NEW YORK
THE STATE OF LEARNING

THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, N.Y. 12234
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December 1, 1996

Memo to: Persons Implementing Communication Systems with Revised (blue cover) Syllabus
From: Michael Hacker, Associate State Supervisor for Technology Education
Subject: Addition of Module 4D to Syllabus

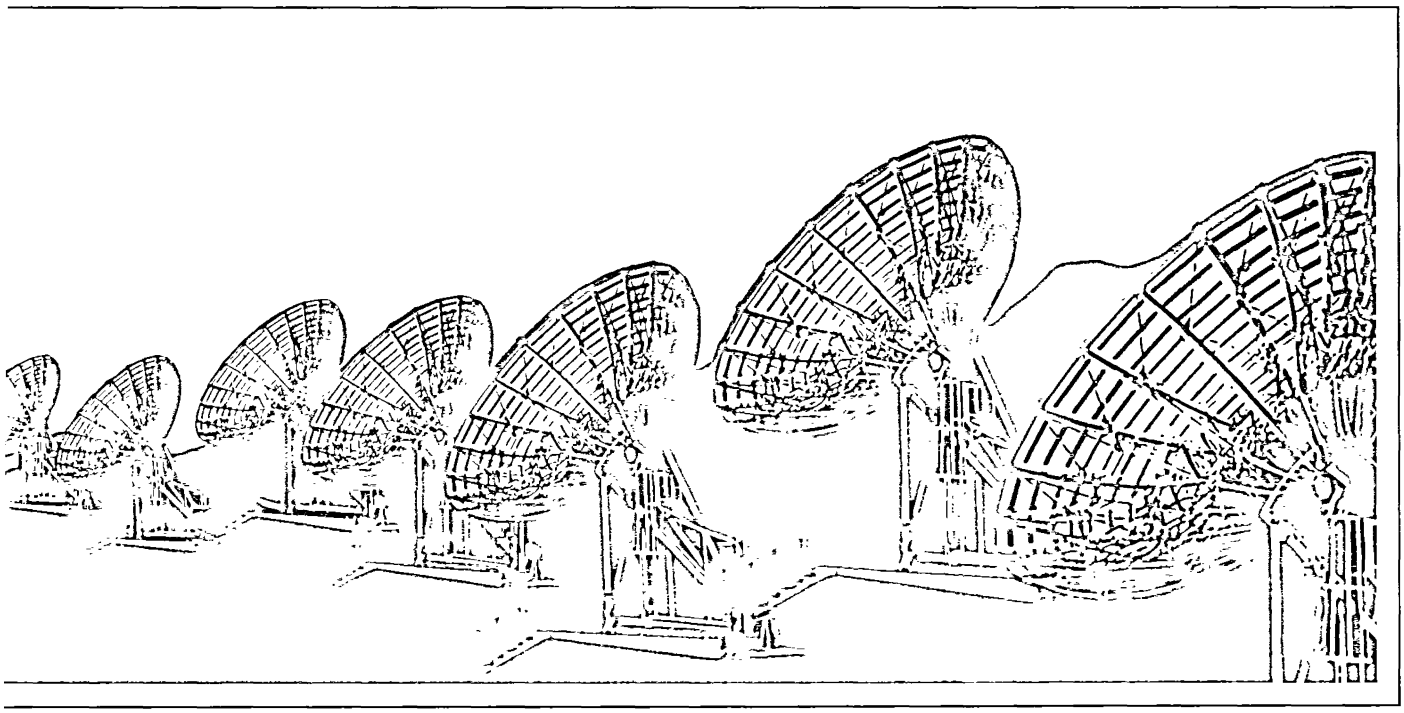
Please add this Module to the revised syllabus

Module 4 D **Communication Through the Internet**

1. What is the Internet
   a. History
   b. Present Status and Current Usage
   c. Internet vs. Proprietary On-line Services
   d. Domains
2. Applications
   a. E-mail and Listservs
   b. The World-Wide Web
   c. Usenet and Internet Relay Chat
   d. FTP, Gopher and Telnet
   e. Audio and Video Communication
3. Information Gathering
   a. Education
   b. Business
   c. Health
   d. Religion
   e. Human Connections
4. Skills
   a. Search Strategies
   b. Conventions and Netiquette
   c. Programing (e.g., HTML, JAVA)
5. Issues
   a. Privacy
   b. Security
   c. Free Speech
6. The Future of the Internet

TECHNOLOGY EDUCATION COMMUNICATION SYSTEMS

GRADES 9-12
SYSTEMS COURSE



The University of the State of New York
The State Education Department
Bureau of Home Economics
and Technology Education Programs
Division of Occupational Education
Albany, New York 12234

THE UNIVERSITY OF THE STATE OF NEW YORK

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Course Overview

Communications technology exemplifies the rate at which the growth of technology has accelerated. Linked to a critical need for information exchange, the growth can be attributed to the computer and its ability to manipulate images, data and words. The shift from professional equipment with access by a few to consumer products available to many, has contributed to heightened awareness of effective communications.

Labor market forecasts indicate continued growth in careers dealing with information. The combined private market value of the printing and publishing industries and mass media exceeds 500 billion dollars.

Communication Systems consists of five modules that cover graphic systems and electronic media systems with an emphasis on communication concepts. The student is introduced to system inputs, resources, processes, outputs, feedback and the terminology and applications related to the communication systems studied.

Students with a background in communications will be enabled to communicate clearly and concisely in an information world.

Instructional Methodology

Communication Systems requires a laboratory equipped with appropriate graphic and electronic media equipment. Emphasis in all modules is given to hands-on learning. Approximately 75 percent of the instructional time should be of the applied variety.

Students must have access to personal computers capable of integrating text, graphics, sound, video and communications interfaces. The study of electronic media requires access to audio and video equipment. The facility should also be equipped with appropriate graphic arts, photography and related printing equipment. For hands-on activities to be orchestrated throughout the course, workstations representing current processes and methods should be available in sufficient numbers.

Safety instruction should be delivered as an ongoing process throughout the course.

USE IN SEQUENCE: Systems course

This course is one of the New York State approved Systems courses in Technology Education. It is one of five courses designed to give students a firm but broad exploration of the technical world in which they live. Students completing a sequence in Technology Education must have successfully completed any one of these five Systems courses.

This course may also be taken by any student as an elective. If the instructor uses this syllabus as a guide for instruction, students may be granted Regents credit for the experience.

Several courses within Technology Education offerings can be offered on a 1/2-unit or 1-unit basis. Course work earning 1/2-unit must comprise a minimum of 54 hours of instruction and course work earning 1-unit must comprise a minimum of 108 hours of instructional time.

Students with Disabilities

The Board of Regents, through the part 100 Regulations of the Commissioner, the Action Plan, and The Compact for Learning, has made a strong commitment to integrating the education of students with disabilities into the total school program. According to Section 100.2(s) of the Regulations of the Commissioner of Education, "Each student with a handicapping condition as such term is defined in Section 200.1(ii) of this Chapter, shall have access to the full range of programs and services set forth in this Part to the extent that such programs and services are appropriate to such student's special educational needs." Districts must have policies and procedures in place to make sure that students with disabilities have equal opportunities to access diploma credits, courses, and requirements.

The majority of students with disabilities have the intellectual potential to master the curricula content requirements for a high school diploma. Most students who require special education attend regular education classes in conjunction with specialized instruction and/or related services. These students must attain the same academic standards as their nondisabled peers to meet graduation requirements, and, therefore, must receive instruction in the same content areas, at all grade levels. This will ensure that they have the same informational base necessary to pass statewide testing programs and meet diploma requirements.

Teachers certified in the subject area should become aware of the needs of students with disabilities who are participating in their classes. Instructional techniques and materials must be modified to the extent appropriate to provide students with disabilities the opportunity to meet diploma requirements. Information or assistance is available through special education teachers, administrators, the Committee on Special Education (CSE) or student's Individualized Education Program (IEP).

Strategies for Modifying Instructional Techniques and Materials

1. Students with disabilities may use alternative testing techniques. The needed testing modification must be identified in the student's Individualized Education Program (IEP). Both special and regular education teachers need to work in close cooperation so that the testing modifications can be used consistently throughout the student's program.

2. Identify, define and pre-teach key vocabulary. Many terms in this syllabus are specific and some students with disabilities will need continuous reinforcement to learn them. It would be helpful to provide a list of these key words to the special education teacher in order to provide additional reinforcement in the special educational setting.

3. Assign a partner for the duration of a unit to a student as an additional resource to facilitate clarification of daily assignments, timelines for assignments, and access to daily class notes.

4. When assigning long-term projects or reports, provide a timeline with benchmarks as indicators for completion of major sections. Students who have difficulty with organizational skills and time sequence may need to see completion of sections to maintain the organization of a lengthy project or report.

Infusing Awareness of Persons with Disabilities Through Curriculum

In keeping with the concept of integration, the following subgoal of the Action plan was established.

In all subject areas, revisions in the syllabi will include materials and activities related to generic subgoals such as problem solving, reasoning skills, speaking, capacity to search for information, the use of libraries and increasing student awareness of and information about the disabled.

The purpose of this subgoal is to ensure that appropriate activities and materials are available to increase student awareness of disabilities.

This curriculum, by design, includes information, activities, and materials regarding persons with disabilities. Teachers are encouraged to include other examples as may be appropriate to their classroom or the situation at hand.

STUDENT LEADERSHIP SKILLS

Development of leadership skills is an integral Part of occupational education in New York State. The New York State Education Department states that, "Each education agency should provide to every student the opportunity to participate in student leadership development activities. All occupational education students should be provided the opportunity to participate in the educational activities of the student organization(s) which most directly relate(s) to their chosen educational program."

Leadership skills should be incorporated in the New York State occupational education curricula to assist students to become better citizens with positive qualities and attitudes. Each individual should develop skills in communications, decision making/problem solving, human relations, management, and motivational techniques.

Leadership skills may be incorporated into the curricula as competencies (Performance Objectives) to be developed by every student or included within the Suggested Instructional Strategies. Teachers providing instruction through occupational educational curricula should familiarize themselves with the competencies. Assistance may be requested from the State advisor of the occupational student organization related to the program area.

Students who elect to become active members of one of the student leadership organizations chartered by the New York State Education Department have the advantage of the practical forum to practice leadership skills in an action oriented format and have the potential for recognition of their achievements at the local, State, and national level.

MODULES AND TOPICS — ESTIMATED LEARNING TIME

Module 1. Introduction – Communicating Information .....3 hours

A. SYSTEMS OVERVIEW
B. DEVELOPING THE MESSAGE

Module 2. Electronic Graphic and Drawing Systems.....13 hours

A. ELECTRONIC STILL IMAGING
B. PRESENTATION GRAPHICS
C. COMPUTER ASSISTED ILLUSTRATING
D. ELECTRONIC PUBLISHING

Module 3. Graphic Production Systems .....10 hours

A. PRE-PRESS
B. IMAGE TRANSFER

Module 4. Electronic Communication Systems .....26 hours

A. AUDIO SYSTEMS • RADIO AND TELEPHONE
B. VIDEO SYSTEMS • TELEVISION
C. INTEGRATED MEDIA SYSTEMS (COMPUTER ASSISTED MULTIMEDIA)

Module 5. Industry Related Concerns .....2 hours

A. INDUSTRIAL ORGANIZATION AND CAREERS
B. ETHICAL CONSIDERATIONS AND IMPLICATIONS

54 HOURS

Module 1. Introduction – Communicating Information

A. SYSTEMS OVERVIEW
   1. A communication systems model
      a. Input, process and output stages
      b. Monitor feedback, control and adjust
      c. Resources
   2. Types of systems for communicating information
      a. Audio systems • Radio and telephone
      b. Video systems • Television
      c. Integrated media systems • Computer assisted multimedia

B. DEVELOPING THE MESSAGE
   1. Client data and information gathering
      a. Client interview
      b. Message identification
      c. Market identification
   2. Identifying the approach
      a. Brainstorm communication solutions
      b. Identify appropriate media
   3. Client confirmation
      a. Presentation of proposal
      b. Customer modifications and acceptance
   4. Organizing production
      a. Scheduling and contracting
      b. Identifying and selecting resources

Module 2. Electronic Graphic and Drawing Systems

A. ELECTRONIC STILL IMAGING
   1. Recording
      a. Camera operation
      b. Applications
   2. Output
      a. Monitor display
      b. Image printing
      c. Presentation graphics
      d. Desktop publishing

B. PRESENTATION GRAPHICS
   1. System requirements
      a. Hardware
      b. Software
   2. Visual considerations
      a. Image selection and placement
      b. Color

C. COMPUTER ASSISTED ILLUSTRATING
   1. System requirements
      a. Hardware
      b. Software
   2. Input procedures
      a. Drawing techniques
      b. Importing and manipulating images

D. ELECTRONIC PUBLISHING
   1. System requirements
      a. Hardware
      b. Software
   2. Basic typography
      a. Measurement
      b. Type selection
      c. Formatting
   3. Output devices
      a. Low resolution printers
      b. High resolution imagesetters
   4. Telecommunication applications
      a. File sharing
      b. Telepublishing
      c. Accessing services

Module 3. Graphic Production Systems

A. PRE-PRESS
   1. Photograpic image input
      a. Black and white photographs
      b. Color images
   2. High contrast photography
      a. Line photography
      b. Halftone photography
   3. Proofing and platemaking
      a. Digital
      b. Photographic
      c. Electrostatic

B. IMAGE TRANSFER
   1. Printing systems
      a. Offset (lithography)
      b. Flexography (relief)
      c. Gravure (intaglio)
      d. Screen (stencil)
      e. Electrostatic (xerography)
   2. Electronic systems
      a. Laser
      b. Ink Jet
      c. Thermal
      d. Sublimation

Module 4. Electronic Communication Systems

A. AUDIO SYSTEMS • RADIO AND TELEPHONE
   1. Recording and playback
      a. Analog (disc, tape and records)
      b. Digital (disc and tape)
   2. Audio production resources
      a. Equipment (source, amplify and playback)
      b. Mediums (tape, disc and record)
      c. Facilities (studio andcontrol room)
      d. People (station manager, program director, on-air staff, sales/marketing, chief of production and staff, chief engineer and technical staff, traffic manager, news director/reporters)

e. Capital (advertising sales, rate cards, promotion, networks and owners)

3. Studio and live production
    a. Equipment (mixing board, console, mic, cart machine, tape recorder, CD player, turntable and amplifier)
    b. Techniques (miking, recording, equalizing, mixing, editing, dubbing and duplicating)
    c. Music and voice recording
    d. Airshifts (morning, noon and evening)
    e. Station format (music, personalities and programming)
4. Telecommunications applications
    a. Telephone
    b. Message systems

B. VIDEO SYSTEMS • TELEVISION

1. Video recording and playback
    a. Analog
    b. Digital
2. Production resources
    a. Equipment (cameras, lighting, audio, dubbing, computers and editing)
    b. Formats (2", 1", 3/4", 1/2", 8mm)
    c. Facilities (studios, mobile units, editing, control room and transmitter)
    d. People (station manager, news director, engineer and reporter)
    e. Capital (advertising sales, networks, stock holders and owners)
3. Production planning
    a. Target audience/demographics
    b. Approach method (information, promotion, persuasion and entertainment)
    c. Format (commercials, public service announcements, interviews, news broadcasts, documentaries, electronic field productions, electronic news gathering and short features)
    d. Storyboarding
    e. Scriptwriting
    f. Supporting floor plans and drawings
    g. Budgeting and scheduling
4. Production techniques
    a. Composition and camera techniques
    b. Directing
    c. Scenery
    d. Audio
    e. Lighting
    f. Editing
    g. Dubbing
    h. Graphics (titles, animations and computer generation)
    i. Single camera productions
    j. Multi-camera productions
5. Broadcast considerations
    a. On-air program schedule
    b. Market share and ratings

C. INTEGRATED MEDIA SYSTEMS (COMPUTER-ASSISTED MULTIMEDIA)

1. Computer animation
    a. Hardware and software requirements
    b. Image motion and effects
2. Sound digitizing
    a. Inputs and digital interface devices

b. Applications to presentation graphics and animated presentations

3. Image capture
    a. Inputs and digital interface devices
    b. Applications
4. Media integration and production
    a. Computer generated video (encoders and genlock)
    b. Interactive video (software drivers and interfaced peripherals)

Module 5. Industry Related Concerns

A. INDUSTRIAL ORGANIZATION AND CAREERS

1. Industrial organization
    a. Segments/classifications of services
    b. Types of establishments and enterprises
2. Communications careers
    a. Personnel organization
    b. Career planning

B. ETHICAL CONSIDERATIONS AND IMPLICATIONS

1. Copyright and trademark
    a. Author and designer rights
    b. Company obligations
2. Ethics in communications
    a. Model release
    b. Libel, plagiarism and counterfeiting
    c. Privacy, freedom of information and freedom of expression

MODULE 1: INTRODUCTION - COMMUNICATING INFORMATION
Topics: Systems Overview and Developing the Message

PERFORMANCE OBJECTIVES/SUPPORTING COMPETENCIES

A. SYSTEMS OVERVIEW

1. Following instruction and discussion, the student will list, describe and identify the components of a communication systems model and types of communication systems.

   In order to do this, the student must be able to:
   a. Identify and describe the purpose of resources, input, process, output, monitor, feedback and adjust.
   b. Diagram models of various communication systems.

B. DEVELOPING THE MESSAGE

1. Following instruction and discussion, the student will demonstrate the ability to develop a client's message into a media or multi-media product.

   In order to do this, the student must be able to:
   a. Demonstrate the ability to collect data and information pertinent to the development of the client's message.
   b. Identify and describe the appropriate media to reach a market.
   c. Identify and describe the method by which the client and the producer will confirm the proposal.
   d. Prepare a plan that includes scheduling, contracts and resources necessary to produce the message.

SUGGESTED INSTRUCTIONAL STRATEGIES

A. SYSTEMS OVERVIEW

1. Develop a communication systems diagram worksheet for the student to complete.
2. Using presentation overheads or slides, present models of various communication systems.

   Suggested Major Activity
   In a small group, require students to produce a wall chart reflecting one of the following items: an integrated media systems model or one that pertains to graphic, audio, video or broadcasting systems.

B. DEVELOPING THE MESSAGE

1. Explain procedure for collecting, and show examples of data needed to develop the client's message.
2. Outline a procedure for gaining client approval.
3. Require the preparation of a production plan that includes scheduling, contracts and resources associated with a group production.
4. Provide students with storyboards for video productions and guidelines for printing and publishing layouts.

   Suggested Major Activity
   Require the development of plans for long-range experiences in selected media. Individually or in small groups, students should collect information and data for their activities in selected media communications. Students should develop a storyboard for their first video production and a rough of their first graphic project.

MODULE 2: ELECTRONIC GRAPHIC AND DRAWING SYSTEMS
Topics: Still Imaging, Presentation Graphics, Computer Assisted Illustrating and Electronic Publishing

PERFORMANCE OBJECTIVES/SUPPORTING COMPETENCIES

A. STILL IMAGING

1. The student will record and output using a still imaging system.

   In order to do this, the student must be able to:
   a. Setup a still camera and record images.
   b. Setup an output device to produce a print.

B. PRESENTATION GRAPHICS

1. The student will produce a title or credit slide using presentation graphics software.

   In order to do this, the student must be able to:
   a. Use presentation graphics software.
   b. Select type, color and graphics that communicate a clear and effective message.

C. COMPUTER ASSISTED ILLUSTRATING

1. The student will produce an image using illustration software.

   In order to do this, the student must be able to:
   a. Produce a rough drawing of an illustration on paper.
   b. Create the illustration using appropriate software.

D. ELECTRONIC PUBLISHING

1. The student will contribute to the production of a graphic product using an electronic publishing system.

   In order to do this, the student must be able to:
   a. Use page layout software.
   b. Save and store files.
   c. Output files to a printing device.
   d. Send and receive a file via telecommunications.

SUGGESTED INSTRUCTIONAL STRATEGIES

A. STILL IMAGING SYSTEMS

1. Demonstrate the use of a still video camera.
2. Demonstrate the use of an output device, such as television monitor or video printer.
3. Develop an activity on the process of capturing an image from a video or still video camera into a computer using a simple digitizing device. Include the procedure for encoding the image back to a printer or video recorder.

   Suggested Major Activity
   Develop image capture activities that relate to course requirements. The student will be capturing video and still video images for either a printing or presentation project. Require that they capture images with those goals in mind.

B. PRESENTATION GRAPHIC SYSTEMS

1. Demonstrate the use of presentation graphics software. Develop a procedure for creating a presentation slide, including words and pictures. Use images captured during the still imaging experience.

2. Show examples of effective title or credit slides.
3. Show a presentation graphic slide series on selecting type styles and colors for video production.

Suggested Major Activity
Develop an activity which requires students to use presentation graphics for opening and closing credits. These images can be used in student video productions.
Require small groups to prepare a "how to" slide series, not to exceed five slides, to be presented to the class. Require that a storyboard be developed.

C. Computer Assisted Illustrating

1. Demonstrate the procedures and techniques for producing an illustration using computer software.
2. Require students to develop a simple logo, infograph, layout, system diagram, personnel chart or floorplan using illustration software.

Suggested Major Activities
Develop a tutor package (step by step procedure) which introduces illustration software available on lab computers. The goal of the package is to construct a specific drawing or illustration which utilizes most of the drawing tools. Examine the possibility of modifying and abbreviating available tutorials.

Integrate drawing and illustration experiences in presentation graphics or graphic communication activities.

D. Electronic Publishing Systems

1. Demonstrate and discuss laboratory computer start-up and shutdown procedures. Deliver a hands-on file management, file saving and folder set-up activity.
2. Develop and distribute a handout that features all fonts and styles available on the lab computers. Lead a discussion on the appropriate selection and use of type faces. Deliver basic word processing/typesetting experiences that include font, size, leading, line length, tabs, alignment and spell check operations.
3. Deliver computer activities that develop competency in the use of word processing, illustration, page layout, digitization and telecommunications software.
4. Deliver a lesson on proofing and output devices and show examples of outputs. Show examples of printed products that typify various image qualities and discuss industry standards. Describe the differences between a basic laser printer and output devices with higher resolution.
5. Develop an in-class telecommunications activity that introduces communications software through modem connections among lab computers. Subscribe to and use networks for the purpose of information access.

Suggested Major Activities
Develop a type formatting activity that includes basic type formatting such as indents, margins, tabs, bullets and leaders. If available, output the above activity on both a dot matrix printer (72 dpi) and a laser printer (300 dpi).

Create a template with placeholders for a memo pad, business card, bill form, stationery, invitation, greeting card, poster, audio/video cassette labels, package design, flyer/brochure or newsletter. This activity should involve as many electronic publishing applications as possible. Allow the students to select a template that can be altered to meet their needs. Since this will be the only opportunity to explore electronic publishing systems, it will be necessary to carefully orchestrate group and individual activities to cover course requirements.

Topics: Pre-press and Image Transfer

PERFORMANCE OBJECTIVES/SUPPORTING COMPETENCIES

A. PRE-PRESS

1. Given instruction and demonstration, the student will demonstrate an understanding of the processes used to prepare images for reproduction.

   In order to do this, the student must be able to:
   a. Scan or prepare photographs for printing or publishing.
   b. Apply high contrast, line and halftone photography to pre-press systems.
   c. Describe the process of proofing techniques.
   d. Describe the processes for direct and indirect plate or stencil preparation.

B. IMAGE TRANSFER

1. Given instruction and demonstration, the student will demonstrate an understanding of the major processes used for reproduction.

   In order to do this, the student must be able to:
   a. List and describe the five major printing systems and their applications.
   b. Describe electronic transfer systems and their applications.
   c. Demonstrate competency with tools, equipment and processes of at least one of the five major printing systems.

SUGGESTED INSTRUCTIONAL STRATEGIES

A. PRE-PRESS

1. Demonstrate the computer and mechanical preparation of black and white and color images in pre-press operations.
2. Demonstrate darkroom techniques in line photography and computer and mechanical techniques for preparing halftones.
3. Demonstrate the preparation of an indirect stencil for screen printing or a direct offset plate, if available.

   Suggested Major Activity
   From the products prepared in Module 2-D. Electronic Publishing, have teams of students convert the originals to film, and prepare offset plates.

B. IMAGE TRANSFER

1. Present a lesson and assign textbook reading dealing with the five major printing and electronic systems. Obtain samples of image carriers (plates) and products. Lead a discussion about the uses and applications of the printing processes.
2. Demonstrate the operation of laboratory image transfer systems and classify each.

   Suggested Major Activity
   As part of a printing activity have the students duplicate a graphic product using an available transfer system.

MODULE 4: ELECTRONIC MEDIA SYSTEMS
Topics: Audio • Radio, Video • Television, Integrated Media Systems (Computer Assisted Multimedia)

PERFORMANCE OBJECTIVES/SUPPORTING COMPETENCIES

A. AUDIO • RADIO

1. Given instruction and demonstrations, the student will demonstrate an understanding of the technologies involved in a basic audio system and will produce a basic audio message.

   In order to do this, the student must be able to:
   a. Categorize audio recording, processing and playback devices as analog or digital technology.
   b. Discuss resources necessary for audio production.
   c. Demonstrate competency acceptable to the instructor in studio or live productions.
   d. List and describe uses and applications of telephone and message systems.

B. VIDEO • TELEVISION

1. Given instruction and demonstrations, the student will demonstrate an understanding of the technologies involved in a basic video system and produce a video message.

   In order to do this, the student must be able to:
   a. Categorize video recording, processing and playback devices as analog and digital technology.
   b. Record, process and playback a video message.
   c. List video formats and describe the strengths and weaknesses of each.
   d. Discuss the people, facilities and capital unique to television and video production.
   e. Contribute as a team member to a video production, from its inception to its production, involving the areas of audience, approach, production, format, scheduling, financial considerations and evaluation of its impacts.
   f. Develop a storyboard and script for a video production.
   g. Discuss broadcast considerations as they are related to program scheduling, market shares and ratings.

C. INTEGRATED MEDIA SYSTEMS (COMPUTER ASSISTED MULTIMEDIA)

1. Following lessons, demonstrations and discussions, the student will use an integrated media system to produce and present a message.

   In order to do this, the student must be able to:
   a. Demonstrate an understanding of an integrated media system.
   b. Identify and operate a sound digitizing device and explain its application to an integrated media presentation.
   c. Explain how image capture works and how digitized images are used, and capture video images with a computer.
   d. Define and discuss the applications of computer generated video and interactive video.

SUGGESTED INSTRUCTIONAL STRATEGIES

A. AUDIO • RADIO

1. Using an audio equipment catalog, have teams of students develop their ideal audio system and estimate its cost.

2. Provide an orientation to a radio production facility. Assign textbook reading and lead discussion on the resources necessary for studio and live production.
3. Provide hands-on experiences with a simulated commercial operation.
4. Use current advertisements from telephone companies in order to describe and discuss services available. Invite a local communications specialist to make a classroom presentation.

Suggested Major Activity
Provide a workstation that simulates a commercial facility. Develop an activity such as a ten-minute air shift which consists of two 30-second commercials, three minutes of music, six minutes of news, weather, traffic reports and a comedy or talk show.

B. Video • Television

1. Using consumer video equipment catalogs, have teams of students develop a video system for home video production.
2. Provide an orientation to a television facility. Assign textbook reading and lead discussion on the resources necessary for studio and live production.
3. Provide hands-on activities that introduce students to video production technology.
4. In conjunction with hands-on activities, assign textbook reading that covers video production from its inception to its production, covering the areas of audience, approach, production, format, scheduling, financial considerations and evaluation of its results.
5. Provide students with pre-printed sheets for storyboard and script development.
6. Demonstrate proper camera and lighting techniques.
7. Using weekly television listings, lead a classroom discussion about program scheduling, market shares and ratings.

Suggested Major Activity
Provide a series of short-term technical learning activities that introduces the students to storyboard development, camera techniques, audio/video editing, computer graphics, dubbing and duplicating. An example is to develop a technical learning activity that produces a 30-second commercial using pre-recorded footage with cut-in/cut-out points, canned music, script for voice soundtrack including step-by-step production instructions. These activities can be managed on an individual, team or class level.

C. Integrated Media Systems (Computer Assisted Multimedia)

1. Using appropriate software, demonstrate computer animation and other image motion effects. Provide manuals, videos and/or support materials to assist student teams with basic activities.
2. Demonstrate sound digitizing devices and software and explain their applications to integrated media presentations. Provide a hands-on sound digitizing activity that familiarizes students with hardware, software and techniques for audio production.
3. Explain how image capture works, how digitized images are used and demonstrate how to capture images from NTSC video with a computer. Provide a hands-on technical learning activity that requires students to digitize a video image.
4. Define and discuss the applications of computer generated video and interactive video.

Suggested Major Activity
Provide a series of short-term technical learning activities that introduce the students

to computer assisted multimedia. Prepare digitized sound clips, captured still and/or motion video images and a storyboard so that students can combine these media into an integrated production. These individual activities can be managed on an individual, team or class level.

MODULE 5: INDUSTRY RELATED CONCERNS
Topics: Industrial Organization and Careers and Ethical Considerations and Implications

PERFORMANCE OBJECTIVES/SUPPORTING COMPETENCIES

A. INDUSTRIAL ORGANIZATION AND CAREERS

1. Following instruction and discussion, the student will describe the segments or classifications of services in the communications field in regard to commercial, industrial, educational and private communications enterprises.

   In order to do this, the student must be able to:
   a. Describe types of graphic, broadcast and service establishments of the communications industry.
   b. List and describe careers in a selected media area.
   c. Identify the training, background and aptitudes required for selected positions and careers.

B. ETHICAL CONSIDERATIONS AND IMPLICATIONS

1. Following instruction and discussion, the student will explain author and designer rights and printer and consumer obligations in honoring copyright and trademark laws.

   In order to do this, the student must be able to:
   a. List printed products, images and software that may not be reproduced without permission.
   b. Define public domain and software copy protection.
   c. Discuss the consequences of copyright and trademark infringement.
   d. Describe the need for model releases in photography.
   e. Define libel and plagiarism.
   f. Discuss the consequences of invasion of privacy and unlawful use of people's written and creative work.

SUGGESTED INSTRUCTIONAL STRATEGIES

A. INDUSTRIAL ORGANIZATION AND CAREERS

1. Present a lesson on the organization of the industry, accompanied by textbook reading on segments/classifications of industrial services.
2. Invite representatives of local communications companies to discuss their firms' services.
3. Obtain a hierarchical chart from local establishments and lead a discussion on why a chain of command /responsibility is important. Have students complete a personnel or organization chart. Compare creative, skill and management level positions.
4. Present a lesson that features a general overview of the departments within a printing company and/or a broadcasting establishment and the careers available in the communications industry.
5. Have students complete a personal assessment review of their own talents and aptitudes. Assist them in identifying a graphic/electronic communications career that matches goals, abilities and interests.

Suggested Major Activity
In the study of industrial organization and careers, develop a cluster of activities that involve student presentations to the class, or student-produced videos covering this topic.

B. Ethical Considerations and Implications

1. Present a lesson that features copyright laws and examples of printed products, images and software that may not be reproduced without permission. Define public domain and software copy protection.
2. Lead a class discussion on the consequences of copyright and trademark infringement.
3. Present a lesson that features individuals' rights to privacy, the need for model releases in photography and such acts as slander, libel and plagiarism.
4. Lead a class discussion the consequences of invasion of privacy and unlawful use of people's written word and creative work.

Suggested Major Activity
Have students read the First Amendment and relate freedom of expression to the legal considerations in communications. Invite an attorney or newspaper editor to discuss the topic in class.

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