



# SAMPLE

## Architecture and Construction: Construction

### Career Pathway Plan of Study for ► Learners ► Parents ► Counselors ► Teachers/Faculty

This Career Pathway Plan of Study (based on the Construction Pathway of the Architecture and Construction Career Cluster) 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 and should be individualized to meet each learner's educational and career goals. \*This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Other Required Courses Other Electives Recommended Electives Learner Activities	*Career and Technical Courses and/or Degree Major Courses for Construction Pathway	SAMPLE Occupations Relating to This Pathway
Interest Inventory Administered and Plan of Study Initiated for all Learners								
SECONDARY	9	English/ Language Arts I	Algebra I	Earth or Life or Physical Science	State History Civics or World History	All plans of study should meet local and state high school graduation require- ments and college entrance requirements. Certain local student organization activities such as SkillsUSA are also important includ- ing public speaking, record keeping and work-based experi- ences.	• Introduction to the Built Environment	▶ Carpenter ▶ Code Official ▶ Concrete Finisher ▶ Construction Engineer ▶ Construction Foreman/Manager ▶ Construction Inspector ▶ Contractor ▶ Design Builder ▶ Drywall Installer ▶ Electrician ▶ Electronic Systems Technician ▶ Equipment and Material Manager ▶ General Contractor/Builder ▶ Heating, Ventilation, Air Conditioning and Refrigeration Mechanic ▶ Mason ▶ Painter ▶ Paperhanger ▶ Plumber ▶ Project Estimator ▶ Project Inspector ▶ Project Manager ▶ Roofer ▶ Safety Director ▶ Sheet Metal Worker ▶ Specialty Contractor ▶ Superintendent ▶ Tile and Marble Setter
	10	English/ Language Arts II	Geometry	Biology	U.S. History		• The Language of Architecture and Construction • Information Technology Applications	
	11	English/ Language Arts III Technical Writing	Algebra II	Physics	Economics Psychology		• Safety, Health and the Workplace Environment • Principles of Construction	
	College Placement Assessments-Academic/Career Advisement Provided							
	12	English/ Language Arts IV	Construction Math or Statistics	Chemistry			• Applications in Construction	
Articulation/Dual Credit Transcribed-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.								
POSTSECONDARY	Year 13	English Composition English Literature	Algebra Trigonometry	Physics	American Government or History Psychology/ Interpersonal Skills	All plans of study need to meet learners' career goals with regard to required degrees, li- censes, certifications or journey worker status. Certain local student organization activities may also be important to include.	• Advanced Plan Reading • Construction Ethics and Legal Issues	
	Year 14	Speech/ Oral Communication	Business Accounting Pre-Calculus or Calculus	Environmental Science	Sociology Business Law		• Technical Applications in the Construction Industry • Construction Internship	
	Year 15	Continue courses in the area of specialization.					• Continue Courses in the Area of Specialization	
	Year 16						• Complete Construction Major (4-Year Degree Program)	

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### *Creating Your Institution's Own Instructional Plan of Study*

With a team of partners (secondary/postsecondary teachers and faculty, counselors, business/industry representatives, instructional leaders, and administrators), use the following steps to develop your own scope and sequence of career and technical courses as well as degree major courses for your institution's plan of study.

- 1** Crosswalk the Cluster Foundation Knowledge and Skills (available at <http://www.careerclusters.org/goto.cfm?id=83>) to the content of your existing secondary and postsecondary programs/courses.
- 2** Crosswalk the Pathway Knowledge and Skills (available at <http://www.careerclusters.org/goto.cfm?id=9>) to the content of your existing secondary/postsecondary programs and courses.
- 3** Based on the crosswalks in steps 1 and 2, determine which existing programs/courses would adequately align to (cover) the knowledge and skills. These programs/courses would be revised to tighten up any alignment weaknesses and would become a part of a sequence of courses to address this pathway.
- 4** Based on the crosswalks in steps 1 and 2, determine what new courses need to be added to address any alignment weaknesses.
- 5** Sequence the **content** and **learner outcomes** of the existing programs/courses identified in step 3 and new courses identified in step 4 into a course sequence leading to preparation for all occupations within this pathway. (See list of occupations on page 1 of this document.)
- 6** The goal of this process would be a series of courses and their descriptions. The names of these courses would be inserted into the *Career and Technical Courses* column on the Plan of Study on page 1 of this document.
- 7** The SAMPLE on page 4 is a **sample result** of steps 1-6, and these course titles are inserted into the Plan of Study on page 1 of this document.
- 8** Crosswalk your state academic standards and applicable national standards (e.g., for mathematics, science, history, language arts, etc.) to the sequence of courses formulated in step 6.

***Below are suggested courses that could result from steps 1-6 above. However, as an educational institution, course titles, descriptions and the sequence will be your own. This is a good model of courses for you to use as an example and to help you jump-start your process. Course content may be taught as concepts within other courses, or as modules or units of instruction.***

**The following courses are based on the Cluster Foundation Knowledge and Skills found at <http://www.careerclusters.org/goto.cfm?id=83>. These skills are reinforced through instruction using hands-on applications and through participation in student organization activities.**

**#1**

*Introduction to the Built Environment:* This core course for the Architecture and Construction Career Cluster will build a knowledge base and technical skills in all aspects of the industry. Learners will be exposed to a broad range of architecture and construction careers and cluster foundation knowledge and skills including basic safety, plan reading, use of tools and equipment and basic rigging as well as how to employ positive work ethics in their careers. Possible student certifications to be earned include NCCER Core, RCA Series, Basic First Aid and CPR. Participation in SkillsUSA will reinforce cluster knowledge and skills. It is recommended that a construction mathematics course be offered in conjunction with this introductory skills course. This may be taught as a career exploration course in conjunction with other foundation Career Cluster courses.

**#2**

*The Language of Architecture and Construction:* Students will build the skills necessary to understand what is being communicated through drawings and documents and, in turn, convey ideas, duties and tasks to others in a form representing the industry. Students will use and follow industry-specific verbal and visual skills to accomplish workplace/job-site communications. Students will exhibit public relations skills and enhance communication skills by listening to and speaking with a variety of individuals. Students will learn universal signs and symbols such as colors, flags, stakes and hand signals to function safely in the workplace.

**The following courses are based on the Cluster Foundation Knowledge and Skills as well as the Pathway Knowledge and Skills found at <http://www.careerclusters.org/goto.cfm?id=9>. These skills are reinforced through instruction using hands-on applications and through participation in student organization activities.**

**#3**

*Information Technology Applications:* Students will use technology tools to manage personal schedules and contact information, create memos and notes, prepare simple reports and other business communications, manage computer operations and file storage, and use electronic mail, Internet applications and GIS to communicate, search for and access information. Students will develop skills related to word processing, database management and spreadsheet applications.

**#4**

*Safety, Health and the Workplace Environment:* Students will develop in-depth skills for maintaining a safe and productive environment including following regulations to perform inspections, participate in emergency response teams to perform emergency drills, identify unsafe conditions and take corrective actions, and provide a safety orientation to train other employees in safe practices and emergency procedures. Students will ensure that equipment is being used safely in the workplace, suggest processes and procedures to support safety in the workplace, and fulfill safety and health requirements for maintenance, installation and repair. Students will monitor equipment and operator performance to assure workplace safety and compliance with both company and national regulations.

**#5**

*Principles of Construction:* This course provides an overview of the total construction process including the safe use of tools and equipment, city and regional planning, construction management, contracting, labor and management relations, the design process, methods and materials, estimating and bidding, scheduling and purchasing, construction, and equipment. Students will develop problem-solving and critical-thinking skills by identifying the relationship between available resources and requirements of a project/problem to accomplish realistic planning and reinforce quality and resource management. Course content may reflect some of the knowledge and skills of the Visual Arts Pathway from the Arts, Audio/Video Technology and Communications Career Cluster found at <http://www.careerclusters.org/goto.cfm?id=13>.

**#6**

*Applications in Construction:* Students will develop skills that relate to the construction industry. Course content will include scheduling, estimating, steps for managing project assignments in a timely manner, and development of skills for working as individuals and as team members to accomplish assignments. Math skills used in the construction industry will be reinforced. Students will complete a capstone construction project in their work-based experience that utilizes the knowledge and skills learned in the pathway.

**#7**

*Advanced Plan Reading:* This course describes the interpretation of working drawings and specifications for residential and commercial building projects including architectural, structural, and utility drawings. Students will interpret technical drawings and documents to plan a project, and use and maintain appropriate tools, machines and equipment to accomplish project goals.

**#8**

*Construction Ethics and Legal Issues:* Students will develop skills in how to exhibit personal accountability, integrity and responsibility to enhance confidence among co-workers. Students will read regulations and contracts to ensure ethical and safety elements are observed, and use ethical and legal standards to avoid conflicts of interest.

**#9**

*Technical Applications in the Construction Industry:* Students will build on the skills learned in previous courses and exhibit a positive work ethic to comply with employment requirements as they examine building systems and components to evaluate their usefulness to a project. Skills such as resource management, scheduling, estimating and ability to develop a sustainable design will be reinforced. Building systems will be incorporated into a construction project by the end of the course. Students will develop a portfolio that documents their knowledge, skill and abilities as well as other information that can help them succeed in obtaining a job and working in a construction environment.

**#10**

*Construction Internship:* The student will work under supervision in an area of interest that relates to the construction industry.

