

Technical Theatre

Level: 2

Career Cluster: Media Arts

Program: Media Production and Broadcasting

Pathway: Cinematography and Film/Video Production

Course Catalog Description

Provides students with foundational technical theatre skills through career exploration, safe and professional production practices, and hands-on digital production experiences. Students use industry-relevant digital tools for scenic drafting and visualization, lighting and sound control, production documentation, collaboration, and digital portfolio development while exploring scenic construction, scenic painting, lighting, sound, and post-production support for theatrical productions.

Summary

Introduces students to the fundamentals of technical theatre through career exploration, safe and professional production practices, and digitally based crew experiences. Students develop foundational skills in digital scenic design and drafting, lighting systems and cue programming, sound systems and signal flow, production workflow, and collaborative documentation while interpreting technical files, using digital and physical tools responsibly, and working within established crew roles and chain of command. The course also emphasizes rehearsal support, technical problem-solving, digital asset organization, and responsible strike, storage, and production management in support of theatrical productions.

Notes

The revised course reflects a shift from a general introduction to backstage and production support into a more structured, standards-aligned framework with clearly defined student learning outcomes. While the original course primarily focused on basic technical skills such as set construction, lighting, and sound support, the updated version expands these into a more cohesive sequence that emphasizes production workflow, collaboration across departments, and safe professional practices. The new course also strengthens alignment with current CTE expectations by adding formal components such as portfolio development, leadership, work-based learning, and a final assessment project, emphasizing real-world application and career readiness. Overall, the update transitions from a foundational skills-based course to a more comprehensive, project-based model that better prepares students for further training and entry-level technical theatre roles.

Student Learning Outcomes

1. Career Exploration and Postsecondary Opportunities

Objective: *Students will explore and analyze career pathways related to technical theatre and production by examining industry roles, digital tools, work environments, professional expectations, legal and ethical responsibilities, certifications, professional organizations, and Colorado postsecondary education options to make informed academic and career decisions.*

- 1) Identify employment opportunities in various fields with a focus in the area of cinematography and film/video production
 - a. Recognize the work typically performed, tools and technology used, and nature of work environments
 - b. Identify potential certifications within the careers
 - c. Find membership organizations associated with the careers
 - d. Understand the necessary education associated within the careers
- 2) Define professionalism within the context of cinematography and film/video production
 - a. Criticism and evaluation
 - b. Presentation
 - c. Assessment
- 3) Recognize laws, regulations, and ethics significant to the fields of cinematography and film/video production
- 4) Identify postsecondary opportunities offered in the state of Colorado
 - a. Technical college, community college, 4-year institutions
 - b. Certificates, associates, bachelor, and advanced degree opportunities

2. Safety, Professional Practice and Crew Responsibilities

Objective: *Students will apply safe and professional technical theatre practices by following workplace safety protocols, using tools and equipment responsibly, understanding crew roles and responsibilities, and collaborating effectively within established chain-of-command and professional standards during all phases of production.*

- 5) Apply safe work habits, including correct use of Personal Protective Equipment (PPE), during all technical theatre and production activities.
- 6) Demonstrate safe and proper use of scene shop tools, theatre equipment, and production supplies.
- 7) Analyze safety protocols specific to scene shops, stages, studios, and backstage environments.
- 8) Differentiate the roles and responsibilities of technical theatre crew members during setup, production, and strike, including:
 - a. Designers
 - b. Technical Directors
 - c. Stage Management
 - d. Crew responsible for materials selection

9) Collaborate effectively within a technical crew while following chain-of-command and professional etiquette.

3. Introduction to Set Design and Scenic Construction

Objective: Students will apply foundational scenic design and construction concepts by interpreting technical drawings, creating or editing digital drafting and visualization files, assisting in scenery and prop construction, using basic scenic painting techniques, and evaluating materials for safety, functionality, durability, and sustainability in support of theatrical storytelling.

- 10) Explain the purpose of set design in supporting story, space, and audience experience.
- 11) Interpret basic technical drawings, digital drafting files, ground plans, and plots used for scenery, properties, and costumes.
- 12) Apply introductory construction techniques to assist with building scenery, properties, or costume elements.
- 13) Demonstrate basic scenic painting techniques to add color, texture, and visual detail.
- 14) Evaluate material choices for safety, functionality, durability, and sustainability.

4. Introduction to Lighting Design and Systems

Objective: Students will apply basic lighting design principles and technical skills by interpreting lighting plots, selecting and safely operating lighting equipment, using digital lighting software and control boards to program and run cues, and analyzing how lighting choices contribute to mood, visibility, and storytelling in theatrical productions.

- 15) Interpret lighting plots to determine fixture placement, color, and focus requirements.
- 16) Identify lighting equipment needs based on production requirements.
- 17) Hang, focus, color, and patch lighting equipment using safe industry practices.
- 18) Set up and operate a digital lighting control board or software-based controller to execute lighting cues.
- 19) Analyze how lighting choices support mood, visibility, and storytelling.

5. Introduction to Sound Design and Audio Systems

Objective: Students will apply fundamental theatrical sound design and audio system practices by interpreting sound plots, selecting and configuring audio equipment, managing digital signal flow, using audio software or digital mixers, and evaluating and adjusting sound quality to support clarity, balance, and audience experience.

- 20) Interpret sound plots to understand speaker placement, microphone needs, and signal flow.
- 21) Identify appropriate sound equipment for theatrical and studio productions.
- 22) Patch and configure microphones, speakers, intercoms, monitors, and digital audio routing correctly.
- 23) Evaluate sound quality and make adjustments to improve clarity and balance.

6. Collaboration and Production Workflow

Objective: Students will analyze and apply collaborative production workflows by coordinating scenic, lighting, and sound departments, using shared digital documents and production management tools, supporting rehearsals and technical runs, and contributing to problem-solving processes that ensure efficient and cohesive theatrical productions.

- 24) Analyze how scenic, lighting, and sound departments work together during production using shared plans, cue documents, and digital communication tools.
- 25) Apply collaboration strategies to support efficient rehearsals and performances.
- 26) Assist in technical rehearsals, cues, and production problem-solving.

7. Post-Production, Strike and Asset Management

Objective: Students will demonstrate responsible post-production and asset management practices by safely striking productions, storing and inventorying equipment and materials, organizing digital production files and records, evaluating equipment condition, and applying environmentally responsible methods for reuse or disposal of scenic elements.

- 27) Demonstrate proper procedures for striking, storing, and inventorying equipment and scenic elements.
- 28) Evaluate equipment condition and report needed maintenance or repairs.
- 29) Apply environmentally responsible practices when disposing of or repurposing scenic materials.

8. Portfolio Development

Objective: Students will develop and present a digital technical theatre portfolio by organizing completed production work, files, and media that demonstrate technical skills, collaboration, and understanding of theatre production processes.

- 30) Collect and organize digital artifacts such as cue sheets, drafting files, design elements, construction work, photos, audio/video samples, and production documentation using appropriate file formats and labeling systems.
- 31) Select portfolio pieces that demonstrate foundational skills in scenic construction, lighting, sound, and production support.
- 32) Present portfolio work to communicate technical contributions, problem-solving processes, and areas for continued growth.

9. Leadership

Objective: Students will demonstrate leadership in technical theatre environments by collaborating effectively, fulfilling crew responsibilities, and contributing to safe and productive production workflows.

- 33) Demonstrate leadership behaviors such as responsibility, communication, and accountability during production activities.

34) Support team-based productions by assisting in assigned crew roles and contributing to shared production goals.

35) Participate in critique and feedback processes to improve technical performance and team outcomes.

10. Work-Based Learning

Objective: *Students will apply technical and professional skills through work-based learning experiences that connect classroom theatre production to real-world industry practices, including the use of digital production, documentation, and communication tools.*

36) Participate in work-based learning experiences such as live productions, theatre environments, or guest professional interactions.

37) Demonstrate workplace readiness skills including communication, time management, collaboration, and safe work practices.

38) Reflect on work-based learning experiences to evaluate skill development and career interests.

11. Final Assessment Project

Objective: *Students will complete a culminating technical theatre project that demonstrates technical proficiency, collaboration, and the ability to support a production through digitally based planning, execution, documentation, and strike.*

39) Plan and complete a technical theatre project that includes elements such as set, lighting, sound, or production support.

40) Present and explain technical work, including design choices, materials, processes, and safety considerations using appropriate theatre terminology.

12. Career and Technical Student Organizations

Objective: *Using the [CTSO Resource Document](#), chapter activities will provide some of the best opportunities CTSO members will have to learn by doing. A successful [program of work](#) creates a positive learning atmosphere in the classroom. CTSO members learn how to accept responsibility, work as a team, manage a budget, and handle success and failure. Per the CTE Admin Handbook, CTSOs are embedded into curriculum.*

Professional Development

Prepare each member for entry into the workforce and provide a foundation for success in a career. Becoming a professional does not stop with acquiring a skill, but involves an increased awareness of the meaning of good citizenship and the importance of labor and management in the world of work.

Community Service

Promote and improve goodwill and understanding among all segments of the community through services donated by CTSO chapters, and to instill in its members a lifetime commitment to community service.

Business and Industry Connections

Increase awareness of quality job practices and attitudes, and increase the opportunities for employer engagement and eventual employment.

Financial Leadership

Plan and participate in activities to allow all members to carry out the chapter's projects. Educate members on their own personal finance for current and future success.

Public Relations

Make the general public aware of the good work that students in career and technical education are doing to better themselves and their community, state, nation, and world.

Social Activities

To increase cooperation in the school and community through activities that allow CTSO members to get to know each other in something other than a business or classroom setting.

Academic Standards Alignment

Colorado CTE courses are required to integrate academic and essential skills into course content. The following academic standards have been identified as aligned to this course and should be integrated throughout instruction.

[CO CTE Academic Standards Resources](#) (Rubrics, integration strategies, etc)

[CDE Colorado Academic Standards Online](#) (Online standards lookup tool)

Note: Mathematics and Science standards will be added in the future. Visit the [Colorado Academic Standards](#) page for the most current version.

Reading, Writing and Communicating Crosswalk

Course: Technical Theatre

Colorado Academic Standards – Reading, Writing and Communicating

Standard	Prepared Graduate Competency	Description	Course Evidence / Alignment
Standard 1: Oral Expression and Listening	Prepared Graduate 1 – Collaboration	Collaborate effectively as group members or leaders who listen actively and respectfully; pose thoughtful questions, acknowledge the ideas of others; and contribute ideas to further the group's attainment of an objective.	Students collaborate in production crews, follow verbal cues and directions during rehearsals and performances, participate in critiques, and contribute ideas to support theatrical productions.
Standard 1: Oral Expression and Listening	Prepared Graduate 2 – Oral Presentations	Deliver effective oral presentations for varied audiences and varied purposes.	Students present design concepts, production plans, and technical solutions related to lighting, sound, set, costumes, and stage management.
Standard 2: Reading for All Purposes	Prepared Graduate 4 – Informational Texts	Read a wide range of informational texts to build knowledge and to better understand the human experience.	Students read and apply informational texts such as scripts, cue sheets, technical

			drawings, safety guidelines, production schedules, and equipment manuals.
Standard 2: Reading for All Purposes	Prepared Graduate 5 – Language in Context	Understand how language functions in different contexts, command a variety of word-learning strategies to assist comprehension, and make effective choices for meaning or style when writing and speaking.	Students use appropriate theatre and technical vocabulary and adapt language for production meetings, written documentation, and backstage communication.
Standard 3: Writing and Composition	Prepared Graduate 7 – Informational Writing	Craft informational/explanatory texts using techniques specific to the genre.	Students write production notes, cue sheets, design documentation, reflections, and explanations of technical theatre processes and decisions.
Standard 3: Writing and Composition	Prepared Graduate 9 – Writing Process	Demonstrate mastery of their own writing process with clear, coherent, and error-free polished products.	Students revise written documentation and production materials and refine technical work to produce clear, accurate, and performance-ready outputs.
Standard 4: Research Inquiry and Design	Prepared Graduate 10 – Research and Ethics	Gather information from a variety of sources; analyze and evaluate its quality and relevance; and use it ethically to answer complex questions.	Students research theatrical styles, production techniques, and historical contexts; evaluate sources; and apply ethical practices including safety, copyright, and IP awareness.

Free Resource Links

1. Career Exploration and Postsecondary Opportunities

- My Next Move (technical theatre careers, job duties, education pathways)
<https://www.mynextmove.org/>
- CareerOneStop – Theatre and Stage Technicians (certifications, training, career exploration)
<https://www.careeronestop.org/>
- USITT (United States Institute for Theatre Technology) (technical theatre careers, professional organizations, industry standards)
<https://www.usitt.org/>
- Entertainment Technician Certification Program (ETCP) (industry certifications, professional expectations)
<https://etcp.usaentertainmenttechnicians.org/>

2. Safety, Professional Practice and Crew Responsibilities

- USITT Safety Resources (theatre safety standards, PPE, best practices)
<https://www.usitt.org/safety>
- OSHA – Entertainment Industry Safety (workplace safety, hazard prevention)
<https://www.osha.gov/entertainment>
- Theatre Safety Blog (scene shop safety, backstage procedures)
<https://theatersafetyblog.com/>
- Stage Directions – Theatre Safety (crew responsibilities, professional conduct)
<https://www.stage-directions.com/>

3. Introduction to Set Design and Scenic Construction

- USITT Scenic Design Resources (set design concepts, technical drawings, construction)
<https://www.usitt.org/>
- Drama Notebook – Scenic Design (basic set design, props, painting techniques)
<https://www.dramanotebook.com/>
- Instructables – Theatre and Set Building (construction techniques, tools, materials)
<https://www.instructables.com/>
- Stagecraft Fundamentals (scenic construction basics, materials, safety)
<https://www.stagecraftfundamentals.com/>

4. Introduction to Lighting Design and Systems

- Stage Lighting Basics (lighting plots, fixture types, focusing and color)
<https://www.stagelightingbasics.com/>
- ETC Education Resources (lighting design, control consoles, theatrical lighting systems)
<https://www.etcconnect.com/Education/>

- USITT Lighting Design Resources (lighting principles, storytelling, safety)
<https://www.usitt.org/>
- Drama Notebook – Lighting Design (introductory lighting concepts and techniques)
<https://www.dramanotebook.com/>

5. Introduction to Sound Design and Audio Systems

- Shure Audio Institute (microphones, signal flow, sound systems for theatre)
<https://www.shure.com/en-US/shure-audio-institute>
- Sweetwater InSync – Live Sound (theatrical audio equipment, patching, sound quality)
<https://www.sweetwater.com/insync/>
- Stage Sound Basics (theatre sound design, microphones, speakers)
<https://www.stagesound.com/>
- USITT Sound Design Resources (theatrical sound systems, best practices)
<https://www.usitt.org/>

6. Collaboration and Production Workflow

- Stage Management Guide (collaboration, rehearsal workflow, communication)
<https://www.stagemanagement.net/>
- USITT Production Resources (department coordination, technical rehearsals)
<https://www.usitt.org/>
- Drama Notebook – Collaboration in Theatre (teamwork, rehearsal practices)
<https://www.dramanotebook.com/>
- Backstage – Theatre Production Teamwork (crew interaction, production workflow)
<https://www.backstage.com/magazine/>

7. PostProduction, Strike and Asset Management

- USITT Strike and Load-Out Resources (safe strike procedures, equipment storage)
<https://www.usitt.org/>
- Stage Directions – Theatre Operations (equipment maintenance, storage practices)
<https://www.stage-directions.com/>
- Theatre Green Book (sustainable practices, reuse and disposal of scenic materials)
<https://theatregreenbook.com/>
- Drama Notebook – Backstage Management (inventory, organization, post-production practices)
<https://www.dramanotebook.com/>

8. Portfolio Development

- Google Sites (digital portfolio creation, documentation, presentation)
<https://sites.google.com/>
- Adobe Portfolio (portfolio creation, project presentation)
<https://portfolio.adobe.com/>

- Behance (creative portfolios, theatre design examples)
<https://www.behance.net/>
- Canva Design School (portfolio layout, visual storytelling)
<https://www.canva.com/learn/>

9. Leadership

- MindTools – Leadership Skills (communication, teamwork, responsibility)
<https://www.mindtools.com/>
- SkillsYouNeed – Leadership (collaboration, interpersonal communication)
<https://www.skillsyouneed.com/leadership/>
- Edutopia – Student Leadership (teamwork, project collaboration)
<https://www.edutopia.org/topic/student-leadership>
- PBS LearningMedia – Workplace Skills (communication, teamwork, problem-solving)
<https://www.pbslearningmedia.org/>

10. Work-Based Learning

- CareerOneStop (career readiness, workplace skills, industry expectations)
<https://www.careeronestop.org/>
- Advance CTE – Work-Based Learning Toolkit (industry connections, career preparation)
<https://careertech.org/work-based-learning>
- NACE Career Readiness Competencies (employability skills, workplace expectations)
<https://www.naceweb.org/career-readiness/competencies/>
- USITT (technical theatre careers, industry pathways, professional development)
<https://www.usitt.org/>

11. Final Assessment Project

- Stagecraft Fundamentals (technical theatre projects, construction, lighting, sound)
<https://www.stagecraftfundamentals.com/>
- ETC Education Resources (lighting systems, design projects)
<https://www.etcconnect.com/Education/>
- Shure Audio Institute (audio systems, technical theatre sound)
<https://www.shure.com/en-US/shure-audio-institute>
- TED-Ed Student Talks (presentation skills, explaining technical work)
https://ed.ted.com/student_talks



Technology Student Association – National Competitive Events

Animatronics

Objective: Students will design, construct, control, document, and present an animatronic device that meets TSA requirements for movement, control technology, lights, sound, sensors, and mechanical systems.

- Research the annual TSA Animatronics theme and develop an original animatronic concept.
- Design an animatronic device that integrates scenic design, structure, movement, lighting, sound, and presentation elements.
- Construct an exterior shell, skin, scenic element, or prop surface that can be removed to show internal components to judges.
- Incorporate multiple movements using mechanisms such as linkages, gearing, cabling, fluid power, or related systems.
- Integrate control technology, sensors, lights, sound, motors, or electronic components into the animatronic model.
- Test and troubleshoot the device for reliable operation, safe power use, appropriate movement, and presentation readiness.
- Present the animatronic device and explain the design process, internal components, control system, scenic choices, and final performance.

Resources

- Technology Student Association – Animatronics competition guidelines
<https://tsaweb.org/competitions-programs/tsa/themes-problems>
- Arduino Education – Sensors, lights, and control systems
<https://www.arduino.cc/education>
- Adafruit Learning System – Electronics, LEDs, sensors, and microcontrollers
<https://learn.adafruit.com/>
- Instructables Circuits – Electronics and animatronics project examples
<https://www.instructables.com/circuits/>



Technology Student Association – National Competitive Events

Structural Design and Engineering

Objective: Students will design, build, test, document, and explain a structure that meets TSA Structural Design and Engineering requirements for construction quality, performance, safety, and engineering communication.

- Research the annual TSA Structural Design and Engineering challenge and identify the required structure, materials, constraints, and scoring criteria.
- Use technical drawings, sketches, measurements, or construction plans to guide the design and build process.
- Select and prepare materials using safe construction practices, proper tools, and appropriate personal protective equipment.
- Construct a structure that demonstrates accuracy, stability, craftsmanship, and attention to design constraints.
- Test and revise the structure to improve performance, reliability, and compliance with TSA specifications.
- Document the design process, construction methods, materials, testing results, revisions, and final solution.
- Present the structure to judges and explain design decisions, construction choices, testing results, and safety considerations.

Resources

- Technology Student Association – Structural Design and Engineering competition guidelines
<https://tsaweb.org/competitions-programs/tsa/themes-problems>
- TeachEngineering – Structural engineering design resources
<https://www.teachengineering.org/>
- Science Buddies – Engineering Design Process
<https://www.sciencebuddies.org/science-fair-projects/engineering-design-process/engineering-design-process-steps>
- OSHA – Young Worker Safety and Health
<https://www.osha.gov/young-workers>



Technology Student Association – National Competitive Events

Music Production

Objective: *Students will compose, record, edit, mix, document, and present an original music production that meets TSA Music Production requirements for creativity, technical quality, copyright compliance, and presentation.*

- Research the annual TSA Music Production theme and develop an original musical or sound concept that responds to the challenge.
- Plan the production by identifying the intended mood, structure, instrumentation, sound effects, audience, and technical requirements.
- Set up and use appropriate microphones, speakers, recording devices, software, and audio equipment for the production.
- Create or record original musical and sound elements using live audio sources, MIDI, software instruments, loops, or digital audio tools.
- Edit and mix the production using volume balancing, panning, EQ, compression, reverb, delay, fades, and other sound-design techniques.
- Export the finished production in the required format and document software, hardware, assets, permissions, and revisions.
- Present the final music production to judges and explain the creative intent, technical process, sound choices, and response to the annual theme.

Resources

- Technology Student Association – Music Production competition guidelines
<https://tsaweb.org/competitions-programs/tsa/themes-problems>
- BandLab for Education – Browser-based music production tools
<https://edu.bandlab.com/>
- Soundtrap for Education – Online music and audio production
<https://www.soundtrap.com/edu/>
- Audacity – Free audio recording and editing software
<https://www.audacityteam.org/>