**2019 – 2020**

# Florida Department of Education

# Curriculum Framework

**Program Title: Game/Simulation/Animation Visual Design**

**Program Type: Career Preparatory**

**Career Cluster: Information Technology**

| **Secondary – Career Preparatory** | |
| --- | --- |
| Program Number | 8208100 |
| CIP Number | 0550041114 |
| Grade Level | 9-12 |
| Standard Length | 4 credits |
| Teacher Certification | Refer to the **Program Structure** section. |
| CTSO | FBLA  BPA |
| SOC Codes (all applicable) | 15-1199 – Computer Occupations, All Other  27-1014 – Multimedia Artists and Animators |
| CTE Program Resources | <http://www.fldoe.org/academics/career-adult-edu/career-tech-edu/program-resources.stml> |

**Purpose**

This program offers a sequence of project-based courses that provide coherent and rigorous content aligned with challenging academic standards and relevant technical knowledge and skills needed to prepare for further education and careers in the Information Technology career cluster such as Game or Simulation Designer, Game or Simulation Graphic Artist, and Game or Simulation 3-D Animator; provides technical skill proficiency, and includes competency-based applied learning that contributes to the academic knowledge, higher-order reasoning and problem-solving skills, work attitudes, general employability skills, technical skills, and occupation-specific skills, and knowledge of all aspects of the Information Technology career cluster.

The content includes but is not limited to practical experiences in game/simulation conceptualization, design, storyboarding, development methodologies, 2D/3D animation design and production, and implementation issues. Specialized skills involving graphic animation software are used to produce a variety of two and three dimensional components.

**Additional Information** relevant to this Career and Technical Education (CTE) program is provided at the end of this document.

**Program Structure**

This program is a planned sequence of instruction consisting of three occupational completion points.

To teach the courses listed below, instructors must hold at least one of the teacher certifications indicated for that course.

The following table illustrates the secondary program structure:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| OCP | Course Number | Course Title | Teacher Certification | | Length | SOC Code | Level | Graduation Requirement |
| A | 8207310 | Digital Information Technology **OR** | | [DIT Teacher Certifications](http://www.fldoe.org/core/fileparse.php/18703/urlt/DIT-2019-20.rtf) | 1 credit | 15-1199 | 2 | PA |
| 8208110 | Game & Simulation Foundations | | BUS ED 1 @2  COMPU SCI 6  COMM ART @7 7G  TV PRO TEC @7 7G  DIGI MEDIA 7G  COMP PROG 7G | 1 credit | 2 | PA |
| 8208120 | Game & Simulation Design | | 1 credit | 2 | PA |
| B | 8208130 | Game & Simulation Graphic Artist | | 1 credit | 27-1014 | 2 | PA |
| C | 8208140 | Game & Simulation 3D Animator | | 1 credit | 27-1014 | 2 | PA |

*(Graduation Requirement Abbreviations- EQ= Equally Rigorous Science, PA= Practical Arts, EC= Economics)*

### Academic Alignment Table

Academic alignment is an ongoing, collaborative effort of professional educators specializing in the fields of science, mathematics, English/language arts, and Career and Technical Education (CTE). This initiative supports CTE programs by improving student performance through the integration of academic content within CTE courses. Career and Technical Education courses that have been aligned to the Next Generation Sunshine State Standards for Science and the Florida Standards for Mathematics and English/Language Arts will show the following data: the quantity of academic standards in the CTE course; the total number of standards contained in the academic course; and the percentage of alignment to the CTE course.

| Courses | Anatomy/ Physiology Honors | Astronomy Solar/Galactic Honors | Biology 1 | Chemistry 1 | Earth-Space Science | Environmental Science | Genetics | Integrated Science 1 | Marine Science 1 Honors | Physical Science | Physics 1 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8207310 | 5/87  6% | 5/80  6% | 24/83  29% | 5/69  7% | 24/67  36% | 5/70  7% | 5/69  7% | 24/82  29% | 5/66  8% | 24/74  32% | 5/72  7% |
| 8208110 | 1/87  1% | 14/80  18% | 23/83  28% | 9/69  13% | 28/67  42% | 6/70  9% | 2/69  3% | 28/82  34% | 9/66  14% | 34/74  46% | 16/72  22% |
| 8208120 | 6/87  7% | 18/80  23% | 27/83  33% | 13/69  19% | 31/67  46% | 13/70  19% | 6/69  9% | 31/82  38% | 12/66  18% | 41/74  55% | 20/72  28% |
| 8208130 | 20/87  23% | 21/80  26% | 1/83  1% | 20/69  29% | 2/67  3% | 20/70  29% | 20/69  29% | 1/82  1% | 15/66  23% | 2/74  3% | 21/72  29% |
| 8208140 | 20/87  23% | 21/80  26% | 1/83  1% | 20/69  29% | 2/67  3% | 20/70  29% | 20/69  29% | 1/82  1% | 15/66  23% | 2/74  3% | 21/72  29% |

*\*\* Alignment pending review # Alignment attempted, but no correlation to academic course*

| Courses | Algebra 1 | Algebra 2 | Geometry | English 1 | English 2 | English 3 | English 4 |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 8207310 | 20/67  30% | 15/75  20% | 18/54  33% | 40/46  87% | 40/45  89% | 40/45  89% | 40/45  89% |
| 8208110 | 14/67  21% | 9/75  12% | 13/54  24% | # | # | # | # |
| 8208120 | 16/67  24% | 11/75  15% | 17/54  31% | 7/46  15% | 7/45  16% | 7/45  16% | 7/45  16% |
| 8208130 | 11/67  16% | 14/75  19% | 11/54  20% | # | # | # | # |
| 8208140 | 8/67  12% | 14/75  19% | 10/54  19% | # | # | # | # |

*\*\* Alignment pending review # Alignment attempted, but no correlation to academic course*

### Program Recommendations

The Game, Simulation and Animation Visual Design program lends itself to integration of the core academic subjects of language arts, math, science, visual arts, and social studies into project activities. It is through a balanced and integrated curriculum that students attain the attitudes, skills, and knowledge needed to compete successfully in today's work force. To achieve total curriculum integration, academic and career and technical education teachers should be scheduled with common planning times.

This program emphasizes the development of technical abilities as well as ethical and societal awareness necessary to function in a highly technological society. The use of cooperative learning groups is recommended. By learning and practicing group process skills, students will be prepared to work "together" in real work situations. Program graduates will develop enhanced self-esteem as well as the problem solving and teamwork skills necessary to succeed in careers and postsecondary education.

The Game, Simulation & Animation Visual Design program places a strong emphasis on workplace learning. Job shadowing and mentoring experiences with game and simulation professionals along with on-site trips to local businesses connect classroom learning to the workplace. In-class guest speakers bring the real world into the classroom.

The Foundations and Design courses should be taken in sequence prior to the 2D Graphic Development and 3D Graphic Animation courses. The 2D Graphic Development and 3D Graphic Animation courses may be taken concurrently. Digital Information Technology may be taken concurrently with either the Foundations course or the Design course.

The Game/Simulation/Animation Advanced Applications program (8208400) is an appropriate follow-on capstone program.

### Florida Standards for Technical Subjects

*Florida Standards (FS) for English Language Arts and Literacy in History/Social Studies, Science, and Technical Subjects are the critical reading and writing literacy standards designed for grade 6 and above. These standards are predicated on teachers of history/social studies, science, and technical subjects using their content area expertise to help students meet the particular challenges of reading, writing, speaking, listening, and language in their respective fields. The FS for Mathematical Practices are designed for grades K-12 and describe varieties of expertise that educators at all levels should seek to develop in their students. These practices rest on important “processes and proficiencies” with longstanding importance in mathematics education.*

**Instructors must incorporate the** [**Florida Standards for Technical Subjects and Mathematical Practices**](file:///\\Doecfs1\dcae2$\Common\CTE%20UNIT\Curriculum%20Frameworks\Framework%20Templates\2017-18%20Templates\Working\Florida_Standards_Technical_Subjects.rtf) **throughout instruction of this CTE program. To access these standards, please click on the following link:** <http://www.fldoe.org/core/fileparse.php/5652/urlt/FloridaStandardsTechSubjects.rtf>.

**Florida Standards for English Language Development (ELD)**

English language learners communicate for social and instructional purposes within the school setting. ELD.K12.SI.1.1

English Language Development (ELD) Standards Special Notes:

Teachers are required to provide listening, speaking, reading and writing instruction that allows English language learners (ELL) to communicate for social and instructional purposes within the school setting.   For the given level of English language proficiency and with visual, graphic, or interactive support, students will interact with grade level words, expressions, sentences and discourse to process or produce language necessary for academic success. The ELD standard should specify a relevant content area concept or topic of study chosen by curriculum developers and teachers which maximizes an ELL’s need for communication and social skills. To access an ELL supporting document which delineates performance definitions and descriptors, please click on the following link: <http://www.cpalms.org/uploads/docs/standards/eld/SI.pdf>.

For additional information on the development and implementation of the ELD standards, please contact the Bureau of Student Achievement through Language Acquisition at [sala@fldoe.org](mailto:sala@fldoe.org).

### Common Career Technical Core – Career Ready Practices

Career Ready Practices describe the career-ready skills that educators should seek to develop in their students. These practices are not exclusive to a Career Pathway, program of study, discipline or level of education. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

1. Act as a responsible and contributing citizen and employee.

2. Apply appropriate academic and technical skills.

3. Attend to personal health and financial well-being.

4. Communicate clearly, effectively and with reason.

5. Consider the environmental, social and economic impacts of decisions.

6. Demonstrate creativity and innovation.

7. Employ valid and reliable research strategies.

8. Utilize critical thinking to make sense of problems and persevere in solving them.

9. Model integrity, ethical leadership and effective management.

10. Plan education and career path aligned to personal goals.

11. Use technology to enhance productivity.

12. Work productively in teams while using cultural/global competence.

### Standards

**Digital Information Technology (8207310) is the first course in this and other programs within the Information Technology Career Cluster. Standards 01.0 – 14.0 are associated with this course**.

After successfully completing this program, the student will be able to perform the following:

1. Demonstrate knowledge, skill, and application of information systems to accomplish job objectives and enhance workplace performance.
2. Develop an awareness of microprocessors and digital computers.
3. Demonstrate an understanding of operating systems.
4. Use technology to enhance the effectiveness of communication skills utilizing word processing applications.
5. Use technology to enhance communication skills utilizing presentation applications.
6. Use technology to enhance the effectiveness of communication utilizing spreadsheet and database applications.
7. Use technology to enhance communication skills utilizing electronic mail.
8. Investigate individual assessment and job/career exploration and individual career planning that reflect the transition from school to work, lifelong learning, and personal and professional goals.
9. Incorporate appropriate leadership and supervision techniques, customer service strategies, and standards of personal ethics to accomplish job objectives and enhance workplace performance.
10. Demonstrate competence using computer networks, internet and online databases to facilitate collaborative or individual learning and communication.
11. Demonstrate competence in page design applicable to the WWW.
12. Develop an awareness of emerging technologies.
13. Develop awareness of computer languages and software applications.
14. Demonstrate comprehension and communication skills.
15. Identify commonly used art and animation production tools in the game design industry.
16. Understand intellectual property rights, copyright laws and plagiarism as it applies to creative assets.
17. Explain the importance of employability skill and entrepreneurship skills as it relates to game/simulation development.
18. Identify tools and software commonly used in game development.
19. Investigate career opportunities in the game industry.
20. Demonstrate research and information fluency.
21. Demonstrate an understanding of the techniques used to evaluate game mechanics, game play, flow, and game design.
22. Explore the methods used to create and sustain player immersion.
23. Describe the game development life cycle.
24. Demonstrate the professional level of written and oral communication required in the game development industry.
25. Understand the core tasks and challenges that face a video game design team.
26. Demonstrate leadership and teamwork skills needed, as it relates to game/simulation development, to accomplish team goals and objectives.
27. Create a working game or simulation as part of a team.
28. Create a game design production plan that describes the game play, outcomes, controls, interface and artistic style of a video game.
29. Categorize the different gaming genres.
30. Identify popular games and identify commonality between them.
31. Understand the general procedure and requirements of game design.
32. Understand the general principles of storytelling for game design.
33. Understand character archetypes and character design.
34. Develop a game design document.
35. Understand the process of creating and designing player choice and other game designer strategy considerations.
36. Create and design the game flow as it relates to story and plot.
37. Assess common principles and procedures in game flow design.
38. Describe player challenge rule creation elements.
39. Understand the use of inventory systems in game design.
40. Understand the various job titles and responsibilities of a graphic artist as it relates to the game industry.
41. Develop the art direction for a game.
42. Determine and document the graphical needs of a game using design documents including art direction and reference materials.
43. Understand the fundamentals of drawing and painting techniques.
44. Demonstrate a working knowledge of vector and paint programs used to make graphics.
45. Demonstrate the effective use art input devices.
46. Demonstrate world building, making graphics and backgrounds for side scrolling, top down, and Isometric projection.
47. Understand the general concepts of environmental design.
48. Describe how environmental design is used in conjunction with game level design.
49. Demonstrate knowledge of basic lighting.
50. Demonstrate knowledge of basic materials and textures.
51. Demonstrate basic understanding of modeling principles.
52. Demonstrate knowledge of polygon modeling.
53. Demonstrate knowledge of non-uniform rational b-splines (NURBS) modeling.
54. Demonstrate advance texturing techniques.
55. Understand the various job titles and responsibilities of a 3D animator as it relates to the game industry.
56. Understand the principles of 2D and 3D animation as it relates to game graphics (walk, run, Jump, idle).
57. Demonstrate a working knowledge of modeling and paint programs used to make 3D graphics and animation.
58. Demonstrate knowledge of basic animation.
59. Demonstrate knowledge of rigging.
60. Understand the fundamentals of facial animation.
61. Create a user interface.
62. Individually design and create a playable game.
63. Create particle system effects.
64. Individually design and create a playable game.

**2019 – 2020**

# Florida Department of Education

# Student Performance Standards

**Course Title: Game & Simulation Graphic Artist**

**Course Number: 8208130**

**Course Credit: 1**

**Course Description:**

This course is focused on students acquiring skills to create, refine, and integrate realistic 2D graphics into a game or simulation product. Students will essentially learn how to use a graphic software package, file maintenance strategies, and migration techniques and issues.

**Abbreviations:**

FS-M/LA = Florida Standards for Math/Language Arts

NGSSS-Sci = Next Generation Sunshine State Standards for Science

| **CTE Standards and Benchmarks** | **FS-M/LA** | **NGSSS-Sci** |
| --- | --- | --- |
| 1. Understand the various job titles and responsibilities of a graphic artist as it relates to the game industry. ̶ The student will be able to: |  |  |
| * 1. Identify the job titles of graphic artist used in a game project. |  |  |
| * 1. Demonstrate the ability to work as part of an art team. |  |  |
| * 1. Perform one or more of the following roles for a game project: concept artist, art director, texture artist, environment artist. |  |  |
| 1. Develop the art direction for a game. ̶ The student will be able to: |  |  |
| * 1. Develop a vision for visual elements of a game. |  | SC.912.N.1.1 |
| * 1. Create conceptual game art using various techniques, emphasizing space and form through range of value, placement, reflections, and shadows. |  |  |
| * 1. Create character sketches, architectural sketches and background sketches. |  |  |
| * 1. Understand the challenges of art direction as it relates to mobile devices. |  |  |
| 1. Determine and document the graphical needs of a game using design documents including art direction and reference materials. ̶ The student will be able to: |  |  |
| * 1. Develop characters and game elements in respect to the art direction laid out in the design documents. |  |  |
| * 1. Determine the appropriate file format between vector based (resolution independent) vs. rasterized graphics (resolution dependent). |  |  |
| * 1. Understand the different aspects of quality and detail in relation to performance and size. |  |  |
| * 1. Understand the role of naming conventions as it applies to creative assets storage used in the work flow. |  |  |
| * 1. Demonstrate the effective use of alternative resolutions, scaling and file formats. |  |  |
| 1. Understand the fundamentals of drawing and painting techniques. ̶ The student will be able to: |  |  |
| * 1. Demonstrate the use of different techniques, format, media or style. |  |  |
| * 1. Understand the use of primitives. |  |  |
| * 1. Demonstrate basic understanding of composition of a scene. |  |  |
| * 1. Understand the shape of the human form. |  |  |
| * 1. Know the value of lights and shadows. |  |  |
| 1. Demonstrate a working knowledge of vector and paint programs used to make graphics. ̶ The student will be able to: |  |  |
| * 1. Know the difference between Vectors and Bitmaps. | MAFS.912.N-VM.1.1 |  |
| * 1. Demonstrate understanding of various graphic art programs. |  |  |
| * 1. Utilize the programs tools and brushes. |  | SC.912.N.1.1 |
| * 1. Know the importance of Layers. |  |  |
| * 1. Identify file formats. |  |  |
| 1. Demonstrate the effective use of art input devices. ̶ The student will be able to: |  |  |
| * 1. Demonstrate the use of a digital tablet within a paint software application. |  | SC.912.L.17.5 |
| * 1. Demonstrate the process of capturing textures using a digital camera. |  |  |
| * 1. Demonstrate the process of importing images from a digital camera into a photo editing software application. |  | SC.912.L.17.5 |
| 1. Demonstrate world building, making graphics and backgrounds for side scrolling, top down, and Isometric projection. ̶ The student will be able to: |  |  |
| * 1. Know the importance of scale in relation to the player. |  |  |
| * 1. Understand level design to successfully lead the player. |  |  |
| * 1. Effectively use graphics to convey mood and story in the game world. |  |  |
| 1. Understand the general concepts of environmental design. ̶ The student will be able to: |  |  |
| * 1. Survey and evaluate commonly used concept art. |  |  |
| * 1. Create a world sketch with particular attention to maintaining continuity of style. |  |  |
| * 1. Describe the emotional/psychological aspects of environmental design that signify mood, façade of freedom, and resource struggling. |  |  |
| 1. Describe how environmental design is used in conjunction with game level design. ̶ The student will be able to: |  |  |
| * 1. Examine and evaluate examples of focus on a theme. |  |  |
| * 1. Describe methods of creating a purposeful architecture giving consideration to continuity and themes and taking advantage of revisiting. |  |  |
| * 1. Consider and discuss environmental design elements for multi-player or single player games. |  |  |
| * 1. Describe the history of creating shifts in game design environments and embracing novel ideas. |  |  |
| * 1. Identify and discuss environmental design pitfalls such as red herrings and cookie-cutter layouts. |  |  |
| 1. Demonstrate knowledge of basic lighting. ̶ The student will be able to: |  |  |
| * 1. Demonstrate an understanding of 3 point lighting (key, fill, back). |  |  |
| * 1. Demonstrate an understanding of low-key and high-key lighting. |  |  |
| 1. Demonstrate knowledge of basic materials and textures. ̶ The student will be able to: |  |  |
| * 1. Demonstrate an understanding of material and texture storage. |  |  |
| * 1. Apply textures to an object. |  |  |
| * 1. Demonstrate an understanding of procedural shaders. |  |  |
| * 1. Demonstrate an understanding of channels. |  |  |
| * 1. Adjust the transparency, luminance, and reflection of a material. |  |  |
| * 1. Demonstrate an understanding of displacement maps. |  |  |
| * 1. Demonstrate an understanding of bump maps. |  |  |
| * 1. Demonstrate an understanding of UV mapping. |  |  |
| * 1. Demonstrate an understanding of 3D painting. |  |  |
| 1. Demonstrate basic understanding of modeling principles. ̶ The student will be able to: |  |  |
| * 1. Demonstrate an understanding of primitives and parametric modeling. |  |  |
| * 1. Demonstrate an understanding of non-uniform rational basis spline (NURBS), splines, and polygonal modeling. |  |  |
| * 1. Demonstrate the ability to use reference images and files while modeling. |  |  |
| 1. Demonstrate knowledge of polygon modeling. ̶ The student will be able to: |  |  |
| * 1. Demonstrate an understanding of N-gons. |  |  |
| * 1. Demonstrate an understanding of subdivision. |  |  |
| * 1. Demonstrate basic polygon editing and manipulation. |  |  |
| * 1. Demonstrate an understanding of cutting/division tools. |  |  |
| * 1. Demonstrate an understanding of extrudes. |  |  |
| * 1. Demonstrate an understanding of symmetry. |  |  |
| * 1. Demonstrate an understanding of basic deformers (bend, twist, melt). |  |  |
| 1. Demonstrate knowledge of non-uniform rational b-splines (NURBS) modeling. ̶ The student will be able to: |  |  |
| * 1. Demonstrate an understanding of points, vertices, edges, and polygons. |  |  |
| * 1. Demonstrate an understanding of poly-count. |  |  |
| * 1. Demonstrate an understanding of primitives. |  |  |
| * 1. Locate an object’s properties, attributes, and coordinates. |  |  |
| * 1. Demonstrate understanding of Non uniform rational b-splines (NURBS). |  |  |
| * 1. Demonstrate understanding of splines and generators (extrude, lathe, sweep). |  |  |
| * 1. Understand the use of hierarchy. |  |  |
| * 1. Demonstrate an understanding of Boolean objects. |  |  |
| * 1. Demonstrate an understanding of Null objects. |  |  |
| 1. Demonstrate advanced texturing techniques. ̶ The student will be able to: |  |  |
| * 1. Create texture maps for objects in games. |  |  |
| * 1. Develop 3D texture mapped objects. |  |  |

# Additional Information

### Laboratory Activities

Laboratory investigations that include scientific inquiry, research, measurement, problem solving, emerging technologies, tools and equipment, as well as, experimental, quality, and safety procedures are an integral part of this career and technical program/course. Laboratory investigations benefit all students by developing an understanding of the complexity and ambiguity of empirical work, as well as the skills required to manage, operate, calibrate and troubleshoot equipment/tools used to make observations. Students understand measurement error; and have the skills to aggregate, interpret, and present the resulting data. Equipment and supplies should be provided to enhance hands-on experiences for students.

### Special Notes

The occupational standards and benchmarks outlined in this secondary program correlate to the standards and benchmarks of the postsecondary program with the same Classification of Instructional Programs (CIP) number.

MyCareerShines is an interactive resource to assist students in identifying their ideal career and to enhance preparation for employment. Teachers are encouraged to integrate this resource into the program curriculum to meet the employability goals for each student. Access MyCareerShines by visiting: [www.mycareershines.org](http://www.mycareershines.org/).

### Career and Technical Student Organization (CTSO)

Future Business Leaders of America (FBLA) and Business Professionals of America (BPA) are the intercurricular career and technical student organizations providing leadership training and reinforcing specific career and technical skills for secondary students. Career and Technical Student Organizations provide activities for students as an integral part of the instruction offered.

### Cooperative Training – OJT

On-the-job training is appropriate but not required for this program. Whenever offered, the rules, guidelines, and requirements specified in the OJT framework apply.

### Accommodations

Federal and state legislation requires the provision of accommodations for students with disabilities as identified on the secondary student’s Individual Educational Plan (IEP) or 504 plan or postsecondary student’s accommodations’ plan to meet individual needs and ensure equal access. Accommodations change the way the student is instructed. Students with disabilities may need accommodations in such areas as instructional methods and materials, assignments and assessments, time demands and schedules, learning environment, assistive technology and special communication systems. Documentation of the accommodations requested and provided should be maintained in a confidential file.

In addition to accommodations, some secondary students with disabilities (students with an IEP served in Exceptional Student Education (ESE)) will need modifications to meet their needs. Modifications change the outcomes or what the student is expected to learn, e.g., modifying the curriculum of a secondary career and technical education course. Note: postsecondary curriculum and regulated secondary programs cannot be modified.

Some secondary students with disabilities (ESE) may need additional time (i.e., longer than the regular school year), to master the student performance standards associated with a regular Occupational Completion Point (OCP) or a Modified Occupational Completion Point (MOCP). If needed, a student may enroll in the same career and technical course more than once. Documentation should be included in the IEP that clearly indicates that it is anticipated that the student may need an additional year to complete an OCP/MOCP. The student should work on different competencies and new applications of competencies each year toward completion of the OCP/MOCP. After achieving the competencies identified for the year, the student earns credit for the course. It is important to ensure that credits earned by students are reported accurately. The district’s information system must be designed to accept multiple credits for the same course number for eligible students with disabilities.

### Additional Resources

For additional information regarding articulation agreements, Bright Futures Scholarships, Fine Arts/Practical Arts Credit and Equivalent Mathematics and Equally Rigorous Science Courses please refer to:

<http://www.fldoe.org/academics/career-adult-edu/career-tech-edu/program-resources.stml>