



Pathway: Management and Administration/STEM

Plan of Study: Information Technology

Career Goal (O*Net Code): 15-1099.04 Web Developers; 15-1081.00 Network Systems and Data Communications Analysts; 15-1071.00 Network and Computer Systems Administrators; 15-1021.00 Computer Programmers; 15-1041.00 Computer Support Specialists

Suggested High School Courses

High School * Default includes CDHE Higher Education Admission Requirements	9 th	Core Academic Courses*:	English 9, World Civilizations, Intro to Geography, Algebra I, Introduction to Physical Science, Integrated Science (Honors classes also available)	Suggested Electives: Arapahoe Douglas Career and Technical School. www.actinfo.org
		Career Path Courses:	*Business Technology 1/ *Desktop Publishing/ Career Connections/Tech Studies 1	
	10 th	Core Academic Courses*:	English 10, US History (Electives: Anthropology, World Geography), Geometry or Algebra 11 Biology, Astronomy (Elective) Foreign Language (Honors classes also available)	Suggested Electives: *Accounting 1,2,3,4 Business Communications Business Law Business Math Business Writing
		Career Path Courses:	*Advanced Business Technology 2/ *Integrated Bus Tech 3/ Career Connections/Tech Studies 2/ Web Page Design 1/, Graphic Design	
	11 th	Core Academic Courses*:	English Elective (American Literature, Journalism, Creative Writing, Drama/Debate, etc.), Western Civilization or AP European History (Electives: AP Human Geography, Anthropology, Colorado History, World Religions, Film History, Intro to Law, Russian History, Sociology, World Geography, or Psychology), Algebra II, Probability and Statistics or Pre-Calculus, Chemistry, (Electives: Astronomy, Zoology, Plant Science, Genetics or Meteorology)	Suggested Electives: *Business Technology *Advanced Business Technology *Integrated Business Technology
		Career Path Courses:	*Integrated Business Technology 3/ *Web Page Design 1 or 2/ Professional Employment Training/Tech Studies 3, Advanced Graphic Design	
	12 th	Core Academic Courses*:	English Literature, World Literature, Government, Economics/Civics (Electives: AP Human Geography, Anthropology, Colorado History, World Religions, Film History, Intro. to Law, Russian History, Sociology, World Geography or Psychology), Trigonometry, Pre-Calculus, Probability and Statistics, Calculus or AP Statistics Physics, (Electives: Astronomy, Zoology, Plant Science, Genetics or Meteorology)	Suggested Electives: International Business *Business Principles *Personal Finance *Web Page Design *Word Proc/Desktop Publishing *Marketing *Advanced Marketing Entrepreneurship Sports and Entertainment Marketing
		Career Path Courses:	Any above classes/ Tech Studies 4/ Business Elective (see list of suggested electives); Academic Internship/ Community Employment Experience/ PET	

Secondary to Postsecondary Linkages & Certifications

Recognition for Advanced Learning	Postsecondary Credit Options: Articulated Credit (see *s above for classes that articulate and attached articulation agreement), ACP (Advanced Credit Pathway), PSEO (Post Secondary Enrollment Options - 11 th and 12 th grade, up to two classes/semester for 2 years),
	Industry Recognized Certificate(s) or License(s): Microsoft Certifications - http://www.microsoft.com/learning/mcp/certifications.aspx ; MOS Cisco (CCNA) - http://www.cisco.com/web/learning/le3/learning_career_certifications_and_learning_paths_home.html Project Management (PMP) - http://www.pmi.org/CareerDevelopment/Pages/Certification-and-the-Job-Market.aspx Network+Security+Microsoft MCSA/MCSE, CWNA, CWSP A+Network+ Security+ - Computer Technician - Comp TIAA+

		Postsecondary Programs Available in Colorado	Colorado Institutions	Entrance Exams/ Requirements
Postsecondary Education Opportunities	Certificate	Computer Aided Drafting - 2D, 3D, Custom Computer Information Systems Networking Certificates(UNIX, CISCO, Microsoft Certified, Networking Security) Computer Technician Microsoft Certified System Engineer Computer Graphics Web-Based Design/Marketing	Arapahoe Community College Community College of Denver Red Rocks Community College Westwood College	CPT/Accuplacer Varies by course
	Associate Degree	Computer Information Systems (AAS) with various options Computer Network Technology(AAS) Computer Science(AAS) Computer Support Professional(AAS) Business Administration(AAS) AA Business Transfer Emphasis AAS Multimedia/Graphic Design and Illustration Information Sciences/Studies	Aimes Community College Arapahoe Community College Northwestern Community College Community College of Aurora Community College of Denver Front Range Community College ITT Technical Institute Metropolitan State College of Denver Pikes Peak Community College Red Rocks Community College Westwood	High School Diploma/GED CPT/Accuplacer General Ed Entrance and Course requirements Emphasis Requirements
	Bachelor Degree	Computer Information Systems/Security Computer Science Computer Systems Analysis/Analyst Computer Information Sciences and Support Systems	Airforce Academy Colorado Mountain College Colorado School of Mines Colorado State University DeVry University University of Colorado University of Colorado at C. Springs University of Colorado at Denver University of Denver	High School Diploma ACT/SAT Requirements for an Associate Degree plus additional requirements
	Graduate Degree	Computer Science Computer and Information Science Information Science and Studies	Colorado School of Mines Colorado State University Regis University University of Colorado at Boulder University of Colorado Health Sciences Center	GRE Bachelor Degree

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Cluster Overview: The **Information Technology Career Cluster** prepares students for Entry Level, Technical, and Professional Careers Related to the Design, Development, Support and Management of Hardware, Software, Multimedia, and Systems Integration Services.

Extended Learning Experiences	
Curricular Experiences: FBLA	Extracurricular Experiences: FBLA (Future Business Leaders of America) TSA (Technology Student Association) FCCLA (Family, Career and Community Leaders of America) Business Expos Career Fairs MUSE Model United Nations Student Council/Student Government Key Club
Work-Based Learning Experiences: Career Preparation – Paid and Unpaid, Job Shadowing, Internships, Community Employment Experience, Informational Interviews and Academic Internship (available through Advisory Committee and other business partners).	Program Accreditation and/or Professional Association(s): Professional Business Leaders - (FBLA-PBL.org) Independent Computer Consultants Association Association for Women in Computing Institute for Certification of Commuting Professionals Computer Technology Industry Association Society for Information Management IEEE Computer Society
Service Learning Experiences: See above - Volunteer tech support skills to community	

Career Options:		Salary Range:
Certificate	Computer Programmers - C++, Java, etc. Telecommunications Equipment - Installer and Repairer Computer Equipment Repairer Electrical/Electronics Repairer Office Administrative Support Specialist Desktop Publisher	\$\$
Associate Degree	Computer Programmers Graphic Designers Desktop Publisher	\$\$-\$\$\$
Bachelor Degree	Computer Programmers Computer Science Computer Systems Analysts Computer and Information Systems Manager Network Systems/Data Communications Analyst Graphic Designers	\$\$\$ - \$\$\$\$
Graduate Degree	Computer Science Computer Systems Analysts Computer and Information Systems Manager	\$\$\$ - \$\$\$\$

* \$ = \$15-25,000; \$\$ = \$25-55,000; \$\$\$ = \$55-90,000; \$\$\$\$ = Above \$90,000

Colorado Career & Technical Education

Preparing Today's Students' for Tomorrow's Opportunities

Plan of Study Template

Colorado Career & Technical Education (CTE) believes that **every student should be on a path** that leads to career success, through **seamless plans** of study fostering **academic and technical achievement**, to develop a **globally competitive** workforce for Colorado. Use of this model will enhance Colorado's ability to grow a globally competitive workforce.

To ensure that this belief becomes a reality, we have provided the attached “**Plan of Study Template**” to assist our more than 2000 CTE programs in developing their required local plans of study.

What is a Plan of Study...

A **Plan of Study** is a coherent, articulated sequence of rigorous academic and career-related courses, commencing in the ninth grade and leads to an industry-recognized certificate or licensure, and/or an associate or baccalaureate degree and beyond. It must:

1. Incorporate secondary education and postsecondary education elements;
2. Include coherent and rigorous content aligned with challenging academic standards and relevant career and technical content in a coordinated, non-duplicative progression of courses;
3. Align secondary education with postsecondary education to adequately prepare students to succeed in postsecondary education;
4. Include the opportunity for secondary education students to acquire postsecondary education credits; and
5. Lead to an industry-recognized credential or certificate at the postsecondary level, or an associate or baccalaureate degree.

Why use a Plan of Study...

Student/Parent

- √ Provides a “road map” to their career goals
- √ Plans are flexible, allowing students to explore and update their plans of study
- √ Highlights secondary to postsecondary linkages allowing for seamless transition to further education

Teacher (Requirements for Perkins funding)

- √ Increases student retention
- √ Demonstrates the importance of CTE programs as a progression of learning
- √ Connects the Career Path Courses with the appropriate Core Academic Courses to promote student success

Guidance Counselor

- √ Increases awareness of CTE opportunities
- √ Provides an easy-to-use guidance tool designed to help students plan their education based on their career goals
- √ Empowers students to take greater responsibility for their own career research and planning

How to create a local Plan of Study...

This template, which is in an 11 x 17 document, was created using the “Form” function in Word. Only the items that you need to fill in are open for editing. The first item to edit will be “Pathway Name.” To edit it, select the text and begin typing and when you have finished editing an item, simply click “Tab” to move to the next item. To determine what to include in each section see the descriptions on the following page.

√ **Select the Appropriate Cluster and Pathway**

Each Plan of Study will need to fall under the appropriate Career Cluster and Pathway. For a full list of Colorado's Clusters and Pathways go to <http://www.cccs.edu/CTE/index.html> and click on Career Clusters. Please remember that there can be multiple pathways in which your plan of study may fit. Select the one that best aligns with your program.

√ **Create a Name for your Plan of Study**

The Plan of Study name in most cases will be your program name. However, you may wish to use a different name that might connect better with students and parents in order to increase the marketability of the program.

√ **Define Career Opportunities:**

Each Plan of Study needs to identify the related careers that students are preparing for. Please include both the career name and O*NET code for each related career opportunity. Career occupations and codes can be found at <http://online.onetcenter.org/>. The O*NET system serves as the nation's primary source of occupational information, providing comprehensive information on key attributes and characteristics of workers and occupations.

Navigating O*NET:

- To get started, click on <http://online.onetcenter.org/>
- On their homepage click on “Find Occupations”
- Type in the “Quick Search” section a keyword, for example, “welder” and it will bring up a page listing occupations with a related ONET-SOC code
- Click on one of the occupations of interest to you and it will bring up a page that details tasks performed, tools and technology utilized, and the knowledge, skills and abilities necessary as well as other helpful information

√ **Identify Core Academic and Career Path Courses**

This is the most important part of the plan of study. In this section you need to include the Core and Career Course sequence or series of options that will best prepare the student for this career path. It will be important to involve the school guidance counselor in this step! Core academic courses would include those courses required for graduation as a minimum, with suggested Core courses related to the career path. (*For instance, a student interested in Animal Reproduction would benefit from an Anatomy and Physiology course as a required science course while a Construction Technology student would be better served by a Physics course.*)

The Career course section should include the required CTE courses for adequate technical preparation in the pathway. In addition, space has been provided to include any electives that may be recommended for this plan of study.

√ **Include Postsecondary Credit Options and Available Certificates or Licenses**

In this section note any postsecondary credit opportunities that might be available to your students. They might include: Advanced Credit Pathway (ACP), Dual Enrollment, PSEO, Articulation agreements, or Fast College/Fast Jobs. Also include any Industry recognized certificates or licenses available upon completion of the program.

√ **Include Postsecondary Programs Available in Colorado**

This section highlights the opportunities for students to continue their education in Colorado. Information on programs and institutions offering them is available at www.collegeincolorado.org. Please also include any special program entrance requirements such as “GED” or “Accuplacer Testing” to prepare students for seamless transition.

√ **Describe Extended Learning Opportunities**

Extended learning opportunities are those experiences that go in many cases beyond the classroom. Examples are provided below.

Curricular Experiences – Extended Classroom Projects, Related Student Organization Activities

Extracurricular Experiences – Additional career-related experiences outside the classroom (International Exchange)

Work-based Learning Experiences – Potential Internships or shadowing opportunities

Service Learning Experiences – Community service-related activities like 4-H, Boy Scouts, Girl Scouts

Program Accreditation and/or Professional Organizations – Include organizations that will serve as resources for students to understand the career path.

√ **Career Options**

In this section please give examples of careers that would be attainable for the student after completing each level of education. Career names and salary ranges can be found via O*Net at <http://online.onetcenter.org/>.