DATE OF LAST REVIEW: 02/11/2013
CIP CODE: 10.0203
SEMESTER: DEPARTMENTAL SYLLABUS
COURSE TITLE: Sound Editing and Synthesis
COURSE NUMBER: AUDI0240
CREDIT HOURS: 3
INSTRUCTOR: DEPARTMENTAL SYLLABUS
OFFICE LOCATION: DEPARTMENTAL SYLLABUS
OFFICE HOURS: DEPARTMENTAL SYLLABUS
TELEPHONE: DEPARTMENTAL SYLLABUS

EMAIL ADDRESS: KCKCC issued email accounts are the official means for electronically communicating with our students.

PREREQUISITE(S): AUDI0110 with a grade C or above

REQUIRED TEXT AND MATERIALS: Please check with the KCKCC bookstore, http://www.kckccbookstore.com/, for the required texts for your particular class.

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.

METHOD 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, and 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
   C. SuperCollider/C-Sound/Max/MSP

EXPECTED LEARNER OUTCOMES:
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 LEARNER OUTCOMES:**
Student progress is evaluated by means that include, but are not limited to, exams, written assignments, and class participation.

**SPECIAL NOTES:**

This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

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