Course Title:	Audio Technology II
Department:	Career Technical Education
Course #:	7947
Grade/s:	10 - 12
Course Length:	Year
Prerequisite/s:	Successful completion of Audio Technology I
UC/CSU A-G Req:	F (Pending)

Brief Course Description: The Audio Technology II course will focus on the aesthetic qualities of sound production in both the recording studio and live entertainment environments. Students will show creative expression and develop ideas individually and within groups, write compositions, proposals, budgets as well as design and deploy the layout of commercial grade sound reinforcement systems. Students will study the impact audio and sound production has on our society from a social, economic and political viewpoint. Study and training in the Audio Technology II course will prepare students for careers in music engineering and production, post-production for film and television and live sound-mixing for theater and concerts. This course is the concentrator course for the Audio Technology Pathway.

I. GOALS

The students will:
A. Originate, develop, research and implement an idea for a media product

B. Develop and deliver a media product

C. Design and deploy a commercial audio system

D. Manage production processes and timelines

E. Prepare and manage an operating and production budget

F. Develop a product that generates revenue

G. Understand legal obligations of a production business including copyright, image releases and location film permits

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II. OUTLINE OF CONTENT FOR MAJOR AREAS OF STUDY

Unit 1. Back to Basics
1. Review the basic principles and practices of Audio I and current industry trends.
2. Review historical, cultural and economic significance of audio technology in the various industries it affects.
3. Analyze and differentiate the tonal and sonic characteristics of sounds as it relates to musical instruments.
4. Identify proper balance of frequencies and understand the principles of tuning a sound system.

   Anchor Standards: 1.0, 2.4
   Pathway Standards: A3.1, B2.5, B8.1, C2.1
   California Standards: LS9-10, 11-12.6

Unit 2. Workplace Safety and Equipment Management
1. Understand and practice the guidelines of Personal Protective Equipment (PPE).
2. Learn to identify workplace hazards.
3. Learn to properly care for and maintain industry related equipment.
4. Understand personal limitations related to the work environment (i.e. lifting, pushing, pulling and climbing).
5. Understand, identify and properly test various electrical connections.

   Anchor Standards: 2.6, 5.0, 6.0
   Pathway Standards: C1.1, C1.2, C1.3
   California Standards: WS11-12.7, RSTS 9-10, 11-12.4

Unit 3. Exploring Audio Software Tools
1. Discover the capabilities and limitations of several Industry Standard recording applications (i.e. Pro Tools, Logic, Reason, Garage Band, Live and FL Studio).
2. Explore many of the available third party extensions and/or plugins compatible with the recording applications (i.e. Waves, Izotope).
3. Determine software compatibility between MacOS, Windows and Linux based operating systems.

   Anchor Standards: 4.0, 5.0
   Pathway Standards: C5.0
   California Standards: WS11-12.7

Unit 4. The Recording Production Process
1. Understand the various facets involved in the recording production process.
2. Identify different peripherals such as mixing consoles, control surfaces and channel strips.
3. Develop a project timeline incorporating deadlines, client needs, corrections and delivery.
4. Maximize recording quality to prepare for postproduction and editing processes.

   Anchor Standards: 7.3, 9.1, 9.2, 9.3, 10.1, 10.4
   Pathway Standards: C5.2, C6.1
   California Standards: SLS11-12.1, WS11-12.6

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Unit 5. Broadcast and Field Audio
1. Explore and operate audio equipment specific for television broadcast.
2. Understand microphones specific to athletic events, news broadcasts and remote location shoots.
3. Understand the legal requirements and guidelines for operating wireless audio technology aligned to the Federal Communications Commission.
4. Work in collaboration within the Video Production program to create commercial quality productions in the field or remote environment.

   Anchor Standards: 2.0, 2.1, 2.1, 2.3, 2.4, 2.5, 2.6, 4.0, 4.1, 4.3, 5.1, 5.2, 5.3
   Pathway Standards: C5.0, C5.2, C6.1
   California Standards: LS9-10, 11-12.6, WS11-12.7

Unit 6. Live Interview and Podcasts/Webcasts
1. Explore and assimilate the principles of a radio style interview intended for reproduction.
2. Understand the importance of segment timing, editing, arranging and maximizing dynamic output.
3. Finalize productions with nonlinear editing and prepare productions for uploads to a remote access server.

   Anchor Standards: 2.0, 2.1, 2.1, 2.3, 2.4, 2.5, 2.6, 4.0, 4.1, 4.3, 5.1, 5.2, 5.3
   Pathway Standards: C5.0, C5.2, C6.1, C6.5, C7.0, C7.4, C7.6
   California Standards: LS9-10, 11-12.6, WS11-12.7

Unit 7. Digital and Networked Audio Systems
1. Identify analog versus digital signal paths and transmission.
2. Identify various digital signal protocol (i.e. AES50, Dante, AVB, CobraNet, and MADI technologies).
3. Properly perform interconnectivity between system components.
4. Monitor workloads and signal connectivity.

   Anchor Standards: 4.0, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 5.3, 7.5, 10.0, 10.1, 10.4
   Pathway Standards: C2.3, C5.0, C7.6
   California Standards: WS11-12.6

Unit 8. Live Sound Reinforcement and Recording
1. Explore and assimilate the principles of engineering a multichannel live recording and concert mix.
2. Learn proper microphone placement.
3. Properly connect a mobile concert sound system.
4. Effectively communicate with a production team.
5. Identify proper balance of frequencies and understand the principles of tuning a sound system.
6. Maximize recording quality to prepare for postproduction and editing processes.

   Anchor Standards: 2.0, 4.0, 5.0, 6.0, 7.0, 7.2, 7.3, 7.4, 7.5, 7.7
   Pathway Standards: C1.0, C1.1, C1.2, C1.3, C1.4, C5.0, C5.2
   California Standards: LS9-10, 11-12.6, WS11-12.7, RSTS9-10, 11-12.4, SLS11-12.1

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Unit 9. Sound Mixing for Film, TV, Animation
1. Create a collaborative project with a peer program (i.e. video production, game design and graphic design).
2. Explore the process and assimilate the creation of a musical composition.
3. Determine the need and apply Foley art and musical scoring while considering the personal musical capability of the individual.
4. Create a storyboard and workflow that is appropriate for the proposed project.

    Anchor Standards: 2.0, 2.3, 2.4, 4.1, 4.2, 4.3, 4.4, 7.0, 7.2, 7.3, 7.4, 7.5, 7.7, 8.1, 8.4, 8.6, 9.0, 10.0, 10.3, 11.0, 11.4
    Pathway Standards: B5.4, B5.5, B5.6, B6.0, B6.1, B6.4, B6.6, B9.0, B9.2, C2.0, C2.1, C2.2, C2.3, C4.0, C4.1, C4.2, C4.3, C4.4
    California Standards: SLS9-10, 11-12.1, WS 11-12.6

Unit 10. Effects, Mixing & Mastering
1. Produce and engineer a collection of songs and create an album.
2. Capture and produce audio in applicable sampling rate and bit depth.
3. Effectively apply proper studio management skills, collaboration techniques, media management and recording techniques.
4. Eliminate noise, clean mix, apply dynamic control and proper use of effects to fill mix.

    Anchor Standards: 2.0, 2.3, 2.4, 4.1, 4.2, 4.3, 4.4, 7.0, 7.2, 7.3, 7.4, 7.5, 7.7, 8.1, 8.4, 8.6, 9.0, 10.0, 10.3, 11.0, 11.4
    Pathway Standards: B5.4, B5.5, B5.6, B6.0, B6.1, B6.4, B6.6, B9.0, B9.2, C2.0, C2.1, C2.2, C2.3, C4.0, C4.1, C4.2, C4.3, C4.4
    California Standards: SLS9-10, 11-12.1, WS 11-12.6

Unit 11. Prepare Files for Distribution
1. Examine various types of media sources (i.e. CD, DVD, Vinyl, Flash Drives, SD Cards and Digital Outlets)
2. Explore the standard type of file codecs (i.e. AIFF, WAV, AAC and MP3).
3. Discover distribution outlets via the Internet. (i.e. Sound Cloud, iTunes, Amazon and CD Baby).
4. Understand the appropriate copyright process to protect intellectual rights, property and protect the rights of others.

    Anchor Standards: 8.0, 8.1, 8.2, 8.6, 8.7, 10.0, 10.1, 10.2, 10.3, 11.0, 11.1,
    Pathway Standards: C7.1, C7.3, C7.6
    California Standards: SLS11-12.1

Unit 12. Exploring careers in Audio Production
1. Research job duties and descriptions in the field of live, studio and installation sound labor markets.
2. Explore labor market data to make informed decisions regarding potential employment.
3. Research "Cost of Living" and "Expected Wages" in the areas surrounding the desired labor market.

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    4. Understand the difference between union vs. non-union production houses.

        Anchor Standards: 3.3, 3.4, 3.6,
        Pathway Standards: C3.1, C4.1, C4.2, C4.3, C4.4
        California Standards: SLS11-12.2

Unit 13. Creating a Home Studio
1. Research and explore acoustical room treatments to optimize the recording space.
2. Research and explore various electronic solutions for various studio environments.
3. Develop a clientele to monetize studio investment.

        Anchor Standards: 4.3, 4.5, 5.0, 5.1, 5.2, 5.3, 5.4
        Pathway Standards: C1.2, C1.3, C4.4, C5.0,
        California Standards: WS11-12.7

Unit 14. Course Critique and Wrap Up
1. Explore post-secondary options focusing on further education and employment.
2. Discuss basic principles of starting a small business.
3. Develop a career plan and personal portfolio.

        Anchor Standards: 3.1 3.2 3.4 3.6 3.7 3.9 9.4 11.3 11.4 11.5
        Pathway Standards: A4.4, A4.5, C7.2
        California Standards: SLS11-12.2

III. ACCOUNTABILITY DETERMINANTS

    A. Key Assignments
        1. The Basics - Students will be presented with three distinctly different genres of music and will be asked to critically and analytically listen to and differentiate between voices and instruments. Students will list specific instruments and sonic character of the voices. Students will complete a presentation of their analysis.

        2. Safety Training and Investigation - Students will complete a workplace safety unit and a safety checklist. Students will successfully pass the approved safety test with a score of 100%.

        3. Exploring the tools – Students will complete a research project on the capabilities and limitations of five DAW (Digital Audio Workstation) applications of their choice. Students will complete a presentation and be evaluated based on a predetermined presentation rubric.

        4. The Basic Recording Process - As a result of their training, students will create a 1 minute vocal narration titled "About Myself". Students will plan and create a story board to record a final product. Students will write and record their script into a single track of a DAW. The final product will be assessed on the following factors: no distortion, clarity of communication (speaking with diction), proper microphone placement and maximization of signal output.

5. Broadcast and Field Audio – Students will select from a series of real-life events and will be evaluated on following criteria: Part 1: setup and proper use of parabolic disc, microphones, cable use, field mixer and wireless transmission. Part 2: setup and proper use of wireless receiver, audio uplink to video/camera systems and audio signal management.

6. Live Interview Recording – Students will collaborate in a group to record a thirty-second Public Service Announcement (PSA) with a vocal talent. The recording must address the general student population and grading will be based on: the quality of techniques used, storyboard, vocal performance and directing. All final products will be assessed based on length of PSA, maximized output and exported to appropriate file codec.

7. Connecting the Digital Signal Path – Using the digital mixers available, students will be connect and program a digital snake head to a control surface. The process will be evaluated on the completion time and proper programming location.

8. Live Sound Mixing – Students will have five minutes to create a "mix" with live musicians. The technical demand of the students will include: line check, equalization, dynamics, routing and analyzing. Assessment will be based on a predetermined rubric.

9. Audio for a Promotional Film - Students will produce audio for a promotional school film. The audio will include the effective use of Foley art and original musical compositions. This project will be completed in collaboration with another interdisciplinary group (i.e., video production, graphic design or game design).

10. Creating a Compilation Disc – Students will partner with an outside "Client" to develop an album or compilation disc of music or children's short stories. A rubric will be used to assessment mastery of the product.

11. Media Distribution – Students will create an account on a media sharing website (i.e., SoundCloud.com or Youtube.com). Students will upload the proper file type to meet the technical requirements of said website. Students will share their page with the instructor for assessment upon successful completion.

12. Labor Market Research – Students will research the current labor market as it pertains to the various facets of the Audio Industry with the projected market growth or decline. The research results will be presented in class and be evaluated based on a predetermined rubric.

13. Create a Small Business Studio - Students will be provided a practical budget/loan to outfit a small recording studio with appropriate equipment to fit the related business scenario. The budget must include: equipment, supplies, local sales tax, shipping and installation costs.

14. Career Readiness - Students will generate a cover letter, resume and follow-up letter as part of a job application packet. Students will participate in a mock interview with the instructor, other staff or industry related partners. Students will be provided feedback based on an interview rubric to further prepare for potential positions in the audio, film and video industry.

B. Assessment Methods
   1. Skill mastery and quality of work
   2. Classwork/homework
   3. Performance tasks
   4. Projects
   5. Presentations
   6. Quizzes
   7. Response questions
   8. Multiple choice tests
   9. End of unit exams
   10. Semester final exams

IV. INSTRUCTIONAL MATERIALS AND METHODOLOGIES

A. Required Textbook(s):
   None

B. Supplementary Materials
   1. Equipment:
      a. iMac I/Mac Pro computers
      b. Commercial grade mixing consoles
      c. Amplifiers
      d. Speakers
      e. Microphones
      f. Digital audio recorders
      g. Digital storage devices
      h. Streaming device

   2. Software
      a. Reason
      b. Pro Tools
      c. Logic Pro X
      d. GarageBand
      e. Third Party Plugins

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    C. Instructional Methodologies
1. Teacher lectures/direct instruction
2. Class discussions
3. Cooperative learning
4. Guided Inquiry
5. Simulation activities
6. Collaborative peer review
7. Teacher and student lead inquiry
8. Group projects/presentations