Educational Plan
A.3 Program of Instruction

Curriculum

The mission of the ECA is to deliver to students the opportunity to earn both a high school diploma and an associate's degree concurrently. To facilitate the mission, ECA will adopt a college curriculum and enhance that curriculum to make certain it meets the common core requirements for the Arizona high school diploma. The associate's degree program's general education coursework will serve as the basis for the high school core academic content areas. Additional courses and course content will be added to round out the requirements for high school. ECA will meet the statutory requirements for awarding a high school diploma.

ECA will follow a plan for all high school students which meet the graduation requirements set forth by the State of Arizona, as outlined in Arizona Administrative Code R7-2-302.02.

Early Career Academy						
Concentration: Software Development				**Concentration:** Network Systems Administration		
Arizona High School Graduation Plan (22 credit hours)						
	Grade	**English**	**Math**	**Science**	**Social Studies**	**Career & Technology Education Courses**
SECONDARY	9	English 9 (1)	Algebra I (1)	Biology (1)	American History including AZ History (1)	
	10	English 10 (1)	Geometry (1)	Chemistry (1)	World History/Geography (1)	
	11	Composition (1)	Algebra II (1)	Physics (1)	Economics (.5) US Government including AZ Government (.5)	See Concentration Courses (Below)
	12	World Literature (.5), Communications (.5)	Probability and Statistics (1)		Group Theory (Topics in Sociology) (.5)	See Concentration Courses (Below)

Program of Study Courses (required for an Associate's degree)	
Software Development Technology	**Network Systems Administration**
Computer Structure and Logic Introduction to Programming Introduction to Application Design and Development Creating Websites Using HTML and CSS Creating Websites Using HTML5, CSS3 and JavaScript Introduction to Java Programming	Computer Structure and Logic Introduction to Networking Client-Server Networking I Physical Networking Client-Server Networking II Linux Networking Introduction to Information Security

Introduction to Mobile Operating Systems	IP Networking
Introduction to Database and XML with jQuery	Email and Web Services
Application Development Using Java I	Network Systems Administration Capstone Project
Application Development Using Java II	Introduction to Programming
Social Networking Applications and Technology	Database Concepts
Software Development Capstone Project	

The basis of the curriculum for the ECA will be the ITT Tech Associate's degree program which will be enhanced to meet the high school standards. The focus of the simultaneous-credit curriculum is on career preparation, with a strong foundation of core concepts in general education. ECA will meet all high school curriculum requirements under state law. Students will take a mix of core general education courses and technical courses in each of six trimesters. ECA works on a trimester basis and students take 4 or 5 courses each trimester with three trimesters per academic year for a total of 182 days. The two years of 11th and 12th grade include six trimesters.

Curriculum mapping has been conducted to align the requirements of the common core using the selected college courses and the states course catalog and SCED mapping plan. Additional coursework in core areas has been included to make certain students are taking the appropriate courses to fulfill high school graduation requirements and successfully pass state assessments.

Utilizing the college curriculum as the basis for building ECA's high school curriculum allows ECA to build a path to an associate's degree and fulfill its mission. The ITT Tech associate's degree programs include both Technical and General Education courses as specified by their national accrediting body, the Accrediting Council for Independent Colleges and Schools (ACICS). The Technical courses are ITT Tech courses currently taught in the Network Systems Administration and Software Development Technology programs. General Education courses will be a combination of courses taught currently at ITT Tech and additional courses that have been added to address the state standards.

The coursework is designed to fulfill ECA's Education Philosophy by utilizing rigorous content that builds upon previously covered topics, over time, exposing students to a body of knowledge which allows for the activation of prior experience. Laboratory and project based work allow for the demonstration and application of skills, and the Student Professional Experience and capstone course allow for integration of those skills into real-world activities. This is facilitated via the instructional design process during course development for all core and technology courses.

The instructional design used for course development utilizes the Explore-Practice-Apply model that allows students to gradually build their knowledge and skills while engaging in meaningful and context relevant interactions with their peers. Students move through learning levels meaningfully and deliberately.

- Explore – Facilitates student discovery learning, activation of prior knowledge and building connections between new concepts and existing cognitive frameworks through interactive learning activities.
- Practice – Engages students to apply new concepts in the process of developing and testing skills through hands-on exercises, labs, role playing and modeling.

- Apply – Engages students in the analysis of complex situations and the development of solutions required by learning tasks grounded in real-life/workplace contexts.

Each program of study includes 12 trimester length courses in technology that build upon each other and increase in rigor over time. These career oriented courses were designed using employer feedback and allows students to develop career-ready skills in their area of study; fulfilling the mission and exemplifying the education philosophy.

ECA will adopt the following approaches to enable students to meet or exceed the educational standards of the State.

1. **Catch-up** Upon enrollment, ECA will review each student's transcript to establish a plan for meeting state graduation requirements. Students who have not passed core courses commonly taken in 9th and 10th grade or may still lack a course because of scheduling differences in area high schools will take these courses at ECA. Students will take the courses they have missed in an online environment, such as through Connections Education. Students will be allotted time to take these online courses in an onsite computer lab at ECA, with teaching assistants at the ready to help them progress and to provide accountability.

2. **Leveling** In first trimester classes, Problem Solving Theory and Strategies for the Technical Professional, ECA uses a technology tool to offer students' remediation built into the first trimester curriculum to level all students for their subsequent courses in both math and English. Customized instruction modules have been identified through careful curriculum mapping identifying prerequisite competencies. Students will take only those modules that are a) necessary for subsequent skills and b) that they haven't already mastered. Each of the modules offers three ways for students to show competency:
    - Pass a diagnostic assessment for the module's concepts.
    - Complete all the exercises within the module and correctly answer each assessment question in the module. Students are offered multiple similar questions when they answer incorrectly, until they are able to answer correctly. Instruction within technology tool includes video tutorials, sample problems, problem explanations and an email contact button to get help from the instructor directly.
    - Pass a post-test assessment for the module.
    - Customized modules exist for Math, Reading, and early Composition and Grammar skills or both English speakers and non-native English Language Learners.

3. **Supplemental Instruction** For students who are struggling in a particular course, tutoring services will be made available. Teachers will be responsible for recommending appropriate early intervention strategies, and will help with tutoring along with teaching assistants and other support staff.

Assessment Strategies

ECA instructional methods will include, but are not limited to, direct classroom instruction, discussion, lab courses, analytical writing, Student Professional Experiences, group projects, field trips, and hands-on-learning. All of these learning activities will be assessed with formative and/or summative techniques. Teachers can implement the "into, through and beyond" strategy in lessons to foster critical understanding of subjects beyond surface learning.

Each item from indirect or direct assessment is used to inform and improve student learning and success through various improvement processes involving the various aspects of curriculum and academic delivery including the following:

- The manner teachers deliver material in the classroom
- The identification of development and mentoring opportunities for faculty
- The content and design of new curriculum
- The revision of existing curriculum
- The program learning objectives

Teachers will use student assessment and performance data to evaluate and inform instruction. While practicing the art of differentiation (as detailed in Carol Tomlinson and Susan Allan's *Leadership for Differentiating Schools and Classrooms*), teachers acknowledge that learners are individuals who have specific needs in contrast to approaching them as a group with the same skill set. Teachers will also implement strategies discussed by Clayton Christenson, Curtis Johnson and Michael Horn in *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns* to provide innovative learning approaches. Formative classroom assessment techniques are imbedded in lesson plans to assess student mastery of course standards and objectives. After covering a concept, teachers conduct formative assessment activities to determine if students are tracking with the instruction. If they are, the class can proceed to the next topic. If not, teachers implement another formative assessment. Professional development training each year will include training on using formative assessment for improvement and developing formative techniques for mastery learning. At the end of each unit, teachers will assign summative assessments and do a thorough examination of the student learning results.

ECA will ensure that the curriculum is carefully mapped to the state standards. The curriculum will include daily plans for classroom and lab activities with learning outcomes identified for each activity. All quizzes and tests will be mapped to the course objectives that will be mapped back to the common core standards. Instructors will be able to adjust or supplement their instruction based on formative assessment responses from students.

The following data is collected and used for both formative and summative assessment of student learning.

- All graded exams (unit level, mid-term, final) and graded projects and papers
- Capstone rubric data to assess program level learning outcomes
- Student Professional Experience outcomes
- Students collect work in a portfolio as evidence of their abilities
- Employment – job title, firm, starting salary

Formative classroom assessment techniques like those espoused by K. Patricia Cross and Thomas Angelo in *Classroom Assessment Techniques: A Handbook for College Teachers* (like "Check Your Understanding" and RSQC2—recall, summarize, question, comment and connect) are often imbedded in classroom activities in the course curriculum. ECA instructional methods will include, but are not limited to, direct classroom instruction, discussion, lab courses, analytical writing, Student Professional Experiences, group projects, field trips, and hands-on-learning. All of these learning activities will be assessed with formative and/or summative techniques.

Each item from indirect or direct assessment is used to inform and improve student learning and success through improvement processes involving the various aspects of curriculum and academic delivery. The Executive Director and teachers will be able to utilize assessment experts from ITT Educational Services. Ongoing teacher development activities will include the use and review of student data to inform change and to assist teachers in determining if students are achieving learning outcomes at both the course level and program level. The Executive Director is in charge of faculty development and will facilitate professional growth with strategies like those outlined by Robert Marzano, Tony Frontier and David Livingston in *Effective Supervision: Supporting the Art and Science of Teaching* (including providing focused feedback and celebrating teacher expertise)All ECA teachers will have access to ITT Tech faculty development materials, seminars and in-service meetings as appropriate to meet their faculty development plan for the year.

Summative Assessment Plan

ECA will ensure that the curriculum is carefully mapped to the state standards. The ECA's assessment procedures include both direct and indirect evaluation of student learning. Direct measures of student learning focus on student learning outcomes, and are designed so that students will be prepared to graduate and perform as expected in a business environment. Student learning outcomes are succinct observable and measurable statements that describe what students are expected to know and be able to do by the end of a course or by the time of graduation. Student learning will be assessed for course-level outcomes, program-specific outcomes, and general education outcomes. Direct methods of assessing student learning include embedded measures (course assignments), proposed repeated formative testing of core concepts, capstone projects, and student portfolios. Results of assessment analyses will be shared with teachers and the Executive Director. Assessment results will be utilized for ECA decision-making and planning purposes, as well as for making adjustments to curricula offered to students. The focus of the technical curriculum is on authentic assessment in which the evaluation activity simulates the contexts, tasks, and problems frequently seen "real life" situations, or on the evaluation activity that has direct implications for graduate employability. Summative direct assessment will include the Arizona's Instrument to Measure Standards (AIMS) test or any alternative assessment adopted by the State.

The indirect measures evaluate overall program effectiveness, and provide data from which the ECA can make inferences about student learning. Indirect measures of student learning will include surveys of students, alumni and employers, as well as institutional performance metrics such as enrollment, retention, academic success, student professional experiences and placement after graduation. All of these will be important measures in assessing ECA mission effectiveness.

Additionally, further development and assessment takes place with the Student Professional Experience which requires demonstration of the application of the body of knowledge to solve real

world problems in a team environment. Lastly, the Capstone course is designed for students to tie together and apply what they have learned as a way to assess program level learning outcomes.

The ECA board will consider using the ACT WorkKeys Applied Mathematics, Locating Information, and Reading assessments as an additional summative assessment tool. The following test descriptions are from the ACT WorkKeys website.

The *Applied Mathematics* test is one of three WorkKeys assessments used with the National Career Readiness Certificate program. This assessment measures the skill people use when they apply mathematical reasoning, critical thinking, and problem-solving techniques to work-related problems. The test questions require the examinee to set up and solve the types of problems and do the types of calculations that actually occur in the workplace.

The *Locating Information* test is one of three WorkKeys assessments used with the National Career Readiness Certificate. It measures the skill people use when they work with workplace graphics. Examinees are asked to find information in a graphic or insert information into a graphic. They also must compare, summarize, and analyze information found in related graphics. The skill people use when they locate, synthesize, and use information from workplace graphics such as charts, graphs, tables, forms, flowcharts, diagrams, floor plans, maps, and instrument gauges is a basic skill required in today's workforce.

The *Reading for Information* test is one of three WorkKeys assessments used with the National Career Readiness Certificate. It measures the skill people use when they read and use written text in order to do a job. The written texts include memos, letters, directions, signs, notices, bulletins, policies, and regulations. It is often the case that workplace communications are not necessarily well-written or targeted to the appropriate audience. *Reading for Information* materials do not include information that is presented graphically, such as in charts, forms, or blueprints.