Las Positas College
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Course Outline for CNT 7302

PODCASTING, VIDEO AND RADIO STREAMING

Effective: Fall 2008

I. CATALOG DESCRIPTION:
CNT 7302 — PODCASTING, VIDEO AND RADIO STREAMING — 3.00 units

Podcasting and Internet streaming of Video and Radio are here now. This course covers the basics of understanding and manipulating the technology behind them. Subjects include TCP-IP basics, Multicasting, Audio / video formats, Codecs, digital sampling and bit resolution, digital storage media, audio and video capture basics, transcoding, compression, preprocessing, recording applications and equipment, streaming applications, web pages and HTML for streaming, XML and RSS basics, assembling a streaming system, managing media files.

2.50 Units Lecture 0.50 Units Lab

Strongly Recommended
CIS 50 - Intro to Computing Info Tech

Grading Methods:
Letter or P/NP

Discipline:

	MIN
Lecture Hours:	45.00
Lab Hours:	27.00
Total Hours:	72.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 2

III. PREREQUISITE AND/OR ADVISORY SKILLS:

Before entering this course, it is strongly recommended that the student should be able to:

A. CIS50

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

A. demonstrate an understanding of basic podcasting and streaming concepts;
B. create a demonstration podcast;
C. describe and evaluate methods of streaming online content;
D. discuss the methods and techniques for recording digital audio and video;
E. describe how to organize and manage media files;
F. use Quicktime Streaming Server software to provide online media;
G. demonstrate an understanding of transcoding, compression and preprocessing;
H. discuss how to utilize XML and RSS for Podcasting and internet Radio;
I. demonstrate an understanding of audio and video format types;
J. demonstrate the ability to record and export digital audio files;
K. discuss and evaluate digital sampling and bit resolution options;
L. demonstrate an understanding of TCP-IP basics related to podcasting;
M. discuss the characteristics of recording and streaming applications;
N. describe and evaluate Podcasting and Internet Streaming infrastructure options.

V. CONTENT:
A. Podcasting
    1. History
    2. Development
B. Video / Audio Streaming
    1. History
    2. Development
C. Internet / Network concepts
    1. TCP-IP basics
    2. Multicasting
    3. Unicasting

D. Streaming / web formals
    1. Audio
    2. Video
E. Audio Recording
    1. Digital Sampling
    2. Bit resolution
    3. Recording formals
    4. Output formals
    5. Recording Applications
    6. Recording equipment
F. Video Recording
    1. Digital Sampling
    2. Bit resolution
    3. Recording formals
    4. Output formals
    5. Recording Applications
    6. Recording equipment
G. Digital editing / formatting
    1. Editing Applications
    2. Transcoding
    3. Compression algorithms
    4. Preprocessing
H. Streaming and Serving
    1. Server applications
    2. Streaming applications
    3. Quicktime / Darwin Streaming Server
    4. Hardware for servers / streaming
    5. Internet connections
I. Web pages for Podcasting / Streaming
    1. HTML
    2. Flash
    3. XML
    4. RSS
J. Assembling a Podcasting / Steaming system
    1. Needs analysis
    2. Hardware specifications
    3. Software specifications
    4. Physical security / integrity
    5. Network security / integrity
    6. Best practices
    7. Managing media files
    8. Troubleshooting methods, tools, skills

VI. METHODS OF INSTRUCTION:
A. **Lecture** -
B. **Demonstration** -
C. **Research** -
D. **Lab** -
E. Assigned reading
F. **Discussion** -

VII. TYPICAL ASSIGNMENTS:
A. Reading / listening to presentations and readings 1. Presentations and lectures a. Example: Read QTSS Installation Guide tutorial, at www.apple.com B. Search for relevant material and read 1. Students use search engines to find readings relevant for each module a. Example: Find resources comparing video codecs, select 3 to read C. Provide comments regarding curriculum 1. Discussion and response questions accompany each module a. Example: “Discuss how system applications relate to system memory requirements: D. Answer comments and questions from fellow students and instructor 1. Students must participate in group discussion a. On the course web site, download 3 example podcast files and discuss the relative audio and video quality of the different codecs used.

VIII. EVALUATION:
A. **Methods**

B. **Frequency**

1. Frequency:
    a. 6-10 module assignments
    b. Weekly discussion of group work
    c. 6-10 module quizzes
    d. 6-10 labs
    e. 1 final project
2. Typical quiz question:
    a. What is the difference between Sample Rate and Bit Depth?
    b. Describe the process of transcoding
3. Final exam

IX. TYPICAL TEXTS:
1. Gregory Demetriades *Streaming Media, Building and Implementing a Complete Streaming System.*, Wiley , 2006.
2. David Austerberry *Technology of Video and Audio Streaming.*, Elsevier Science & Technology, 2004.
3. Michael Zink *Scalable Adaptive Video Distribution in the Internet.*, Wiley, John & Sons, 2004.

X. OTHER MATERIALS REQUIRED OF STUDENTS:
A. Students require access to a computer connected to the Internet with word processing and browser software, and an email address.