ETEVS302

VIDEO SYSTEM INSTALLATION

INSTALL VIDEO SYSTEM

Competence

RQF Level: 3

Learning Hours

50

Credits: 5

Sector: Technical Services

Trade: Electronics and Telecommunication

Module Type: Specific

Curriculum: TSVETE3001- TVET Level 3 in Electronics and Telecommunication

Issue Date: April 2022

Purpose statement	This module describes the knowledge and practical skills required to Conduct pre-work activities for video system installation, prepare video system equipment and perform video system installation.
	At the end of this module, learners will be able to conduct the site survey, determine the required resources, perform installation and test the installed video system.

Delivery modality	Training delivery		100%	Assessment		Total 100%
	Theoretical content		30%	Formative assessment	30%	50%
	Practical work:		70%		70%	
	● Group project and presentation	20%				
	● Individual project /Work	50%				
				Summative Assessment		50%

Elements of Competency and Performance Criteria

Elements of competency	Performance criteria
1. Conduct pre-work activities	1.1. The site is correctly inspected according to the work to be done
	1.2. Tools, materials and equipment are properly identified according to the work to their types
	1.3. Health and safety precautions are applied according to the standards
2. Prepare video system equipment	2.1. The number of required cameras is determined according to the size of the site
	2.2. The number of video cables with proper length are collected according to the number of Cameras and their respective positions
	2.3. Video equipment (video mixer, video Conversion devices, displays) are carefully selected and tested based on the expected setting of video system
3. Perform video system installation	3.1. Video system equipment are suitably positioned according to positioning techniques
	3.2. Video system equipment are properly connected according to manufacturer instructions
	3.3. Video system is accurately configured according to the configurations techniques
	3.4. Video/image quality is adjusted according to video and image characteristics

Course content

	At the end of the module the learner will be able to:
Learning outcomes	1. Conduct the Site Survey 2. Prepare video system equipment 3. Install and test the Video System

Learning outcome 1: Conduct pre-work activities	**Learning hours: 5**

Indicative content

- **Inspection of the site based on:**
  - ✓ Nature of the site (Indoor or outdoor)
  - ✓ Network coverage availability
  - ✓ Estimation of the total electrical power of whole system
  - ✓ Power supply system (Single phase or three phases)
  - ✓ Location of the power supply
- **Determination of tools, equipment and materials**
  - ✓ Types of tools
  - ✓ Types of equipment
  - ✓ Types of materials
- **Application of safety precautions**
  - ✓ Environmental conditions
  - ✓ Physical security of Equipment and materials
  - ✓ Security of cables

Resources required for the learning outcome

Equipment	Digital Multimeter
Materials	Recording book
Tools	Measuring tape, Helmet, Face mask, Torch
Facilitation techniques	- Lectures - Individual and group work - Practical exercise - Trainer guided - Group discussion
Formative assessment methods	- Written assessment - Oral presentation - Performance assessment

Learning outcome 2: Prepare video system equipment	**Learning hours: 15**

Indicative content

- **Description of cameras**
    - ✓ Types and applications of cameras
    - ✓ Classification of cameras based on resolutions
    - ✓ Test cameras
- **Description of video cables**
    - ✓ Types and applications of video cables
    - ✓ Types and applications of video connectors
    - ✓ Test of video cable and connectors
- **Description of video lighting systems**
    - ✓ Types
    - ✓ Applications
- **Description of video converter devices**

- ✓ Video resolution standards
- ✓ Types of video formats
- ✓ Types and applications of video cable connectors and ports
- ✓ Test video converter devices

- **Description of video displays**
  - ✓ Types and applications of video display devices
  - ✓ Identification of video displays based on their resolutions
  - ✓ Selection of video displays based on their size
  - ✓ Test video display

- **Description of video mixer and video switchers**
  - ✓ Types and applications of video mixers
  - ✓ Identification of video mixers based on their resolution capacity
  - ✓ Types of video switchers and their resolution capacity
  - ✓ Test of video mixer and video switchers

Resources required for the indicative content

Equipment	video switchers, video displays, Computer, Cameras, Video mixer, Video Monitors, Video Converter devices, Wireless InterCom system, Lighting Kit, Portable Digital Audio Recorder, 3-4 Extra Batteries, Audio and Video Embedders, Audio and Video de-Embedders, Video cable tester
Materials	Video connectors,Camera tripod stand,Video Cables,Camera Light, Shotgun Microphone, Audio (XLR) Cables, Wireless Microphone, Light Reflector, Lenses: Wide Angle, Clear "Protective" Lens, Polarizer, Zoom Lens, Macros, etc., 3-4 Extra Batteries, Video Tapes, Flash Memory Cards or DVD's, Power Extinction cables, Insulation tape
Tools	Boom Pole, DSLR Shoulder Mount Rig, Wire strippers, Screwdrivers, Cable cutters, Hex keys, Spanners, Digital Multimeter, Safety knife, Torch, Audio and Video editing Software, Helmet, Grooves, Face mask, Eyes protector
Facilitation techniques &	- Jig saw

learning activities	● Individual and group work
	● Practical exercise
	● Trainer guided
	● Group discussion
Formative assessment methods	● Written assessment
	● Oral presentation
	● Performance assessment

Learning outcome 3: Perform video system installation	Learning hours: 30

Indicative content

- **Determination of positions for video system equipment**
  - ✓ Ways of selecting control area to place video/mixer switcher and video monitors
  - ✓ Ways of selecting areas to place Video displays
  - ✓ Ways of selecting areas to place Cameras
  - ✓ Selection ways Video cables routes

- **Interconnection of video system equipment**
  - ✓ Identification of different types of video ports
  - ✓ Connection of Cameras to video mixer/switcher
  - ✓ Connection of mixer/switcher to video monitors and displays
  - ✓ Connection of video mixer/switcher to video converter devices
  - ✓ Connection of cameras to computer

- **Adjustment of video/image quality**
  - ✓ Video and image characteristics
  - ✓ Preliminary settings of the camera

Resources required for the indicative content	
Equipment	Video Cables, Power extension cables, Video Cable tester, Video mixer, Video Monitors, Computer, Cameras, Video Conversion devices, Wireless Microphone, Shotgun Microphone, Audio and Video Embedders, Audio and Video de-Embedders, Wireless Intercom system
Materials	Camera tripod stand, Wireless Intercom system, Camera Light, Lighting Kit, Boom Pole, Audio (XLR) Cables, Portable Digital Audio Recorder, Headphones, Light Reflector, Lenses: Wide Angle, Clear "Protective" Lens, Polarizer, Zoom Lens,

	Macros, etc., 3-4 Extra Batteries, Video Tapes, Flash Memory Cards or DVD's, DSLR Shoulder Mount Rig
Tools	Wire strippers, Screwdrivers, Pliers, Insulation tape, Cable cutters, Spanners, Digital Millimeter, Safety knife, Hex keys, Torch, Soldering iron, Audio and Video editing Software, Helmet, Grooves, Face mask, Eyes protector
Facilitation techniques & facilitation techniques	● Individual and group work ● Practical exercise ● Trainer guided ● Group discussion
Formative assessment methods	● Written assessment ● Oral presentation ● Performance assessments

Integrated situation

Image Solution Ltd won a tender to install a video system where Music Concert will take place at Rebero; Canalolympia (Outdoor).

As a video system installer from Image Solution Ltd, you are required to:
  A. Conduct the site survey for the surface area equivalent to $15000m^2$.
  B. Select and prepare appropriate equipment to satisfy the event.
  C. Install and test the video system (big screens) to cover the area mentioned in A.

These installation activities must be done in 3 hours

The required materials, tools and equipment are available

Resources

Tools	Wire strippers, Screwdrivers, Pliers, Insulation tape, Cable cutters, Spanners, Digital Millimeter, Safety knife, Hex keys, Torch, Soldering iron, Audio and Video editing Software, Helmet, Grooves, Face mask, Eyes protector
Equipment	Video Cables, Power extension cables, Video Cable tester, Video mixer, Video Monitors, Computer, Cameras, Video Conversion devices, Wireless Microphone, Shotgun Microphone, Audio and Video Embedders, Audio and Video de-Embedders, Wireless Intercom system
Materials/ Consumables	Camera tripod stand, Camera Light, Lighting Kit, Boom Pole, Audio (XLR) Cables, Portable Digital Audio Recorder, Headphones, Light Reflector, Lenses: Wide Angle, Clear "Protective" Lens, Polarizer, Zoom Lens, Macros, etc., 3-4 Extra Batteries, Video Tapes, Flash Memory Cards or DVD's, DSLR Shoulder Mount Rig

Assessable outcomes	Assessment criteria (Based on performance criteria)	Indicator	Observation		Marks allocation
			Yes	No	
Learning outcome 1:	1.1. The site is correctly Inspected according to the work to be done	The nature (indoor/outdoor) of the site is considered			2
	1.2. Tools, materials and	The list of materials,			4

Conduct the site survey **(15%)**	Equipment are efficiently determined according to the work to be done	tools and equipment is properly determined			
	1.3. The electrical power source is precisely Identified considering the equipment and the site to be installed	An electrical power supply system (Single/three-phase) is considered			3
		Location of Power Sources is considered			2
	1.4. Security concerns of equipment and materials are carefully assured as per the working environment	Environmental requirements are considered			2
		Safety requirements are considered			2
Learning outcome 2: **Select and prepare appropriate equipment** **(15%)**	2.1. Proper number of required cameras is determined and cameras are selected according to the size of the site	The required number of cameras is selected			3
	2.2. Appropriate number of video cables with proper length are collected and prepared according to the number of Cameras and their respective positions	The required number of cables is selected			2
		Required cable lengths are carefully selected			2
	2.3. Video equipment (video mixer/switcher, video Converter devices, displays) are carefully selected and tested based on the expected video system	The required size of the video mixer/switcher properly selected			3
		Required size and number of video displays are correctly selected			3
		Appropriate video Conversion devices are correctly selected			3
Learning outcome 3: **Install and test**	3.1. Suitable positions of Video displays and mixers are properly determined based on the expected setting of the video	Video mixers/switchers are correctly positioned.			5
		Video displays are correctly positioned			5

the video system	3.2. Cameras are placed in their appropriate positions in the video system setting.	Cameras are suitably placed in their positions			5
(30%)	3.3. All Video system Equipment are carefully interconnected with respect to their standards	Cameras are correctly connected to the input of the video mixer/Switcher			10
		Video displays are correctly connected to the output of the video mixer/Switcher			10
		Video Converter devices are correctly connected to the output of the video mixer/Switcher			10
		Video Converter devices are correctly connected to the input of the video display/video devices			5
	3.4. Video system is carefully tested using the testing techniques	Equipment carefully powered			5
		The system with playback (video music) is successfully tested			7
	3.5. Video/image quality is accurately adjusted according to the video system standards	Cameras with playback (video music) are successfully tested			7

Total marks	100
Percentage Weightage	**100%**

Minimum Passing line % (Aggregate): 70%

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References

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