

CAPE MAY COUNTY TECHNICAL SCHOOL DISTRICT
MUSIC ARTS TECHNOLOGY, I, II, III
OUTLINE

- ☒ 1.6.3. Content Outline: below
 - I. Occupational Music-Technology Workshop Classes
 - A. Recording Arts
 - 1. Recording and Mixing Consoles
 - a. Students will learn the functions of the recording console: gain/trim; EQ; auxiliary send/return; panning; bussing; insert points; phantom power; fader; automation; db.
 - b. Students will learn how to set up a headphone/cue mix for the artists, and a control-room mix for the near-field and main monitor system (playback speakers).
 - c. At the end of the course, the students will know how to make music on any recording console, and audio signal flow will become second nature.
 - 2. Microphones – These lessons will have both lecture/textbook information, and hands-on workshop practice.
 - a. Students will learn about the different kinds of microphones: Condenser, Dynamic, and Ribbon.
 - b. Characteristics of each microphone (a scientific breakdown on how they work) and which ones to use in certain situations (which one to use on different instruments, and which ones to use in a live sound situation).
 - c. Students will learn the industry standard microphone brands for both recording and live sound applications.
 - d. Microphone placement will be discussed—microphone placement is where a microphone should be situated/placed in front of an instrument/person for best results.
 - 3. Analog and Digital Multi-Track Recording –Digidesign Pro Tools, Digital Modular multi-track machines, and Analog Multi-track machines. All three of these recording mediums will be available to use in the classroom, and all terminology learned from textbooks/lectures will be put to use in hand-on demonstrations.
 - a. Students will learn the difference between analog and digital recording with emphasis on the industry standard recording system, Digidesign Pro Tools. Pro Tools is a computer-run (software program) recording system that uses elements of both the analog and digital world.
 - b. Students will learn about digital modular multi-track machines (using a tape medium), and
 - c. analog multi-track machines (using open-reel magnetic tape).

4. Equalization and Signal Processing
 - a. Students will learn the audio frequency spectrum (20hz – 20,000hz) and where certain instruments/voices sit within this spectrum. Problematic frequencies will also be studied for many different situations: to eliminate feedback, and to enhance or cut a certain sound quality from a recorded sound.
 - b. Three types of EQ (equalization) will be used: Graphic EQ; Parametric EQ; and Comb Filtering. All three types are invaluable to the recording/live sound process.
 - c. Signal processing would include all types of special effects including: Reverb; Delay; Chorus; Flangers; Noise Reduction; Noise Gating; and compression. The students will know how/when to use these effects – an emphasis will be placed on how to set the parameters on all effects for the greatest understanding of the sound/effects they produce.
 5. Procedures of a Recording Session
(running a recording session in the studio)
An emphasis will be placed on Behavioral Science – how to talk to/handle musicians in the studio environment, and how to multi-task to make the most of the client’s time (remembering that time is money in the professional recording studio).
 - a. Students will learn the necessary steps/procedures in a recording session, including: zero-ing out the recording console; formatting any/all multi-track equipment being used for the session; setting up the studio with the required microphones and listing set-up on a set-up sheet; setting up a headphone or cue mix for the artists; recording the basic tracks first, then the overdubs or sweetening tracks; configuring/adjusting the recording console (or computer) for mix-down of tracks; post mix-down editing and final track selection, as well as any final corrective equalization or processing (Normalizing) – called the Mastering Process.
- B. Live Sound Reinforcement/P.A. System Design
1. Live Sound Mixing Consoles
 - a. Students will be introduced to the monitor console designed just for the stage monitor system and the artists individual hearing needs for the event.
 - b. Students will learn the terminology involved in console design/operation:
 - (1) Gain/trim
 - (2) EQ
 - (3) Insert points
 - (4) Auxiliary sends/returns
 - (5) Panning
 - (6) Bussing
 - (7) Faders

- (8) Unity gain
 - (9) Pre/post fader send
 - (10) Phantom power
 - (11) 2 track/tape in/out
 - (12) F-O-H (front-of-house) mix
 - (13) Monitor mix
 - (14) Mains, etc.
2. Power Amplifier and Loudspeaker Design/Selection
- a. Power amplifier wattage will be discussed, as well as Ohms requirements on both the loudspeakers and power amplifiers – knowing how to set up a balanced system in terms of power requirements.
 - b. Students will understand what a crossover does, and how to set one in the realm of a live sound system.
3. Microphones and Accessories
- a. Students will learn about the different kinds of microphones:
 - (1) Condenser
 - (2) Dynamic
 - (3) Ribbon
 - b. Students will know the characteristics of each microphone (a scientific breakdown on how they work) as well as which ones to use in situations (which ones to use on different instruments, and which ones to use in a live sound situation).
 - (1) Students will learn the industry standard microphone brands for both recording and live sound applications.
 - (2) Microphone placement will also be discussed - microphone placement is where a microphone should be situated/placed in front of an instrument/person for best results.
 - (3) These lessons will have both lecture/textbook information and hands-on workshop practice.
 - c. Students will learn about the other important accessories in a live sound situation:
 - (1) A snake (input box for microphone cables)
 - (2) Microphone stands (including boom, straight and claw)
 - (3) Cables/connectors (including XLR, 1/4", MIDI)
 - (4) Direct Boxes (converts an unbalanced signal to a balanced signal –for better quality and no noise)
 - (5) Soldering gun (students will learn to build/repair any cables they are using)
 - (6) Duct tape (an all-purpose, problem-solving miracle)
 - (7) Gaffer's tape (important for using on expensive electrical items –like the console)
 - (8) Flashlight/other assorted tools (students will learn what important tools to have with them in anticipation of problems – they will design their own kit, complete with all the essential items).

4. Stage Design/Set-up – Introduction to Lighting Systems
 - a. Students will learn where to set up certain instruments and vocalists in a stage/concert, theater, or business/lecture situation.
 - (1) They will also learn how to set up the monitor system for best results (and minimum feedback problems).
 - b. An Introduction to Light Systems will be taught.
 - (1) This information will apply to both the stage/concert, and live theater situation.

II. Academic/Creative Music Studies

(Music Theory; Instrument Study; Music History/Appreciation; Rock and Roll in American Culture)

A. Math & English Departments play a big part in the writing of music. Song lyrics are usually very poetic.

1. The English department teaches this to our students already:
 - a. Poems follow meter (beats-per-measure)
 - b. A music lesson could be tied in with the English Department when it comes time for the students to “marry” their musical writings with works/language.
2. Fundamental math skills are needed:
 - a. You must know how to count in order to read the timing/note values of music.

B. Music Theory

1. Students will learn how to read and write music. Some musical techniques learned would be:
 - a. The elements/steps of the scale
 - (1) Tonic
 - (2) Supertonic
 - (3) Mediant
 - (4) Subdominant
 - (5) Dominant
 - (6) Sub-mediante
 - (7) Leading Tone
 - (7) Octave/Tonic
 - b. They will know these intervals and how to form Triads using this information.
2. Students will learn all of the scales and how many Sharps (#) or Flats (b) naturally occur within these scales/keys. They would include:
 - a. C; G (1#); D (2#s); A (3#s); E (4#s); B (5#s); F# 6#S; c# (7#S); F (1B); Bb (2b); Eb (3b); Ab (4b); Db (5b); Gb (6b); Cb (7b) – this information is part of the “Circle of Fifths.”
 - b. They will know how to write this information on a music staff.
3. Students will learn about time signature, tempo, and dynamics – how to both read and write these markings on paper, and how to count out the timing as they read.
 - a. They will also learn to apply this information to any instrument they already play, or wish to learn.

4. There will be much written practice of all above-mentioned information, as well as “oral testing.”
 - a. They should be able to define note intervals by ear, as well as identify note values/timing (meter).
- C. Instrument Study
1. Students will learn key elements of the Guitar, Piano and Voice; instruction will be at each student’s individual pace.
 - a. Information from the Music Theory class would be put to use in this class.
 - b. Performance grades should show the student’s ability to read music and perform it on their instrument at their capable level.
 - c. Ideally, the class would be taught in a group manner:
 - (1) Group guitar lessons
 - (2) Group piano introduction and
 - (3) Group singing.
 2. Testing would occur after each lesson is completed, on each instrument.
 3. Individual study of the instrument of choice would apply after each lesson is completed, with the teacher to guide them on an individual basis.
- D. Music History/Appreciation
1. Students will be taken on a “Listening Tour” through the generations.
 - a. The class would start with examples of music from the Renaissance period, then to through the Baroque, Classical and 19th Century Romantic periods
 - (1) Examples of each music period would be played
 - (2) Elements from these periods would be studied, and
 - (3) An overview of the history at the time would be brought into the lesson plans.
 - (4) Once the lessons progress into the 20th century, the breakdown of musical styles will be studied.
 2. Listening Tour Through The Generations
 - a. Examples of music from the Renaissance Period
 - (1) Baroque
 - (2) Classical
 - (3) Nineteenth Century Romantic periods
 - b. Twentieth Century musical styles
 - (1) Jazz
 - (2) Blues
 - (3) Rhythm and Blues
 - (4) Contemporary:
 - (a) Broadway Show Tunes
 - (b) Middle-of-the Road Pop
 - (c) Rock and Roll
 3. Listening examples will be provided for all of these listed musical styles and characteristic breakdown.
 4. History of the times will coincide with the musical examples.

- E. Rock and Roll in American Culture
1. Students will study the beginnings of Rock and Roll, and how the story of our country can be told within this musical genre.
 2. Key historical events will coincide with the lesson plans – the state of the country will be analyzed from within the music of the times. Example: war-time/protest music.
 - a. Listening examples will be provided along with guest lecturers and textbook readings/classroom lecture.
 - b. Psychology/Sociology teachings from other classes at CMCTSD will solidify/supplement the lessons of this course.
 3. Rock and Roll in American Culture is not just a look at the development of this musical genre, but a look at our society (and history) as well.