

COURSE SYLLABUS

LAST REVIEW	Spring 2021
COURSE TITLE	Sound Editing and Synthesis
COURSE NUMBER	AUDI 0240
DIVISION	Arts, Communications, and Humanities
DEPARTMENT	AUDI
CIP CODE	10.0203
CREDIT HOURS	3.00
CONTACT HOURS/WEEK	Class: 3.00 Lab: X Clinical: X
PREREQUISITES	AUDI0110 with a grade C or above

COURSE PLACEMENT Students must meet the correct placement measure for this course. Information may be found at:
<https://www.kckcc.edu/admissions/information/mandatory-evaluation-placement.html>

COURSE DESCRIPTION

The theory and practical application of synthesis techniques will be studied. Students will understand the technical and theoretical concepts of, and be able to create sounds on “classic” analog synthesizers, digital software synthesizers, and software samplers. Students will improve their music and DAW production skills.

KANSAS SYSTEMWIDE TRANSFER: AUDIO240

The learning outcomes and competencies detailed in this course outline or syllabus meet or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups project for this course as approved by the Kansas Board of Regents.

PROGRAM ALIGNMENT

This course is part of a program aligned through the Kansas Board of Regents and Technical Education Authority. For more information, please visit:
https://kansasregents.org/workforce_development/program-alignment

General Education Learning Outcome

- Basic Skills for Communication
- Mathematics
- Humanities
- Natural and Physical Sciences
- Social and Behavioral Sciences

Institutional Learning Outcomes

- Communication
- Computation and Financial Literacy
- Critical Reasoning
- Technology and Information Literacy
- Community and Civic Responsibility
- Personal and Interpersonal Skills

TEXTBOOKS

<http://kckccbookstore.com/>

METHODS OF INSTRUCTION

A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE

- I. Synthesis Concepts
 - A. Terminology
 - B. Hardware
 - C. Software
 - D. Methods of synthesis
- II. Analog synthesizers
 - A. Voltage controlled oscillators
 - B. Waveforms
 - C. Amplifiers
 - D. Envelope Generators
 - E. Low frequency oscillators
 - F. Low pass filters
 - G. High pass filters
 - H. Band pass filters
 - I. Using subtractive synthesizers
 - J. Using matrix synthesizers
- III. Digital synthesis
 - A. Digitally controlled oscillators

- B. Waveforms
- C. Digital sound parameters
- D. Additive synthesis
- E. AM and FM graphical synthesis
- F. Digital FM synthesis

IV. Sampling

- A. Editing and looping samples
- B. Creating sample patches and libraries

V. Contemporary synthesis methods

- A. Physical Modeling
- B. Granular Synthesis

SuperCollider/C-Sound/Max/MSP

COURSE LEARNING OUTCOMES AND COMPETENCIES

Upon successful completion of this course, the student will:

- A. The learner will be able to discuss the concepts of sound synthesis.]
- B. The learner will be able to create sounds on analog synthesizers.
- C. The learner will be able to create sounds using digital synthesis techniques.
- D. The learner will be able to create sample libraries.
- E. The learner will be able to discuss contemporary synthesis technologies.

COURSE COMPETENCIES:

The learner will be able to discuss the concepts of sound synthesis.

- 1. The learner will be able to discuss synthesis terminology.
- 2. The learner will be able to discuss synthesis hardware.
- 3. The learner will be able to discuss synthesis software.
- 4. The learner will be able to discuss different methods of synthesis.

The learner will be able to create sounds using analog synthesizers.

- 5. The learner will be able to operate voltage-controlled oscillators.
- 6. The learner will be able to discuss different waveforms.
- 7. The learner will be able to operate voltage controlled amplifiers.
- 8. The learner will be able to program envelope generators.
- 9. The learner will be able to use low frequency oscillators.
- 10. The learner will be able to use and explain the concept of low pass filters.
- 11. The learner will be able to use and explain the concept of high pass filters.
- 12. The learner will be able to use and explain the concept of band pass filters.
- 13. The learner will be able to create sounds using subtractive synthesizers.
- 14. The learner will be able to create sounds using matrix synthesizers.

The learner will be able to create sounds using digital synthesis techniques.

- 15. The learner will be able to operate digitally controlled oscillators.
- 16. The learner will be able to explain and identify various simple and complex waveforms.
- 17. The learner will be able to define digital sound parameters.

18. The learner will be able to explain additive synthesis concepts.
19. The learner will be able to implement AM and FM synthesis using graphical software.
20. The learner will be able to design sounds using commercial complex FM synthesis software.

The learner will be able to create sample libraries.

21. The learner will be able to edit and loop samples.
22. The learner will be able to create sample patches and libraries.

The learner will be able to discuss contemporary synthesis technologies.

23. The learner will be able to discuss physical modeling techniques.
24. The learner will be able to discuss granular synthesis techniques.
25. The learner will be able to discuss the function of sound synthesis programming languages.

ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES

Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

COLLEGE POLICIES AND PROCEDURES

Student Handbook

<https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf>

College Catalog

<https://www.kckcc.edu/academics/catalog/index.html>

College Policies and Statements

<https://www.kckcc.edu/about/policies-statements/index.html>

Accessibility and Accommodations

<https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html>.