## COURSE OUTLINE

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMN 253</td>
<td>Digital Audio Production II</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class or Laboratory</th>
<th>Clinical or Studio Practicum, Co-op, Internship</th>
<th>Course Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>15 week</td>
<td>(15 week, 10 week, etc.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lecture Work Hours</th>
<th>Work Hours</th>
<th>Co-op, Internship (15 week, 10 week, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>15 week</td>
<td>(15 week, 10 week, etc.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance on an Examination/Demonstration</th>
<th>Alternate Delivery Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Placement Score (if applicable); minimum CLEP score)</td>
<td>(Online, Telecourse [give title of videos])</td>
</tr>
</tbody>
</table>

---

**An Introduction to Music Technology.**
By: Daniel W. Hosken (Author),
Publisher: Routledge,
ISBN: 0415997291
Release Date: July 1, 2010

Protools 101
Course Technology PTR
ISBN 10: 143545880X
Release Date: January 3, 2011

**Equipment**
- Professional grade Stereo Headphone. *(AKG, Sennheiser, Audio-Technica)*
  Example: AKG K240S Stereo Studio Headphones
- Minimum 8 Gig USB Drive

**Catalog Description:**
This course focuses on multitrack recording techniques using state of the art Digital Audio Workstations. Topics include mastering techniques, digital signal processing, auto-tune, session management, techniques for real-time and processed audio plug-ins including reverb, delay, sampling, automation, MIDI sequencing, and virtual instruments. etc. Students will produce multilayered recordings using live talent in a studio environment.

*2 lecture/2 Lab hours*

**Prerequisites:**
ENG 101 Placement, ETT102 and CMN153 or Program Coordinator Permission

**Corequisites:**
None

**Last Revised:** Spring 2017

**Course Coordinator:** Scott Hornick, Assistant Professor of Music – CM149
(609) 570-3716; hornicks@mccc.edu
Available Resources:

Digital Audio


Electronic Engineering


Film Sound


Loudspeakers


Microphones


Vear, Tim, Rick Waller and John Boudreau *Microphone Techniques for Live Sound Reinforcement* (Shure Publications, Niles, IL, 2006).

Pro Audio, General


SUGGESTED PERIODICALS

- **Electronic Musician**, Intertec Publishing, 6400 Hollis Street, Ste. 12, Emeryville, CA 94608
- **Entertainment Design**, formerly TCI and Theatre Crafts, Intertec Publishing, 32 West 18th Street, New York, NY 10011-4612
- **EQ!**, Miller-Freeman PSN, Inc., 460 Park Avenue South, 9th Floor, New York, NY 10016
- **Lighting Dimensions**, Intertec Publishing, 32 West 18th Street, New York, NY 10011-4612
- **Live Sound International**, HUGE Press, P.O. Box 577, Shawnee Mission, KS 66201
- **Mix**, Intertec Publishing, 6400 Hollis Street, Ste. 12, Emeryville, CA 94608
- **Pro Sound News**, Miller-Freeman PSN, Inc., 460 Park Avenue South, 9th Floor, New York, NY 10016

Course Goals.
Upon Successful Completion of the course, the student will be able to:

1. Create multi-layered, multi-track recordings using live talent on a Digital Audio Workstation. (GE Goal 4, MCCC Goals 4.1, 10.2, 10.3, 11.4)
2. Demonstrate conceptual and working knowledge of the basic principles of the Digital Audio Workstation through classroom discussion, written assignments, and audio laboratory exercises, and use appropriate technical and musical terminology in articulating these concepts; (GE Goals 1, 2, 4, MCCC Goals 1.1, 1.2, 1.3, 10.1-4, 11.1, 11.4)
3. Apply production techniques, technologies, and aesthetics related to the development of a compelling soundtrack using MIDI and virtual instruments. (GE Goals 1, 4, MCCC Goals 4.1, 11.4)
4. Use and apply editing and mixing techniques associated with Digital Audio Workstations. (GE Goal 4, MCCC Goals 4.1, 11.4)
5. Demonstrate the ability to work collaboratively with people from diverse backgrounds. (MCCC Goals 1.2, 1.3, 8.2.)

**General Education Knowledge Goals**

**Goal 1. Communication.** Students will communicate effectively in both speech and writing.
**Goal 2. Mathematics.** Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems.
**Goal 4. Technology.** Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.

**MCCC Core Skills**

**Institutional Learning Goal 1.**
**Written and Oral Communication in English:** Students will communicate effectively in both speech and writing.
1.1. Students will read, write, and/or speak critically in formal American English.
1.2. Students will generate messages suitable to the appropriate setting and purpose.
1.3. Students will analyze and assess nonverbal, cultural, and gender communication in both small group and public communication settings.

**Institutional Learning Goal 4.**
**Technology:** Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals.
4.1. Students will demonstrate proficiency with technological devices and applications in academic and professional settings.
4.2. Students will analyze the impact of emerging technologies on modern society.

**Institutional Learning Goal 8.**
**Diversity and Global Perspective:** Students will understand the importance of a global perspective and culturally diverse peoples.
8.1. Students will recognize how geographical, social, economic, and/or historical conditions shape cultural perspectives.
8.2. Students will examine the behaviors and beliefs of individuals and social groups within a diverse society.
8.3. Students will analyze the impact of globalization on the social, economic, and political structures of various nations and cultures.
Institutional Learning Goal 10.
Information Literacy: Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.
10.1. Students will identify resources needed and develop appropriate search strategies.
10.2. Students will recognize factors that affect credibility, quality, and relevance of information.
10.3. Students will use information in order to communicate it to the appropriate audience.
10.4. Students will use information ethically regarding privacy, security, and ownership with a focus on how on preventing plagiarism.

Institutional Learning Goal 11.
Critical Thinking: Students will use critical thinking skills understand, analyze, or apply information or solve problems.
11.1. Students will distinguish among opinions, facts, values, and inferences.
11.2. Students will identify and evaluate diverse perspectives and underlying considerations.
11.3. Students will make informed judgments by focusing on relevant logical and empirical issues.
11.4. Students will assess and solve problems by applying general and discipline-appropriate methods and standards.

Units of Study

I  The Digital Realm
The student will be able to:
1. Describe the advantages of recording and editing in the digital realm. (CG2)
2. Discuss the contributions of historical developments in sampling and sound editing, MIDI technology, computer I/O, and recording technology to today's Digital Audio Workstation. (CG2)
3. Describe the relationship between sample rate and frequency response in digital audio. (CG2)
4. Describe the relationship between bit depth and dynamic range in digital audio. (CG2)
5. Describe the main components of a Digital Audio Workstation. (CG2)

II  DIGITAL AUDIO WORKSTATION Basic Operations
The student will be able to:
1. Explain basic session file structure. (CG2)
2. Power up a Digital Audio. (CG4)
3. Navigate the Digital Audio Workstation menu system to locate common commands. (CG4)
4. Operate in the main Digital Audio Workstation windows. (CG4)
5. Use Edit tools and Edit modes. (CG2)
6. Work with Time Scales, Time-based Rulers, and MIDI Controls. (CG4)

III  Creating a Recording Session
The student will be able to:
1. Choose appropriate session parameters for a project. (CG4)
2. Create and name tracks. (CG4)
3. Navigate your session for playback and editing. (CG4)
4. Save, locate, and open sessions on available hard drives. (CG4)

IV  The Audio Recording
The student will be able to:
1. Set up hardware and software for recording audio. (CG2 & 4)
2. Record audio onto tracks in a session. (CG4)
3. Organize regions and audio files after recording to minimize clutter and optimize the session. (CG4)

V  Importing Media
The student will be able to:
1. Determine whether the bit depth, sample rate, and format of an audio file are compatible with a session. (CG2, 4)
2. Explain the functions of each part of the Import Audio dialog box. (CG2)
3. Import audio files to the Region List or to Audio tracks in the Edit window. (CG4)
4. Import video files to a Video track in the Edit window. (CG4)

VI The Midi Recording
The student will be able to:
1. Identify the two types of MIDI-compatible tracks that the Digital Audio Workstation provides. (CG2)
2. Describe the difference between sample-based operation and tick-based operation. (CG2)
3. Prepare a system to record MIDI data. (CG4)
4. Set up a virtual instrument to play MIDI data recorded on an Instrument track. (CG2, 3,4)
5. Create a soundtrack using midi and virtual instruments. (CG 1,3,4)

VII Recording and Creating a Virtual Orchestra or Ensemble using Midi and Virtual Instruments
The student will be able to:
1. In teams, collaboratively plan the project. (CG 2, 5)
2. As a team, develop the instrumentation. (CG, 2, 3, 4,5)
3. Create a multilayered session using a mix of the midi and virtual instrumentation. (CG, 1,2,3,4)
4. Create a Master Mix using the necessary plug-ins to shape the final sound. (CG2, 3, 4)
5. Create an audio CD of the final Product. (CG4)
6. Collaboratively evaluate the final product based on creativity and technical execution. (CG 2,5)

VIII Basic Editing Techniques
The student will be able to:
1. Describe the difference between Absolute Grid mode and Relative Grid mode. (CG2)
2. Configure the Grid and Nudge values to appropriate intervals for your session and work preferences. (CG4)
3. Use standard editing commands and Digital Audio Workstation-specific editing commands to modify your playlists. (CG4)
4. Understand the effects of Edit modes on moving and trimming operations. (CG2)
5. Create fade-in, fade-out, and crossfade effects. (CG4)

IX Basic Mixing Techniques
The student will be able to:
1. Configure Inserts and Sends to add external signal processing to your tracks. (CG4)
2. Configure the Sends view in the Mix window to display a single send across all tracks. (CG4)
3. Record and edit basic automation for your mix. (CG4)
4. Add plug-ins to your tracks for internal effects processing and sound shaping. CG4)

X Preparing for the Final Product
The student will be able to:
1. Describe the purpose of the Save Copy in command and recognize situations in which you should use it. (CG2)
2. Create a copy of your session for use on a different Digital Audio Workstation system. (CG4)
3. Create a mixdown of tracks in your session by bouncing to tracks or bouncing to disk. CG4)
4. Select appropriate options for your bounced files when bouncing to disk. (CG2,4)
5. Create an audio CD of your bounced files to share your results with others. (CG4)

XI Recording and Creating the Final Product using Live Talent
The student will be able to:
1. As a team, collaboratively plan the live talent recording session. (CG 2, 5)
2. As a team, record the live talent. (CG 1,2, 4,5)
3. Create a multilayered session using a mix of the live talent and virtual accompanying. (CG, 1,2,3,4)
4. Create a Master Mix using the necessary plug-ins to shape the final sound. (CG1, 2,4)
5. Create an audio CD of the final Product. (CG4)
6. Collaboratively evaluate the final product based on creativity and technical execution. (CG 2,5)

**Evaluation of Student Learning.**
Achievement of the course objectives will be evaluated through the use of the following tools:
- Informal writing in course journals, documenting the student’s reactions to course content, reflections on the various lectures, projects, and field trips, and thoughts on their own developing career interests. (CG2)
- A test assessing students’ comprehension of music technology and audio engineering terminology, and practices. (CG2)
- A group project to demonstrate the students’ ability to move from session planning to final production of a multilayered musical recording using live talent. (CG1, 3, 4 &5)
- A group project to demonstrate the students’ ability to move from session planning to final production of a multilayered musical recording using virtual instruments. (CG1, 3, 4 &5)
- A series of laboratories using various types of production software used for audio production. (CG 2, 4)

**Project Values/Grade Breakdown**

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid Term Exam</td>
<td>15%</td>
</tr>
<tr>
<td>Laboratory Assignments</td>
<td>25%</td>
</tr>
<tr>
<td>Multilayered musical recording using live talent</td>
<td>25%</td>
</tr>
<tr>
<td>Multilayered musical recording using virtual instruments</td>
<td>25%</td>
</tr>
<tr>
<td>Course Journals, Essays</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Important Health and Safety Information**
As an entertainment technology student you are involved in an industry that is dependent upon good hearing. Please protect yours! Tests have indicated that if you are rehearsing, recording, performing, listening to recorded music (especially through portable equipment) and/or attending gigs, concerts and nightclubs, it is very likely that you are experiencing daily sound levels well above those recommended for good aural health.

Damage to your hearing is not reversible. Avoid noisy environments as much as possible. Wear earplugs for your protection. Disposable earplugs are readily available or you can see an audiologist to have specialized hearing protection devices designed specifically for you.

**Students with Disabilities**
Any student in this class who has special needs because of a disability is entitled to receive accommodations. Eligible students at Mercer County Community College are assured services under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973.

If you believe you are eligible for services, please contact Arlene Stinson, the Director of Academic Support Services. Ms. Stinson’s office is LB221, and she can be reached at (609) 570-3525.
**Academic Integrity**

As per the student handbook, “A student will be guilty of violating academic integrity if he/she (a) knowingly represents the work of others as his/her own, (b) uses or obtains unauthorized assistance in the execution of academic work, or (c) gives fraudulent assistance to another student.” Students should read the Academic Integrity policy in the MCCC Rights and Responsibilities Student Handbook. *Academic Dishonesty will result in failure of this course.*

**Equal Opportunity Policy**

Mercer County Community College is committed to equal opportunity and affirmative action. Discrimination on the basis of race, creed, color, national origin, ancestry, age, gender, affectional or sexual orientation, marital status, familial status, liability for service in the Armed Forces of the United States, nationality, political views, religion, disability unrelated to job or program requirements or any other characteristic protected by law is prohibited.

Questions regarding the equal opportunity policy and compliance statement may be directed to the Affirmative Action Officer, West Windsor Campus, (609) 586-4800, ext. 3270.