

Public Education Department's College and Career Readiness Bureau:

Career Pathways Project Programs of Study

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The National Career Clusters® Framework provides a vital structure for organizing and delivering quality CTE programs through learning and comprehensive programs of study. In total, there are 16 Career Clusters in the National Career Clusters Framework, representing more than 79 Career Pathways to help students navigate their way to greater success in college and career.



The Common Career Technical Core

The Common Career Technical Core (CCTC) is a state-led initiative to establish a set of rigorous, high-quality standards for Career Technical Education. The standards have been informed by state and industry standards and developed by a diverse group of teachers, business and industry experts, administrators and researchers.

The CCTC includes a set of standards for each of the 16 Career Clusters and their corresponding Career Pathways that define what students should know and be able to do after completing instruction in a program of study. The CCTC also includes an overarching set of Career Ready Practices that apply to all programs of study.

National Career Cluster® Knowledge and Skills Statements

- ❖ As an organizing tool for curriculum design and instruction, Career Clusters provide the essential knowledge and skills for the 16 Career Clusters and their Career Pathways.
- ❖ It also functions as a useful guide in developing programs of study bridging secondary and postsecondary curriculum and for creating individual student plans of study for a complete range of career options.

Note that the Next Step Plan State template is being updated with the work from this Project.

Scope of Work

- ❖ Map Programs of Study in all Career Pathways based Career Technical Education (CTE) and general education course sequencing and development of model programs
- ❖ Examine STARS Courses and suggest edits and additions as needed
- ❖ Identify and organize Industry Certifications or Credentials

Program of Study

Defining a Course Sequence:

- ❖ The POS models defined in this report in the are displayed in table format, shown from a student's entry into the POS (assumed as a freshman – ninth grader) and exiting as a senior taking the capstone course.
- ❖ The sequence shown in the “Career and Technical Courses” fields are the minimum course experiences necessary to complete the capstone and be responsibly considered a “completer” in that POS.
- ❖ Courses shown in the “Core Requirement 2” fields are complimentary courses holding high value to the POS's learning outcomes and containing Dual Credit or Advanced Placement opportunities where applicable.
- ❖ It is recommended that recorded completion of the POS is based upon successful completion of Career and Technical Courses, in sequence, culminating in the identified capstone course

CAREER CLUSTER™: Architecture and Construction

Pathways and related Programs of Study in this career cluster address careers in designing, planning, managing, building and maintaining the built environment.

Program Learning Outcomes from the NASDCTE Common Career Technical Core:	
1.	Use vocabulary, symbols and formulas common to architecture and construction.
2.	Use architecture and construction skills to create and manage a project.
3.	Comply with regulations and applicable codes to establish and manage a legal and safe workplace.
4.	Evaluate the nature and scope of the Architecture and Construction Career Cluster™ and the role of architecture and construction in society and the economy.
5.	Describe the roles, responsibilities and relationships found in the architecture and construction trades and professions, including labor/management relationships.
6.	Read, interpret and use technical drawings, documents and specifications to plan a project.
7.	Describe career opportunities and means to achieve those opportunities in each of the Architecture and Construction Career Pathways.

Workforce Certification:	

The Pathways for this Career Cluster™ are:

- Construction
- Design/Pre-Construction
- Maintenance/Operations

Construction

Program Learning Outcomes from the NASDCTE Common Career Technical Core:

- | | |
|----|---|
| 1. | Describe contractual relationships between all parties involved in the building process. |
| 2. | Describe the approval procedures required for successful completion of a construction project. |
| 3. | Implement testing and inspection procedures to ensure successful completion of a construction project. |
| 4. | Apply scheduling practices to ensure the successful completion of a construction project. |
| 5. | Apply practices and procedures required to maintain jobsite safety. |
| 6. | Manage relationships with internal and external parties to successfully complete construction projects. |
| 7. | Compare and contrast the building systems and components required for a construction project. |
| 8. | Demonstrate the construction crafts required for each phase of a construction project. |
| 9. | Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals. |

Construction

POS Course Sequence: Created by Focus Group in 2014

	9 th Grade	10 th Grade	11 th Grade	12 th Grade
Career and Technical Courses and/or Degree Major Courses as Dual Credit	402: Intro to Construction OR 414: Carpentry I	425: Carpentry II	426: Carpentry III	498: Construction Trades Internship
Core Requirement 2			Construction Technology Elective	Construction Technology Elective



Student
Teacher
Accountability
Reporting
System

1660 Principles of Biomedical Sciences – Grades 9 – 12 - Students explore the concepts of human medicine and are introduced to research processes and to bioinformatics. Hands-on projects enable students to investigate human body systems and various health conditions, including heart disease, diabetes, sickle-cell disease, hypercholesterolemia, and infectious diseases.

1661 Human body Systems – Grade 9 – 12 - Students examine the processes, structures, and interactions of the human body systems to learn how they work together to maintain homeostasis (internal balance) and good health.

1662 Medical Intervention – Grades 9 – 12 - Student projects investigate various medical interventions that extend and improve quality of life, including gene therapy, pharmacology, surgery, prosthetics, rehabilitation, and supportive care.

1663 Biomedical Sciences – Grades 9 – 12 -- In this capstone course, students apply their knowledge and skills to answer questions or solve problems related to the biomedical sciences. Students design innovative solutions for the health challenges of the 21st century as they work through progressively challenging open-ended problems, addressing topics such as clinical medicine, physiology, biomedical engineering, and public health. Students have the opportunity to work on an independent project and may work with a mentor or advisor from a university, hospital, physician's office, or industry. Throughout the course, students are expected to present their work to an adult audience that may include representatives from the local business and healthcare community.

Design/Pre-Construction

Program Learning Outcomes from the NASDCTE Common Career Technical Core:

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|----|--|
| 1. | Justify design solutions through the use of research documentation and analysis of data. |
| 2. | Use effective communication skills and strategies (listening, speaking, reading, writing and graphic communications) to work with clients and colleagues. |
| 3. | Describe the requirements of the integral systems that impact the design of buildings. |
| 4. | Apply building codes, laws and rules in the project design. |
| 5. | Identify the diversity of needs, values and social patterns in project design, including accessibility standards. |
| 6. | Apply the techniques and skills of modern drafting, design, engineering and construction to projects. |
| 7. | Employ appropriate representational media to communicate concepts and project design. |
| 8. | Apply standards, applications and restrictions pertaining to the selection and use of construction materials, components and assemblies in the project design. |

Design/Pre-Construction

POS Course Sequence: Drafting Technologies					
	9 th Grade	10 th Grade	11 th Grade	12 th Grade	
Career and Technical Courses and/or Degree Major Courses as Dual Credit	0702:	General Drafting Option		0710: CAD IV Architectural Engineering	
	Drafting-General	0708:	CAD II Architectural Engineering		0709: CAD III Architectural Engineering
		Architectural Option			
		0703:	Drafting-Architectural		Add a new class: <i>Architectural Drawing</i>
		Mechanical/Engineering Option			
		0706:	Drafting-Technical/ Mechanical		Add a new class: <i>Mechanical Drawing II</i>
Core Requirement 2			CAD Elective	CAD Elective	

Maintenance/Operations

Program Learning Outcomes from the NASDCTE Common Career Technical Core:

- | | |
|----|--|
| 1. | Recognize and employ universal construction signs and symbols to function safely in the workplace. |
| 2. | Use troubleshooting procedures when solving a maintenance problem in buildings. |
| 3. | Apply construction skills when repairing, restoring or renovating existing buildings. |
| 4. | Determine work required to repair or renovate an existing building. |
| 5. | Plan and practice preventative maintenance activities to service existing buildings. |
| 6. | Maintain and inspect building systems to achieve safe and efficient operation of buildings. |

Maintenance/Operations

POS Course Sequence:				
	9 th Grade	10 th Grade	11 th Grade	12 th Grade
Career and Technical Courses and/or Degree Major Courses as Dual Credit	*Introduction to the Built Environment	*The Language of Architecture and Construction 0302 General Computer Applications 0703 Drafting-General	1614 Industrial Safety / First Aid 1813 Warehouse Operations	0473 Building Maintenance

What are the Programs of Study we can develop and document?

Construction

Design / Pre-Construction

Maintenance / Operations

Our Work

Task One: What are the existing classes ready to go into this Program of Study?

Task Two: Are there gaps in the Program of Study?

Task Three: Are there courses missing that when added will form a complete POS Course Sequence Chart for your Pathway?

Task Four: What should students in the Career Pathway be able to do?

Task Five - What are the Industry Certifications that are available for students in the Pathway:

Education Technology Project

The Carl Perkins Act expects the effective education technology and distance learning approaches and strategies. What does the the research say and what are the national best practices while providing examples of best practices across the state of effective integration of technology.

*Please send me an email with a brief description of Wow!
examples of technology use in your Programs of Study*

Thank you for your participation!

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http://www.stantonconsultingservices.com/Career_Pathways_POS_Project.html