

Arts, Audio/Video Technology and Communications: Telecommunications Career Pathway Plan of Study for ▶ Learners ▶ Parents ▶ Counselors ▶ Teachers/Faculty

This Career Pathway Plan of Study (based on the Telecommunications Pathway of the Arts, Audio/Video Technology and Communications 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 Telecommunications Pathway	SAMPLE Occupations Relating to This Pathway
<i>Interest Inventory Administered and Plan of Study Initiated for all Learners</i>								
SECONDARY	9	English/ Language Arts I	Algebra I or Geometry	Biology	World History	All plans of study should meet local and state high school graduation requirements and college entrance requirements. Certain local student organization activities are also important including public speaking, record keeping and work-based experiences.	<ul style="list-style-type: none"> • Introduction to Arts, Audio/Video Technology and Communications • Information Technology Applications 	<ul style="list-style-type: none"> ▶ Customer Service Representative ▶ Network Designer ▶ Sales Representative ▶ Systems Designer ▶ Telecommunication Computer Programmer and Systems Analyst ▶ Telecommunication Equipment: Cable, Line Repairer and Installer ▶ Telecommunication Technician
	10	English/ Language Arts II	Geometry or Algebra II	Chemistry	U.S. History		<ul style="list-style-type: none"> • Design and Production Technology • Advanced Information Technology Applications 	
	11	English/ Language Arts III	Algebra II or Pre-Calculus or Trigonometry	Physics	Political Science Economics		<ul style="list-style-type: none"> • Principles of Telecommunication Systems 	
	<i>College Placement Assessments-Academic/Career Advisement Provided</i>							
	12	English/ Language Arts IV	Pre-Calculus or Trigonometry or AP Calculus	AP Science		<ul style="list-style-type: none"> • Advanced Analog and Digital Logic and Circuits 		
<i>Articulation/Dual Credit Transcribed-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.</i>								
POSTSECONDARY	Year 13	English Composition English Literature	Calculus	Chemistry	American Government Psychology	All plans of study need to meet learners' career goals with regard to required degrees, licenses, certifications or journey worker status. Certain local student organization activities may also be important to include.	<ul style="list-style-type: none"> • Telecommunications Schematics and Layout 	
	Year 14	Speech/ Oral Communication	Computer Applications	Biological Science Physics	American History Geography		<ul style="list-style-type: none"> • Network Applications and Installation 	
	Year 15	Continue courses in the area of specialization.					<ul style="list-style-type: none"> • Continue Courses in the Area of Specialization 	
	Year 16						<ul style="list-style-type: none"> • Complete Telecommunications Major (4-Year Degree Program) 	

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=84>) 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=16>) 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** Below 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.

Arts, Audio/Video Technology and Communications: Telecommunications

SAMPLE Sequence of Courses for ▶ Instructional Leaders ▶ Administrators ▶ Counselors ▶ Teachers/Faculty

SAMPLE

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=84>. These skills are reinforced through participation in student organization activities.

#1

Introduction to Arts, Audio/Video Technology and Communications: This course provides a basic exploration of the elements of design. Students will utilize a variety of media to explore individual expression and will learn to critically analyze their own and others' work to further their artistic growth. Students will analyze the history and evolution of the arts, audio-video technology and communications in relation to their current place in society and the economy. Learners will be exposed to a variety of careers and cluster foundations knowledge and skills. This may be taught as a career exploration course in conjunction with other foundation Career Cluster courses.

#2

Information Technology Applications: This course is designed for those students who have not mastered knowledge and skills related to information technology applications prior to entry into high school. 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.

#3

Design and Production Technology: Students will learn about the design and makeup of materials and machines used to make the products we use in our everyday lives. Students will use artistic elements to design and produce actual hands-on projects through individual and mass production techniques including layout and design of items to be printed. Emphasis will be placed on developing and maintaining a safe and healthy work environment related to the arts, audio-video technology and communications.

The following course is 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=16>. These skills are reinforced through participation in student organization activities.

#4

Advanced Information Technology Applications: Students will build on the basic knowledge and skills previously learned in the Information Technology Applications course. Students will also study basic electronics including basic principles of analog and digital systems.

The following courses expose students to Pathway Knowledge and Skills found at <http://www.careerclusters.org/goto.cfm?id=16> and should include appropriate student activities.

#5

Principles of Telecommunications Systems: Students will demonstrate the use of industry-specific terminology, tools and test equipment related to telecommunications. Specific content includes terminology utilized in direct current, alternating current and digital technology; use and care of hand and power tools; and use and care of test equipment. Students will demonstrate installation techniques and processes for fasteners and terminals, and be able to explain strengths and weaknesses of fiber, coaxial, wireless, copper and other media. Students will apply decision-making and problem-solving techniques of repair and replacement for the telecommunications industry. Specific content includes procedures for repairing network equipment and analyzing replacement procedures in standard maintenance processes. Students will examine information related to customer needs and solve customer problems, meeting the intent of state and national guidelines for consumer rights. Students will also be able to explain data related to problems and use other information required to solve problems.

#6

Advanced Analog and Digital Logic and Circuits: This course includes an advanced study of the characteristics of analog and digital technology applications for telecommunications. Students will analyze analog circuit and digital logic devices, demonstrate analog circuit test procedures, and demonstrate digital signal technology.

#7

Telecommunications Schematics and Layout: Students will analyze schematics, diagrams, and blueprints using appropriate terms, vocabulary and industry-specific codes and regulations. Students will study basic network architecture, network topography maps and satellite communications, and demonstrate the ability to generate technical documentation.

#8

Network Applications and Installation: This capstone course allows students to apply their knowledge of network applications. Students will exhibit knowledge of transmission lines and network connectivity, identify specifications for a facility, and exhibit understanding of standards for communication networks. Students will demonstrate understanding of Local Area Network (LAN) and the Wide Area Network (WAN) systems, and demonstrate installation of a network system. Students will study and demonstrate a basic understanding of the demands of network security, analyze security risks, and learn how to overcome the problems identified.



Notes

A large area of the page is filled with horizontal lines, alternating between light pink and light blue, intended for writing notes.