Georgia CTAE

Programming, Games, Apps, and Society: Grades 9, 10, 11, 12

Adopted 2013

Demonstrate employability skills required by business and industry. IT-PGAS-1

1. **Communicate effectively through writing, speaking, listening, reading, and interpersonal abilities.** IT-PGAS-1.1
2. **Demonstrate creativity by asking challenging questions and applying innovative procedures and methods.** IT-PGAS-1.2
3. **Exhibit critical thinking and problem-solving skills to locate, analyze and apply information in career planning and employment situations.** IT-PGAS-1.3
4. **Model work readiness traits required for success in the workplace including integrity, honesty, accountability, punctuality, time management, and respect for diversity.** IT-PGAS-1.4
5. **Apply the appropriate skill sets to be productive in a changing, technological, diverse workplace to be able to work independently and apply team-work skills.** IT-PGAS-1.5
6. **Present a professional image through appearance, behavior, and language.** IT-PGAS-1.6

Describe the software application life cycle and use a prototype development model to develop applications. IT-PGAS-2

1. **Understand the software development cycle and the iterative nature of the software development cycle.** IT-PGAS-2.1
2. **Understand and use steps to a designing a good software product.** IT-PGAS-2.2
3. **Use a good prototype development model to write a cellphone application or a video game.** IT-PGAS-2.3
4. **Write easy to read programs by using user-friendly comments and naming conventions.** IT-PGAS-2.4
5. **Test the programs for completeness and accuracy.** IT-PGAS-2.5

Design and develop applications using objects. IT-PGAS-3	1. **Understand the fundamental concept of an object and the differences between primitive data types and objects.** IT-PGAS-3.1 2. **Design real-life applications with objects interacting with one another.** IT-PGAS-3.2 3. **Develop programs with multiple events and objects solving problems.** IT-PGAS-3.3
Design, develop, and implement accessible and usable interfaces, and analyze applications for engaging the user. IT-PGA-4	1. **Identify the components of a user interface.** IT-PGAS-4.1 2. **List the criteria used to determine the effectiveness of an interface.** IT-PGAS-4.2 3. **Design and produce a user interface.** IT-PGAS-4.3 4. **Apply user interface design criteria to critique common user interfaces (mobile phones, tablets, remote controls, and microwave ovens).** IT-PGAS-4.4 5. **Discuss how the design of applications can influence and motivate or demotivate the user.** IT-PGAS-4.5 6. **Write a program that involves the design and development of multiple programs utilizing the software development practices.** IT-PGAS-4.6 7. **Compare and contrast a collection of software based on usability and user preference.** IT-PGAS-4.7 8. **Test the program for usability.** IT-PGAS-4.8
Use and implement different digital representations of media. IT-PGA-5	1. **Explain the relative strengths and weaknesses of different representations of images.** IT-PGAS-5.1 2. **Explain the relative strengths and weaknesses of different representations of music and sound.** IT-PGAS-5.2 3. **Use computational thinking practices to manipulate images and sounds captured from the real world.** IT-PGAS-5.3 4. **Write a program to modify an image and sound for use in an application or game.** IT-PGAS-5.4 5. **Research and create tools and techniques to manipulate media at different levels of abstraction.** IT-PGAS-5.5
Evaluate an application design in terms of meeting privacy needs, legal and intellectual property requirements, and security	1. **Understand privacy needs in the development of application software.** IT-PGAS-6.1 2. **Explain how security considerations play a part in software development.** IT-PGAS-6.2

considerations. IT-PGA-6	3. Evaluate how intellectual property plays into to the development of applications. IT-PGAS-6.3 4. Research examples of how security and privacy leaks in applications have affected users and society. IT-PGAS-6.4
Develop applications that read real-world data from sensors, interpret the data, and respond to the real-world stimuli. IT-PGA-7	1. Plan how real-world data collection can influence the design decisions. IT-PGAS-7.1 2. Develop a program that will interpret and react to real-world stimuli. IT-PGAS-7.2 3. Use real-world data and use computational thinking practices while manipulating data. IT-PGAS-7.3
Describe the unique needs for information and communication technologies for diverse audiences. IT-PGA-8	1. Understand the need for designing software that is intuitive and user-friendly. IT-PGAS-8.1 2. Conduct usability tests that help identify needs of the user based on their backgrounds, needs, and experiences. IT-PGAS-8.2 3. Identify and analyze software and applications designed for users with disabilities. IT-PGAS-8.3 4. Analyze appropriate software that will engage students from diverse backgrounds and with diverse needs. IT-PGAS-8.4 5. Develop criteria and requirements for the development of applications to reach a certain segment of society. IT-PGAS-8.5 6. Analyze what issues play a part in the development of software outside the United States for users in developed nations and for users in underdeveloped nations. IT-PGAS-8.6
Explore how related student organizations are integral parts of career and technology education courses through leadership development, school and community service projects, entrepreneurship development, and competitive events. IT-PGA-9	1. Explain the goals, mission and objectives of Future Business Leaders of America. IT-PGAS-9.1 2. Explore the impact and opportunities a student organization (FBLA) can develop to bring business and education together in a positive working relationship through innovative leadership and career development programs. IT-PGAS-9.2 3. Explore the local, state, and national opportunities available to students through participation in related student organization (FBLA) including but not limited to conferences, competitions, community service, philanthropy, and other FBLA activities. IT-PGAS-9.3 4. Explain how participation in career and technology education student organizations can promote lifelong responsibility for community service and professional development. IT-PGAS-9.4

5. **Explore the competitive events related to the content of this course and the required competencies, skills, and knowledge for each related event for individual, team, and chapter competitions.** IT-PGAS-9.5