

# Syn-Aud-Con

## Audio, Processing and Networking



### A revolution is taking place in the audio world.

Sound systems of all sizes are now likely to contain one or more digital audio components. An increasing number of systems are digital from input to output. While digital audio is not new, it has been slow to replace tried-and-true analog methods. But, the revolution is gaining momentum. The modern sound system practitioner must add digital audio to their repertoire of understanding and skills.

Digital audio has long promised to clear the confusion that has always surround audio. It has not made good on this promise. A myriad of methods and topologies have emerged to create a confusing landscape for the audio practitioner. This course is for experienced audio people who can say “I’ve procrastinated long enough. It’s time to learn this stuff!”

Syn-Aud-Con Digital is designed to provide a comprehensive introduction to digital audio, digital signal processing and networking. It will dramatically shorten the learning curve for understanding everything from data formats to networked audio systems. This course is for those already conversant in analog practices and techniques. It is assumed that the attendee is familiar with the principles taught in our Operators and Technicians seminars.

### Who Should Attend?

Any experienced audio practitioner who must migrate to the latest technologies.

### Seminar Dates:

September 10-12 - Louisville, KY

**Price:** \$ 900

The emphasis of Syn-Aud-Con Digital is on the practical. The course is comprehensive in scope, but just as important each topic is treated with a consistent and appropriate level of detail. Day Three is spent constructing a local area network, and each attendee must bring a notebook PC with a network interface card for the exercises.

For more information and to register on-line, go to:  
<http://www.synaudcon.com/site/digitalseminar.php>

### Course Outline:

**The Digital Audio Signal** The principles of converting analog signals into a bit stream provide the basis for understanding all digital audio data formats. But what sample rate is high enough, and what bit depth is deep enough?

**Digital Audio Formats** The bit stream can be packaged into many formats for transport. These include consumer formats such as S/PDIF and professional formats such as AES3. Additional formats include

## New Seminar Offerings

FireWire, ADAT, USB audio, and MADI. Learn the nuances of each, including how to select the appropriate format for a given application.

**Data Compression** In many cases parts of the digital bit stream can be discarded, improving the efficiency of processing and transporting digital signals. Lossy and lossless compression schemes are contrasted.

**Digital Signal Processing** Part of the magic of digital audio is the ability to manipulate the signal in ways not possible with analog processors. Learn the difference between fixed and floating point processing, and FIR vs. IIR filter topologies. We also present some simple, practical ways to compare DSP boxes that will help you sort through the myriad of offerings in the audio marketplace.

**Instrumentation and Troubleshooting** The tools-of-the-trade for analog audio are not adequate for digital audio. A new class of instruments has emerged to aid in troubleshooting digital audio systems and networks. Throughout the course we will demonstrate the use of practical instrumentation for examining the digital signal path. This will include hand-held digital testers and software tools.

**Digital Audio Networks** Networks have dramatically changed the way that signals are delivered to different parts of a venue. Many network types have emerged, each with its own set of strengths and weaknesses. Learn the differences between them, along with how to select one based on the current and future requirements of the sound system.

**Ethernet** Ethernet and its associated hardware is finding its way into all types of audio gear. A confusing landscape of compatibility has emerged. Learn concepts that are applicable to your office network as well as your audio network, and how both can be combined into a single network.

**Proprietary Networks** The proliferation of Ethernet has produced low-cost hardware and cables that can be purchased almost anywhere. Some manufacturers are taking advantage of this by utilizing Ethernet connectors and cabling in their products. We will examine some of these “non-Ethernet” uses of Ethernet interconnects.



### Meet The Instructors:



Steve Macatee



Pat Brown

Pat and Steve form a tag-team to present Syn-Aud-Con Digital both visually and effectively. You know Pat from his work at Syn-Aud-Con. Steve is Director of Product Development and Training at Rane Corporation. But don't let the fancy title fool you. Over the past 20 years he has worked in manufacturing, test, documentation, analog, digital and embedded system design. Together Pat and Steve will make learning digital audio fast, friendly and fun.