

Digital Sound Technology (40-assignment)



This is an integrated instructional module designed specifically to operate within a Modular Program environment. It is ideal for use with our Scantek Technology or IT2020 Information Technology programs. It includes a 10-assignment exploratory curriculum and a further 30-assignment in-depth curriculum. The exploratory curriculum and the in-depth curriculum are each split into two parts. Each part includes a pre-test and post test. Where appropriate, the module includes hardware, software and curriculum materials sufficient to provide a complete learning experience.

The curriculum incorporates continuous assessment through questions. When used in conjunction with a ClassAct networked management system, this provides instant feedback of student performance. The assessments begin with a comprehensive pre-test. This quiz includes questions for each subsequent assignment, together with questions that will specifically test math and reading ability.

Every assignment starts with a series of questions designed to track inventory. These ensure that any missing items are located before they are needed.

Each assignment is divided into a series of tasks. Hands-on tasks form the core of the student work. Where appropriate, these are accompanied by research tasks based upon illustrated textbooks and on-screen applications. Assessment questions are incorporated into each task.

Typical 10-assignment topic areas include:

- Human anatomy for speech
- Introduction to Sound Forge Audio Editor
- Store voice in digital form in computer memory
- Audio formats
- View voice waveforms
- Effect of sample frequency
- Applications of speech synthesis
- Text to speech synthesis
- Rate, pitch and volume
- Computer training for voice recognition
- Voice control of computer programs

Typical 10-assignment activities include:

- Identify how humans are able to talk.
- Explore a software package that allows digital recording, playback and graphical display of sound wave forms.
- Make a digital recording of your own voice.
- Display your voice pattern on screen.
- Compare different voice patterns.
- Explore sampling frequency.
- Use various techniques to create your own digital sound track.
- Explore speech synthesis and recognize how it is used in everyday life.
- Recognize how rate, pitch and volume affect the sound of a voice.
- Create a new voice for your own character.
- Recognize how a CD stores digital sound information.
- Determine the difference between analog and digital audio formats.
- Train a computer to recognize your voice and follow your commands.
- Determine how computers are able to recognize voices and commands.
- Control the movement of an object on screen using only your voice.

Typical 10-assignment activities include (continued):

- Train your computer to solve simple math problems by talking to it.
- Control an interactive digital speech application to meet the specifications given in a design brief.

Typical 30-assignment topic areas include:

- Applications of digital sound technology
- Human anatomy for speech
- Human anatomy for hearing
- Sound Forge Audio Editor
- Editing sound files
- Computer generated sound effects
- Recording sound effects
- Adding backing tracks
- Analog and digital sound signals
- Text to speech synthesis
- Computer voice generation
- Transfer of digital sound to analog tape
- Computer training for voice recognition
- Voice control commands
- Voice control of computer programs
- Design of narrated story with sound effects

Typical 30-assignment activities include:

- Identify current applications of digital sound technology.
- Identify the type of presentation you wish to create.
- Identify how human anatomy allows us to create sound.
- Use the computer to play sound files.
- Use the computer to manipulate sounds.
- Identify how humans are capable of hearing sounds.
- Investigate the sound wave editor program to edit sounds.
- Create sound effects, such as reversing sounds, repeating sections ('rap' effect), adding echo, fading in and fading out.
- Investigate the use of audio compact discs on a computer.
- Identify how compact discs are created, and how information is retrieved from them.
- Investigate the technology involved in the analog to digital conversion process.
- Use an analog-digital viewer to help understand the differences between a digital and an analog signal.
- Manually perform analog to digital conversion.
- Investigate the binary number system.
- Show how numbers can represent sound.
- Copy a digital sound file stored on computer to an analog audio cassette.
- Investigate the technology used in recording sound to audio cassette.
- Investigate computer generated voices.
- Identify how computers are capable of producing human-like speech.
- Record a section of script spoken by the computer to an audio cassette.
- Record a short script in four sections to the computer.

Digital Sound Technology (40-assignment)

Typical 30-assignment activities include (continued):

- Edit a recorded script into a complete conversation.
- Research, using various audio storage devices, content for a background audio track.
- Discover techniques for creating sound effects.
- Record sound effects from the technology lab.
- Create a mini presentation using a background track, speech and sound effects.
- Record the presentation to audio cassette.
- Plan a radio presentation.
- Identify possible resources for the presentation.
- Create sound effects suitable for the selected presentation.
- Create a backing track suitable for the selected presentation.
- Record the script for the presentation to the computer.
- Record a computer generated voice to audio cassette.
- Edit all the source material to create a complete radio presentation.
- Transfer the audio presentation to cassette.
- Demonstrate the presentation.
- Analyze words and phrases as a computer voice recognition system would.
- Use a voice recognition system to try and recognize your commands.
- Investigate the computer application that allows applications to be voice activated.
- Complete voice training of generic commands.
- Give voice activated commands an action to carry out.
- Add commands to a voice activated computer application.
- Train actions to the commands of a voice activated computer application.
- Identify uses for voice recognition systems.
- Investigate uses of speech recognition systems.
- Plan the conversion of a CD player to a voice activated application.
- Complete the training of voice and actions of the CD player application.
- Demonstrate the use of the CD player using only verbal commands.

Each assignment is designed around a list of performance objectives. These lists include academic, technical and occupational objectives. The assignments are written in such a way as to enable a student to attain the performance objectives, with the assessment questions linked to these in order to provide a measure of true competency.

The performance objectives are used by the ClassAct management system to generate a comprehensive portfolio of student competency reports. Default reports supplied with this module include:

- Entry report
- Technical/Occupational Exit report
- Basic Skills report based upon the federal SCAN's report.

The items supplied with this instructional module include:

- 10-assignment On-Screen Student Assignment Guide CD
- 10-assignment Student Assignment Guide
- 10-assignment Student Workbook
- 10-assignment Instructor's Guide
- 30-assignment Student Assignment Guide
- 30-assignment Student Workbook
- 30-assignment Instructor's Guide
- Computer Aided Instruction software
- Digital Sound Technology Reference Guide
- Text Assist software
- Voice Assist software
- Sound Forge software
- Microphone
- Audio cassette player
- Audio cassette tapes
- Audio compact disc
- Scantek music tape

Additional items required:

- Computer

Module Facts

For Technology Program, order as:
ST210/40 Digital Sound Technology

For IT Program, order as:
IM1C Digital Sound Technology

	No.	Average time
Assignments	40	45 minutes
Extension Activities	5	45 minutes
Total		33 ¾ hours



LJ Technical Systems
Web site: www.ljgroup.com