ACAP

Austin Competency Analysis Profile

Visual Communications

Conducted
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What's Inside?

Preface

Austin Community College would like to express our sincere appreciation to our business, industry, labor, and community partners who donated their time and expertise toward the identification and validation of competencies in the following Austin Competency Analysis Profile.

Introduction

The ACAP (Austin Competency Analysis Profile) initiative comes out of the Instructional Development Services of Instructional Resources and Technology at Austin Community College. This initiative is ACC's primary source for Competency-Based Curriculum development, providing a connection between our academic and workforce programs and the needs of business and industry.

The ACAP is a process for analyzing an occupation to develop curriculum. The product is a competency list, employability skills, and academic skill levels that have been developed and validated by subject matter experts who perform the occupation. This list will be used to develop programs that address the needs of business and industry by equipping our students with the entry skills required in a workplace environment.

ACAP Process Overview

What are Austin Competency Analysis Profiles (ACAPs)?

Austin Competency Analysis Profiles (ACAPs) are competency lists for academic and workforce programs verified by expert workers, or Subject Matter Experts. These lists evolve from a well-established job analysis process involving business, industry, labor, and community agency representatives from throughout the Austin area.

How is an Austin Competency Analysis Profile used?

Each ACAP identifies the occupational, academic, and employability skills (or competencies) needed to enter a given occupation or occupational area. The ACAP not only lists the competencies but also clusters those competencies into broader units and details the knowledge, skills, and attitudes (competency builders) needed to perform each competency.

Within the competency list are two levels of items: core and advancing. Core items, which are essential for entry-level employment, are required to be taught—the concept of advancing items will only be introduced to students. Advancing items are those needed beyond entry level in a given occupation, and are designated as "Advanced [A]." If core competencies or competency builders are present in an "Advanced" unit, then they are designated as "Core [c]."

Educational institutions may add as many units, competencies, and/or competency builders as desired to reflect local employment needs, trends, and specialties. Local advisory committees are actively involved in the identification and verification of additional items. Faculty members formulate their courses of study using the varied contents of the ACAP. Faculty also monitor gains using many forms of assessment.

Target Job Titles

ACAP: Visual Communications

Information Architect

Interface Designer

Web Developer

Web Designer

Multi-Media Designer

Flash Developer

Flash Designer

Flex Developer

Production Designer

Interactive Designer

Communications Specialist

Occupational Competencies

The following Occupational Competencies have been identified and verified by a panel of subject matter experts currently employed in the field of Visual Communications. This panel of experts has determined that these skills will adequately prepare students for *entry level* positions in this field. The *Competencies* are grouped into units. *Competency Builders* are included to help identify the knowledge, skills and attitudes students need to perform each competency. These *Competencies* and *Competency Builders* are designed to be the basis for curriculum development to ensure business and industry input that is relative and meaningful to the workplace. These *Competencies* are intended to include all basic, necessary skills for this occupational area, but may be supplemented with additional competencies as faculty and advisory committee members see the need to do so.

Key Terms:

Competency–an observable and measurable behavior that has a definite beginning and end; can be performed within a limited amount of time; consists of two or more competency builders; and leads to a product, service, or decision.

Competency Builders–the skills, knowledge, and attitudes (written in measurable terms) needed to perform a given competency.

Entry Level–position of employment that requires no previous experience, but may require some training and/or specific skills, knowledge, or attitudes.

ACAP: Visual Communications

Unit 1	Global Skills
Unit 2	Content and Technical Analysis
Unit 3	Project Planning
Unit 4	Graphic/Multimedia
Unit 5	Web Design
Unit 6	Validation and Quality Assurance
Unit 7	Deploy Application/Site
Unit 8	Maintain Applications
Unit 9	Professional Development

Occupational Competencies
ACAP: Visual Communications

Unit 1 Global Skills

Competency 1.1 Communicate in a professional manner

Competency Builders:
1.1.1 Interact with vendors, colleagues, and clients
1.1.2 Notify appropriate persons about problems and observations
1.1.3 Coordinate tasks with co-workers
1.1.4 Make oral, written, and visual presentations
1.1.5 Apply strategies for interacting with difficult personalities

Competency 1.2 Keep accurate records

Competency Builders:
1.2.1 Use appropriate technical vocabulary
1.2.2 Establish file naming conventions and version control
1.2.3 Document results at time of performance
1.2.4 Develop and maintain a system of file management and organization (computer and written files)
1.2.5 Budget time and financial resources
1.2.6 Estimate cost of materials and labor
1.2.7 Track progression of the project as it relates to timeline using company protocol

Competency 1.3 Manage multiple tasks

Competency Builders:
1.3.1 Prioritize tasks
1.3.2 Manage time spent on tasks
1.3.3 Assign appropriate resources
1.3.4 Manage resources
1.3.5 Solve problems using logic techniques

Competency 1.4 Provide quality customer service

Competency Builders:
1.4.1 Set expectations with customer
1.4.2 Manage relationships so that customers are satisfied with current level of service
1.4.3 Meet customer expectations according to timeline
1.4.4 Identify problems and refer to appropriate personnel

Competency 1.5 Adhere to contractual obligations

Competency Builders:

1.5.1 Identify resources for standard contract templates
1.5.2 Line up milestones with cash flow
1.5.3 Determine percentages of job to collect at each milestone
1.5.4 Respond to contractual issues (non-payment, changes, etc.)

Unit 2 Content and Technical Analysis

Competency 2.1 Assess customer's needs

Competency Builders:

2.1.1 Research customer and customer's market
2.1.2 Define audience and mission of project/product
2.1.3 Interview stakeholders to familiarize with business (Strengths, Weaknesses, Opportunities and Threats—SWOT)
2.1.4 Draft a preliminary schedule
2.1.5 Determine customer success criteria
2.1.6 Create a needs assessment document including an interpretation of the customer's business (who they are, what they do, unique qualities of the business, business goals, etc.)
2.1.7 Verify information is accurate and complete
2.1.8 Follow appropriate company practices in information gathering interviews
2.1.9 Gather information continuously
2.1.10 Present possible options to customer in various formats (power point presentation, Flash slideshow, poster presentations, pamphlets, etc.)

Competency 2.2 Gather content as it relates to requirements

Competency Builders:

2.2.1 Collect company marketing materials and company style guide (logos, fonts, etc.)
2.2.2 Identify additional resources for marketing materials
2.2.3 Verify information is correct, accurate, and appropriate
2.2.4 Build content matrix by mapping content to customer requirements
2.2.5 Index and weigh content properly by relevance
2.2.6 Identify missing content
2.2.7 Identify sources of information
2.2.8 Establish deadlines for content delivery

Unit 3 Project Planning

Competency 3.1 Define scope of work

Competency Builders:
3.1.1 Prioritize features and functions of the product
3.1.2 Identify agreed upon project objectives
3.1.3 Identify size and specifications of the work involved
3.1.4 Define project success criteria for all parties
3.1.5 Document scope of work in an accurate, complete and succinct form
3.1.6 Ascertain technical feasibility of project
3.1.7 Communicate to customer division of responsibilities

Competency 3.2 Present functional specifications in a clear and concise manner

Competency Builders:
3.2.1 Include complete functional specifications and conclusions
3.2.2 Communicate functional specifications with regular updates
3.2.3 Detail all product features and behaviors in functional specifications

Competency 3.3 Present technical specifications in a clear and concise manner

Competency Builders:
3.3.1 Include complete technical specifications and conclusions
3.3.2 Communicate technical specifications with regular updates
3.3.3 Describe the technical environment of the project (operating system software and hardware, client side support and server side software) properly and fully

Competency 3.4 Review technical considerations and constraints

Competency Builders:
3.4.1 Consider all technical environmental factors
3.4.2 Review all technological relationships
3.4.3 Document technical considerations and constraints
3.4.4 Address feasibility issues
3.4.5 Assess budget and equipment constraints

Competency 3.5 Select design tools and programming language

Competency Builders:
3.5.1 Select tools and languages based on functional requirements, technical specifications, and budgetary considerations
3.5.2 Assess and evaluate third-party applications for applicability
3.5.3 Meet ease-of-use requirements in tools and language

Competency 3.6 Develop project plan

Competency Builders:

3.6.1 Identify stakeholder requirements accurately in plan
3.6.2 Include project schedules, resource allocations, dependencies and milestones in plan
3.6.3 Accurately document and update plan throughout the project life cycle
3.6.4 Define and document test strategy (QA, usability, ADA compliance, cross browser, cross platform, etc.)
3.6.5 Review project plan with customers as needed
3.6.6 Revise project plan as necessary

Competency 3.7 Develop site map

Competency Builders:

3.7.1 Meet project goals and application objectives in site map
3.7.2 Develop site map according to company standards and practices
3.7.3 Develop consensus among all team members regarding the organization of information

Unit 4 Graphic/Multimedia

Competency 4.1 Create a comprehensive design document

Competency Builders:

4.1.1 Identify target audience
4.1.2 Create content outline and flowchart
4.1.3 Identify phases of the system design life cycle
4.1.4 Create storyboards that show the flow of the program and map out key user interactions
4.1.5 Present information clearly and in the context of how users interact with the system
4.1.6 Incorporate company style guides
4.1.7 Create style guides as necessary

Competency 4.2 Present design concepts (wire frames, story boards, etc.)

Competency Builders:

4.2.1 Present an appropriate number of preliminary concept alternatives to all appropriate stakeholders
4.2.2 Incorporate the organization of information as determined by stakeholders
4.2.3 Represent all required design features in mockup
4.2.4 Complete mockup within time and budget constraints
4.2.5 Synthesize stakeholders feedback into final design or concept
4.2.6 Refine and re-present concept until consensus among stakeholders is reached
4.2.7 Prepare prototype based on final approved concept

Competency 4.3 Design complex graphics using independent judgment, creativity, and computer equipment

Competency Builders:

4.3.1 Use basic design techniques and principles
4.3.2 Use appropriate typography
4.3.3 Choose a coordinated color scheme throughout the product
4.3.4 Consider cultural and contextual meanings in color scheme
4.3.5 Use drawing and image editing tools to manipulate, create, and edit images (i.e., Photoshop, Illustrator, Fireworks, Flash, etc.)
4.3.6 Follow web design and interface design standards in graphic elements
4.3.7 Incorporate customer requirements and company standards in graphics
4.3.8 Apply design techniques in the creation and optimization of graphics and other embedded elements
4.3.9 Obtain copyright approval as needed
4.3.10 Obtain written customer approval

Competency 4.4 Create user interface based on usability principles

Competency Builders:

4.4.1 Design intuitive navigation structures
4.4.2 Utilize advanced programming syntax
4.4.3 Translate aesthetics of graphic design into attractive interactive visual Interfaces
4.4.4 Apply fundamentals of page layout
4.4.5 Critique existing user interface and screen designs
4.4.6 Justify interface and screen design decisions based on the requirements of the project
4.4.7 Select a multimedia project's interface using an interface design process that includes flowcharting, target audience analysis, and content organization
4.4.8 Create uniform styles and feature functionality
4.4.9 Address accessibility standards
4.4.10 Submit interface design for usability testing

Competency 4.5 Develop animation using interactive or multimedia elements

Competency Builders:

4.5.1 Create two-dimensional and three-dimensional images depicting objects in motion or illustrating a process, using computer animation or modeling programs
4.5.2 Make objects or characters appear lifelike by manipulating light, color, texture, shadow, and transparency, or manipulating static images to give the illusion of motion
4.5.3 Develop interactive interface objects
4.5.4 Create custom skins for interactive components
4.5.5 Utilize scripting for interactivity
4.5.6 Develop interactive or multimedia elements in applications using Object-Oriented Programming (OOP) techniques (A)
4.5.7 Develop multimedia applications
4.5.8 Implement control structures
4.5.9 Create and utilize custom functions and variables

4.5.10 Develop error-checking objects (A)
4.5.11 Utilize advanced programming syntax (A)

Competency 4.6 Complete multimedia presentation

Competency Builders:
4.6.1 Create presentation design (i.e. audio, video, animation, typography, etc.)
4.6.2 Import text and graphics into page layout programs
4.6.3 Define typographic terminology and specifications
4.6.4 Create interactive projects through scripting

Competency 4.7 Create 3D animation (A)

Competency Builders:
4.7.1 Discuss output options
4.7.2 Interpret storyboards
4.7.3 Apply basic geometry to project where appropriate
4.7.4 Identify appropriate tools to achieve desired design goals
4.7.5 Create an animation with appropriate lighting, camera operation, and object surfacing/texturing
4.7.6 Apply traditional animation principles

Competency 4.8 Apply film production /special effects techniques when appropriate (A)

Competency Builders:
4.8.1 Develop character, object, and environment
4.8.2 Use appropriate modeling techniques
4.8.3 Follow industry standards
4.8.4 Use correct terminology
4.8.5 Choose appropriate lighting, camera, operation, and object surfacing/textures
4.8.6 Use industry standard software
4.8.7 Follow copyright law

Competency 4.9 Determine media types and delivery platform

Competency Builders:
4.9.1 Choose media elements and delivery platform that support the project goals and scope
4.9.2 Choose media elements that can be acquired and developed within the allotted budget and with available resources and expertise
4.9.3 Convert media elements to specified formats as necessary
4.9.4 Ensure that media elements are compatible with the project's intended feel, look and message
4.9.5 Ensure that media elements meet specifications
4.9.6 Select media elements that the platform will support and is congruent with user environment

Competency 4.10 Create preliminary design

Competency Builders:
4.10.1 Ensure design prototype meets conceptual design specifications
4.10.2 Test preliminary design
4.10.3 Present preliminary design to all relevant team members and clients
4.10.4 Secure approval of preliminary design by all relevant team members and clients

Competency 4.11 Complete basic design and storyboard

Competency Builders:
4.11.1 Use appropriate design elements and principles
4.11.2 Ensure user interface elements are functional and aesthetically pleasing
4.11.3 Conform navigation to functional and interface requirements
4.11.4 Develop detailed and complete storyboards
4.11.5 Support functional design, selected media types and navigation schema in storyboard
4.11.6 Create storyboard, design concepts and navigation schema with input from relevant team members
4.11.7 Review storyboard, design concepts and navigation schema with stakeholders for approval

Competency 4.12 Produce design comps/prototypes

Competency Builders:
4.12.1 Integrate proper media elements
4.12.2 Meet defined design specifications
4.12.3 Portray the desired concept, message and image accurately
4.12.4 Adhere to color rules on color scheme for legibility and readability
4.12.5 Ensure that color usage meets specifications of hardware and software

Competency 4.13 Evaluate user interface, visual appeal and functional design

Competency Builders:
4.13.1 Ensure that design and interface specifications are complete, free of conflicts and properly approved
4.13.2 Assess strengths and weaknesses, using the elements and principles of design and ease and quality of implementation
4.13.3 Include appropriate team members and project stakeholders in the evaluation process
4.13.4 Apply principles of user-centered design
4.13.5 Ensure usability in the visual design and user interface specifications as outlined in the functional design
4.13.6 Evaluate the success of accessibility functionality

Competency 4.14 Develop simulations

Competency Builders:
4.14.1 Represent the phenomena portrayed in the simulation accurately

4.14.2 Design the simulation to be clearly recognizable and easily understood
4.14.3 Adhere to good design, interface usability principles in the simulation
4.14.4 Evaluate simulation including strengths and weaknesses
4.14.5 Test simulations for usability

Competency 4.15 Select appropriate software and hardware tools

Competency Builders:
4.15.1 Choose software and hardware that supports all functional and delivery specifications
4.15.2 Consider ease of use and appropriate functionality for delivery
4.15.3 Identify the most cost effective software and hardware that will meet required criteria
4.15.4 Support different software and hardware options in design when appropriate
4.15.5 Identify open source or third-party software options

Competency 4.16 Document design process

Competency Builders:
4.16.1 Document design process accurately and completely
4.16.2 Reflect the project goals, scope and budget in the design process document
4.16.3 Review design process document with all relevant team members and clients
4.16.4 Secure approval from all relevant team members and clients
4.16.5 Include appropriate testing environments and phases in design process document
4.16.6 Archive all relevant documents, materials and revisions

Unit 5 Web Design

Competency 5.1 Create a web site

Competency Builders:
5.1.1 Utilize standard HTML/XHTML code
5.1.2 Utilize cascading style sheets (CSS)
5.1.3 Apply World Wide Web Consortium (W3C) standards
5.1.4 Evaluate code to ensure that it is valid, is properly structured, meets industry standards and is compatible with browsers, devices, or operating systems
5.1.5 Create storyboard, site map, wireframes, and design documents
5.1.6 Define visual theme and style
5.1.7 Define screen layouts
5.1.8 Create structural and control elements
5.1.9 Follow copyright law
5.1.10 Back up files from web sites to local directories for instant recovery in case of problems
5.1.11 Identify problems uncovered by testing or customer feedback
5.1.12 Correct problems or refer problems to appropriate personnel for correction
5.1.13 Utilize design strategies to increase the success of locating the site via search engine

Competency 5.2 Build web pages with dynamic customization capabilities

Competency Builders:

5.2.1 Create client-side and basic server-side scripts to design and implement dynamic websites
5.2.2 Utilize multimedia components
5.2.3 Utilize third-party/open source plug-ins/add-ons (i.e., calendars, galleries, trackers, blogs, etc.)
5.2.4 Choose code to meet project objectives and functional specifications
5.2.5 Utilize code so the application performs efficiently
5.2.6 Document code properly to ensure maintainability
5.2.7 Format dynamically loaded elements
5.2.8 Create a simple web form
5.2.9 Interact with an existing database

Competency 5.3 Design a web project to use real-time processing capabilities intended to interact with a database (A)

Competency Builders:

5.3.1 Analyze design strategies for secure data transfer
5.3.2 Perform audience analysis
5.3.3 Identify database terminology and concepts
5.3.4 Plan database
5.3.5 Define database
5.3.6 Design a database
5.3.7 Design and generate tables, forms, and reports
5.3.8 Devise and process queries

Unit 6 Validation and Quality Assurance

Competency 6.1 Validate production code (A)

Competency Builders:

6.1.1 Refine unit and integration testing plans
6.1.2 Develop test scripts
6.1.3 Execute unit and integration test plans
6.1.4 Validate product performance within specifications
6.1.5 Test the efficiency of the code
6.1.6 Test units using standard and appropriate testing procedures
6.1.7 Repeat testing on each unit until the unit is free of errors
6.1.8 Analyze errors correctly to resolve
6.1.9 Document errors and solutions in a complete and concise form

Competency 6.2 Develop and implement usability testing

Competency Builders:

6.2.1 Provide individuals from user community opportunities to interact with product

6.2.2 Document user reactions to the product
6.2.3 Observe users while using product when applicable
6.2.4 Convey information from usability testing clearly to the development team
6.2.5 Modify product based on usability test results

Competency 6.3 Plan and coordinate customer acceptance testing (A)

Competency Builders:
6.3.1 Validate performance criteria and procedures to ensure they meet customer requirements
6.3.2 Perform load testing properly to ensure performance meets customer requirements
6.3.3 Prepare test procedure for customer
6.3.4 Document test procedure for customer
6.3.5 Execute test procedures according to plan and schedule
6.3.6 Document test results completely
6.3.7 Communicate issues and recommendations to design team
6.3.8 Correct defects and retest
6.3.9 Repeat testing and correction cycle until customer approval is obtained
6.3.10 Submit approved code to source repository

Unit 7 Deploy Application/Site

Competency 7.1 Plan rollout

Competency Builders:
7.1.1 Communicate rollout plans to stakeholders in a timely manner
7.1.2 Conduct final reviews and approvals according to company standards
7.1.3 Identify resources for a successful rollout
7.1.4 Meet overall project goals and timelines in rollout plan
7.1.5 Outline contingency plans
7.1.6 Identify support staff training needs to accommodate within the plan

Competency 7.2 Facilitate move to production system

Competency Builders:
7.2.1 Release test product in the production environment
7.2.2 Train support staff to properly respond to customer calls
7.2.3 Move the application from the development server to the production environment

Competency 7.3 Hand off to customer/user

Competency Builders:
7.3.1 Complete updated documentation
7.3.2 Ensure application meets customer/user requirements
7.3.3 Ensure application is fully functional for the customer/user
7.3.4 Secure appropriate final approvals and signatures
7.3.5 Finalize and deliver user support and training materials

7.3.6 Finalize and deliver system support documentation (style guide, object definitions, etc.)
7.3.7 Put procedures for user feedback into place

Unit 8 Maintain Applications

Competency 8.1 Update content

Competency Builders:
8.1.1 Ensure update content is accurate
8.1.2 Test site/application after update
8.1.3 Perform updates in a routine manner
8.1.4 Perform updates in accordance with application requirements
8.1.5 Ensure updates are completed on appropriate pages
8.1.6 Review updated links

Competency 8.2 Integrate customer feedback

Competency Builders:
8.2.1 Gather feedback on a continuous basis
8.2.2 Analyze feedback
8.2.3 Prioritize feedback
8.2.4 Integrate changes
8.2.5 Inform customers of application changes

Competency 8.3 Perform application maintenance

Competency Builders:
8.3.1 Reevaluate search engine optimization (SEO) strategies
8.3.2 Identify problems
8.3.3 Propose solution alternative and associated timelines to customer
8.3.4 Modify application according to customer selected solution
8.3.5 Notify customer of completed implementation

Competency 8.4 Perform application/site enhancements

Competency Builders:
8.4.1 Gather customer input and feedback
8.4.2 Document customer input and feedback
8.4.3 Research enhancement opportunities
8.4.4 Evaluate feedback and input for feasibility
8.4.5 Deliver recommendations to stakeholders in accordance with company procedures
8.4.6 Consider risk assessments as appropriate

Competency 8.5 Document every application/site change

Competency Builders:
8.5.1 Ensure changes are accurately documented
8.5.2 Ensure documentation procedures and standards are followed
8.5.3 Distribute change documentation to appropriate personnel or departments

Unit 9 Professional Development

Competency 9.1 Present a professional portfolio

Competency Builders:
9.1.1 Arrange and refine projects for inclusion in a portfolio
9.1.2 Create a presentation portfolio
9.1.3 Articulate the elements of the portfolio and personal skills effectively during presentation
9.1.4 Create a leave behind or call to action
9.1.5 Create a follow up strategy

Competency 9.2 Identify industry requirements for employment

Competency Builders:
9.2.1 Identify current events, trends, skills, attitudes and behaviors pertinent to the industry and relevant to the professional development of the student
9.2.2 Research current salaries for desired field related to the region
9.2.3 Identify opportunities to gain experience (internships, pro-bono work, volunteer work, etc.)
9.2.4 Participate in professional organizations (AIGA, Graphic Artists Guild, etc.)
9.2.5 Participate in local networking opportunities

Competency 9.3 Maintain currency in technical areas

Competency Builders:
9.3.1 Identify resources for technology updates
9.3.2 Identify professional conferences and trend setters in the field
9.3.3 Review various media for technical updates (webcasts, podcasts, books, etc.)

Competency 9.4 Prepare for interviews

Competency Builders:
9.4.1 Develop interview skills
9.4.2 Practice mock interviews
9.4.3 Prepare a professional resume
9.4.4 Choose professional or appropriate dress

Employability Competencies

Employability Competencies are underlying skills, including work habits and ethics, essential to the workplace and personal growth. SCANS (Secretary's Commission on Achieving Necessary Skills) are the basis for these competencies and are included in all programs based on an ACAP (Austin Competency Analysis Profile). These skills are taught with the intention of providing the student with a well-rounded understanding of workplace expectations in areas not specific to a particular occupation, in an attempt to develop a valuable employee.

ACAP: Visual Communications

Unit 1:	Resources
Unit 2:	Interpersonal
Unit 3:	Information
Unit 4:	Systems
Unit 5:	Technology
Unit 6:	Basic Skills
Unit 7:	Thinking Skills
Unit 8:	Personal Qualities

Unit 1: Resources

Competency 1.1 Manage time effectively

Competency Builders:

1.1.1 Select relevant, goal-related activities
1.1.2 Rank activities in order of importance
1.1.3 Allocate time to activities
1.1.4 Identify tasks to be completed
1.1.5 Develop and follow an effective, workable schedule based on accurate estimates of such things as importance of tasks, time to complete tasks, time available for completion, and task deadlines, without wasting time
1.1.6 Identify possible impact of schedules on other activities
1.1.7 Evaluate and adjust a schedule

Competency 1.2 Manage money effectively

Competency Builders:

1.2.1 Prepare or use budgets including making cost and revenue forecasts
1.2.2 Record details to track budget performance
1.2.3 Adjust budget appropriately when needed
1.2.4 Allocate money to include accurately preparing and using a budget according to a consistent and orderly accounting method
1.2.5 Calculate future budgetary needs based on projected costs and revenues
1.2.6 Track the extent to which actual costs and revenues differ from the estimated budget, and take appropriate and effective action

Competency 1.3 Manage material and facility resources effectively

Competency Builders:

1.3.1 Store resources such as materials, supplies, parts, equipment, space or final products in an order that makes the best use of them
1.3.2 Allocate materials and facility resources to include carefully planning the steps involved in the acquisition, storage, and distribution of resources
1.3.3 Acquire, transport, and store material and facility resources safely and efficiently
1.3.4 Maintain material and facility resources in good condition
1.3.5 Distribute material and resources to the end user

Competency 1.4 Manage human resources efficiently

Competency Builders:

1.4.1 Assess people's knowledge, skills and potential
1.4.2 Identify present and future work load
1.4.3 Match individual talents and workload effectively
1.4.4 Monitor performance and provide feedback actively

Unit 2: Interpersonal Skills

Competency 2.1 Participate as a member of a team

Competency Builders:

2.1.1 Work cooperatively with others
2.1.2 Contribute to group with ideas, suggestions, and efforts
2.1.3 Complete personal share of tasks necessary to complete a project
2.1.4 Encourage team members by listening and responding appropriately to their contributions
2.1.5 Build on individual team members' strengths
2.1.6 Resolve differences for the benefit of the team
2.1.7 Take personal responsibility for accomplishing goals
2.1.8 Challenge existing procedures, policies, or authorities responsibly

Competency 2.2 Teach others

Competency Builders:

2.2.1 Coach or otherwise teach others to apply related concepts and theories to tasks
2.2.2 Convey job information to allow others to see its applicability and relevance to tasks
2.2.3 Identify training needs of others
2.2.4 Assess performance of others
2.2.3 Provide feedback on others' performance in a constructive manner
2.2.4 Provide solutions to observed problems

Competency 2.3 Serve clients/customers

Competency Builders:

2.3.1 Identify customers/clients expectations through surveys, questions, body language, or expressions
2.3.2 Communicate and work with clients/customers to satisfy their expectations
2.3.3 Listen actively to customers to avoid misunderstanding and to identify needs
2.3.4 Provide alternatives to clients/customers to satisfy their expectations
2.3.5 Provide services and goods in a timely, positive manner
2.3.6 Obtain additional resources to satisfy client needs efficiently

Competency 2.4 Exercise leadership

Competency Builders:

2.4.1 Communicate thoughts, feelings, and ideas to justify a position
2.4.2 Motivate and/or convince individuals or groups through encouragement or persuasion
2.4.3 Challenge existing procedures, policies or authorities responsibly
2.4.4 Use rules/values followed by others
2.4.5 Justify a position logically and appropriately
2.4.6 Consider minority viewpoints in making decisions or taking action

Competency 2.5 Negotiate to arrive at a decision

Competency Builders:

2.5.1 Achieve agreement through exchanging specific resources or resolving divergent interests
2.5.2 Research opposition and the history of the conflict
2.5.3 Set realistic, obtainable goals
2.5.4 Present facts and arguments
2.5.5 Listen to and reflect upon what has been said
2.5.6 Clarify problems and resolve conflicts
2.5.7 Propose and examine possible options
2.5.8 Make reasonable compromises

Competency 2.6 Work with cultural diversity

Competency Builders:

2.6.1 Work with men and women, and a variety of ethnic, social and educational backgrounds
2.6.2 Compare one's own culture and that of others
2.6.3 Respect the rights of others while helping them make cultural adjustments when necessary
2.6.4 Base impression upon individual performance, not stereotypes
2.6.5 Understand concerns of members of other ethnic and gender groups

Unit 3: Information

Competency 3.1 Acquire and evaluate information

Competency Builders:

3.1.1 Pose analytic questions to determine specific information needs
3.1.2 Select appropriate information sources
3.1.3 Determine when new information must be created and do so
3.1.4 Evaluate data for relevance and accuracy

Competency 3.2 Organize and maintain information

Competency Builders:

3.2.1 Organize a variety of information forms or sources in a systemic fashion
3.2.2 Maintain written or other forms of information to keep up-to-date information available in a systemic fashion
3.2.3 Organize information from computer, visual, oral and physical sources in readily accessible formats, such as computerized data bases, spreadsheets, microfiche, video disks, paper files, etc.
3.2.4 Transform data into different formats in order to organize them by the application of various methods such as sorting, classifying, or more formal methods

Competency 3.3 Interpret and communicate information

Competency Builders:

3.3.1 Select information to be communicated
3.3.2 Identify best methods to present information (e.g., overheads, handouts, etc.)
3.3.3 Communicate results to others in desired format
3.3.4 Convey information to others through a variety of means including oral, written, graphic, pictorial or multi-media methods

Competency 3.4 Process information using computer

Competency Builders:

3.4.1 Acquire information from the internet and other computer based resources
3.4.2 Organize information, using spreadsheets, word processor, and data bases effectively
3.4.3 Analyze information to identify trends, make projections, etc.
3.4.4 Enter, modify, retrieve, store and verify data and other information in a computer
3.4.5 Choose format for display (e.g., line graphs, bar graphs, tables, pie charts, narrative)
3.4.6 Convey information into the chosen format
3.4.7 Communicate information using e-mail, list serves, word processor, or other computer based communication functions

Unit 4: Systems

Competency 4.1 Apply appropriate techniques to function within social, organizational, and technological systems to attain goals effectively and ethically

Competency Builders:

4.1.1 Identify dynamics and components of social, organizational and technological systems
4.1.2 Recognize acceptable behavior and attitudes within social, organizational and technological systems
4.1.3 Communicate through acceptable methods to interact with social, organizational, and technological systems effectively, efficiently, and ethically
4.1.4 Recognize how a system's structures relate to goals
4.1.5 Recognize the right of people to ask for information and where to get resources

Competency 4.2 Monitor and correct performance of a system

Competency Builders:

4.2.1 Distinguish trends
4.2.2 Predict impact of actions on system operations
4.2.3 Diagnose deviations in the function of a system/organization
4.2.4 Correct performance through necessary action
4.2.5 Detect deviations from systems intended purpose
4.2.6 Troubleshoot the system
4.2.7 Make changes to the system to rectify system function and to ensure quality of product

Competency 4.3 Improve and design systems

Competency Builders:
4.3.1 Make suggestions to modify or improve existing products or services
4.3.2 Implement approved improvements in systems
4.3.3 Evaluate the benefits of the improvements
4.3.4 Develop/recommend new or alternative system designs based on relevant feedback
4.3.5 Communicate the results of the evaluations

Unit 5: Technology

Competency 5.1 Select appropriate technology

Competency Builders:
5.1.1 Determine the desired results or outcomes and applicable restraints
5.1.2 Visualize the necessary methods and applicable technology
5.1.3 Evaluate specifications
5.1.2 Judge which procedures, tools, machines or programs will produce the desired results

Competency 5.2 Apply technology to task

Competency Builders:
5.2.1 Set up tools such as machines, computers, and programming systems, using proper procedures, to get desired results
5.2.2 Analyze how different parts of machines interact and how machines interact with broader production systems
5.2.3 Install machines including computers
5.2.4 Interpret machine output accurately
5.2.5 Detect errors from program output

Competency 5.3 Maintain and troubleshoot technology

Competency Builders:
5.3.1 Prevent problems in machines, computers, and other technologies
5.3.2 Identify problems in machines, computers and other technologies
5.3.3 Perform routine maintenance and service of machines, computers, and other technologies
5.3.4 Detect more serious problems
5.3.5 Generate workable solutions to correct deviations
5.3.6 Recognize need for additional help

Unit 6: Basic Skills

Competency 6.1 Read written information in prose and documents, such as manuals, graphs, and schedules with understanding

Competency Builders:

6.1.1 Determine the main idea or essential message
6.1.2 Identify relevant details, facts, and specifications
6.1.3 Infer or locate the meaning of unknown or technical vocabulary
6.1.4 Judge the accuracy, appropriateness, style, and plausibility of reports, proposals, or theories of other writers

Competency 6.2 Communicate thoughts, ideas, information, and messages in writing

Competency Builders:

6.2.1 Record information completely and accurately
6.2.2 Compose and create documents such as letters, directions, manuals, reports, proposals, graphs, and flow charts
6.2.3 Use language, style, organization and format appropriate to the subject matter, purpose, and audience
6.2.3 Include supporting documentation where appropriate
6.2.4 Attend to level of detail
6.2.5 Check, edit, and revise for correct information, appropriate emphasis, form, grammar, spelling, and punctuation

Competency 6.3 Perform arithmetic computations and concepts with appropriate technology and/or paper and pencil to solve simple work problems

Competency Builders:

6.3.1 Perform basic computations
6.3.2 Use basic numerical concepts such as whole numbers and percentages in practical situations
6.3.3 Make reasonable estimates of arithmetic results without a calculator
6.3.4 Use tables, graphs, diagrams, and charts to obtain or convey quantitative information

Competency 6.4 Perform mathematics in a variety of techniques to approach practical problems appropriately

Competency Builders:

6.4.1 Choose appropriate technique to solve problem
6.4.2 Use quantitative data to construct logical explanations for real world situations

6.4.3 Express mathematical ideas and concepts orally and in writing
6.4.4 Predict an event considering the role of chance in the occurrence

Competency 6.5 Listen and react appropriately to verbal messages

Competency Builders:
6.5.1 Receive, attend to, interpret, and respond to verbal messages appropriately
6.5.2 Receive, attend to, interpret, and respond to other cues such as body language appropriately
6.5.3 Listen to comprehend, learn, critically evaluate, appreciate, or support the speaker

Competency 6.6 Deliver oral messages appropriately to listeners

Competency Builders:
6.6.1 Organize ideas and communicates orally as appropriate for the situation and listeners
6.6.2 Participate in conversation, discussion, and group presentations
6.6.3 Select an appropriate medium for conveying a message
6.6.4 Use verbal language and other cues, such as body language, in a way appropriate in style, tone, and level of complexity to the audience and the occasion
6.6.5 Speak clearly and communicate a message
6.6.6 Respond to listener feedback in a way that indicates understanding
6.6.7 Ask questions when needed

Unit 7: Thinking Skills

Competency 7.1 Generate new ideas using creative thinking

Competency Builders:
7.1.1 Change or reshapes goals using nonlinear or unusual connections
7.1.2 Imagine new ideas by combining ideas or information in new ways
7.1.3 Connects seemingly unrelated ideas
7.1.4 Reshape goals in ways that reveal new possibilities

Competency 7.2 Make decisions

Competency Builders:
7.2.1 Specify goals and constraints
7.2.2 Generate alternatives
7.2.3 Consider risks
7.2.4 Evaluate and choose best alternatives

7.2.5 Analyze how personal, family, and social factors influence decisions, behaviors, and lifestyles
7.2.6 Utilize a decision-making process to develop future career goals

Competency 7.3 Apply problem solving skills appropriate to situation

Competency Builders:
7.3.1 Recognize a problem exists (i.e., that there is a discrepancy between what is and what should be)
7.3.2 Identify possible reasons for the problem
7.3.3 Devise and implement a plan of action to resolve the problem
7.3.4 Evaluate and monitor progress
7.3.5 Revise the plan as indicated by the findings
7.3.6 Communicate in both oral and written language while working with others to identify/resolve problems
7.3.7 Reason inductively and deductively to solve problems
7.3.8 Select and apply problem-solving methods

Competency 7.4 See things in the mind's eye

Competency Builders:
7.4.1 Organize and process symbols, pictures, graphs, objects or other information to visualize actual representation (such as a building from blueprints)
7.4.2 Visualize possible options
7.4.3 Communicate visualized options verbally

Competency 7.5 Apply learning strategies to support life-long learning

Competency Builders:
7.5.1 Apply and adapt existing and new knowledge and skills, using learning techniques, in both familiar and changing situations
7.5.2 Evaluate learning style (visual, aural, etc.) to make proper selection of learning techniques
7.5.3 Identify various learning techniques including formal learning strategies (note taking or clustering items that share some characteristics) and informal learning strategies (awareness of unidentified false assumptions that may lead to faulty conclusions)
7.5.4 Make decisions/plans concerning school to work training and future educational needs using relevant resources

Competency 7.6 Apply reasoning to finding solutions or draw conclusions

Competency Builders:
7.6.1 Discover a rule or principle underlying the relationship between two or more objects
7.6.2 Extract rules or principles from a set of objects or a written text
7.6.3 Apply principles to solve problems

7.6.4 Draw conclusion from available information using logic
7.6.5 Apply rules and principles to a new situation
7.6.6 Determine which conclusion is correct when given a set of facts and conclusions
7.6.7 Evaluate alternatives and assess consequences to achieve personal and social goals

Unit 8: Personal Qualities

Competency 8.1 Act responsibly

Competency Builders:
8.1.1 Persevere toward goal attainment with a high level of effort
8.1.2 Set high standards in order to become excellent at doing tasks by setting high standards, paying attention to details, working well and displaying a high level of concentration even when assigned an unpleasant task
8.1.3 Display a high standard of attendance, punctuality, enthusiasm, vitality, and optimism in approaching and completing tasks

Competency 8.2 Exhibit effective self-esteem

Competency Builders:
8.2.1 Maintain a positive view of self and believes in own self-worth
8.2.2 Identify won skill and abilities possessed
8.2.3 Recognize own emotional capacity and needs
8.2.4 Identify/Apply effective ways to handle emotional capacity and needs
8.2.5 Recognize own impression on others

Competency 8.3 Employ appropriate social skills

Competency Builders:
8.3.1 Demonstrate understanding, friendliness, adaptability, empathy and politeness in new and on-going group settings
8.3.2 Assert self in familiar and unfamiliar social situations
8.3.3 Relate well to others
8.3.4 Respond appropriately as the situation requires
8.3.5 Take an interest in what others say and do

Competency 8.4 Manage self

Competency Builders:

8.4.1 Assess own knowledge, skills, and abilities accurately
8.4.2 Set well-defined and realistic personal goals
8.4.3 Monitor progress toward goal attainment
8.4.4 Motivate self through goal achievement
8.4.5 Exhibit self-control and respond to feedback unemotionally and nondefensively
8.4.6 Initiate action

Competency 8.5 Apply integrity and honesty to all matters

Competency Builders:

8.5.1 Recognize situations when faced with making a decision or exhibiting behavior that may break with commonly held personal or societal values
8.5.2 Understand the impact of violating these beliefs and codes on an organization, self, and others
8.5.3 Choose an ethical course of action

WorkKeys® Process Overview

Developed by American College Testing (ACT), the purpose of the Job Profiling process is to identify the level of applied academic skills that, according to business and industry, students must master to qualify for and be successful in their occupation of choice. The results of Job Profile "leveling" can help teachers to better target instruction toward their students' needs.

The WorkKeys component, developed by ACT, measures students' applied academic skills. These academic skills include Applied Mathematics, Locating Information, Reading for Information, Listening, Writing, Teamwork, Observation, and Applied Technology. It is determined during the profile which skills apply to the specific job or occupational area.

The ACAP (Austin Competency Analysis Profile) typically includes one or more of the skills described below. A fourth skill may be identified and included if the subject matter experts agree that it is necessary for entry into the position.

- *Applied Mathematics* measures students' ability to analyze, set-up, and solve math problems typically found in the workplace.

- *Locating Information* measures students' ability to use graphic documents to insert, extract, and apply information (includes charts, graphs, tables, forms, blueprints, maps, and instrument gauges).

- *Reading for Information* measures students' ability to read and understand work-related reading materials (text only—does not include charts, graphs, tables, forms, blueprints, maps, or instrument gauges).

Each WorkKeys assessment is further broken down into four to five levels of achievement, with higher numbers indicating higher achievement in the assessed skill. For each academic skill, the Job Profiling process identifies the level required for successful entry into an occupational area as identified by subject matter experts.

ACT WorkKeys® Skill Levels

Skill Area and Rank	Entry Level	Performance Level
1) Reading for Information	6	7
2) Locating Information	5-6	6
3) Applied Mathematics	6	7

Entry Level

Refers to the requirements necessary for someone entering into the occupation (without previous on the job experience).

Performance Level

Refers to the level at which an employee would need to function effectively having gained on-the-job knowledge.

Skill Ranking

Refers to the criticality of the skill to the performance of the occupation with the most critical skill indicated with one (1) and higher numbers indicating lower criticality.

Levels of WorkKeys® Defined

The skills needed to achieve each level for WorkKeys academic skills identified in this profile are as follows:

Reading for Information

Reading for Information measures skill in reading and understanding work-related reading materials. There are five levels of complexity, 3 through 7, with Level 3 being the least complex and Level 7 the most complex. Although Level 3 is the least complex, it still represents a level of reading skill well above "no skill at all." The levels build on each other, each incorporating the skills at the preceding levels.

Level 3

- Identify uncomplicated key concepts and simple details.
- Recognize the proper placement of a step in a sequence of events, or the proper time to perform a task.
- Identify the meaning of works that are defined with in a passage.
- Identify the meaning of simple words that are not defined within a passage.
- Recognize the application of instructions, from a passage to situations that are described in the passage.

Level 4

- Identify details that are more subtle than those in Level 3.
- Recognize the application of more complex instructions, some of which involve several steps, to described situations.
- Recognize cause-effect relationships.

Level 5

- Understand the paraphrased definition of specialized words or phrases (jargon or technical terms) defined in these reading materials.
- Use jargon or technical terms appropriately in describing situations stated in these reading materials.
- Understand the meaning of acronyms defined in these reading materials (an acronym is a work or collection of letters which stands for a longer phrase, such as HMO to mean Health Maintenance Organization).
- Figure out which definition of a word with multiple meanings is appropriate in the context of these reading materials.
- Apply information given in these reading materials to situations that are not directly described, but similar.
- Apply instructions or procedures with a number of steps to described situations. These instructions may include conditional (if X happens, then you should do Y).

Level 6

- Recognize the application of jargon or technical terms to new situations.
- Recognize the application of complex instructions to new situations.
- Recognize the less-common meaning of a word with multiple meanings from context.
- Generalize from a passage to situations not described in the passage.
- Identify implied details.
- Explain the rationale behind a procedure, policy, or communication.
- Generalize from a passage to a somewhat similar situation.

Level 7

- Recognize the definitions of difficult, uncommon jargon or technical terms from context.
- Generalize from a passage to situations neither described in nor completely similar to those in a passage.

Locating Information

Locating Information measures skill in using information taken from workplace graphics such as diagrams, blueprints, floor plans, tables, forms, graphs, charts, and instrument gauges. There are four levels of complexity, 3 through 6, with Level 3 being the least complex and Level 6 the most complex. The levels build on each other, each incorporating the skills at the preceding levels.

Level 3

- Find one or two pieces of information in elementary workplace graphics, such as simple order forms, bar graphs, tables, flowcharts, and floor plans.
- Fill in one or two pieces of information that are missing from elementary workplace graphics.

Level 4

- Find several pieces of information in these type of graphics.
- Summarize and/or compare information and trends in a single graphic.
- Summarize and/or compare information and trends among more than one workplace graphic, such as a bar chart and a table showing related information.

Level 5

- Summarize and/or compare information and trends in single graphic.
- Summarize and/or compare information and trends among more than one graphic, such as a bar chart and a table showing related information.

Level 6

- Make decisions, draw conclusions, and/or apply information to new situations using several related and complex workplace graphics that contain a great amount of information or have challenging presentations (e.g., very detailed graphs, charts, tables, forms, maps, blueprints, diagrams).

Applied Mathematics

Applied Mathematics measures skill in applying mathematical reasoning to work-related problems. There are five levels of complexity, 3 through 7, with Level 3 being the least complex and Level 7 the most complex. The levels build on each other, each incorporating the skills at the preceding levels.

Level 3

- Perform basic mathematical operations (addition, subtraction, multiplication, and division) and conversions from one form to another, using whole numbers, fractions, decimals, or percentages.
- Translate simple verbal problems into mathematical equations.
- Directly apply logical information provided to solve problems, including those with measurements and dollars and cents.

Level 4

- Perform one or two mathematical operations (such as addition, subtraction, or multiplication) on several positive or negative numbers. (Division of negative numbers is not covered until Level 5.)
- Add commonly known fractions, decimals, or percentages (e.g., ½, .75, 25%) or add three fractions that share a common denominator.
- Calculate averages, simple ratios, proportions, and rates, using whole numbers and decimals.
- Reorder verbal information before performing calculations.
- Read simple charts or graphs to obtain information needed to solve a problem.

Level 5

- Look up and calculate single-step conversions within English or non-English measurement systems (e.g., converting ounces to pounds or centimeters to meters) or between measurement systems (e.g., converting centimeters to inches).
- Make calculations using mixed unit (e.g., hours and minutes).
- Determine what information, calculations, and unit conversions are needed to find a solution.

Level 6

- Set up problems and do several steps of calculations or conversions.
- Calculate using negative numbers, fractions, ratios, percentages, or mixed numbers (e.g., 12 1/8).
- Transpose a formula before calculating (e.g., 8X = 20 => X = 20/8).
- Look up and use two formulas to change from one unit to another unit within the same system of measurement (e.g., 1 cup = 8 fl oz, 1 quart = 4 cups).
- Find mistakes in calculations, such as those required in lower levels.
- Determine the best deal and perform a further calculation with the result.

Level 7

- Solve problems requiring multiple steps of logic and calculation.
- Solve problems involving more than one unknown, nonlinear functions (e.g., rate of change), and applications of basic statistical concepts (e.g., error of measurement).
- Locate errors in multiple-step calculations.
- Solve problems with unusual content or format, or with incomplete or implicit information.

Glossary

ACAP–*Austin Competency Analysis* Profile–a well-established job analysis process unique to Austin Community College involving business, industry, labor, and community agency representatives from throughout the Austin area.

Advanced Competencies–the occupation and academic competencies needed to advance in a given occupation.

Competency–an observable and measurable behavior that has a definite beginning and end; can be performed within a limited amount of time; consists of two or more competency builders; and leads to a product, service, or decision.

Competency Builders–the skills, knowledge, and attitudes (written in measurable terms) needed to perform a given competency.

Core Competencies–the essential occupational and academic competencies needed to enter and remain in a given occupation.

Employability Competencies–underlying skills, abilities, and knowledge as they relate to work ethics, work habits, and personal growth and development.

Entry Level–refers to the requirements necessary for someone entering into the occupation (without previous on the job experience).

Performance Level–refers to the level at which an employee would need to function effectively having gained on-the-job knowledge.

Skill Ranking–refers to the criticality of the WorkKeys skill to the performance of the occupation with one (1) indicating the most critical skill.

SME–*Subject Matter Expert*–incumbent worker in a given occupation that is knowledgeable about the job.

Target Job Titles–titles that may be assigned to the types of jobs aligned with an ACAP. Possible titles of jobs for which students would qualify with certificates or degrees in the programs based on an ACAP.

WorkKeys Skills–Eight skills, defined by ACT, referring to underlying, academic skills as they relate to the workplace. The skills include *Applied Mathematics, Applied Technology, Locating Information, Reading for Information, Observation, Teamwork, Listening, and Writing.* Each skill has a very specific definition and levels of each skill can be aligned with specific abilities defined at each level. WorkKeys skills are the basis for an occupational analysis system developed by ACT. The WorkKeys analysis is the final part of the overall ACAP report. All ACAPs include *Reading for Information, Locating Information, and Applied Mathematics.* A fourth skill may be included in the profile if the subject matter experts identify a need for it.