

# CTS Candidate Handbook

Certified Technology Specialist

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## CTS Examination: Job Task Analysis

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### Domain A: Creating AV Solutions

#### Task 1: Conduct site survey

##### Knowledge of:

- Conversions (metric system, etc.)
- Questioning techniques
- Health and safety regulations
- Use of Personal Protective Equipment (PPE)
- Site specific safety requirements
- Observing and documenting site conditions

##### Skill in:

- Calculating areas and volumes
- Communicating concisely
- Measuring
- Reading blueprints
- Recording data
- Basic math
- Listening techniques
- Observational techniques
- Written communications
- Reading plans and blueprints

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### Domain A: Creating AV Solutions

#### Task 2: Gather customer information

##### Knowledge of:

- Customer service techniques
- Negotiation techniques
- Scale drawings

##### Skill in:

- Basic math
- Listening techniques

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### Domain A: Creating AV Solutions

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

##### Knowledge of:

- Customer service
- Scale interpretations
- Advanced math (algebra, logarithms, geometry, trigonometry)
- Health and safety regulations
- Material Safety Data Sheets (MSDS)
- PPE
- Site specific safety requirements
- Scale drawings
- Space acoustics
- Sight lines

- Ambient and artificial lighting
- Furniture and furniture layouts
- Room finishes (materials, colors, etc.)
- Services (power, data, cable access, HVAC, ICT, etc.)
- Historical and heritage considerations
- Zoning and planning considerations
- Building regulations (Code) considerations
- Space plans

##### Skill in:

- Basic reading
- Written communication

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## Domain A: Creating AV Solutions

**Task 4: Maintain awareness of changes to site environment (acoustics, lighting, seating, finishing, etc.)**

### Knowledge of:

- Customer service
- Scale interpretations and scale drawings
- Space acoustic treatments
- Changes to sight lines
- Ambient and artificial lighting
- Management of lighting
- Furniture room finishes (materials, colors, etc.)
- Services (power, data, cable access, HVAC, ICT, etc.)
- Substructure (walls, ceiling height, etc.)

- Structure (hanging points, wall supports, etc.)
- Historical and heritage considerations
- Zoning and planning considerations
- Building regulations (Code) considerations
- Space planning solutions

### Skill in:

- Basic reading
  - Written communication
  - Advanced math skills - algebra, logarithms, geometry, trigonometry
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## Domain A: Creating AV Solutions

**Task 5: Develop a functional AV scope**

### Knowledge of:

- Compiling customer and site information
- Presenting findings to customers
- Financial calculations
- Technical writing

### Skill in:

- Interpersonal communication
  - Conducting presentations
  - Written communications
  - Drawing and sketching
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## Domain A: Creating AV Solutions

**Task 6: Design AV solutions**

### Knowledge of:

- AV solution components
- Developing block diagrams
- Creating specifications and drawings
- Creating a bill of materials (BOM)
- Calculating heat generation
- Calculating light levels
- Calculating power consumptions
- Calculating room layouts
- Calculating sound levels
- Conducting equipment needs calculations (projector lumens, amplifier wattage, speaker taps, screen gain/size, etc.)

- Basic drafting
- Technical writing

### Skill in:

- Basic and advanced math
  - Customer relationships
  - Presentations
  - Written communications
  - Measuring distances and scaling
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## Domain A: Creating AV Solutions

### Task 7: Sell AV solutions

#### Knowledge of:

- Developing and presenting a proposal
- Obtaining customer feedback
- Negotiating an AV Contract
- Creating maintenance contracts
- Customer service
- Training techniques

#### Skill in:

- Interpersonal communications
  - Listening
  - Negotiation
  - Presentation
  - Sales
  - Verbal communication
  - Written communication
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## Domain A: Creating AV Solutions

### Task 8: Conduct vendor selection process

#### Knowledge of:

- Reviewing proposals submitted by others
- Seeking clarification for vendors and providing feedback to vendors
- Calculating heat generation
- Calculating light levels
- Calculating power consumptions
- Calculate room layouts
- Calculating sound levels
- Conducting equipment needs calculations (projector lumens, amplifier wattage, speaker taps, screen gain/size, etc.)

- Design calculations
- Financial calculations

#### Skill in:

- Basic and Advanced math
  - Basic reading
  - Interpersonal communication
  - Interviewing techniques
  - Presentation
  - Written communication
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## Domain A: Creating AV Solutions

### Task 9: Provide AV solutions

#### Knowledge of:

- Developing content
- Installing and setting up equipment
- Manufacturing equipment
- Developing designs and specifications
- Programming AV equipment
- Configuring network systems
- Configuring AV equipment
- Designing user interfaces
- Producing user interfaces
- Commissioning systems
- Creating documentation (user manuals, maintenance reports, etc.)
- Training users

- Producing AV events
  - Measuring
  - Cable management
  - Soldering
  - Pulling cables and wires
  - Basic carpentry
  - Affixing anchors
  - Cutting and drilling structures
  - Sawing wood
  - Terminating
  - Threading
  - Grounding (Earthing)
  - Labeling
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- Rack dressing
- Networking
- Testing methods
- Electrical safety
- Fall prevention and protection
- Health and safety regulations
- Ladder, scaffolding, and powered lift safety
- Materials handling
- PPE
- Site specific safety requirements
- Installation techniques

**Skill in:**

- Basic reading
- Listening
- Written communication
- Scheduling

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## Domain B: Operating AV Solutions

### Task 1: Operate AV solutions

**Knowledge of:**

- Proper equipment operation
- Daily preventative maintenance techniques
- Conducting solution shut-down activities
- Completing documentation (daily logs, etc.)
- Customer service
- Materials handling safety
- Health and safety regulations
- Lifting safety
- Material safety data sheets (MSDS)

- Site specific safety requirements
- Safety associated with working at heights

**Skill in:**

- Interpersonal communication
- Listening
- Presenting
- Verbal communication
- Written communication

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## Domain B: Operating AV Solutions

### Task 2: Conduct maintenance activities

**Knowledge of:**

- Maintaining AV solutions
- Preventative and first-line maintenance of equipment (lamp life, filters, consumables, etc.)
- Conducting solution check-outs
- Testing and certifying leads and equipment
- Documenting maintenance results
- Cable management
- Calibrating systems and equipment
- Customer service
- Grounding
- Labeling
- Rack dressing
- Testing methods
- Electrical safety
- Networking

- Health and safety regulations
- High voltage safety
- Ladder safety
- PPE

**Skill in:**

- Basic reading
- Interpersonal communication
- Listening
- Verbal communications
- Written communications
- Affixing anchors
- Pulling wires and cables
- Soldering
- Terminating
- Threading

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## Domain B: Operating AV Solutions

### Task 3: Manage AV solutions/operations

#### Knowledge of:

- Liaising with third-party users and stakeholders
- Ensuring the security of equipment
- Monitoring usage and availability of solutions
- Scheduling usage of solutions
- Managing stock and material levels
- Conducting customer service activities
- Liaising with vendors and suppliers
- Conducting training
- Maintaining professional skills and knowledge
- Conducting administrative work (billing, purchasing, documentations, recording, etc.)
- Conducting strategy planning (long and short term)
- Conducting basic troubleshooting
- Coordinating maintenance and service
- Calculating profit and loss
- Estimating
- Financial calculations
- Utilization calculations
- Fire safety practices
- Life safety issues
- Public safety issues
- PPE

#### Skill in:

- Interpersonal communication skills
- Calculating stock levels
- Presentations
- Scheduling
- Verbal communications
- Written communications

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## Domain C: Conducting AV Management Activities

### Task 1: Project manage AV projects

#### Knowledge of:

- Producing project documentation (Gantt charts, timelines, progress reports, etc.)
- Managing changes (Request for Information [RFI], change orders/variation orders [CO/VO], etc.)
- Coordinating site activities (between contractors, etc.)
- Reviewing project documentation
- Coordinating resources (vans, labor, tools, etc.)
- Ensuring health and safety per local regulations/codes
- Project meetings
- Managing project activities according to a schedule
- Ensuring project budgets are met
- Obtaining customer confirmations (sign-offs, documentation, etc.)
- Conducting job costing activities
- Maintaining vendor/supplier relationships
- Customer service

#### Skill in:

- Basic math
- Conflict resolution
- Interpersonal communication
- Listening
- Verbal communication
- Written communication
- Scheduling

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## Domain C: Conducting AV Management Activities

### Task 2: Perform AV finance and job costing activities

#### Knowledge of:

- Identifying and calculating quantities (equipment, materials, services, content, tools, and labor)
- Producing lists (equipment, materials, services, content, tools and labor)
- Estimating AV costs (equipment, materials, services, content, tools and labor)
- Estimating other project costs (fees, permits, bonds, financial costs, insurance, travel, etc.)
- Gathering field reports and time sheets
- Producing estimates
- Reviewing estimates, purchase orders and proposals
- Identifying vendors and suppliers
- Confirming pricing and equipment lead time
- Alternative AV equipment, materials and resources for jobs.
- Analyzing project expenses
- Analyzing utilization rates
- Evaluating job progress
- Producing progress/stage/interim invoices
- Creating project profit and loss documents
- Purchasing techniques (equipment, materials, services, content, tools and labor)
- Vendor relationship techniques
- Negotiation techniques
- Calculating conduit
- Calculating labor utilization
- Basic accounting
- Calculations of margins, percentages and mark-ups
- Manpower calculations

#### Skill in:

- Basic and financial math
- Interpersonal, verbal and written communication
- Conflict resolution
- Presentation skills
- Entering data

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## Domain D: Servicing AV Solutions

### Task 1: Troubleshoot AV solutions

#### Knowledge of:

- Warranty and maintenance agreements
- Project documentation (operational manuals, drawings, source code, etc.)
- Inspection techniques (visual, etc.)
- Developing troubleshooting strategies (methods and steps)
- Performing diagnostics
- Recreating and confirming problem symptoms
- Corrective actions (repairs, replacements, removals, etc.)
- Calculating throw distances
- Measuring signal levels
- Customer relationship skills
- Documentation techniques
- Fabrication
- Negotiation techniques
- Aligning a projector
- Calibrating color balance
- Calibrating test meters
- Basic carpentry
- Terminating
- Installation techniques

#### Skill in:

- Basic reading
- Conflict resolution
- Interpersonal, verbal and written communication skills
- Listening

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## Domain D: Servicing AV Solutions

### Task 2: Repair AV solutions

#### Knowledge of:

- Corrective actions
- Documenting problems and resolutions (maintenance logs, materials, time, travel, billables, etc.)
- Ohm's Law
- Calculating throw distances
- Measuring signal levels
- Reading technical drawings
- Conflict resolution techniques
- Fabrication
- Documentation

- Voltage calculations

#### Skill in:

- Basic math
- Basic reading
- Documenting
- Interpersonal, verbal and written communication skills
- Listening
- Negotiation

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