



CAREER CLUSTER GUIDANCE HANDBOOK

Kansas Career & Technical Education



Kansas Career Cluster Pathway Design Models
Effective School Year 2017-2018

KANSAS CAREER & TECHNICAL EDUCATION

Kansas' secondary Career & Technical Education (CTE) Division has adopted the National Career Clusters model of 16 career clusters and has developed 35 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 college and career readiness. Career Clusters link what students learn in school to the knowledge and skills they need for success in college or further 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 35 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 2017-2018. 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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The Kansas State Department of Education does not discriminate on the basis of race, color, national origin, sex, disability, or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: KSDE General Counsel, KSDE, Landon State Office Building, 900 SW Jackson St., Ste. 102, Topeka, KS 66612; 785-296-3201

 <p>Kansas State Department of Education Landon State Office Building 900 SW Jackson St., Suite 600 Topeka, Kansas 66612-1212 www.ksde.org</p>	 <p>KANSAS COMMISSIONER OF EDUCATION Dr. Randy Watson (785) 296-3202</p>	 <p>DIVISION OF LEARNING SERVICES Brad Neuenswander Deputy Commissioner (785) 296-2304</p>	 <p>DIVISION OF FISCAL AND ADMINISTRATIVE SERVICES Dale M. Dennis Deputy Commissioner (785) 296-3871</p>
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The Kansas State Department of Education does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities and provides equal access to the Boy Scouts and other designated youth groups. The following person has been designated to handle inquiries regarding the non-discrimination policies: KSDE General Counsel, Office of General Counsel, KSDE, Landon State Office Building, 900 SW Jackson, Suite 102, Topeka, KS 66612-1212, (785) 296-3201

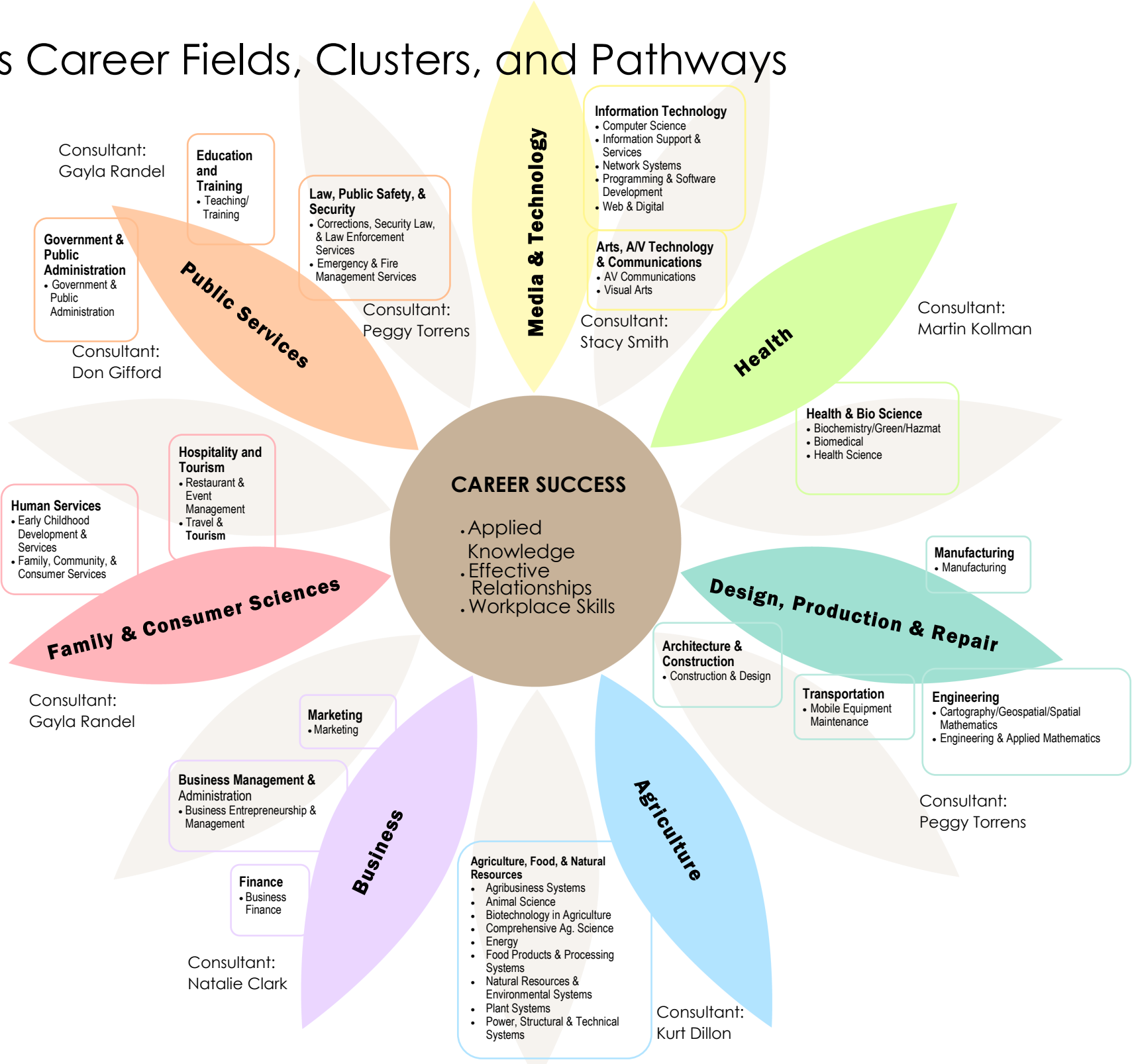
JULY 2015

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Kansas Career Fields, Clusters, and Pathways

State-developed secondary-level pathways lead to: High-demand and high-wage careers with postsecondary connections and/or industry credentials with labor market value.



KSDE Secondary-Level CTE Contacts – 2017 - 18

CTE ASSISTANT DIRECTOR

- **Jay Scott** (jscott@ksde.org) 785-296-0979
 - **Tiffany Hoffman, Senior Assistant** (thoffman@ksde.org) 785-296-0979

CLUSTERS / PATHWAYS

Agriculture, Food, and Natural Resources

- **All Pathways**
Kurt Dillon (kdillon@ksde.org) 785-296-3956

Architecture & Construction

Manufacturing

Transportation, Distribution & Logistics

Law, Public Safety, & Security

Engineering

- **All Pathways**
Peggy Torrens (ptorrens@ksde.org) 785-296-2221

Education and Training

Human Services

Hospitality & Tourism

- **All Pathways**
Gayla Randel (grandel@ksde.org) 785-296-4912

Business Management & Administration

Finance

Marketing

- **All Pathways**
Natalie Clark (ndclark@ksde.org) 785-296-4916

Government and Public Administration

- **Pathway**
Don Gifford (dgifford@ksde.org) 785-296-3892

Biochemistry

Biomedical

Health Science

- **All Pathways**
Martin Kollman (mkollman@ksde.org) 785-296-2307

Arts, A/V Technology, and Communications

Information Technology

- **All Pathways**
Stacy L. Smith (slsmith@ksde.org) 785-296-7285

CTSO's

- **BPA / DECA**
State Advisor - (Vacant – Contact Jay Scott jscott@ksde.org 785-296-4351)
- **FBLA**
Conference Chair - Connie Lindell (cnlindell@aol.com)
- **FCCLA**
State Advisor - Pam Lamb (plamb@ksde.org) 785-296-2164
- **FFA**
State Advisor – Kurt Dillon (kdillon@ksde.org) 785-296-3956
Executive Secretary- Mary Kane (mrkane@k-state.edu) 785-532-6424
- **HOSA**
State Advisor – Wendy Coates (wcoates@ksde.org) 785-296-3860
- **SkillsUSA**
State Advisor -Becky Warren (bwarren@ksde.org) 620-820-9367
- **TSA**
State Advisor -Carolyn Cole (Cole4ktsa@gmail.com)

CARL D. PERKINS

- **Lead:** Martin Kollman (mkollman@ksde.org) 785-296-2307
- **Helpdesk:** Peggy Torrens (ptorrens@ksde.org) 785-296-2221
- **Appl. Review:** Kurt Dillon (kdillon@ksde.org) 785-296-3956
- **Non-Traditional / Corrections:** Martin Kollman (mkollman@ksde.org) 785-296-2307
- **Allocations / Performance Indicators:**
Angie Feyh (afeyh@ksde.org) 785-296-4908
- **Office of Civil Rights Visits:** Wendy Coates (wcoates@ksde.org) 785-296-3860

OTHER AREAS

- **Pathways Authenticated Application Assistance**
Pathwayshelpdesk@ksde.org 785-296-4908
- **K-12 Career Development**
Kent Reed (kreed@ksde.org) 785-296-8109
- **KS Course Code Mgmt. System (KCCMS)**
kccms@ksde.org 785-296-2078
- **Teacher Licensure / EDCS**
Susan Helbert (shelbert@ksde.org) 785-296-2289
Lori Adams (ladams@ksde.org) –785-296-3835
- **KIDS**
Kids@ksde.org

CLUSTER/PATHWAY C.I.P. CODES

Agriculture, Food & Natural Resources		Health Science	
Agribusiness Systems*	01.0101	BioChemistry*	14.1401
Agriculture Science	01.9999	BioMedical	14.0501
Animal Science*	01.0901	Health Science**	51.9999
Biotechnology in Agriculture	26.1201		
Energy	17.2071	Hospitality & Tourism	
Food Products & Processing Systems*	01.0401	Restaurant & Event Management	12.0504
Natural Res. & Environmental Systems*	03.0101	Travel & Tourism	52.0901
Plant Systems*	01.1101		
Power, Structural & Technical Systems*	01.0201	Human Services	
		Early Childhood Development & Services**	19.0709
Architecture & Construction		Family, Community & Consumer Services	19.0799
Construction & Design*	46.0000		
		Information Technology	
Arts, A/V Technology & Communications		Computer Science Engineering	11.0701
AV Communications	09.0702	Information Support & Services	11.0301
Visual Arts	50.0499	Network Systems*	11.0901
		Programming & Software Development*	11.0201
Business Management & Administration		Web & Digital Communications	11.1004
Business Entrepreneurship & Management	52.0799		
		Law, Public Safety, Corrections & Security	
Education & Training		Corrections, Security, Law, & Law Enforcement Services*	43.0199
Teaching / Training**	13.0101	Emergency & Fire Management Services*	43.0299
Engineering		Manufacturing	
Cartography/Geospatial/Spatial Math*	15.1102	Manufacturing*	48.0000
Engineering & Applied Mathematics	14.0101		
		Marketing	
Finance		Marketing	52.1402
Business Finance	52.0801		
		Transportation, Distribution & Logistics	
Government & Public Administration		Mobile Equipment Maintenance*	47.9999
Government & Public Administration	44.0401		

*Indicates Non-Trad Pathways – Female

**Indicates Non-Trad Pathways – Male

AGRICULTURE, FOOD & NATURAL RESOURCES CAREER CLUSTER DESIGN

Agribusiness Systems – CIP Code 01.0101

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

OR

*Intro to Agriculture 18001 1 credit

TECHNICAL LEVEL

Agriscience 18002 1 credit

*Agribusiness 18201 1 credit

APPLICATION LEVEL

*Applications in Agribusiness	18220	1 credit	Ag Leadership & Comm.	18203	1 credit
Research in Ag.	18206	1 credit	Advanced Internship	18049	1 credit
Ag Entrepreneurship	18202	1 credit	Internship	18048	1 credit

* Required courses in pathway

AGRICULTURE, FOOD & NATURAL RESOURCES CAREER CLUSTER DESIGN

Animal Science – 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			
*Intro to Agriculture	18001	1 credit	

TECHNICAL LEVEL

Agriscience	18002	1 credit	
*Animal Science	18101	1 credit	

APPLICATION LEVEL

ONE OF THE FOLLOWING FOUR COURSES IS REQUIRED

Adv. Animal Science	18103	1 credit	Small Animal Care	18102	1 credit
Equine Science	18104	1 credit	Animal Health/Vet Tech	18105	1 credit
Research in Ag	18206	1 credit	Ag Leadership & Comm.	18203	1 credit
Ag Entrepreneurship	18202	1 credit	Advanced Internship	18049	1 credit
Ag Business	18201	1 credit	Internship	18048	1 credit

* Required courses in pathway

AGRICULTURE, FOOD & NATURAL RESOURCES CAREER CLUSTER DESIGN

Biotechnology in Agriculture – 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				
*Intro to Agriculture	18001	1 credit		

TECHNICAL LEVEL

*Biotechnology in Ag	18308	1 credit	Agriscience	18002	1 credit
Plant & Soil Science	18058	1 credit	Horticulture	18052	1 credit
Ag Food Science	18305	1 credit	Animal Science	18101	1 credit

APPLICATION LEVEL

*App. In Biotechnology	18320	1 credit	Ag Leadership & Comm.	18203	1 credit
Ag Business	18201	1 credit	Advanced Internship	18049	1 credit
Ag Entrepreneurship	18202	1 credit	Internship	18048	1 credit
Research in Ag	18206	1 credit			

*Required courses in pathway

AGRICULTURE, FOOD & NATURAL RESOURCES CAREER CLUSTER DESIGN

Comprehensive Agricultural Science – CIP Code 01.9999

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

*Exploratory Agriculture	OR	68001 1 credit
*Intro to Agriculture		18001 1 credit

TECHNICAL LEVEL

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

Agriscience	18002	1 credit	Plant & Animal Science	18301	1 credit
Animal Science	18101	1 credit	Natural Resource Management	18504	1 credit
Plant & Soil Science	18058	1 credit	Horticulture	18052	1 credit
Biotechnology in Ag.	18308	1 credit	Ag. Food Science	18305	1 credit

APPLICATION LEVEL

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

Ag Entrepreneurship	18202	1 credit	Ag Leadership & Communications	18203	1 credit
Research in Ag.	18206	1 credit	Advanced Internship	18049	1 credit
Internship	18048	1 credit	Agribusiness	18201	1 credit
Ad Plant & Animal Science	18302	1 credit			

*** Required courses in pathway**

AGRICULTURE, FOOD, AND NATURAL RESOURCES 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

Φ Principles of Tech. (8-9)	53153/03153	1 credit			
Φ Pre-Engineering Tech. (8-9)	21001/71001	1 credit	Computing Systems (8-9)	10002/60002	1 credit
● Engineering Appl. (8-9)	21002/71002	1 credit	Computer Appl. (8-9)	10004/60004	1 credit
Φ ● Engineering Tech. (8-9)	21003/71003	1 credit	Blueprint Reading	21108	.5 credit

TECHNICAL LEVEL

Φ ● Prin. Of Engineering	21004	1 credit	Φ Engineering-Comprehensive	21005	1 credit
Φ ● Engineering Design	21006	1 credit	Foundations of Electronics	21201	1 credit
Φ Robotics	21009	1 credit	Laser/Fiber Optics	21057	1 credit
Energy/Power	20101	1 credit	Φ Technical Innovation		
Alternative Energy	18506	1 credit	and Assessment	21054	1 credit
Electricity/Electronics	17108	1 credit	Meteorology	03006	1 credit
Wind Energy	21060	1 credit	Advanced Production		
Energy Industry Fundamentals - R	41105	1 credit	Blueprint Reading	39108	.5 credit

APPLICATION LEVEL

Emerging Technologies in STEM	21053	1 credit	Materials Science & Engineering	21252	1 credit
● Digital Electronics	21008	1 credit	Particular Topics in Engineering	21015	1 credit
Wind Turbine Construction			Φ ● Eng. Design & Development	21007	1 credit
and Operation	21061	1 credit	Project Management		
Workplace Experience	21048	1 credit	& Resource Scheduling	21205	1 credit

- Course appropriate for Project Lead the Way Programs; competencies may be utilized by any/all schools.
 Φ Course appropriate for Engineering by Design Programs; competencies may be utilized by any/all schools

AGRICULTURE, FOOD & NATURAL RESOURCES CAREER CLUSTER DESIGN

Food Products & Processing Systems – 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	68001	1 credit
OR		
*Intro to Agriculture	18001	1 credit

TECHNICAL LEVEL

Agriscience	18002	1 credit	Animal Science	18101	1 credit
*Ag Food Science	18305	1 credit	Plant & Soil Science	18058	1 credit
OR			Horticulture	18052	1 credit
*Food Science	22203	1 credit			

APPLICATION LEVEL

*Advanced Food Science	18317	1 credit	Ag Leadership & Communications	18203	1 credit
Research in Ag	18206	1 credit	Advanced Internship	18049	1 credit
Ag Entrepreneurship	18202	1 credit	Ag Business	18201	1 credit
Internship	18048	1 credit			

* Required courses in pathway

AGRICULTURE, FOOD & NATURAL RESOURCES CAREER CLUSTER DESIGN

Natural Resources & Environmental Systems – 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
OR		
*Intro to Agriculture	18001	1 credit

TECHNICAL LEVEL

Agriscience	18002	1 credit
*Natural Resources Management	18504	1 credit

APPLICATION LEVEL

Ag Business	18201	1 credit	Ag Leadership & Comm.	18203	1 credit
Research in Ag.	18206	1 credit	Advanced Internship	18049	1 credit
Ag Entrepreneurship	18202	1 credit	Internship	18048	1 credit
*Environmental Resources & Wildlife Science	37506	1 credit			

* Required courses in pathway

AGRICULTURE, FOOD & NATURAL RESOURCES CAREER CLUSTER DESIGN

Plant Systems – 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
*Intro to Agriculture	18001	1 credit

TECHNICAL LEVEL

*Plant & Soil Science	18058	1 credit	*Horticulture	18052	1 credit
Agriscience	18002	1 credit			

APPLICATION LEVEL

*Applications in Horticulture	18071	1 credit	*Floriculture & Greenhouse Management	18057	1 credit
*Crop & Range Management	18081	1 credit			
Ag Business	18201	1 credit	Ag Leadership & Communications	18203	1 credit
Research in Ag.	18206	1 credit	Advanced Internship	18049	1 credit
Ag Entrepreneurship	18202	1 credit			
Internship	18048	1 credit			

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

AGRICULTURE, FOOD & NATURAL RESOURCES CAREER CLUSTER DESIGN

Power, Structural & Technical Systems– 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
*Intro to Agriculture	18001	1 credit

TECHNICAL LEVEL

Agriscience	18002	1 credit	*Ag Mechanics	18401	1 credit
*Ag Welding I	18404/39207	1 credit	*Small Engines	18410	1 credit

APPLICATION LEVEL

*Adv. Ag Mechanics	18402	1 credit	*Ag Welding II	18407/39208	1 credit
*Adv. Ag Power	18411	1 credit	*Ag Structures	18403	1 credit
*Ag Fabrication	18409	1 credit			
Ag Business	18201	1 credit	Ag Leadership & Communications	18203	1 credit
Research in Ag.	18206	1 credit	Advanced Internship	18049	1 credit
Ag Entrepreneurship Internship	18202	1 credit			
	18048	1 credit			

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

Architecture & Construction CAREER CLUSTER DESIGN

Construction & Design– CIP Code 46.0000

INTRODUCTORY LEVEL

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

TECHNICAL LEVEL

Design Strand			Construction Strand		
Drafting / CAD	21107	1 credit	Carpentry	17002	1 credit
Architecture Design	21103	1 credit	Woodworking Principles	17007	1 credit
			Skilled Mechanical Crafts	17062	.5 credit

APPLICATION LEVEL

Design Strand			Construction Strand		
Research & Design for Pre-Construction	21109	1 credit	*Carpentry II	38002	1 credit
Advanced Studies	38050	.5 credit	Furniture & Cabinetry Fabrication	38007	1 credit
Residential Interior Design	22212	.5 credit	*Sheet Metal & HVACR	38012	1 credit
Commercial & Industrial Interior Design	38212	.5 credit	*Research & Design in Building Trades	17005	1 credit
			*Remodel & Building Maintenance	17009	.5 credit
			*Sheet Metal	13205	.5 credit
			*HVAC Technology	17056	.5 credit
			*Plumbing Technology	17058	.5 credit
			*Electrical & Security Systems	17113	.5 credit
			*Pipefitting Technology	17061	1 credit
			***Advanced Materials Technology	38010	1 credit

* Carpentry I (17002) is a Pre-requisite ** Required for Construction Strand *** 17007 & 38007 are Pre-requisites
Approved Pathway must contain 3 credits within one strand before adding courses from other strand.

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

AV Communications Pathway – CIP Code 09.0702

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
Computer Applications	10004/60004	1 credit

TECHNICAL LEVEL

*21st 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
Principles of Marketing	12164	1 credit

APPLICATION LEVEL

Project Mgmt. & Resource Scheduling	21205	1 credit
Video Production	30150	1 credit
Digital Media Design & Production	30151	1 credit

*Required for pathway approval.

ARTS, A/V AND COMMUNICATION CAREER CLUSTER DESIGN

Visual Arts Pathway – CIP Code 50.0499

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 & Life Planning	22207	.5 credit
Intro to Drawing	30005	.5 credit
Computer Applications	10004/60004	1 credit
Intro to Fam & Cons. Sciences	45001	1 credit

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

Principles of Illustration	30101	.5 credit
Photo Imaging	30105	.5 credit

Fashion, Apparel and Interior Design Strand:

*Essentials of Interior & Textile Design	30110	.5 credit
Trends in Interior and Textile Design	30111	1 credit
Interior and Textile Merchandising	30112	.5 credit
Apparel Production I	19201	.5 credit
Apparel Production II	19203	.5 credit

Graphic Design Strand (2 Dimensional Design)

*Graphic Design Fundamentals	30102	.5 credit
Computer Graphics	10202	1 credit
Graphic Design	05162/11154	1 credit

APPLICATION LEVEL

Fashion, Apparel and Interior Design Strand:

Interior & Textile Design Studio	30160	1 credit
Interior Design	22212	.5 credit
Comm. & Industrial Interior Design	38212	.5 credit
Community Connections	22270	.5 credit
Career Connections	22275	.5 credit

Graphic Design Strand

Project Mgmt. & Resource Scheduling	21205	1 credit
Media Technology-Workplace Experience	10248	1 credit

*Required for pathway approval per strand

BUSINESS MANAGEMENT & ADMINISTRATION CAREER CLUSTER DESIGN

Business Entrepreneurship & Management 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

*Business Economics	12105	.5 credit	*Business Management	12052	.5 credit
*Entrepreneurship	12053	.5 credit			
Supportive Courses (Optional; Limited to 2 credits)					
Accounting	12104	1 credit	Internet Marketing	12162	1 credit
Business Communications	12009	.5 credit	Production Welding Processes I	39207	1 credit
Business Law	12054	.5 credit	Remodel & Building Maintenance	17009	.5 credit
Principles of Marketing	12164	1 credit	Web Page Design	10201	1 credit
Woodworking Principles	17007	1 credit	Residential Carpentry I	17002	1 credit
Drafting/CAD	21107	1 credit	Culinary Essentials	16052	.5 credit
Ag Welding I	18404	1 credit	Found. Early Childhood Develop.	19052	1 credit
IB Business & Management	12059	1 credit			

APPLICATION LEVEL

*Applied Business Development 32200 1 credit

*Required for pathway approval

EDUCATION AND TRAINING CAREER CLUSTER DESIGN

Teaching/Training Pathway – CIP Code 13.0101

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

Career and Life Planning	22207	.5 credit
Intro to Family & Consumer Sciences	45001	1 credit

TECHNICAL LEVEL

*Teaching as a Career	19151	1 credit
*Human Growth & Development A	45004**	.5 credit
OR * Human Growth & 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) may be allowed with prior approval.

ENGINEERING CAREER CLUSTER DESIGN

Cartography/Geospatial/Spatial Mathematics Pathway – CIP Code 15.1102

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

Earth Science or	03001	1 credit	●Engineering Appl. (8-9)	21002/71002	1 credit
Earth Space Science	53008/03008	1 credit	Φ●Engineering Tech. (8-9)	21003/71003	1 credit
Computing Systems (8-9)	10002/60002	1 credit	ΦPrinciples of Tech. (8-9)	53153/03153	1 credit
Computer Applications (8-9)	10004/60004	1 credit	ΦPre-Engineering Tech (8-9)	21001	1 credit
Physical Geography	03007	1 credit			

TECHNICAL LEVEL

Meteorology	03006	1 credit	Animation	10210	1 credit
GIS Technology	21058	1 credit	ΦRobotics	21009	1 credit
Aerospace Technology	21055	1 credit			

APPLICATION LEVEL

GIS Spatial Applications	21112	1 credit	Emerging Technologies in STEM	21053	1 credit
Civil Engineering or	21011	1 credit			
●Civil Eng. & Architecture	21012	1 credit	Project Management		
●Aerospace Engineering	21013	1 credit	and Resource Scheduling	21205	1 credit
Particular Topics in Engineering	21015	1 credit	Workplace Experience	21048	1 credit

- Course appropriate for Project Lead the Way Programs; competencies may be utilized by any/all schools.
 Φ Course appropriate for Engineering by Design Programs; competencies may be utilized by any/all schools

ENGINEERING CAREER CLUSTER DESIGN

Engineering & 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

Φ Principles of Tech. (8-9)	53153/03153	1 credit	Φ Pre-Engineering Tech. (8-9)	21001/71001	1 credit
Computing Systems (8-9)	10002/60002	1 credit	● Engineering Appl. (8-9)	21002/71002	1 credit
Computer Appl. (8-9)	10004/60004	1 credit	Φ ● Engineering Tech. (8-9)	21003/71003	1 credit
Blueprint Reading	21108	.5 credit			

TECHNICAL LEVEL

Φ ● Prin. Of Engineering	21004	1 credit	Φ Engineering-Comprehensive	21005	1 credit
Φ ● Engineering Design	21006	1 credit	Foundations of Electronics	21201	1 credit
Robotics	21009	1 credit			
Advanced Production			Φ Technical Innovation		
Blueprint Reading	39108	.5 credit	and Assessment	21054	1 credit

APPLICATION LEVEL

● Course appropriate for			Project Lead the Way Programs;		
Emerging Technologies	21053	1 credit	Materials Science & Engineering	21252	1 credit
● Digital Electronics	21008	1 credit	● Civil Eng. & Architecture or	21012	1 credit
Φ ● Computer Integrated			Civil Engineering	21011	1 credit
Manufacturing	21010	1 credit	● Aerospace Engineering	21013	1 credit
● BioEngineering or	21020	1 credit	Particular Topics in Engineering	21015	1 credit
● Biotechnical Engineering	21014	1 credit	Φ ● Eng. Design & Development	21007	1 credit
Project Mgmt & Resource	21205	1 credit	Workplace Experience	21048	1 credit
Scheduling					

competencies may be utilized by any/all schools.

Φ Course appropriate for Engineering by Design Programs; competencies may be utilized by any/all schools

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 include Articulation Agreement(s) 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 & 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**			Accounting**			Securities & Investments**		
Banking & Finance	12101	.5 credit	Advanced Accounting	33108	1 credit	Investing	12107	.5 credit
			College Accounting***	33109	1 credit	Risk Mgmt. &	12106	.5 credit
Investing	12107	.5 credit				Insurance		
Supportive (Optional)								
Finance – Workplace Experience				12148	.5 credit			

* Required course for concentrator and pathway approval

** One credit from at least one strand is required

*** When recording a concentrator, AP Accounting would waive the requirement for Accounting at technical level
 Concentrators will still need at least 1 credit at the technical level

GOVERNMENT & 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

*Intro to Government & Public Administration	43001	.5 credit
Career & Life Planning	22207	.5 credit

TECHNICAL LEVEL

*Government & Public Admin. Fundamentals	43105	.5 credit
IT for Service Professions	44010	.5 credit
Human Growth & Develop A	45004	.5 credit

Business Strand			Pre-Law Legal Assistance Strand		
Business Economics	12105	.5 credits	Business Economics	12105	.5 credits
**Business Law	12054	.5 credits	Business Law	12054	.5 credits
Business Management	12052	.5 credits	**Practical Law	44300	.5 credits
Accounting	12104	1 credit	Media & Public Relations	43115	.5 credits

APPLICATION LEVEL

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

*Required for pathway approval ** Required in the Strand

HEALTH & 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	Chemistry	03101	1 credit
Computing Systems (8-9)	10002/60002	1 credit	Φ●Engineering Applications	21002/71002	1 credit
Computer Applications (8-9)	10004/60004	1 credit	Φ●Engineering Technology	21003/71003	1 credit

TECHNICAL LEVEL

Wildlife Management	18501	1 credit	Biotechnology in Agriculture	18308	1 credit
Marine Science	03005	1 credit	AP Environmental Science	03207	1 credit
IB Environmental Systems	03208	1 credit	Applied BioChemistry	03203	1 credit
●Human Body Systems or	14102	1 credit	Pharmacology	14253	1 credit
Anatomy & Physiology	03053	1 credit	Plant Science / Plant & Soil Science	18055/18058	1 credit
Environmental Law	04170	1 credit			

APPLICATION LEVEL

Emerging Technologies in STEM	21053	1 credit	Project Management and Resource Scheduling	21205	1 credit
●BioEngineering or	21020	1 credit	Research in Environmental Science and Engineering	21016	1 credit
●Biotechnical Engineering	21014	1 credit	Environmental Resources and Wildlife Science	37506	1 credit
Natural Resources Management	18504	1 credit			
Workplace Experience	21048	1 credit			
Particular Topics in Engineering	21015	1 credit			

- Course appropriate for Project Lead the Way Programs; competencies may be utilized by any/all schools.
 Φ Course appropriate for Engineering by Design Programs; competencies may be utilized by any/all schools

HEALTH & BIO SCIENCE CAREER CLUSTER DESIGN

BioMedical Pathway – CIP Code 14.0501

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

Biology	03051/53051	1 credit			
●Engineering Appl. (8-9)	21002/71002	1 credit	Computing Systems (8-9)	10002/60002	1 credit
●Engineering Tech (8-9)	21003/71003	1 credit	Computer Appl. (8-9)	10004/60004	1 credit

TECHNICAL LEVEL

●Prin. Of Biomedical Science	14251	1 credit	Pharmacology	14253	1 credit
●Medical Interventions	14105	1 credit	Food Science or	22203	1 credit
●Human Body Systems or	14102	1 credit	Ag. Food Science	18305	1 credit
●Anatomy & Physiology	03053	1 credit			
Robotics	21009	1 credit	AP Biology	03056	1 credit

APPLICATION LEVEL

●Biomedical Innovation	14255	1 credit	Project Management		
●BioEngineering or	21020	1 credit	and Resource Scheduling	21205	1 credit
●Biotechnical Engineering	21014	1 credit	Workplace Experience	14998	1 credit
Emerging Technologies in STEM	21053	1 credit	HealthCare Sciences - Other	14999	1 credit

●Course appropriate for Project Lead the Way Programs; competencies may be utilized by any/all schools.

HEALTH SCIENCE 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	03051	1 credit		Chemistry	03101	1 credit

TECHNICAL LEVEL

General:

*Human Body Systems	14102	1 credit	OR	*Anatomy & Physiology	03053	1 credit
*Health Science II	14002	1 credit		AP Biology	03056	1 credit
Nutrition & Wellness	08057	.5 credit				
Medical Terminology A	14154	.5 credit	OR	Medical Terminology B	36154	1 credit
Health Information (HIT)	14157	1 credit				
Special Health Science Topics A	14254	.5 credit		Special Health Science Topics B	36254	1 credit

Sports Care & Rehabilitation:

Physical Therapy	14060	.5 credit		Care of Athletes	14062	.5 credit
Sports Medicine I	14072	1 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		Prin. Of Biomed Science	14251	1 credit
Biotechnology I A	14252	.5 credit	OR	Biotechnology I B	36252	1 credit

Pharmacology

Pharmacology	14253	1 credit				
Health Care:						
Nursing I	14051	.5 credit		First AID/CPR/EMR	44050	.5 credit
Home Health Care	14053	.5 credit		EMT	44060	1 credit

APPLICATION LEVEL

Nursing II	14052	.5 credit		Sports Medicine II	14073	1 credit
Biomedical Innovation	14255	1 credit		Phlebotomy Technician	14104	.5 credit
Biotechnology II	14256	1 credit		Certified Nursing Assistant	14997	.5 credit
Health Science III	36991	1 credit		Proj. Mgmt & Resource Sched.	21205	1 credit
Health Science IV (Shadow/Work)	36992	1 credit		Certified Medication Aide	36156	.5 credit
Health Sci. V (Shadow/Work)	36993	2 credit		Home Health Aide	36053	.5 credit
Forensic Science	44224	.5 credit	OR	Forensic Science Comp.	44225	1 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 & 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.

June, 2016

INTRODUCTORY LEVEL

Career & Life Planning	22207	.5 credit
Business Essentials	12050	.5 credit
Intro to Fam. & Con. Sciences	45001	1 credit

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

*Culinary Essentials	16052	.5 credit
Nutrition & Wellness	08057	.5 credit

Event Planning & Management Strand			Culinary Arts & Management Strand		
*Event Planning & Mgmt	34052	.5 credit	*Culinary Arts I	34056	1 credit
Found. of Travel & Tour	34053	.5 credit	Culinary Arts II	34058	.5 credit
			Baking & Pastry I	34057	.5 credit
			Baking & Pastry II	34059	.5 credit
			Food Science	22203	1 credit
			Event Plan & 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: *(Continue strand)*

Event Planning & Management Strand			Culinary Arts & Management Strand		
Community Connections	22270	.5 credit	Community Connections	22270	.5 credit
Career Connections	22275	.5 credit	Career Connection	22275	.5 credit
Applied Business Development	32200	1 credit	Culinary Applications	34198	1 credit

*Required for pathway approval

HOSPITALITY AND TOURISM CAREER CLUSTER DESIGN

Travel and Tourism Pathway – CIP Code 52.0901

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

Career Life Planning	22207	.5 credit
Business Essentials	12050	.5 credit
Intro to Family & Con Sciences	45001	1.0 credit

TECHNICAL LEVEL

*Culinary Essentials	16052	.5 credit
Entrepreneurship	12053	.5 credit
Principles of Marketing	12164	1 credit
Nutrition & Wellness	08057	.5 credit
*Event Planning & Management	34052	.5 credit
*Min one of the following:		
Foundations of Travel & Tourism OR	34053	.5 credit
Foundations of Hospitality & Lodging	34054	.5 credit

APPLICATION LEVEL

Hospitality & 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 & 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 & Life Planning	22207	.5 credit
Intro to Family and Consumer Sciences	45001	1 credit

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

Leadership Service in Action	22255	.5 credit
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(Must teach all courses in the column of your choice)

*Orientation to Early Childhood Development	19051	1 credit	*Human Growth & Dev. A OR *Human Growth & Dev. B *Family Studies	45004 45014 22208	.5 credit 1 credit .5 credit
*Foundations to Early Childhood Development	19052	1 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

<u>Career & Life Planning</u>	<u>22207</u>	.5 credit
<u>Intro to Family and Consumer Sciences</u>	<u>45001</u>	1 credit

TECHNICAL LEVEL

<u>*Human Growth & Develop. A</u>	<u>45004</u>	.5 credit	or	<u>Human Growth & Develop. B</u>	<u>45014</u>	1 credit
<u>*Family Studies</u>	<u>22208</u>	.5 credit				
<u>*Consumer & Personal Finance</u>	<u>22210</u>	.5 credit				
<u>Nutrition & Wellness</u>	<u>08057</u>	.5 credit				
<u>Culinary Essentials</u>	<u>16052</u>	.5 credit				
<u>Leadership Service in Action</u>	<u>22255</u>	.5 credit				

APPLICATION LEVEL

<u>Community Connections</u>	<u>22270</u>	.5 credit
<u>Career Connections</u>	<u>22275</u>	.5 credit

*Required for Pathway approval.

INFORMATION TECHNOLOGY CAREER CLUSTER DESIGN

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.

Computer Science Engineering Pathway – CIP Code 11.0701

INTRODUCTORY LEVEL

Computing Systems (8-9)	10002/60002	1 credit	Φ● Engineering Applications	21002/71002	1 credit
Computer Applications (8-9)	10004/60004	1 credit	Φ● Engineering Technology	21003/71003	1 credit

TECHNICAL LEVEL

● Technical Introduction to Computer Science (ICS)	41010	1 credit	● Computer Science Applications (CSA)	41020	1 credit
● Computer Science and Software Engineering (CSE)	41011	1 credit			

APPLICATION LEVEL

● Simulation and Modelling (SAM)	41030	1 credit	● Cybersecurity (SEC)	41036	1 credit
Particular Topics in Engineering	21015	1 credit	● Artificial Intelligence (AI)	41034	1 credit
● Computational Problem Solving (CPS)	41037	1 credit	Workplace Experience	21048	1 credit
Project Management and Resource Scheduling	21205	1 credit			

- Course appropriate for Project Lead the Way Programs; competencies may be utilized by any/all schools.
 Φ Course appropriate for Engineering by Design Programs; competencies may be utilized by any/all schools

INFORMATION TECHNOLOGY CAREER CLUSTER DESIGN

Information Support & 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 Application	10004/60004	1 credit

TECHNICAL LEVEL

Computer Technology	10251	1 credit	Computer Maintenance	10252	1 credit
Info. Support & Services	10253	1 credit	IT Essentials: PC Hardware & Software	10254	1 credit
CISCO - Network Infrastructure Essentials	10255	1 credit	Particular Topics in Info. Support	10256	1 credit
Info. Support & Services-Other	10299	1 credit	Database Applications	10053	1 credit
Information Management	10051	1 credit	Data Systems/Processing	10054	1 credit

APPLICATION LEVEL

Info Support & Services Workplace Exp.	10298	1 credit
Database Mgmt. & Data Warehousing	10052	1 credit
Particular Topics in Mgmt. Info. Sys.	10055	1 credit
Mgmt. Info. Sys.-Workplace Exp.	10098	1 credit
Mgmt. Information System-Other	10099	1 credit
Educational Trainer	10260	1 credit
Project Mgmt. & Res. Scheduling	21205	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

Telecommunications	10006	1 credit
Network Technology	10101	1 credit
Networking Systems	10102	1 credit
Router Basics	10104	1 credit
NetWare Routing	10105	1 credit
Wide Area Telecommunications and Networking	10106	1 credit
Wireless Networking	10107	1 credit
Network Security	10108	1 credit
CISCO-Network Infrastructure Essentials	10255	1 credit
IT Essentials: PC Hardware & Software	10254	1 credit

APPLICATION LEVEL

Essentials of Network Operating Sys.	10109	1 credit
Microsoft Certified Professional	10110	1 credit
Particular Topics in Networking Sys.	10111	1 credit
Networking Systems - Workplace Exp.	10148	1 credit
Networking Systems - Other.	10149	1 credit
Project Mgmt. & Res. Scheduling	21205	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

TECHNICAL LEVEL

Business Programming	10151	1 credit
Computer Programming	10152	1 credit
Visual Basic Programming	10153	1 credit
C++ Programming	10154	1 credit
Java Programming	10155	1 credit
Computer Prog.-Other Language	10156	1 credit
Database Applications	10053	1 credit
Web Page Design	10201	1 credit
Data Systems/Processing	10054	1 credit

APPLICATION LEVEL

AP Computer Science	10157	1 credit
IB Computing	10159	1 credit
Particular Topics in Computer Prog.	10160	1 credit
Computer Prog-Workplace Exp.	10198	1 credit
Game Design & Authoring for the Web	10165	1 credit
Computer Programming - Other	10199	1 credit
Project Mgmt. & Res Scheduling	21205	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
Media Tech.-Workplace Experience	10248	1 credit
Media Technology - Other	10249	1 credit
IB Information Tech. in Global Society	10007	1 credit
Emerging Technologies	10040	1 credit
Game Design & Authoring the Web	10165	1 credit
Project Mgmt. & Res. Scheduling	21205	1 credit

LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY CAREER CLUSTERS DESIGN

Emergency & 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 LPSS	44001	.5 credit	History of Emer. Medical Svc	44005	.5 credit
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TECHNICAL LEVEL

<input type="checkbox"/> IT in Service Professions	44010	.5 credit	EMT	44060	1 credit
First AID/CPR/EMR	44050	.5 credit	EMT - Bridge	44055	.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

*Required for pathway approval.

**Has a Pre-requisite course. LPSS Internship (44298) must be preceded by EMT, EMT-Bridge or Fire Science.

Cannot be the only Technical Level course offered in the pathway.

First Aid/CPR is included in Fire Science.

Boldfaced courses offer professional certifications and require specialized teacher certification.

LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY CAREER CLUSTER DESIGN

Corrections, Security, Law, & 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 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
<input type="checkbox"/> IT in Service Professions	44010	.5 credit

Law Enforcement Strand

Law Enforcement I	44200	1 credit
First Aid/CPR/EMR	44050	.5 credit
<input type="checkbox"/> IT in Service Professions	44010	.5 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 Comp	44225	1 credit
OR Forensic Science	44224	.5 credit
**LPSS Internship	44298	.5 credit

Boldfaced courses offer professional certifications and require specialized teacher certification.

*Required for Pathway and/or Strand **Has a Pre-requisite course Cannot be the only Technical Level course offered in the pathway.

MANUFACTURING CAREER CLUSTER DESIGN

Manufacturing Pathway – CIP Code 48.0000

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 include Articulation Agreement(s) 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
*Introduction to Welding	13207	.5 credit

TECHNICAL LEVEL

Production Strand			Maintenance Strand		
Manufacturing Processes	13002	1 credit	Skilled Mechanical Crafts	17062	.5 credit
Advanced Production Blueprint Reading	39108	.5 credit	Advanced Production Blueprint Reading	39108	.5 credit
Drafting/CAD	21107	1 credit	Machine Tool Technology 1a	39203	.5 credit
Production Welding Processes I (Ag Welding)	39207 (18404)	1 credit	Maintenance Welding Processes	13208	1 credit
Machine Tool Technology	13203	1 credit	Mech. Power Transmission & Conveyor Systems	13302	.5 credit
Mass Production	13052	1 credit			
CAM	13204	1 credit			

APPLICATION LEVEL

Production Strand			Maintenance Strand		
**Adv. Drafting/CAD	21150	1 credit	Remodeling & Bldg. Maintenance	17009	.5 credit
**Mass Production II	39052	1 credit	Sheet Metal & HVACR	38012	1 credit
**Mach. Tool Tech. II	39204	1 credit	Sheet Metal Technology	13205	.5 credit
**Research & Design for Manuf.	13998	1 credit	HVAC Technology	17056	.5 credit
**Production Welding Processes II	39208(18407)	1 credit	Plumbing Technology	17058	.5 credit
**Automated Systems	39010	.5 credit	Electrical & Security Systems	17113	.5 credit
**Advanced Materials Technology	38010	1 credit	**Hydraulics & Pneumatics	39302	.5 credit
			Work-Based Maintenance Experience	13348	.5 credit

*Production Strand Only **Has a specific Pre-requisite course(s) – See Competency Profile for details.

Approved Pathway must contain 3 credits within one strand before adding courses from other strand.

MARKETING CAREER CLUSTER DESIGN

Marketing Pathway – CIP Code 52.1402

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

*Principles of Marketing a 12164 1 credit

**Business Communications 12009 .5 credit

Technical Supportive Courses (Optional)

Accounting	12104	1 credit	Entrepreneurship	12053	.5 credit
Bus. Management	12052	.5 credit	Graphic Design	05162/11154	1 credit
Bus. Economics	12105	.5 credit	Prin. of Advertising	12165	.5 credit
Comp. Graphics	10202	1 credit	Sports/Entertain. Mktg.	12163	.5 credit
Digital Marketing	35162	.5 credit	Web Page Design	10201	1 credit

APPLICATION LEVEL

*Marketing Applications a 35300 1 credit

Application Supportive Courses (Optional)

Mktg.-Workplace Exp.	12198	.5 credit	Marketing Mgmt.	12166	1 credit
Integrated Mktg. App.	12195	.5 credit	Marketing Research	12196	1 credit
Mktg. 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 KACCTE

a - [Marketing Completer Assessment - Course aligns directly with MBA Research's 2-Credit Standard Marketing Program of Study Exam](#)

TRANSPORTATION CAREER CLUSTER DESIGN

Mobile Equipment Maintenance Pathway – CIP Code 47.9999

(Automotive Collision Strand)

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

*Intro to Industrial Technology	38001	.5 credit
*Intro to Transportation	40100	.5 credit
Automotive Information	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 & Emerging Trends in Transportation	40250	.5 credit	OR 40251 1 credit

*One of these two courses is required for pathway approval. **Has a pre-requisite 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

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

TECHNICAL LEVEL

(For Either Strand)

Small Gas Engines & 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 Automotive Technology

General Service I	40150	1 credit
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Strand Two Automotive Technology

Fund. Of Electronic/ Electrical Systems	40200	1 credit
Brakes	40204	.5 credit
Drive Train Technology	40208	.5 credit
Sm Gas Eng./Powertrains	40212	1 credit
Engine Performance I	40220	.5 credit
Steering / Suspension	40224	.5 credit
Mobile HVAC	40228	.5 credit

APPLICATION LEVEL

(For Either Strand)

Research & Emerging Trends in Transportation	40250	.5 credit	OR	40251	1 credit
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Strand One Automotive Technology

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

Strand Two Automotive Technology

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

*One of these two courses is required for pathway approval. **Has a pre-requisite 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 professional experience learning such as internship, health science clinicals, SAE, or in-house 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 provides 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, provides technical skill proficiency, 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. [Section 3(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, 21st century 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 a personal 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 Kansas 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 an associate 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. Courses such as computer applications I and keyboarding are typically not included in the concentrator sequence because they are required for all students. Academic courses are counted only if they reflect industry skill standards.

CAREER SUCCESS SKILLS: Skills that are essential for workplace/career success; including:

Ethics, Creativity, Teamwork, Problem Solving, Critical Thinking, Time / Personal Management, Leadership, Conscientiousness, Technology Application, Responsibility, Communication, Personal Safety & Health, Civic Engagement, Integrity, Adaptability, and Emotional Stability.

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 or validation of skills by industry through work-based learning experience.

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.

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.

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 \$13.75 or higher, and 2) offers a wage progression strategy.

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 CLUSTER(S): Divisions of the seven 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 & Administration; 5) Education and Training; 6) Engineering; 7) Finance; 8) Government & Public Administration; 9) Health & 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, Distribution and Logistics.

KANSAS CAREER FIELD(S): Occupations that are organized around broad, common knowledge and skills. They are recognized as Technology & Media; Business; Agriculture; Fabrication & Maintenance; Medical & Bio Technical; Public Services; and Family & 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 35 state-approved pathways identified within the 16 clusters.

KANSAS COMMON COURSE CODE: An alpha-numeric 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: State-level CTE Student Recognition Program.

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. It is recommended these experiences are included 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.

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 & 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)



CAREER CLUSTER RESOURCES

Cluster/PathwayEssentials

[Advisory Committee Handbook](#)

[Creating an Articulation Agreement](#)

[Current Guidelines for Facilities in CTE Classrooms/Labs](#)

[Statewide Articulation Agreements](#)

[Course Double-Up – Nesting Policy for Pathways](#)

[K-PAC](#)

[Career & Technical Student Organizations \(CTSO\)](#)

[Professional Learning Experience \(PLE\) Tool Kit](#)

[Perkins and CTE Pathways 2016-2017 Dates & Conferences to Remember](#)

PathwayApplication

[Pathways Application Training](#)

[Pathway User's Guide](#)

[CPPSA Checklist](#)

[CTE Student Data Management](#)

[Pathway Deletion Form](#)

General Links

[Kansas State Department of Education](#)

[KSDE- Career & Technical Education](#)

[KSDE- Career Clusters and Pathways](#)

[Senate Bill 155](#)

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.

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.
- **For More Information on Advisory Committees:** please consult the complete [Advisory Committee Guidance Handbook](#)

RIGOROUS PROGRAM OF STUDY RESOURCE PAGE

A Rigorous Program of Study is a comprehensive, structured approach for delivering academic and career and technical education to prepare students for postsecondary education and career success that utilizes a framework of 10 supporting elements viewed as instrumental for creating and implementing a high quality, comprehensive POS.

10 ELEMENTS:

1. **Legislation & Policies-** Federal, state, and local legislation or administrative policies promote POS development and implementation.
2. **Partnerships-** Ongoing relationships among education, business, and other community stakeholders are central to POS design, implementation, and maintenance.
3. **Professional Development-** Sustained, intensive, and focused opportunities for administrators, teachers, and faculty foster POS design, implementation, and maintenance.
4. **Accountability and Evaluation Systems-** Systems and strategies to gather quantitative and qualitative data on both POS components and student outcomes are crucial for ongoing efforts to development and implement POS.
5. **College and Career Readiness Standards-** Content standards that define what students are expected to know and be able to do in order to enter and advance in college and/or their careers comprise the foundation of a POS.
6. **Course Sequences-** Non-duplicative sequences of secondary and postsecondary courses within a POS ensure that students transition to postsecondary education without duplicating classes or requiring remedial coursework.
7. **Credit Transfer Agreements-** Credit transfer agreements provide opportunities for secondary students to be awarded transcribed postsecondary credit at the time the credit is earned and are supported by formal agreements between secondary and postsecondary education systems.
8. **Guidance Counseling and Academic Advisement-** Guidance counseling and academic advisement help students make informed decisions about which POS to pursue.
9. **Teaching and Learning Strategies-** Innovative and creative instructional approaches enable teachers to integrate academic and technical instruction and students to apply academic and technical learning to their POS coursework.
10. **Technical Skills Assessments-** National, state, and/or local assessments provide ongoing information to the extent to which students are attaining the necessary knowledge and skills for entry into and advancement in postsecondary education careers in their chosen POS.

For more information visit the Perkins Collaborative Resource Network (PCRN) at: <http://cte.ed.gov/nationalinitiatives/rposdesignframework.cfm>

PROGRAM OF STUDY / COURSE SEQUENCE (H.S. Graduates starting with the 2014-2015 academic year)

High School _____ **CLUSTER:** _____

School/College/University _____ Pathway: _____

This Career Pathway Agreement can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework to be individualized to meet each learner's goals. This Articulation Agreement should be customized with course titles and appropriate high school graduation requirements, as well as, college entrance requirements. Kansas Board of Regents Qualified Admission requirements for students who graduate from high school **starting with the 2014-15 academic year** include: Natural Science, 3 units including Biology, Adv. Biology, Earth/Space Science, Chemistry, Physics, or Principles of Technology (At least one unit of Chemistry or Physics); English, 4 units, ½ unit of which may be speech; Mathematics, 4 units, including Algebra I & II, Geometry, and any course w/Algebra II as a prerequisite(one unit must be taken in the graduating year); Social Science, 3 units, including one unit of U.S. History, 1/2 unit of U.S. Government, 1/2 unit from world history, world geography or international relations, and the remainder from psychology, economics, U.S.History, U.S. Government, current social issues, sociology, anthropology, race & ethnic group relations.

EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Career and Technical Courses and/ or Degree Major Courses for Pathway	Other Required Courses,
							Other Electives, Recommended Electives, Learner Activities

Interest Inventory Administered and Plan of Study Initiated for all Learners

SECONDARY	8							
	9							
	10							
	11							
	College Placement Assessments-Academic/Career Advisement Provided							
	12							

Advanced placement Transcribed-Postsecondary courses may be taken/moved to the secondary level for advanced placement purposes.

POSTSECONDARY	Year 13-14						
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The courses listed below can be found in more than one pathway.

Field Names		AGRICULTURE							FABRICATION & MAINTENANCE					TECHNOLOGY & MEDIA					BUSINESS					FAMILY & CONSUMER SCIENCES					PUBLIC SERVICES					MEDICAL & BIOTECHNOLOGY																		
COURSE TITLES	CODE	Agriculture Systems 01.0101	Agriculture Science 01.9999	Animal Science 01.0901	Biotechnology in Agriculture 23.1201	Energy 17.2071	Food Prod. & Proc. Systems 01.0401	Natural Res. & Env. Systems 03.0101	Plant Systems 01.1101	Power/Structural & Tech. Systems 01.0201	Career/Geospatial/Math 15.1102	Construction & Design 46.0100	Engineering & Appl. Math 14.0101	Manufacturing 46.0100	Mobile Equipment Maintenance 47.9999	AV Communications-09.0702	Computer Science Engineering 11.0701	Info. Support & Services 11.0801	Network Systems 11.0901	Programming & Software Dev. 11.0201	Visual Arts-50.0409	Web & Digital Communications 11.1004	Business Enterp. & Mgmt 52.0719	Business Finance 52.0801	Marketing 52.1402	Early Childhood Develop. 19.0719	Family, Consumer & Community Sv. 19.0799	Restaurant & Event Management 12.0504	Travel & Tourism 52.0901	Corrections, Security, Law & Law Enforcement 43.0199	Emergency & Fire Mgmt 43.0209	Government & Public Admin. 44.0401	Teaching/Training 13.0101	BioChemistry/Green Hazmat 14.1401	BioMedical 14.0501	Health Science 51.9999																
Engineering Appl.	21002/71002					X				X						X																				X	X															
Engineering Comprehensive	21005					X																															X	X														
Engineering Design	21006					X																																X	X													
Engineering Design & Development	21007					X																																X	X													
Engineering Tech	21003/71003					X				X						X																						X	X													
Entrepreneurship	11053													X									X	X	X			X	X									X	X													
Envir. Res & Wildlife Science	18501							X															X	X	X													X	X													
Event Planning & Management	34052																																							X	X											
Exploratory Agric.	68001	X	X	X	X		X	X	X	X																	X		X											X	X											
Family Studies	21208																									X															X	X										
First Aid/CPR/EMR	44050																									X															X	X										
Food Science	21203						X																																	X	X											
Forensic Science	44224																											X													X	X										
Forensic Science (Comprehensive)	44225																																								X	X										
Found. Of Electronics	21201					X																																				X	X									
Foundation to Early Childhood Development	19052																						X				X															X	X									
Foundations of Law	44305																																										X	X								
Foundations of Travel & Tourism	34053																																											X	X							
Game Design and Authoring for the Web	10165																		X		X																							X	X							
Graphic Design	01162/11134														X										X																				X	X						
Graphic Design Fundamentals	30102														X																														X	X						
Horticulture	18052		X		X		X		X																																				X	X						
Human Body Systems	14102																																												X	X						
Human Growth & Dev. A	43004																									X	X																		X	X						
Human Growth & Dev. B	43014																									X	X																		X	X						
HVAC Technology	17056										X		X													X																				X	X					
Information Management	10051																																													X	X					
Internet Marketing	11162																	X	X																											X	X					
Internship	18048	X	X	X	X		X	X	X	X												X	X																								X	X				
Intro to Ag./Intro to Agriscience	18001	X	X	X	X		X	X	X	X																																					X	X				
Intro to Family & Consumer Science	43001																									X	X	X	X																		X	X				
Intro to Human Services	19001																									X	X																				X	X				
Intro to Ind. Tech.	38001										X		X	X													X	X																				X	X			
Intro to LPSS	44001																																															X	X			
IT Essentials: PC Hardware & Software	10254																	X	X																													X	X			
IT in Service Professions	44010																																															X	X			
Leadership Service in Action	780																									X	X																					X	X			
LPSS Internship	44298																																																X	X		
Materials science & engineering	21272																																																X	X		
Media & Public Relations	43115														X																																		X	X		
Media Technology--Workplace Experience	10248																																																X	X		
Medical Intervention	14105																																																X	X		
Meteorology	03006					X					X																																						X	X		
Natural Resource Mgmt	18504		X					X																																										X	X	
Nutrition & Wellness	08057																										X	X	X	X																					X	X
Orientation to Early Childhood Develop.	19051																										X																							X	X	
Particular Topics in Engineering	21013									X		X					X																																		X	X
Pharmacology	14253																																																	X	X	
Photo Imaging	30103														X																																		X	X		
Plant & Soil Science	18058	X		X			X		X																																										X	X
Plumbing Technology	17058										X																																							X	X	
Practical Law	44300																																																	X	X	
Pre-Eng. Technology	21001						X					X	X																																						X	X
Prin. Of Biomedical Science	14251																																																	X	X	
Prin. Of Engineering	21004																																																			

