Entrepreneurship | 12053 | .5 credit |

APPLICATION LEVEL

Event Planning and Management Strand

| | | |
|------------------------------|-------|-----------|
| Community Connections | 22270 | .5 credit |
| Career Connections | 22275 | .5 credit |
| Applied Business Development | 32200 | 1 credit |

Culinary Arts and Management Strand

| | | |
|-----------------------|-------|-----------|
| Community Connections | 22270 | .5 credit |
| Career Connection | 22275 | .5 credit |
| Culinary Applications | 34198 | 1 credit |

**Required for pathway approval.*



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

HOSPITALITY AND TOURISM CAREER CLUSTER DESIGN

Travel and Tourism Pathway

CIP Code 52.0901

INTRODUCTORY LEVEL

| | | |
|--|-------|-----------|
| Career Life Planning | 22207 | .5 credit |
| Business Essentials | 12050 | .5 credit |
| Introduction to Family and Consumer Sciences | 45001 | 1 credit |

TECHNICAL LEVEL

| | | |
|--------------------------------|-------|-----------|
| *Culinary Essentials | 16052 | .5 credit |
| Entrepreneurship | 12053 | .5 credit |
| Marketing | 12164 | 1 credit |
| Nutrition and Wellness | 08057 | .5 credit |
| *Event Planning and Management | 34052 | .5 credit |

****Minimum one of the following:***

| | | |
|---|-------|-----------|
| *Foundations of Travel and Tourism | 34053 | .5 credit |
| or | | |
| *Foundations of Hospitality and Lodging | 34054 | .5 credit |

APPLICATION LEVEL

| | | |
|------------------------------------|-------|-----------|
| Hospitality and Lodging Management | 34200 | 1 credit |
| Community Connections | 22270 | .5 credit |
| Career Connections | 22275 | .5 credit |

**Required for pathway approval.*



HUMAN SERVICES CAREER CLUSTER DESIGN

Early Childhood Development and Services Pathway

CIP Code 19.0709

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|--|-------|-----------|
| Career and Life Planning | 22207 | .5 credit |
| Introduction to Family and Consumer Sciences | 45001 | 1 credit |

TECHNICAL LEVEL *(Select a strand at the division.)*

| | | |
|------------------------------|-------|-----------|
| Leadership Service in Action | 22255 | .5 credit |
|------------------------------|-------|-----------|

(Must teach all courses in the strand of your choice)

Strand 1:

| | | |
|---|-------|----------|
| *Orientation to Early Childhood Development | 19051 | 1 credit |
| *Foundations to Early Childhood Development | 19052 | 1 credit |

Strand 2:

| | | |
|---|-------|-----------|
| *Human Growth and Dev. A | 45004 | .5 credit |
| or | | |
| *Human Growth and Dev. B | 45014 | 1 credit |
| *Family Studies | 22208 | .5 credit |
| *Foundations to Early Childhood Development | 19052 | 1 credit |

APPLICATION LEVEL

| | | |
|-----------------------------|-------|-----------|
| Early Childhood Application | 19098 | 1 credit |
| Community Connections | 22270 | .5 credit |
| Career Connections | 22275 | .5 credit |

**Required for pathway approval.*



HUMAN SERVICES CAREER CLUSTER DESIGN

Family, Community and Consumer Services Pathway

CIP Code 19.0799

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|--|-------|-----------|
| Career and Life Planning | 22207 | .5 credit |
| Introduction to Family and Consumer Sciences | 45001 | 1 credit |

TECHNICAL LEVEL

| | | |
|--------------------------------|-------|-----------|
| *Human Growth and Develop. A | 45004 | .5 credit |
| or | | |
| *Human Growth and Develop. B | 45014 | 1 credit |
| *Family Studies | 22208 | .5 credit |
| *Consumer and Personal Finance | 22210 | .5 credit |
| Nutrition and Wellness | 08057 | .5 credit |
| Culinary Essentials | 16052 | .5 credit |
| Leadership Service in Action | 22255 | .5 credit |

APPLICATION LEVEL

| | | |
|-----------------------|-------|-----------|
| Community Connections | 22270 | .5 credit |
| Career Connections | 22275 | .5 credit |

*Required for pathway approval.



HUMAN SERVICES CAREER CLUSTER DESIGN

Fashion, Apparel, Interior Design (FAID) Pathway

CIP Code 19.0999

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|--|-------|-----------|
| Career and Life Planning | 22207 | .5 credit |
| Introduction to Drawing | 30005 | .5 credit |
| **Drafting | 21102 | .5 credit |
| Introduction to Family and Consumer Sciences | 45001 | 1 credit |

TECHNICAL LEVEL (Select a strand at the division.)

| | | |
|---|-------|-----------|
| *Essentials of FAID | 30110 | .5 credit |
| FAID Merchandising and Entrepreneurship | 30112 | .5 credit |

Fashion and Apparel Design (Strand A)

| | | |
|-----------------------|-------|-----------|
| *Fashion Trends | 30111 | .5 credit |
| *Apparel Production I | 19201 | .5 credit |
| Apparel Production II | 19203 | .5 credit |

Interior Design (Strand B)

| | | |
|-----------------------|-------|-----------|
| *Interior Design I | 19263 | .5 credit |
| Interior Design II | 22212 | .5 credit |
| **Architecture Design | 21103 | 1 credit |

APPLICATION LEVEL

(Strands A and B)

| | | |
|--------------------|-------|-----------|
| FAID Studio | 30160 | 1 credit |
| Career Connections | 22275 | .5 credit |

*Required for pathway approval per strand.

**Only for Interior Design Strand.



INFORMATION TECHNOLOGY CAREER CLUSTER DESIGN

Information Support and Services Pathway

CIP Code 11.0301

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|-----------------------|-------------|----------|
| Computing Systems | 10002/60002 | 1 credit |
| Computer Applications | 10004/60004 | 1 credit |

TECHNICAL LEVEL

| | | |
|---|-------|----------|
| Computer Maintenance | 10252 | 1 credit |
| IT Essentials: PC Hardware and Software | 10254 | 1 credit |
| Database Applications | 10053 | 1 credit |
| Data Systems/Processing | 10054 | 1 credit |
| Computer Technology | 10251 | 1 credit |
| Information Support and Services | 10253 | 1 credit |
| CISCO Network Infrastructure Essentials | 10255 | 1 credit |
| Information Management | 10051 | 1 credit |

APPLICATION LEVEL

| | | |
|--|-------|----------|
| Database Management and Data Warehousing | 10052 | 1 credit |
| Particular Topics in Information Support and Service | 10055 | 1 credit |
| Educational Trainer | 10260 | 1 credit |
| Information Systems Project Management and Resource Scheduling | 31097 | 1 credit |



INFORMATION TECHNOLOGY CAREER CLUSTER DESIGN

Network Systems Pathway

CIP Code 11.0901

- APPROVED PATHWAY:**
1. Includes minimum of three secondary-level credits.
 2. Includes a work-based element.
 3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
 4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
 5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|-----------------------|-------------|----------|
| Computing Systems | 10002/60002 | 1 credit |
| Computer Applications | 10004/60004 | 1 credit |

TECHNICAL LEVEL

| | | |
|--|-------|----------|
| Network Technology | 10101 | 1 credit |
| Networking Systems | 10102 | 1 credit |
| Networking Infrastructure and Routing Essentials | 10105 | 1 credit |
| Telecommunications in Networking | 10106 | 1 credit |
| Wireless Networking | 10107 | 1 credit |
| Network Security | 10108 | 1 credit |
| IT Essentials: PC Hardware and Software | 10254 | 1 credit |

APPLICATION LEVEL

| | | |
|--|-------|----------|
| Applied Concepts of Networking Systems | 31095 | 1 credit |
| Network Systems Project Management and Resource Scheduling | 31099 | 1 credit |



INFORMATION TECHNOLOGY CAREER CLUSTER DESIGN

Programming and Software Development Pathway

CIP Code 11.0201

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|------------------------------------|-------------|-----------|
| Computing Systems | 10002/60002 | 1 credit |
| Computer Applications | 10004/60004 | 1 credit |
| Introduction to Computer Coding | 31001 | .5 credit |
| Introduction to Physical Computing | 31002 | .5 credit |

TECHNICAL LEVEL

| | | |
|--|-------|----------|
| Technical Introduction to Computer Science | 41010 | 1 credit |
| Computer Programming | 10152 | 1 credit |
| Database Applications | 10053 | 1 credit |
| Web Page Design | 10201 | 1 credit |
| Data Systems/Processing | 10054 | 1 credit |
| Computer Programming Other Language | 10156 | 1 credit |
| AP Computer Science Principles | 31094 | 1 credit |

APPLICATION LEVEL

| | | |
|---|-------|----------|
| Cyber Security | 41036 | 1 credit |
| AP Computer Science A | 10157 | 1 credit |
| IB Computing | 10159 | 1 credit |
| Particular Topics in Computer Programming | 10160 | 1 credit |
| Programming and Software Development Project Management | 31098 | 1 credit |



INFORMATION TECHNOLOGY CAREER CLUSTER DESIGN

Web and Digital Communications Pathway

CIP Code 11.1004

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|-----------------------|-------------|----------|
| Computing Systems | 10002/60002 | 1 credit |
| Computer Applications | 10004/60004 | 1 credit |

TECHNICAL LEVEL

| | | |
|----------------------|-------------|----------|
| Web Page Design | 10201 | 1 credit |
| Computer Graphics | 10202 | 1 credit |
| Interactive Media | 10203 | 1 credit |
| Graphic Design | 05162/11154 | 1 credit |
| Computer Programming | 10152 | 1 credit |
| Internet Marketing | 12162 | 1 credit |
| Animation | 10210 | 1 credit |

APPLICATION LEVEL

| | | |
|---|-------|----------|
| Particular Topics in Media Technology | 10204 | 1 credit |
| IB Information Technology in Global Society | 10007 | 1 credit |
| Emerging Technologies - Computing | 10040 | 1 credit |
| Game Design and Authoring for the Web | 10165 | 1 credit |
| Web and Digital Communications Project Management | 31096 | 1 credit |



**LAW, PUBLIC SAFETY, CORRECTIONS AND SECURITY
CAREER CLUSTERS DESIGN**

Emergency and Fire Management Services

CIP Code 43.0299

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|--|-------|-----------|
| *Introduction to Law Public Services and Security (LPSS) | 44001 | .5 credit |
| History of Emergency Medical Services | 44005 | .5 credit |

TECHNICAL LEVEL

| | | |
|---|--------------|------------------|
| First Aid/CPR/EMR | 44050 | .5 credit |
| EMT I | 44060 | 1 credit |
| Public Safety Physical Education | 44020 | 1 credit |
| Hazardous Materials for the First Responder | 44070 | .5 credit |
| Fire Science I | 44100 | 1 credit |

APPLICATION LEVEL

| | | |
|---|--------------|------------------|
| **Fire Science II | 44101 | 1 credit |
| **LPSS Internship | 44298 | .5 credit |
| Public Safety Telecommunications | 44220 | .5 credit |
| **EMT II | 44065 | 1 credit |

**Required for pathway approval.*

***Has a prerequisite course. LPSS Internship (44298) must be preceded by EMT or Fire Science.*

First Aid/CPR is included in Fire Science.

Boldfaced courses may require specialized teacher certification and/or offer professional certification.

**LAW, PUBLIC SAFETY, CORRECTIONS AND SECURITY
CAREER CLUSTERS DESIGN**

**Corrections, Security, Law and
Law Enforcement Services**

CIP Code 43.0199



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|--|-------|-----------|
| *Introduction to Law Public Services and Security (LPSS) | 44001 | .5 credit |
|--|-------|-----------|

TECHNICAL LEVEL

Pre-Law Strand

| | | |
|-------------------------|-------|-----------|
| *Business Law | 12054 | .5 credit |
| *Practical Law | 44300 | .5 credit |
| Business Economics | 12105 | .5 credit |
| Accounting | 12104 | 1 credit |
| Business Management | 12052 | .5 credit |
| Business Communications | 12009 | .5 credit |

Law Enforcement Strand

| | | |
|---|--------------|------------------|
| Law Enforcement I | 44200 | 1 credit |
| First Aid/CPR/EMR | 44050 | .5 credit |
| Public Safety Physical Education | 44020 | 1 credit |
| Hazardous Materials for the First Responder | 44070 | .5 credit |
| Forensic Science | 44224 | .5 credit |
| Forensic Science Comprehensive | 44225 | 1 credit |

APPLICATION LEVEL

Pre-Law Strand

| | | |
|--------------------|-------|-----------|
| Foundations in Law | 44305 | 1 credit |
| Youth Court | 44310 | 1 credit |
| **LPSS Internship | 44298 | .5 credit |

Law Enforcement Strand

| | | |
|-------------------------------|--------------|------------------|
| **Law Enforcement II | 44201 | 1 credit |
| Certified Protection Officer | 44210 | .5 credit |
| Corrections Officer | 44215 | .5 credit |
| Public Safety Telecom. | 44220 | .5 credit |
| **Forensic Science II | 44226 | 1 credit |
| **LPSS Internship | 44298 | .5 credit |

**Required for pathway and/or strand.*

***Has a prerequisite course.*

Boldfaced courses may require specialized teacher certification and/or offer professional certification.



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

MANUFACTURING CAREER CLUSTER DESIGN

Manufacturing Pathway

CIP CODE 48.0000

INTRODUCTORY LEVEL

| | | |
|---------------------------------------|-------|-----------|
| Introduction to Industrial Technology | 38001 | .5 credit |
| Production Blueprint Reading | 21108 | .5 credit |
| *Introduction to Welding | 13207 | .5 credit |

TECHNICAL LEVEL

Production Strand

| | | |
|---|---------------|-----------|
| Manufacturing Processes | 13002 | 1 credit |
| Advanced Production Blueprint Reading | 39108 | .5 credit |
| Drafting/CAD | 21107 | 1 credit |
| Production Welding Processes I (Agricultural Welding) | 39207 (18404) | 1 credit |
| Machine Tool Technology | 13203 | 1 credit |
| Mass Production | 13052 | 1 credit |
| Computer-Aided Manufacturing (CAM) | 13204 | 1 credit |

Maintenance Strand

| | | |
|--|-------|-----------|
| Skilled Mechanical Crafts | 17062 | .5 credit |
| Advanced Production Blueprint Reading | 39108 | .5 credit |
| Machine Tool Technology 1a | 39203 | .5 credit |
| Maintenance Welding Processes | 13208 | 1 credit |
| Mechanical Power Transmission and Conveyor Systems | 13302 | .5 credit |

APPLICATION LEVEL

Production Strand

| | | |
|---|---------|-----------|
| **Advanced Drafting/CAD | 21150 | 1 credit |
| **Advanced Materials Technology | 38010 | 1 credit |
| **Automated Systems | 39010 | .5 credit |
| **Machine Tool Technology II | 39204 | 1 credit |
| **Mass Production II | 39052 | 1 credit |
| | 39208 | |
| **Production Welding Processes II (Ag Welding II) | (18407) | 1 credit |
| **Research and Design for Manufacturing | 13998 | 1 credit |

Maintenance Strand

| | | |
|-------------------------------------|-------|-----------|
| Remodeling and Building Maintenance | 17009 | .5 credit |
| Sheet Metal and HVACR | 38012 | 1 credit |
| Sheet Metal Technology | 13205 | .5 credit |
| HVAC Technology | 17056 | .5 credit |
| Plumbing Technology | 17058 | .5 credit |
| Electrical and Security Systems | 17113 | .5 credit |
| **Hydraulics and Pneumatics | 39302 | .5 credit |
| Work-Based Maintenance Experience | 13348 | .5 credit |

*Production strand only.

**Has a specific prerequisite course(s) – See Competency Profile for details.



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

MARKETING CAREER CLUSTER DESIGN

Marketing Pathway

CIP Code 52.1402

INTRODUCTORY LEVEL

| | | |
|----------------------|-------|-----------|
| *Business Essentials | 12050 | .5 credit |
|----------------------|-------|-----------|

TECHNICAL LEVEL

| | | |
|---------------------------|-------|-----------|
| **Business Communications | 12009 | .5 credit |
|---------------------------|-------|-----------|

| | | |
|--------------------------|-------|----------|
| *Principles of Marketing | 12164 | 1 credit |
|--------------------------|-------|----------|

Technical Supportive Courses (Optional)

| | | |
|--------------------------------|-------------|-----------|
| Accounting | 12104 | 1 credit |
| Business Economics | 12105 | .5 credit |
| Business Management | 12052 | .5 credit |
| Computer Graphics | 10202 | 1 credit |
| Digital Marketing | 35162 | .5 credit |
| Entrepreneurship | 12053 | .5 credit |
| Graphic Design | 05162/11154 | 1 credit |
| Principles of Advertising | 12165 | .5 credit |
| Sports/Entertainment Marketing | 12163 | .5 credit |
| Web Page Design | 10201 | 1 credit |

APPLICATION LEVEL

| | | |
|-------------------------|-------|----------|
| *Marketing Applications | 35300 | 1 credit |
|-------------------------|-------|----------|

Application Supportive Courses (Optional)

| | | |
|-----------------------------------|-------|-----------|
| Integrated Marketing Applications | 12195 | .5 credit |
| Marketing - Workplace Experience | 12198 | .5 credit |
| Marketing Management | 12166 | 1 credit |
| Marketing Research | 12196 | 1 credit |
| Marketing Communications | 35168 | .5 credit |

* Required for pathway approval and used for assessing mastery of knowledge of marketing completers.

** Course is not required for pathway approval, but strongly recommended by external review committee and Kansas Advisory Committee for Career and Technical Education (KACCTE).

Shaded courses - Marketing Completer Assessment aligns directly with MBA Research's 2 - Credit Standard Marketing Program of Study Exam.



TRANSPORTATION CAREER CLUSTER DESIGN

Aviation Maintenance Pathway

CIP CODE 47.0608

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|---------------------------------------|-------|-----------|
| Introduction to Industrial Technology | 38001 | .5 credit |
| Production Blueprint Reading | 21108 | .5 credit |

TECHNICAL LEVEL

| | | |
|------------------------|-------|-----------|
| *Hand and Power Tools | 40400 | .5 credit |
| *Aviation Fundamentals | 40410 | .5 credit |
| Aviation Systems | 40420 | 1 credit |

Avionics Strand

| | | |
|----------------------------|-------|----------|
| Foundations of Electronics | 21201 | 1 credit |
|----------------------------|-------|----------|

Engine Maintenance Strand

| | | |
|----------------------------|-------|----------|
| Foundations of Electronics | 21201 | 1 credit |
| Aviation Engine Basics | 40430 | 1 credit |

APPLICATION LEVEL**Avionics Strand**

| | | |
|-------------------------------------|-------|-----------|
| AC Electronics | 40450 | .5 credit |
| DC Electronics | 40460 | .5 credit |
| Microcontrollers | 40470 | 1 credit |
| Integrated Circuits | 40480 | 1 credit |
| Drones | 40490 | 1 credit |
| Digital Electronics | 21008 | 1 credit |
| Workplace Experience in Engineering | 41048 | .5 credit |

Engine Maintenance Strand

| | | |
|-------------------------------------|-------|-----------|
| Aviation Engine Performance I | 40500 | 1 credit |
| Aviation Engine Performance II | 40510 | 1 credit |
| Aviation Material Processes | 40520 | 1 credit |
| Aviation Pneumatics and Hydraulics | 40530 | 1 credit |
| Workplace Experience in Engineering | 41048 | .5 credit |
| Workplace Experience | 21048 | 1 credit |

* Courses required for Pathway approval.



APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

TRANSPORTATION CAREER CLUSTER DESIGN

Mobile Equipment Maintenance Pathway

CIP Code 47.9999

AUTOMOTIVE COLLISION STRAND

INTRODUCTORY LEVEL

| | | |
|--|-------|-----------|
| *Introduction to Industrial Technology | 38001 | .5 credit |
| *Introduction to Transportation Automotive Information | 40100 | .5 credit |
| 40050 | | .5 credit |
| Business Essentials | 12050 | .5 credit |

TECHNICAL LEVEL

| | | |
|--------------------------------|-------|-----------|
| ***Entrepreneurship | 12053 | .5 credit |
| Auto Collision I | 40300 | 1 credit |
| Auto Refinishing Comprehensive | 40308 | 1 credit |

APPLICATION LEVEL

| | | |
|--|-------|-----------|
| **Auto Collision II | 40302 | 1 credit |
| **Custom Refinishing A | 40314 | .5 credit |
| **Custom Refinishing B | 40315 | .5 credit |
| Research and Emerging Trends in Transportation | 40250 | .5 credit |
| or | | |
| Research and Emerging Trends in Transportation | 40251 | 1 credit |

* One of these two courses is required for pathway approval.

** Has a prerequisite course.

*** Will not count as one of the 3 required secondary level credits for pathway approval. Will count as a funded course.



TRANSPORTATION CAREER CLUSTER DESIGN

Mobile Equipment Maintenance Pathway

CIP Code 47.9999

AUTOMOTIVE TECHNOLOGY STRANDS

APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence: Introductory-level, Technical-level and Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

INTRODUCTORY LEVEL

| | | |
|--|-------|-----------|
| *Introduction to Industrial Technology | 38001 | .5 credit |
| *Introduction to Transportation | 40100 | .5 credit |
| Automotive Information | 40050 | .5 credit |
| Business Essentials | 12050 | .5 credit |

TECHNICAL LEVEL

| | | |
|-----------------------------------|-------|-----------|
| Small Gas Engines and Powertrains | 40212 | 1 credit |
| Alternative Power | 40210 | .5 credit |
| Engine Mechanical Repair | 40216 | .5 credit |
| Diesel Engine Technology | 40218 | .5 credit |
| ***Entrepreneurship | 12053 | .5 credit |

Strand One

| | | |
|-------------------|-------|----------|
| General Service I | 40150 | 1 credit |
|-------------------|-------|----------|

Strand Two

| | | |
|---|-------|-----------|
| Fundamentals of Electronic/Electrical Systems | 40200 | 1 credit |
| Brakes | 40204 | .5 credit |
| Drive Train Technology | 40208 | .5 credit |
| Engine Performance I | 40220 | .5 credit |
| Steering/Suspension | 40224 | .5 credit |
| Mobile HVAC | 40228 | .5 credit |

APPLICATION LEVEL

| | | |
|--|----------------|-----------------------|
| Research and Emerging Trends in Transportation or Research and Emerging Trends in Transportation | 40250 40251 | .5 credit 1 credit |
|--|----------------|-----------------------|

Strand One

| | | |
|-----------------------|-------|----------|
| **General Service II | 40152 | 1 credit |
| **General Service III | 40154 | 1 credit |

Strand Two

| | | |
|---------------------------------------|-------|-----------|
| **Adv. Electronics/Electrical Systems | 40202 | 1 credit |
| **Advanced Brakes | 40206 | .5 credit |
| **Engine Performance II | 40222 | 1 credit |
| **Advanced Steering/Suspension | 40226 | .5 credit |
| **Advanced Small Engines/Powertrains | 40214 | 1 credit |

* One of these two courses is required for pathway approval.

** Has a prerequisite course.

*** Will not count as one of the 3 required secondary level credits for pathway approval. Will count as a funded course.

KANSAS CAREER CLUSTERS TERMINOLOGY

As we design and implement the Career Clusters/Pathways Program of Study into the Kansas educational system, we find it imperative to have some common terms and definitions that are used consistently throughout the state. To that end, we provide the following terms and definitions as a resource.

APPLICATION LEVEL COURSE: An advanced level course that builds on the technical level course and includes opportunities for the learner to demonstrate knowledge learned through practical application of skills. It may include experiences such as an internship, health science clinical, SAE, or school-based training/marketing.

ARTICULATION: A systematic, seamless student transition process from secondary to postsecondary education that maximizes use of resources and minimizes duplication.

ARTICULATION AGREEMENT: A written commitment that is agreed upon at the state level or approved annually by the lead administrators of a secondary institution and a postsecondary institution, or a sub-baccalaureate degree granting postsecondary institution and a baccalaureate degree granting institution; to a program that is designed to provide students with a non-duplicative sequence of progressive achievement leading to technical skill proficiency, a credential, a certificate or a degree and is linked through credit transfer agreements between the two institutions.{{Section 3(4)} Perkins Act of 2006: The Official Guide} For Kansas use: the Articulation Agreement does not have to include a Credit transfer agreement (Advanced Placement Credit). It must include a seamless progression from one level to the next and may include such incentives as scholarships.

CAREER AND TECHNICAL EDUCATION (CTE): Organized educational activities that offer a sequence of courses that provide individuals with coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in current or emerging professions. It provides technical skill training leading to, an industry-recognized credential, a certificate, or an associate degree, may include prerequisite courses (other than remedial courses) that meet other requirements; and include competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, occupation-specific skills, and knowledge of all aspects of an industry, including

entrepreneurship of an individual. [Section3 (5) Perkins Act of 2006: The Official Guide]

CAREER AND TECHNICAL EDUCATION (CTE) COURSE: A CTE course (for an approved cluster/pathway) is one in a progression leading from introductory to technical to application levels that support state and national standards and competencies. The foundation for CTE courses is the inclusion of knowledge and skills that all students should achieve for a given career. Each course is required to provide enhanced and improved instruction through the integration of rigorous academics, career success skills, career development skills and student leadership. Courses may include experience-based learning opportunities. Courses, if applicable, can be articulated with a postsecondary institution for advanced placement credit. A course can be a part of a sequence of courses that creates an overall program of study assisting the student in preparing an individual plan of study.

CAREER AND TECHNICAL EDUCATION (CTE) SEQUENCE OF COURSES: Those courses that include the career cluster pathway knowledge and skills as recognized by the Career Clusters. These courses provide learners with rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in current or emerging professions, provides technical skill proficiency, an industry-recognized credential, a certificate, or a postsecondary degree, may include prerequisite courses (other than remedial courses) that meet other requirements. Career and Technical education courses may begin at eighth grade and do not include career exploration courses. Academic courses are counted only if they reflect industry skill standards.

CAREER AND TECHNICAL STUDENT

ORGANIZATIONS (CTSOs): Student-led organizations which are aligned and integrated into CTE programs at the middle, secondary and/or post-secondary institutions. Members develop and demonstrate leadership, personal growth, civic engagement, technical skills and 21st century skills in authentic, real world applications.

CAREER CLUSTER(S): Divisions of the seven Kansas fields that include occupations organized around knowledge and skills that have common characteristics and job duties. Kansas identifies 16 broad clusters:

1. Agriculture, Food and Natural Resources;
2. Architecture and Construction;
3. Arts, A/V Technology and Communications;
4. Business, Management and Administration;
5. Education and Training;
6. Engineering;
7. Finance;
8. Government and Public Administration;
9. Health and Bio Science;
10. Hospitality and Tourism;
11. Human Services;
12. Information Technology;
13. Law, Public Safety and Security;
14. Manufacturing;
15. Marketing; and
16. Transportation.

CAREER SUCCESS SKILLS: Foundational skills that are essential for success in all careers; including applied knowledge (academic and critical thinking skills), effective relationships (interpersonal skills and personal qualities), and workplace skills (resource management, information and communication, systems thinking and technology). Kansas CTE has identified the US Department of Education's Employability Skills Framework as a model of career success skills.

COMPLETER: A student who has completed a minimum of three (3) secondary level credits in a single CTE pathway, with at least two (2) of those credits being a combination of technical and application level courses. A Completer must also earn an industry-recognized certification or a passing score on a third-party, end-of-pathway assessment.

CONCENTRATOR: A student who has earned two (2) or more secondary level credits in a single CTE pathway, which are a combination of at least two of the three levels: Introductory, Technical and Application and meets a 70% proficiency on a technical skills assessment measured by the average of the letter grades, an average percentage on end-of-course assessments, or on the competency profile

CROSSWALK (COMMON) COURSE: A course that is approved for inclusion in more than one Career Cluster pathway.

COURSE COMPETENCY: Statement that describes a unit of instruction (or duty area) related to course outcomes. A competency statement contains an active verb (that is observable and measurable) and a noun (instructional area). Specified competencies are identified and validated by business and industry and supported by the local advisory committee.

CTE SCHOLAR: See Kansas CTE Scholar

CIVIC ENGAGEMENT: The sharing of personal skills and knowledge through actions intended to improve communities, states, nations, the world and themselves.

HIGH-DEMAND OCCUPATION: An occupation that:

1. Has a critical shortage of workers to fill the employment demands of industry, and
2. Requires formal training exceeding that which can be provided on the job.

HIGH-SKILL OCCUPATION: An occupation that requires all of the following:

1. Specialized technical training,
2. An advanced level of skill sets as defined by each industry and/or education (examples: independent decision making, critical thinking, problem solving),
3. A recognized validation of skill attainment or credential (examples: certification, registration, licensure), and
4. Included mandatory continuing education and/or training.

HIGH-WAGE OCCUPATION: An occupation that:

1. Has a median wage for the occupation that is at least 200% above federal poverty level for a specific area/region or an entry wage of \$11.43 or higher, and
2. Offers a wage progression strategy.

INDIVIDUAL PLAN OF STUDY: An individual plan developed by a student (with guidance) to help guide them through the education process. It includes interest assessments to help students identify career preferences, assists with course selections based on career interests, looks at their postsecondary options, and has a portable electronic portfolio.

INTERNSHIP: A supervised work-based experience that links a learner with an employer for a planned set of activities designed to give the learner a broad overview of a business or occupational field (can be for a short or long term period/paid or unpaid).

INTRODUCTORY LEVEL COURSE: An introduction to a specific or multiple clusters or pathways that require similar foundation knowledge and skills. Taken prior to the technical and application level courses.

KANSAS CAREER FIELD(S): Occupations that are organized around broad, common knowledge and skills. They are recognized as Media and Technology; Business; Agriculture; Design, Production, and Repair; Health; Public Services; and Family and Consumer Sciences.

KANSAS CAREER PATHWAY(S): Organized groupings of rigorous academic and career related courses leading from education to employment, that identify each step, skill, educational requirement and aptitude needed to be successful within any specific career. Currently there are 37 state-approved pathways identified within the 16 clusters.

KANSAS COMMON COURSE CODE: An alphanumeric code used as a standard course description for secondary education that is intended to help schools and education agencies maintain longitudinal information about students' coursework

in an efficient, standardized format that is consistent from one system to the next.

KANSAS CTE SCHOLAR: An outstanding career and technical education student in their senior year who has met criterion to indicate their well-rounded development.

PARTICIPANT: A student who has earned a minimum of .5 credit, but less than two (2) secondary level credits in a single career and technical education (CTE) pathway.

PROFESSIONAL LEARNING EXPERIENCE (WORK-BASED EXPERIENCE): Experience based on a learner's career interest that partners the learner with the school, community and/or business/industry. It provides career or work opportunities above and beyond the classroom; may provide instruction in all aspects of the industry. These experiences are most commonly in application level courses.

PROFICIENCY CREDIT: Full or partial academic and/or CTE credit awarded to a student who has successfully demonstrated they have simultaneously met standards and expectations in more than one high school course through integrated academic and/or CTE courses.

PROGRAM(S) OF STUDY (POS): Plan that incorporates secondary education and postsecondary education elements; includes academic and career and technical content in a coordinated, non-duplicative progression of courses; and leads to an industry-recognized credential or certificate at the postsecondary level, or an associate or bachelor's degree. The Program of Study is a requirement for Pathway approval.

TECHNICAL LEVEL COURSE: A course that builds on the knowledge and skills learned in the introductory level course, with a focus on acquiring practical technical skills specific to the cluster/pathway.

21st CENTURY SKILLS: Skills that are essential for workplace/career success; including: critical thinking/problem solving skills, communication skills, creativity and innovation skills, collaboration skills, information and media literacy skills, and contextual learning skills. They are integrated into what is known as 21st Century Content: global awareness, financial, economic, business and entrepreneurial literacy, civic literacy, health and wellness awareness, and environmental literacy.

UNIT OF CREDIT: A measure of credit that may be awarded to a student for satisfactory completion of a particular course or subject. A full unit of credit is that which generally requires 120 clock hours to complete. Credit may be awarded in increments based upon the amount of time a course or subject is offered and generally requires to complete. Individual students may be awarded credit based upon demonstrated knowledge of the content of a course or subject, regardless of the amount of time spent by the student in the course or subject. (Article 6, Section 2(a) of the Kansas Constitution)

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ADVISORY COMMITTEE INFORMATION

An Advisory Committee is a group of persons outside the education profession, comprised of representative lay-people, recognized and respected in their own fields of work who advise CTE educators, administrators, and local board of education members regarding clusters/pathways, based on the employment needs of the community, state, regional, national, and international marketplace.

ADVISORY COMMITTEE DESIGN: Each CTE cluster or pathway must establish its own industry-unique Advisory Committee. The committee can serve multiple pathways within a cluster, but the committee as a whole cannot serve multiple clusters. An individual may serve on more than one cluster advisory committee; if appropriate (i.e. a welder could serve on both the Agriculture and Manufacturing Cluster Advisory Committees).

GOALS, OBJECTIVES AND ACTIVITIES: The Advisory Committee members evaluate the Career and Technical Education (CTE) cluster/pathway they are serving and advise the CTE coordinator and local administration on improvement of the cluster/pathway. Suggestions for an advisory's committee's input include:

- Analyze the course content.
- Assist with selecting appropriate industry credentials/certifications.
- Evaluate facilities, program equipment, teacher resources, and textbooks.
- Assist with the instructional and learning experience.
- Assist with internship and job opportunities
- Form partnerships.
- Advise on Short- and Long-range planning.
- Provide recommendations for pathway improvement.

ORGANIZATION OF AN ADVISORY

COMMITTEE: Considerable attention should be given to the careful selection of members of the local Advisory Committee. The membership of a Career Cluster/Pathway Advisory Committee must include a minimum of three (3) representatives from business/industry with the optional addition of a postsecondary representative and a current student from its respective cluster/pathway. Business/Industry members need to make their living in areas related to the pathway.

- Membership of a Cluster level Advisory Committee would include a minimum of three representatives from business/industry for each pathway within the cluster.
- Ex-Officio (non-voting) members of the committee include district staff and administration representatives. District staff members are strongly encouraged to attend and participate in Advisory Committee meetings, even though they are non-voting members.

ADVISORY COMMITTEE MEETINGS: Meetings are conducted a minimum of twice each school year with a focus on evaluating the current pathway(s). Annual discussion should include an evaluation of why the program exists.

PATHWAY IMPROVEMENT PLAN: A written Pathway Improvement Plan is required for each approved pathway and is to be kept on file locally and updated annually. A plan that shows growth across a three-year period is required and should be written in S.M.A.R.T. Goal format. Topics should include goals for:

- Teacher Professional Development
- Physical Environment (Updating equipment and facilities)
- Instructional Strategies (Updating teacher resources, course additions, deletions, etc.)
- Partnerships (With parents, community, business/industry, and postsecondary institutions)
- Other

The Plan should be developed and approved by the Advisory Committee members and should be presented to the local Board of Education annually.

For More Information on Advisory Committees: please consult the complete *Advisory Committee Handbook 2017* (https://www.ksde.org/Portals/0/CSAS/CSAS%20Home/CTE%20Home/Business_Industry/Advisory%20Committee%20Handbook%202017.pdf).

REGIONAL ADVISORY COMMITTEES: A Regional Advisory Committee is one that represents multiple schools/districts that have the same state approved pathway. Some guidelines for Regional Advisory Committees are as follows:

- Need to include business members that represent all communities included on the committee
- Need to include postsecondary members that represent all programs covered within the pathway
- Each meeting needs to speak to each school's specific pathway successes, concerns, improvements, etc.
- Need to develop Improvement Plans for each specific school represented
- Each school needs meeting minutes specific to their school that are kept on file locally.

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PATHWAY CROSSOVER COURSE INFORMATION

Several of our Pathway courses are utilized in more than one Pathway. The following pages contain a chart that shows which courses are in multiple Pathways.

| Cluster Colors | Course Titles | SCED | Agriculture | | | | | | | | | | | | Architecture & Construction; Manufacturing; Engineering, and Transportation | | | | | | | | | | | | AV Technology; Information Technology | | | | | | | | | | | | Public Services | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|---------------|------|--|---|-----------------------------------|--|--|--|-------------------------------------|--|------------------------------------|--|-------------------------------------|--|---|--|---|--|-----------------------------------|--|------------------------------|--|---------------------------------------|--|-------------------------------|--|---------------------------------------|--|--|--|--------------------------------------|--|--------------------------------------|--|--------------------------|--|----------------------------------|--|-----------------------------------|--|-------------------------------------|--|------------------------|--|--------------------------------------|--|--|--|--------------------------|--|------------------------------|--|---------------------------------------|--|-------------------------------------|--|----------------------------------|--|---|--|------------------|--|--|--|-------------------------------|--|-----------------------------------|--|---------------------------|--|----------------------------------|--|--------------------|--|------------------------|
| | | | Business Management, Marketing, Finance, and Hospitality & Tourism | | | | Education & Training; LPSS; Human Services; and Government | | | | Health Sciences | | | | Engineering & Construction; Manufacturing; Engineering, and Transportation | | | | Manufacturing & Maintenance | | | | Digital Media | | | | Software Development | | | | Information Technology | | | | Public Services | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | Agribusiness Systems 01.0101 | X | Comp. Agriculture Science 01.9999 | | Animal Science 01.0901 | | Botechnology in Agriculture 23.1201 | | Food Prod. & Proc. Systems 01.0401 | | Natural Res. & Env. Systems 03.0101 | | Plant Systems 01.1101 | | Power, Structural & Tech. Systems 01.0201 | | Aviation Production 15.0000 | | Aviation Maintenance 47.0000 | | Cartogr./Geospat/Spatial Math 15.1102 | | Construction & Design 46.0000 | | Energy 17.2071 | | Engineering & Appl. Math 14.0101 | | Manufacturing 48.0000 | | Mobile Equipment Maintenance 47.9999 | | Digital Media 09.0702 | | Info. Support & Services 11.0301 | | Network Systems 11.0901 | | Programming & Software Dev. 11.0201 | | Graphic Design 50.0499 | | Web & Digital Communications 11.1004 | | Business Mgmt & Entrepreneurship 52.0799 | | Business Finance 52.0801 | | Marketing 52.1402 | | Restaurant & Event Management 12.0504 | | Travel & Tourism 52.0901 | | Early Childhood Develop. 19.0709 | | Family, Consumer & Community Srv. 19.0799 | | F.A.L.D. 19.0999 | | Corrections, Security, Law & Law Enforcement 43.0199 | | Emergency & Fire Mgmt 43.0299 | | Government & Public Admn. 44.0401 | | Teaching/Training 13.0101 | | Biochemical/Green/Hazmat 14.1401 | | BioMedical 14.0501 | | Health Science 51.9999 |
| | | | Natural Resource Mgmt 18504 | | Nutrition & Wellness 08057 | | Particular Topics in Engineering 21015 | | Pharmacology 14253 | | Photo Imaging 30105 | | Plant & Soil Science 18058 | | Plumbing Technology 17058 | | Practical law 44300 | | Prin. Of Biomedical Science 14251 | | Prin. Of Marketing 12164 | | Production Blueprint Reading 21108 | | Prod. Welding I 39207 | | Prod. Welding II 39208 | | Public Safety Physical Education 44020 | | Public Safety Telecommunicator 44220 | | Remodel & Bldg. Maintenance 17009 | | Research in Agric. 18206 | | Residential Carpentry I 17002 | | Residential Interior Design 22212 | | Robotics 21009 | | Sheet Metal 13205 | | Sheet Metal & HVACR 38012 | | Skilled Mechanical Crafts 17062 | | Web Page Design 10201 | | Woodworking Principles 17007 | | Workplace Experience 21048 | | Workplace Exp. in Engineering 41048 | | Youth Court 44310 | | | | | | | | | | | | | | | | | | |



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