

Your Way to get a Certified AV specialist - Job Task Analysis example for beginners/intermediates and seasoned technicians

Essential AV Knowledge Pre-Course(10-24h of training, based on level of experience and amount of self-study) or integrated into the certification class

My recommendation: 5-day class with 5h per day for **certification preparation** (all levels e.g. 8-12) and 2-3h per day for **Q&A and essential knowledge** (13-15/16 etc. for everybody interested, especially for beginners, intermediates or people switching careers). Or own essentials class before taking the certification prep class.

Topics for the essential knowledge class:

Hearing and Sound

- Acoustics
- Capturing Sound
- Audio Components

Lighting

- Principles of light and lighting
- Conference/Video lighting

Loudspeaker Systems

- Audio Signal Level Monitoring
- Audio System Applications
- Analog and Digital Signals

Vision and Perception

- Video Signal Types
- Computer Display Characteristics
- Producing an Image

Display and Projection Technologies

- Projectors and Screens
- Viewability

Networks

- Networking Components and the Data Journey
- OSI Model
- Network Addressing
- The Audiovisual LAN Series: Theory in Practice
- Network Security Basics

Additional topics

- Control Systems
- Electrical Systems
- Signal Management Systems
- Radio Waves (frequency coordination, measurement, and planning)
- How to create extraordinary AV Experiences

The **certification preparation course** (24-25h of training 3 days 8h, 5 days 4-5h + optional Essential knowledge parts/class-see above) will be based on the job task analysis, the Exam handbook and broad knowledge about the AV industry and certification and more than 20 years of experience in AV and teaching (see a JTA example below).

Duties and Tasks, Knowledge Skills and Abilities Tools, Equipment, and Resources		
A Creating AV Solutions		
1 Gather customer information		
knowledge of customer service techniques knowledge of negotiation techniques	basic math skills listening skills ability to ask open-ended questions	RFP graphic examples
knowledge of project requirements knowledge of questioning techniques	communication skills ability to document findings design skills inquire about customer goals	camera
2 Conduct initial site survey		
knowledge of conversions (metric system, etc.) knowledge of questioning techniques knowledge of construction methods knowledge of site substructure (walls, ceiling height, etc.) knowledge of site infrastructure (cable pathway, power, data, etc.) knowledge of other disciplines (mechanical, electrical, plumbing, etc.)	ability to calculate areas and volumes communication skills measuring skills ability to document findings basic math skills listening skills observational skills written communication skills ability to coordinate with other disciplines ability to identify site requirements	tool kit camera site-specific safety requirements local codes and regulations PPE architectural drawings site survey form

Duties and Tasks Knowledge Skills and Abilities Tools, Equipment, and Resources

A
Creating AV Solutions

3 Evaluate site environment 3 (acoustics, lighting, seating, finishing, etc.)

knowledge of scale interpretations		
knowledge of other disciplines (mechanical, electrical, plumbing, etc.)		
knowledge of acoustics	basic reading skills written communication skills	
knowledge of sight lines	advanced math skills (algebra, logarithms, geometry, trigonometry)	PPE site-specific safety requirements
knowledge of ambient and artificial lighting	ability to coordinate with other disciplines	architectural drawings building regulations and codes
knowledge of furniture and furniture layouts		
knowledge of room finishes		
knowledge of historical and heritage considerations	ability to identify the location of required services (power, data, cable access, HVAC, ICT, etc.)	
knowledge of zoning and planning considerations		
knowledge of equipment ventilation considerations		

4 Develop an AV project scope

knowledge of customer and end-user requirements	ability to compile customer and site information technical writing skills	
knowledge of preliminary project budget	ability to develop a cost estimate	preliminary project budget site survey documentation
knowledge of AV technologies	ability to define responsibilities ability to define system functionality	

Duties and Tasks Knowledge Skills and Abilities Tools, Equipment, and Resources

A
Creating AV Solutions

5 Design AV solutions

knowledge of AV systems knowledge of the project site	basic and advanced math skills technical writing skills	
knowledge of general AV design methods		site survey documentation site environment evaluation
knowledge of bills of materials (BOM)	ability to measure distances and scale ability to develop diagrams	
knowledge of thermal management	ability to create specifications and drawings	AV project scope architectural drawings
knowledge of light levels knowledge of power consumption	ability to conduct AV equipment needs calculations drafting skills	CAD software
knowledge of sound levels		
knowledge of rigging	ability of interpret architectural drawings	
knowledge of signal transport methods		

B Implementing AV Solutions

1 Integrate AV solutions

<p>knowledge of grounding (earthing) knowledge of basic carpentry</p> <p>knowledge of structural loads</p> <p>knowledge of testing methods (continuity, lighting, SPL, system validation, etc..) knowledge of electrical safety</p> <p>knowledge of fall prevention and protection</p> <p>knowledge of ladder, scaffolding, and powered lift safety</p> <p>knowledge of materials handling knowledge of user interfaces</p>	<p>ability to receive instructions ability to schedule ability to integrate AV systems onto the network</p> <p>ability to install and configure AV equipment</p> <p>ability commission systems ability to follow designs and specifications</p> <p>ability to train users</p> <p>measuring skills</p> <p>ability to pull cables and wires ability to solder ability to select cable types ability to secure mounts ability to terminate cables ability to label cables</p> <p>ability to dress a rack ability access vendor technology support ability to obtain customer acceptance</p>	<p>health and safety regulations PPE</p> <p>site-specific safety requirements</p> <p>user manuals maintenance reports</p> <p>checklists</p> <p>tool kit project documentation (drawings, specifications, source code, etc.) AV project scope material safety data sheets (MSDS) testing equipment</p>
---	--	---

Duties and Tasks Knowledge Skills and Abilities Tools, Equipment, and Resources		
B Implementing AV Solutions		
2 Operate AV solutions		
<p>knowledge of fall prevention and protection</p> <p>knowledge of AV signal flow</p> <p>knowledge of user interfaces</p> <p>knowledge of AV systems</p>	<p>ability to train users listening skills ability to operate AV equipment ability to provide customer and end-user service and support</p>	<p>health and safety regulations PPE checklists</p> <p>site specific safety requirements logs user manuals</p>
3 Manage AV projects		
<p>knowledge of project management knowledge of change management</p> <p>knowledge of AV systems knowledge of alternative AV equipment, materials and resources</p>	<p>communication skills</p> <p>ability to mitigate and resolve conflicts</p> <p>scheduling skills</p> <p>ability to coordinate site activities</p> <p>ability to coordinate resources</p> <p>ability to review project documentation</p> <p>ability to ensure compliance with health and safety regulations</p> <p>ability to manage project activities according to a schedule</p> <p>ability to coordinate project meetings ability to ensure project budgets are met</p> <p>ability to obtain customer acceptance</p> <p>ability to maintain vendor/supplier relationships ability to provide customer and end-user service and support</p> <p>ability to coordinate with other disciplines ability to review proposals</p>	<p>flow sheets gant charts project management documentation Request for Information (RFI) Request for Change (RFC) Request for Proposal (RFP)</p> <p>health and safety regulations</p> <p>project budget</p> <p>project documentation (drawings, specifications, source code, etc.)</p> <p>AV project scope</p>

	ability to evaluate job progress negotiation skills	
--	---	--

Duties and Tasks Knowledge Skills and Abilities Tools, Equipment, and Resources		
C SCerrevajcting AV Solutions		
1 Maintain AV operations		
<p>knowledge of administrative work (billing, purchasing, documentation, recording, etc.)</p> <p>knowledge of AV systems</p>	<p>ability to liaise with customers and end-users</p> <p>ability to ensure the security of equipment</p> <p>ability to monitoring usage and availability of solutions</p> <p>ability to managing stock and material levels</p> <p>ability to provide customer and end-user service and support</p> <p>ability to maintain vendor/supplier relationships</p> <p>ability to conduct training</p>	<p>health and safety regulations PPE</p> <p>tool kit</p> <p>project documentation (drawings, specifications, source code, etc.)</p> <p>AV project scope testing equipment</p>
2 Conduct maintenance activities		
<p>knowledge of service contracts</p> <p>knowledge of AV systems</p> <p>knowledge of warranties</p> <p>knowledge of fall prevention and protection</p>	<p>perform preventative maintenance of equipment (lamp life, filters, consumables, etc.)</p> <p>ability to test leads and equipment</p> <p>ability to documenting maintenance results</p> <p>ensuring proper cable management</p> <p>ability to provide customer and end-user service and support</p> <p>ability to integrate AV systems onto the network</p> <p>ability to install and configure AV equipment</p>	<p>health and safety regulations PPE</p> <p>tool kit</p> <p>AV service contract warranties</p> <p>testing equipment</p>

Duties and Tasks Knowledge Skills and Abilities Tools, Equipment, and Resources		
C SCerrevajcting AV Solutions		
3 Troubleshoot and repair AV solutions		
<p>knowledge of warranties</p> <p>knowledge of installation techniques knowledge of inspection techniques knowledge of fall prevention and protection knowledge of service contracts</p> <p>knowledge of AV systems</p> <p>knowledge of alternative AV equipment, materials and resources</p>	<p>ability to document problems and resolutions</p> <p>ability to mitigate and resolve conflicts</p> <p>ability to reference project documentation</p> <p>ability to apply troubleshooting strategies</p> <p>ability to perform diagnostics</p> <p>ability to provide customer and end-user service and support</p>	<p>operational manuals</p> <p>project documentation (drawings, specifications, source code, etc.)</p> <p>tool kit</p> <p>AV service contract warranties</p> <p>PPE</p> <p>health and safety regulations</p> <p>testing equipment</p>

	ability to implement corrective actions (repair, replace or remove)	
	ability to identify failure points ability to conduct AV equipment needs calculations ability to read schematics	

After our meeting today I would recommend a second course specifically about Networked AV applications, protocols, troubleshooting and planning. (around 24h of training – 3 days 8h, 5 Days 4-5h)

Examples of content for AV Networking class:

- The purpose of the OSI Model
- Differentiation between transmission control (TCP) and universal datagram (UDP) transport protocols.
- Recognize well-known port numbers and their common uses.
- Define encapsulation in the context of transport layer protocols.
 - Demo: netstat -> Ports and Protocols
- LAN, WAN, Subnetting, IP - > activity IPCONFIG
- Physical and logical addressing – gear comparison
- Category cable and Fiber (pros/cons, Applications in AV, possible problems for HDBaseT, AV over IP, etc.)
- WIFI Analysis and coordination/planning
- Wireshark Demo and practice – network traffic analysis
- Compression, encoding, Bandwidth.
- IGMP, multicast - >
 - AV application (Dante, AES67, AVB, Video over IP, SdVoE, etc)
- Streaming and conferencing– Design and application IT and AV side, troubleshooting, best practices.
- Managed and unmanaged Switches for AV-training (e.g. Netgear AV series, Cisco, Extreme)
- Network infrastructure planning
- The CoDec-Triangle – Quality – Latency – Bandwidth.
- Network security for integrated corporate and dedicated AV networks – with real life examples
- Application of network knowledge for AV purposes
- **Optional Modules:** Dante Level 1, 2 (and 3) certification training, SdVoE certification training, HdBaseT Training, SVSi Training, etc