

Career & Technical Education | Information Technology Animation

Subject Code: 145115

Outcome & Competency Descriptions

Course Description:

Students will use animation and storyboarding techniques to plan the production of an animation project. Students will design from script and storyboard actions in the pre-production planning process. Students will use commercial and opensource digital animation software to create finished animations, cartoons, and other short movies. They will accomplish this using animated text, character movements, voice, background sound, sound effects, camera movements, and multiple scenes.

Strand 1. Business Operations / 21st Century Skills

Learners apply principles of economics, business management, marketing and employability in an entrepreneur, manager, and employee role to the leadership, planning, developing, and analyzing of business enterprises related to the career field.

Outcome: 1.1. Employability Skills

Develop career awareness and employability skills (e.g., face-to-face, online) needed for gaining and maintaining employment in diverse business settings.

Competencies

- 1.1.1. Identify the knowledge, skills, and abilities necessary to succeed in careers.
- 1.1.2. Identify the scope of career opportunities and the requirements for education, training, certification, licensure, and experience.
- 1.1.3. Develop a career plan that reflects career interests, pathways, and secondary and postsecondary options.
- 1.1.4. Describe the role and function of professional organizations, industry associations, and organized labor and use networking techniques to develop and maintain professional relationships.
- 1.1.5. Develop strategies for self-promotion in the hiring process (e.g., filling out job applications, resumé writing, interviewing skills, portfolio development).
- 1.1.6. Explain the importance of work ethic, accountability and, responsibility and demonstrate associated behaviors in fulfilling personal, community, and workplace roles.
- 1.1.7. Apply problem-solving and critical-thinking skills to work-related issues when making decisions and formulating solutions.
- 1.1.8. Identify the correlation between emotions, behavior, and appearance and manage those to establish and maintain professionalism.

- 1.1.9. Give and receive constructive feedback to improve work habits.
- 1.1.12. Identify healthy lifestyles that reduce the risk of chronic disease, unsafe habits and abusive behavior.

Outcome: 1.2. Leadership and Communications

Process, maintain, evaluate, and disseminate information in a business.
Develop leadership and team building to promote collaboration.

Competencies

- 1.2.6. Use proper grammar and expression in all aspects of communication.

Outcome: 1.3. Business Ethics and Law

Analyze how professional, ethical, and legal behavior contributes to continuous improvement in organizational performance and regulatory compliance.

Competencies

- 1.3.7. Identify the labor laws that affect employment and the consequences of noncompliance for both employee and employer (e.g., harassment, labor, employment, employment interview, testing, minor labor laws, Americans with Disabilities Act, Fair Labor Standards Acts, Equal Employment Opportunity Commission [EEOC]).
- 1.3.8. Verify compliance with computer and intellectual property laws and regulations.
- 1.3.9. Identify potential conflicts of interest (e.g., personal gain, project bidding) between personal, organizational and professional ethical standards.

Outcome: 1.5. Global Environment

Evaluate how beliefs, values, attitudes and behaviors influence organizational strategies and goals.

Competencies

- 1.5.7. Use intercultural communication skills to exchange ideas and create meaning.

Outcome: 1.7. Entrepreneurship / Entrepreneurs

Analyze the environment in which a business operates, and the economic factors and opportunities associated with self-employment.

Competencies

- 1.7.13. Protect intellectual property and knowledge (e.g., copyright, patent, trademark, trade secrets, processes).

Strand 2. IT Fundamentals

Learners apply fundamental principles of IT, including the history of IT and its impact on society, common industry terms, systems theory, information storage and retrieval, database management, and computer hardware, software, and peripheral device configuration and installation. This base of knowledge and skills may be applied across the career field.

Outcome 2.4. Emerging Technologies

Identify trending technologies, their fundamental architecture, and their value in the marketplace.

Competencies

- 2.4.1. Identify emerging technologies that are applicable to the marketplace.
- 2.4.2. Describe the fundamental architectures of emerging technologies and how they are integrating into the existing systems of information technology.
- 2.4.3. Research the value of emerging technologies on the marketplace.
- 2.4.4. Describe emerging technologies (e.g., Bring your Own Device [BYOD], Services Virtualization, Mixed Reality [MR], SMART Devices, Additive Manufacturing [3D Printing], Internet of Things, Large Language Models, Machine Learning, and Artificial Intelligence).

Outcome: 2.9. Project Concept Proposal

Develop a project concept proposal.

Competencies

- 2.9.1. Identify the scope and purpose of branding.
- 2.9.2. Determine the scope and purpose of the project.
- 2.9.3. Determine the target audience, client needs, expected outcomes, objectives, and budget.
- 2.9.4. Develop a conceptual model and design brief for the project.
- 2.9.5. Develop a timeline, a communication plan, a task breakdown, costs (e.g., equipment, labor), deliverables, and responsibilities for completion.
- 2.9.6. Develop and present a comprehensive proposal to stakeholders.

Outcome: 2.12. Performance Tests and Acceptance

Develop performance tests and acceptance plans.

Competencies

- 2.12.1. Create a written procedure agreed by the stakeholders and project team for determining the acceptability of the project deliverables.
- 2.12.2. Develop a test system that accurately mimics external interfaces.
- 2.12.3. Develop test cases that are realistic, compare with expected performance, and include targeted platforms and device types.
- 2.12.4. Develop, perform, and document usability and testing integration.

- 2.12.5. Make corrections indicated by test results.
- 2.12.6. Seek stakeholder acceptance upon successful completion of the test plan.

Outcome: 2.13. Rollout and Handoff

Plan rollout and facilitate handoff to customers.

Competencies

- 2.13.1. Include overall project goals and timelines in the rollout plan.
- 2.13.2. Communicate rollout plans to key stakeholders in a timely manner.
- 2.13.3. Conduct final review and approvals according to company standards.
- 2.13.4. Identify support staff, training needs, and contingency plans in the rollout plan.
- 2.13.5. Test delivered application to assure that it is fully functional for the customer or user and meets all requirements.
- 2.13.6. Deliver support and training materials.

Outcome: 2.15. UX/UI Design

Develop basic skills and knowledge of the UX/UI Design Process.

Competencies

- 2.15.1. Understand the UX/UI design process (e.g. vision, journey mapping, wireframing, prototyping, strategizing) for the targeted platform (e.g. graphics, applications, programming).
- 2.15.8. Draft, design, and utilize design prototypes (low-fidelity, high-fidelity) to guide the design process.
- 2.15.10. Understand how the use of appropriate iconography impacts user experience
- 2.15.11. Understand various design methodologies (Bottom-Up, Top-Down, Agile,) and evaluate their strengths and weaknesses.
- 2.15.12. Describe how attention, memory, perception, conditioning, and learning define the user experience and affects their actions.

Strand 7. Digital Media

Learners apply principles of digital media to produce interactive media; develop and produce multimedia applications; integrate typography into media; create 3D models and 2D and 3D animation; and create digital video, audio, and photographs.

Outcome: 7.1. Interactive Media

Describe and explain interactive media and interactive media production.

Competencies

- 7.1.1. Identify the types and uses of interactive media environments (e.g., web-based, kiosks, games, mobile devices, video, print).
- 7.1.2. Describe the components of interactive media.
- 7.1.3. Identify the major characteristics of interactive media presentations.
- 7.1.4. Identify important historical developments and future trends in interactive media.
- 7.1.5. Identify the major interactive media genres.
- 7.1.6. Perform critical review of interactive media products in different genres.
- 7.1.7. Identify the intellectual property rights, responsibilities, and controls related to interactive media.
- 7.1.8. Analyze the social and cultural implications of interactive media.
- 7.1.9. Identify major applications for interactive media (e.g., sales and marketing, interactive advertising, education, online learning, corporate training, corporate communications, news, entertainment).
- 7.1.10. Identify specific uses for interactive media in potential markets.

Outcome: 7.2. Multimedia Tools

Develop navigational structures, scripts, storyboards, and flowcharts for multimedia applications.

Competencies

- 7.2.1. Develop navigational structures, wireframes, and flowcharts for multimedia applications.
- 7.2.2. Construct and place navigational units.
- 7.2.3. Build in interactive elements.
- 7.2.4. Determine uses and needs for site maps, multimedia scripts, storyboards, and flowcharts.

- 7.2.5. Make preliminary sketches showing placement of images and text on screen.
- 7.2.6. Place buttons and navigational graphics.
- 7.2.7. Select colors based on color theory and psychology.
- 7.2.8. Describe music, video, and special effects to be used.
- 7.2.9. Provide a sample layout to stakeholders for review.
- 7.2.10. Select and create visual design elements appropriate for the intended audience and use.
- 7.2.11. Develop client personas and narratives for intended project outcomes.

Outcome: 7.3. Production

Produce interactive media.

Competencies

- 7.3.1. Select the media elements to be used (e.g., sound, video, graphics, text, animation).
- 7.3.2. Generate text for multi-image presentations (e.g., title graphics, charts, graphs).
- 7.3.3. Incorporate graphics (e.g., digital, hand-drawn, photographic).
- 7.3.4. Incorporate computer animation.
- 7.3.5. Prepare and integrate photographic images and special effects with graphic images.
- 7.3.6. Incorporate video footage.
- 7.3.7. Edit video footage.
- 7.3.8. Record and/or acquire soundtracks (e.g., narrative, voiceover, sound effects, music).
- 7.3.9. Integrate sound with visuals.
- 7.3.10. Produce, test, debug, and archive a final product.
- 7.3.11. Apply accessibility guidelines to the selection and production of interactive media.

Outcome: 7.4. Graphics

Construct and manipulate digital graphics.

Competencies

- 7.4.1. Select and manipulate color profiles (e.g., Red Green Blue [RGB], Cyan Magenta Yellow Key [CMYK], Pantone) for appropriate uses.
- 7.4.2. Select color, shape, size, and texture of objects.
- 7.4.3. Create or acquire graphics.
- 7.4.4. Manipulate and layer objects.
- 7.4.5. Differentiate between vector and raster images.
- 7.4.6. Select graphic software applications based on budget, technical capabilities and hardware specifications to meet intended project outcome.
- 7.4.7. Select graphic software applications based on budget, technical capabilities, and hardware specifications to meet intended project outcome.
- 7.4.8. Manipulate graphic objects.
- 7.4.9. Compress and decompress graphic files.
- 7.4.10. Describe and select color profiles (e.g., Red Green Blue [RGB], Cyan Magenta Yellow Key [CMYK], Pantone).

Outcome: 7.5. Typography
Integrate typography in media.

Competencies

- 7.5.1. Identify typographic measurements (e.g., picas, points, pixels, ems).
- 7.5.2. Mix families of type within a project.
- 7.5.3. Select appropriate kerning, leading, tracking, and other related formatting.
- 7.5.4. Identify appropriate typefaces (e.g., serif, sans serif, Web Safe, screen, print).
- 7.5.5. Prepare a type style guide.

Outcome: 7.6. Animation
Create 2D and 3D animation.

Competencies

- 7.6.1. Develop a plan and storyboard for an animation.
- 7.6.2. create and import 2D assets and environments).
- 7.6.3. Create key frames and apply tweens and paths.
- 7.6.4. Create special effects and virtual navigation.
- 7.6.5. create and import 3D assets and environments.
- 7.6.6. Render and export animations.
- 7.6.7. Create and import virtual assets and environments.