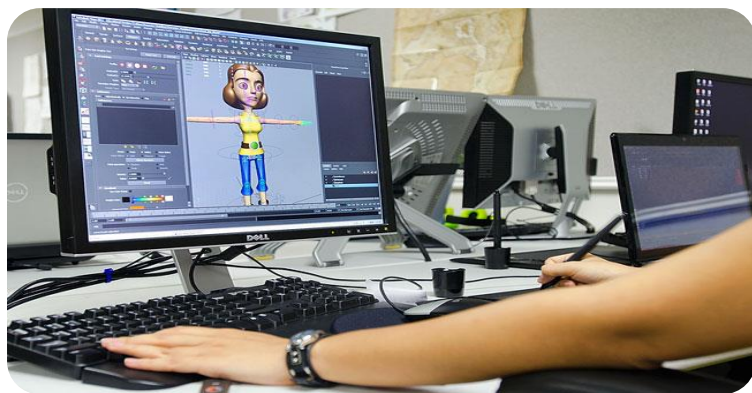# MULTIMEDIA, ANIMATION & SPECIAL EFFECTS

NSQF LEVEL- 4

SECTORS – MEDIA AND ENTERTAINMENT

COMPETENCY BASED CURRICULUM

CRAFT INSTRUCTOR TRAINING SCHEME (CITS)

GOVERNMENT OF INDIA
Ministry of Skill Development & Entrepreneurship
Directorate General of Training
CENTRAL STAFF TRAINING AND RESEARCH INSTITUTE
EN-81, Sector-V, Salt Lake City, Kolkata – 700091

MULTIMEDIA, ANIMATION & SPECIAL EFFECTS

(Non-Engineering Trade)

SECTOR – MEDIA AND ENTERTAINMENT

(Revised in 2024)

Version 2.1

CRAFT INSTRUCTOR TRAINING SCHEME (CITS)

NSQF LEVEL - 4

CONTENTS

1. COURSE OVERVIEW

The Craft Instructor Training Scheme is operational since inception of the Craftsmen Training Scheme. The first Craft Instructors' Training Institute was established in 1948. Subsequently, 6 more institutes namely, Central Training Institute for Instructors (now called as National Skill Training Institute (NSTI)), NSTI at Ludhiana, Kanpur, Howrah, Mumbai, Chennai and Hyderabad were established in 1960's by DGT. Since then the CITS course is successfully running in all the NSTIs across India as well as in DGT affiliated institutes viz. Institutes for Training of Trainers (IToT). This is a competency based course of one year duration. "Multimedia, Animation & Special Effects" CITS trade is applicable for Instructors of "Multimedia, Animation & Special Effects" Trade.

The main objective of Craft Instructor training programme is to enable Instructors explore different aspects of the techniques in pedagogy and transferring of hands-on skills so as to develop a pool of skilled manpower for industries, also leading to their career growth & benefiting society at large. Thus promoting a holistic learning experience where trainee acquires specialized knowledge, skills & develops attitude towards learning & contributing in vocational training ecosystem.

This course also enables the instructors to develop instructional skills for mentoring the trainees, engaging all trainees in learning process and managing effective utilization of resources. It emphasizes on the importance of collaborative learning & innovative ways of doing things. All trainees will be able to understand and interpret the course content in right perspective, so that they are engaged in & empowered by their learning experiences and above all, ensure quality delivery.

2. TRAINING SYSTEM

2.1 GENERAL

CITS courses are delivered in National Skill Training Institutes (NSTIs) & DGT affiliated institutes viz., Institutes for Training of Trainers (IToT). For detailed guidelines regarding admission on CITS, instructions issued by DGT from time to time are to be observed. Further complete admission details are made available on NIMI web portal http://www.nimionlineadmission.in. The course is of one-year duration. It consists of Trade Technology (Professional skills and Professional knowledge), Training Methodology and Engineering Technology/ Soft skills. After successful completion of the training programme, the trainees appear in All India Trade Test for Craft Instructor. The successful trainee is awarded NCIC certificate by DGT.

2.2 COURSE STRUCTURE

Table below depicts the distribution of training hours across various course elements during a period of one year:

S No.	Course Element	Notional Training Hours
1.	**Trade Technology**	
	Professional Skill (Trade Practical)	480
	Professional Knowledge (Trade Theory)	270
2.	**Training Methodology**	
	TM Practical	270
	TM Theory	180
	Total	**1200**

Every year 150 hours of mandatory OJT (On the Job Training) at nearby industry, wherever not available then group project is mandatory.

3	On the Job Training (OJT)/ Group Project	150
4	Optional Course	240

Trainees can also opt for optional courses of 240 hours duration.

2.3 PROGRESSION PATHWAYS

- Can join as an Instructor in vocational training Institute/ technical Institute.
- Can join as a supervisor in Industries.

2.4 ASSESSMENT & CERTIFICATION

The CITS trainee will be assessed for his/her Instructional skills, knowledge and attitude towards learning throughout the course span and also at the end of the training program.

a) The Continuous Assessment (Internal) during the period of training will be done by **Formative Assessment Method** to test competency of instructor with respect to assessment criteria set against each learning outcomes. The training institute has to maintain an individual trainee portfolio in line with assessment guidelines. The marks of internal assessment will be as per the formative assessment template provided on www.bharatskills.gov.in

b) The **Final Assessment** will be in the form of **Summative Assessment Method**. The All India Trade Test for awarding National Craft Instructor Certificate will be conducted by DGT as per the guidelines of DGT. The learning outcome and assessment criteria will be the basis for setting question papers for final assessment**.** The external examiner during final examination will also check the individual trainee's profile as detailed in assessment guideline before giving marks for practical examination.

2.4.1 PASS CRITERIA

Allotment of Marks among the subjects for Examination:
The minimum pass percent for Trade Practical, TM Practical, Soft Skill Practical Examinations and Formative assessment is 60% & for all other subjects is 40%. There will be no Grace marks.

2.4.2 ASSESSMENT GUIDELINE

Appropriate arrangements should be made to ensure that there will be no artificial barriers to assessment. The nature of special needs should be taken into account while undertaking the assessment. While assessing, the major factors to be considered are approaches to generate solutions to specific problems by involving standard/non-standard practices.

Due consideration should also be given while assessing for teamwork, avoidance/reduction of scrap/wastage and disposal of scrap/waste as per procedure, behavioral attitude, sensitivity to the environment and regularity in training. The sensitivity towards OSHE and self-learning attitude are to be considered while assessing competency.

Assessment will be evidence based comprising of the following:

- Demonstration of Instructional Skills (Lesson Plan, Demonstration Plan)
- Record book/daily diary
- Assessment Sheet
- Progress chart
- Video Recording
- Attendance and punctuality
- Viva-voce
- Practical work done/Models
- Assignments
- Project work

Evidences and records of internal (Formative) assessments are to be preserved until forthcoming examination for audit and verification by examining body. The following marking pattern to be adopted while assessing:

Performance Level	Evidence
(a) Weightage in the range of 60%-75% to be allotted during assessment	
For performance in this grade, the candidate should be well versed with instructional design, implement learning programme and assess learners which demonstrates attainment of an *acceptable standard* of crafts instructorship with *occasional* **guidance** and engage students by demonstrating good attributes of a trainer.	• Demonstration of *fairly good* skill to establish a rapport with audience, presentation in orderly manner and establish as an expert in the field. • Average engagement of students for learning and achievement of goals while undertaking the training on specific topic. • A fairly good level of competency in expressing each concept in terms the student can relate, draw analogy and summarize the entire lesson. • Occasional support in imparting effective training.
(b) Weightage in the range of 75%-90% to be allotted during assessment	
For performance in this grade, the candidate should be well versed with instructional design, implement learning programme and assess learners which demonstrates attainment of a *reasonable*	• Demonstration of *good* skill to establish a rapport with audience, presentation in orderly manner and establish as an expert in the field. • Above average engagement of students for

standard of crafts instructorship with *little guidance* and engage students by demonstrating good attributes of a trainer.	learning and achievement of goals while undertaking the training on specific topic. - A *good* level of competency in expressing each concept in terms the student can relate, draw analogy and summarize the entire lesson. - Little support in imparting effective training.
© Weightage in the range of more than 90% to be allotted during assessment	
For performance in this grade, the candidate should be well versed with instructional design, implement learning programme and assess learners which demonstrates attainment of a *high standard* of crafts instructorship with *minimal or no support* and engage students by demonstrating good attributes of a trainer.	- Demonstration of *high* skill level to establish a rapport with audience, presentation in orderly manner and establish as an expert in the field. - Good engagement of students for learning and achievement of goals while undertaking the training on specific topic. - A *high* level of competency in expressing each concept in terms the student can relate, draw analogy and summarize the entire lesson. - Minimal or no support in imparting effective training.

3. GENERAL INFORMATION

Name of the Trade	Multimedia, Animation & Special Effects – CITS
Trade Code	DGT/4049
NCO – 2015	2356.0100, 2166.0201, 3521.0300
NOS Covered	MES/N9407, MES/N9408, MES/N9409, MES/N9410, MES/N9411, MES/N9412, MES/N9413, MES/N9414, MES/N9415, MES/N9416, MES/N9417, MES/N9418, MEP/9446
NSQF Level	Level-4
Duration of Craft Instructor Training	One Year
Unit Strength (No. Of Student)	25
Entry Qualification	BE/B. Tech in Multimedia and Animation from AICTE/ UGC recognized engineering college/ university. OR 03 yrs. Diploma in Multimedia and Animation after class 10th from AICTE/ recognized board of technical education. OR Ex-serviceman from Indian armed force with 15 years of service in related field as per equivalency through DGR OR 10th Class with 02-year NTC/NAC passed in the Trade of "Multimedia, Animation & Special Effects".
Minimum Age	16 years as on first day of academic session.
Space Norms	80 Sq. m Lab & 50 Sq. m. Studio
Power Norms	6 KW
Instructor's Qualification for	
1. Multimedia, Animation & Special Effects (CITS) Trade	B.Voc/Degree in Multimedia and Animation from a UGC recognised University with two years' experience in relevant field. OR Diploma (Minimum 2 years) in Multimedia and Animation from recognized board of technical education with five years working experience in the relevant field. **OR** Ex-serviceman from Indian Armed forces with 15 years of service in related field as per equivalency through DGR. candidate should have undergone methods of instruction course or minimum 02 years of experience in technical training

	institute of Indian Armed forces. OR NTC/NAC holder in Multimedia Animation & Special Effects trade with seven years working experience in the relevant field. **Essential Qualification:** National Craft Instructor Certificate (NCIC) in Multimedia Animation & Special Effects trade in any of the variants under DGT.
2. Soft skills	MBA/ BBA / Any Graduate/ Diploma in any discipline from AICTE/ UGC recognized College/ university with Three years' experience and short term ToT Course in Soft Skills from DGT institutes. (Must have studied English/ Communication Skills and Basic Computer at 12th / Diploma level and above).
3. Training Methodology	B.Voc/ Degree in any discipline from AICTE/ UGC recognized College/ university with two years experience in training/ teaching field. OR Diploma in any discipline from recognized board / University with five years experience in training/teaching field. OR NTC/ NAC passed in any trade with seven years experience in training/ teaching field. **Essential Qualification:** National Craft Instructor Certificate (NCIC) in any of the variants under DGT / B.Ed /ToT from NITTTR or equivalent.
4. Minimum Age for Instructor	21 Years

4. JOB ROLE

Brief description of job roles:

Manual Training Teacher/Craft Instructor; instructs students in ITIs/Vocational Training Institutes in respective trades as per defined job role. Imparts theoretical instructions for the use of tools & equipments of related trades and related subjects. Demonstrate process and operations related to the trade in the workshop; supervises, assesses and evaluates students in their practical work. Ensures availability & proper functioning of equipment and tools in stores.

Multi-Media Artists and Animators; create special effects, animation, or other visual images using film, video, computers, or other electronic tools and media for use in products or creations, such as computer games, movies, music videos, and commercials. Apply story development, directing, cinematography, and editing to animation to create storyboards that show the flow of the animation and map out key scenes and characters. Assemble, typeset, scan and produce digital camera-ready art or film negatives and printer's proofs. Convert real objects to animated objects through modelling, using techniques such as optical scanning. Create and install special effects as required by the script, mixing chemicals and fabricating needed parts from wood, metal, plaster, and clay. Create basic designs, drawings, and illustrations for product labels, cartoons, direct mail, or television. Create pen-and-paper images to be scanned, edited, coloured, textured or animated by computer. Create two-dimensional and three-dimensional images depicting objects in motion or illustrating a process, using computer animation or modelling programmes. Design complex graphics and animation, using independent judgment, creativity, and computer equipment. Develop briefings, brochures, multimedia presentations, web pages, promotional products, technical illustrations, and computer artwork for use in products, technical manuals, literature, newsletters and slide shows.

Cameraman (Animation); operates special camera to make animated cartoon motion picture film. Discusses with Director and Producer, (Film) and renders advise about can era movements and feasibility of variety of shot; envisages in script and chart and suggests alternatives wherever necessary. Receives animation charts and drawings. Sets and adjusts camera and lighting exposure appropriate to type of film used and mood and effect to be emphasized. Installs frame on camera table for exposure and positions overhead camera suspended securely over frame. Shoots frame by frame in a predetermined sequence and regulates exposure and aperture to obtain special effect such as fade out or fade in. Instructs Laboratory Technicians about method of processing of films, which need special treatment for effective development of striking feature of certain shots.

Reference NCO-2015:

        (i)   2356.0100 – Manual Training Teacher/Craft Instructor
        (ii)   2166.0201 - Multi Media Artist and Animator/Animator
        (iii)   3521.0300 - Cameraman, Animation

Reference NOS:

(i)	MES/N9407	(viii)	MES/N9414
(ii)	MES/N9408	(ix)	MES/N9415
(iii)	MES/N9409	(x)	MES/N9416
(iv)	MES/N9410	(xi)	MES/N9417
(v)	MES/N9411	(xii)	MES/N9418
(vi)	MES/N9412	(xiii)	MEP/N9446
(vii)	MES/N9413		

5. LEARNING OUTCOMES

Learning outcomes are a reflection of total competencies of a trainee and assessment will be carried out as per the assessment criteria.

5.1 TRADE TECHNOLOGY

1. Perceive the basics and Fundamentals of Multimedia. Illustrate Multimedia components and Tools. (NOS: MES/N9407)
2. Setup LAN and configure various networking devices and related software. Managing network applications, Secure network and execute on network architecture. (NOS: MES/N9408)
3. Demonstrate the functional working of a still camera, the Art of Composition, Framing and Lighting. To work with lights and how to capture various emotions through camera. (NOS: MES/N9409)
4. Acquire the competency in technical skills applicable to graphic design. Enrich the skill level of graphic design through the topics by using Adobe Photoshop and Adobe Illustrator. (NOS: MES/N9410)
5. Demonstrate the functional working of a video camera, Art of Film Making, manage location and Apply lighting & sound effects. (NOS: MES/N9411)
6. Carry out Web browsing, Video streaming, uploading and downloading of video, audio, image on internet and secure information from cyber-attacks. (NOS: MES/N9412)
7. Demonstrate the concept of website and webpages design and implementation of HTML CSS to design a particular design of their creativity and information architecture by using Adobe Dreamweaver. (NOS: MES/N9413)
8. Implement, Audio, Video editing and apply special effects by using Adobe Premier and Adobe After-Effects. (NOS: MES/N9414)
9. Demonstrate different techniques related to art for animation, Creating animation projects, character animation, titles for film and video. Storytelling animation and making 2D animation movies. (NOS: MES/N9415)
10. Demonstrate the principles of 3D design and create texture a simple 3D Model. Understanding different animation styles and techniques By Using 3DS Max (NOS: MES/N9416)
11. Demonstrate the Design Graphics in animation fundamentals, different animation styles and techniques by using Autodesk MAYA (NOS: MES/N9417)
12. Perceive scripting and storyboarding techniques, Basic techniques of writing script out of a story and basic techniques of making storyboard out of a script. (NOS: MES/N9418)
13. Exhibit effective communication skills with logical reasoning ability and quantitative aptitude to maximize efficiency in work. (NOS: MEP/N9446)

6. COURSE CONTENT

MULTIMEDIA, ANIMATION & SPECIAL EFFECTS– CITS TRADE			
TRADE TECHNOLOGY			
Duration	Reference Learning Outcome	Professional Skills (Trade Practical)	Professional Knowledge (Trade Theory)
Practical- 20 Hrs Theory- 10 Hrs	Perceive the basics and Fundamentals of Multimedia. Illustrate Multimedia components and Tools.	**Multi Media Fundamentals** 1. Illustrate the Multimedia objects, hardware, software and Communication Devices 2. Demonstrate the Multimedia tools: video, sound, image capturing, authoring tools, card and page based authoring tools. 3. Inspect different types of cameras and Tripod. 4. Illustrate, create and editing graphic software, audio and video editing software.	• Multimedia Fundamentals • Multimedia Tools • Sound/Audio • Graphics /Image • Motion Picture • Post Production
Practical- 20 Hrs Theory- 10 Hrs	Setup LAN and configure various networking devices and related software. Managing network applications, Secure network and execute on network architecture.	**Illustrate:** 5. Straight Cabling and Cross cabling. 6. Switch Configuration. 7. LAN and WAN setup. 8. Setting TCP/IP. 9. Network Monitoring and Control (SNMP, V2, V3, RMON, RMON2). 10. Wireless Networking Design. 11. Implementing Voice over IP. 12. Configuring DHCP, IPV4/ IPV6	**Network Architecture** • Layering & Protocols. • OSI & Internet Architecture. • Network topology. • Link & Medium Access protocols, IEEE 802 standards, Performance issues. • Network Adaptors. Circuit switching – packet switching. • Internetworking - bridges - Internet protocol - Addressing – Routing Protocols.

			• UDP - TCP- Congestion Control – Presentation aspects. **Applications & Network Management:** • Telnet, FTP – e-mail – DNS. • Multimedia Applications • Security, Monitoring & Control. • SNMP V2 and V3, RMON, RMON2. • The wireless channel - Link level design - Channel access Network design - Standards. • Optical Networks - Cross connects –LANS. • Voice over IP – Multimedia. • Networks. • Introduction to VPN and DHCP.
Practical- 20 Hrs Theory- 10 Hrs	Demonstrate the functional working of a still camera, the Art of Composition, Framing and Lighting. To work with lights and how to capture various emotions through camera.	**Digital Photography (photo session)** 13. Illustrate how to handle Camera properly and take a shot, Setting Aperture, Shutter Speed and ISO for different Shots. 14. Illustrate how to use 3 Point Lighting using Cool Lights, Flash settings and Operations, Use of Reflector, Cutter and Diffuser Handling. 15. Demonstrate the Photo-shoot of Outdoor (Landscape) around the NSTI Campus. Color correction to the taken photos according to his creativity.	**Digital Photography** • Basics of Digital still Camera. • Flash & Lights. • Outdoor (Landscape & People). • Outdoor (Birds & Animals). • Outdoor – Monuments. • Photo Language And Portrait. • Freezing Moment and Panorama Special. • Special Effects & Indoor Photography. • Different types of lighting techniques.

| | | 16. Demonstrate the Photo-shoot of Outdoor (People) around the NSTI Campus.
17. Demonstrate Photo-shoot of Outdoor (Birds/Animals) around the NSTI Campus.
18. Demonstrate Photo-shoot of Outdoor (monuments) Color correction to the taken photos according to his creativity.
19. **Illustrate Photo Language And Portrait:** Photo-shoot of photo language concept and portrait photography around the NSTI campus. Color correction to the taken photos according to his creativity.
20. Demonstrate Photo-shoot of freezing moment and panorama.
21. **Illustrate Special Effects & Indoor Photography**
  • Product photography
  • Macro photography
  • Event photography
  • Night photography
  • Festival photography
22. Illustrate how to apply Point lighting, Direction lighting, Spot lighting, Area, Three-Point and Caustic lighting techniques. | |
| Practical- 60 Hrs;-

Theory- 30 Hrs | Acquire the competency in technical skills applicable to graphic design. Enrich the skill level of graphic | **Working with Images in Photoshop**
23. Illustrate Advanced navigational features :
  • Speeding up your navigation process
  • Dynamic zooming and | **Introduction to Photoshop**
• Advanced navigational features.
• Using Adobe Bridge.
• Advanced selection techniques.
• The Pen tool: Beyond the |

design through the topics by using Adobe Photoshop and Adobe Illustrator.	panning • Creating your own keyboard shortcuts • Customizing your menu items • Maximizing rulers, guides, and grids • Customizing your panels and workspaces 24. **Demonstrate the use of Adobe Bridge** : • Maximizing Adobe Bridge workspaces • Creating and locating metadata • Creating a Metadata Template • Searching and filtering your content • Using Adobe Bridge for automation Batch renaming your files **Advanced selection techniques** • Building selection and transforming your selection • Saving your selection as channels • Refining your selection • Going beyond the Magic Wand • Quick Mask 25. **Illustrate Pen tool** : • creation of Pen paths • Loading your path as a selection • Creating a vector mask • Defining a custom brush preset	primer Precision. • Color correcting like a Pro. • Painting and retouching. • Creating compositions. • Creating special effects. • Advanced use of vector tools. • Creating images for the Web and application design. • Automation tools. • Using Photoshop for 3D.

- Saving the image for other applications

26. **Illustrate Color correction technique:**
    - color Using the Histogram panel
    - highlight, shadow, and midtones
    - Balancing the neutrals in an image
    - Adding additional curve corrections
    - Sharpening the image
    - Painting your filter on your image
    - Adjusting the Blending of the filter

27. **Demonstrate Painting and retouching techniques** :
    - Using Painting and retouching tools
    - Using adjustment layers
    - Adding a vector mask
    - Organizing your Layers panel

28. **Demonstrate Creating compositions:**
    - Applying Smart Filters
    - Applying Adaptive Wide Angle filter
    - Cloning buildings and other image areas
    - Using a color look-up table

29. **Create special effects:**
    - Adding Layer Style effects
    - Adding interesting lighting effects
    - Adding text effects

		30. **Demonstrate Advanced use of vector tools:** • Taking advantage of vector objects • Adding pixel and vector masks • Converting text to a path • Adding a stroke to the text • Adding a drop shadow 31. **Create images for the Web and application design** : • Optimizing graphics for on-screen presentation • Adjusting the image size • Applying the Unsharp Mask filter to an image • Choosing the best file format for your image • Previewing your image • Creating a transparency effect in a JPEG image • Saving your settings • Using the color table • Creating animations Saving slices out of Photoshop 32. **Demonstrate use of Automation tools:** • Creating your own action • Adding an Image Size and a Save action • Creating a Droplet Creating your own keyboard shortcuts • Using actions in Button mode 33. **Demonstrate Use of Photoshop for 3D:** • Creating 3D objects	

		• Viewing and transforming 3D objects • Using Photoshop 3D in production workflows • Working with custom meshes • Downloading external 3D content	
		Graphics Editing using adobe Illustrator 34. **Illustrate Essential skills :** • Setting up the artboard • Creating a background shape • Combining shapes • Sampling a color • Applying a fill and stroke • Applying color and effects • Aligning and distributing shapes • Adding text • Distorting a shape • Importing an image • Working with color, color books and custom colors 35. **Illustrate Use of symbols:** • Creating symbols • Editing symbols • Importing a symbol library • Modifying symbol instances • Using the symbolism tools • Editing nested symbols • Replacing symbols • Saving symbol libraries 36. **Create Effects & transparency:** • Applying effects • Editing effects	**Understand Adobe Illustrator** • Understand the user interface, panels, workspace, artboard etc. • Understanding symbols and instances. • Effects & transparency. • Exporting & saving files. • Advanced blending techniques. • Additional features.

		• Using graphic styles	
		• Creating and saving graphic styles	
		• Object transparency	
		• Experimenting with multiple opacities	
		• Illustrate blending modes	
		• Saving and importing graphic styles	
		• Applying graphic styles to layers	
		• Applying graphic styles to symbols	
		• Using opacity masks	
		• Painting and editing opacity masks	
		37. **Demonstrate Exporting & saving files:**	
		• Saving using the AI format	
		• Saving an illustration with layers	
		• Saving a layered PDF	
		• Exporting for Photoshop	
		• Integrating with InDesign	
		• Saving as EPS	
		• Saving for Web	
		38. **Demonstrate Advanced blending techniques:**	
		• Using the Blend tool	
		• Applying a gradient	
		• Linear vs. radial gradients	
		• Using Gradient Mesh options	
		• Adjusting a mesh	
		• Revisiting Blend Options	
		• Selecting multiple mesh points	
		• Overlapping images	

		• Using the Mesh tool • Adding a highlight	
Practical- 20 Hrs Theory- 10 Hrs	Demonstrate the functional working of a video camera, Art of Film Making, manage location and Apply lighting & sound effects.	**Digital Videography (Illustrate shooting and Recording)** 39. **Safe handling of Multimedia devices**: Illustrate how to Keep and carry how to fix in camera stand, how to remove from Stand. 40. Recognize different parts of video camera, know the operating procedure and internal functions of the video camera. 41. Illustrate important settings of camera. 42. Demonstrate focusing using tools and auto focus. 43. Illustrate Shooting with shallow depthof field. 44. Demonstrate the using of neutral density (ND)filters to correct overexposure. 45. Illustrate the method of artificially brighten an underexposed shot. 46. Demonstrate the setting right shutterspeed. 47. Illustrate color temperature & Whitebalancing a shot. 48. Illustrate the selection of right tripod, camera moves and Masteringhand-held shooting. 49. Analyze Audio Essentials for Five sound rules to live by, using the types of microphones forvideo shooting, setting up microphones for a videoshoot, using a boom microphone,	**Digital Videography** • Understand camera anatomy. • Exploring important camera settings. • Understanding how to focus. • Using tools to achieve better focus. • Introducing the subject for the video shoot. • Learning the craft of filmmaking. • Shooting with shallow depth of field. • Understanding exposure. • Using neutral density (ND) filters to correctoverexposure. • Using gain to artificially brighten. anunderexposed shot. • Choosing the right shutter speed. • Understanding colour temperature. • White balancing a shot. • Data transfer process.

		setting proper audio levels. 50. **Evaluate the lighting essentials:** working with lighting instruments, lighting concepts, creating a four-point lighting setupfor a scene, using corrective gels.	
Practical-20 Hrs Theory- 10 Hrs	Carry out Web browsing, Video streaming, uploading and downloading of video, audio, image on internet and secure information from cyber-attacks.	**Illustrate the Use of Internet and Cyber Security:** 51. Design and use e-mail for communication with attachment, priority setting, and address book. 52. Browse social networking site and communicate with text, audio, video chatting. 53. Illustrate Designing image, video streaming with sound and upload /download the same to /from internet. 54. Protect information, computers and networks from viruses, spyware and other malicious code. 55. Provide firewall security for Internet connection and Network System. 56. Secure your Wi-Fi networks using password, WEP, WPA-PSK, WPA2-PSK, SSID, MAC address filtering. Design individual user accounts for each member.	**Concepts of Internet and Cyber Security** • Introduction to www, Concept of Internet, Web Browsers, internet servers and search engines. • Concepts of Domain naming Systems and E mail communication. • Upload, download techniques in internet. • Overview of Information Security, SSL, HTTPS, Security threats, information Security vulnerability and Risk management. • Introduction to Directory Services, Access Control, Security, Privacy protection, Audit and Security. • Introduction to IT Act and penalties for cyber-crimes.
Practical-20 Hrs Theory- 10 Hrs	Demonstrate the concept of website and webpages design and implementation	**Demonstration on Dreamweaver** 57. Design web pages using predesigned layouts or by creating your own 58. Design web pages for mobile phones, tablets and desktop	**Introduction to Dreamweaver** Fundamentals of website Design. User interface of Adobe Dreamweaver, Creating

		computers	websites, adding texts, Hyperlinks, Metatags to pages, adding images and graphics and online forms. Managing and Publishing your sites.
	of HTML CSS to design a particular design of their creativity and information architecture by using Adobe Dreamweaver.	59. Add text, images and other elements to your pages 60. Embed or link to audio or video files from your page, including from YouTube, Vimeo and sound cloud. 61. Recognize and write basic HTML for your pages- even through you don't have to 62. Design and use HTML tables 63. Use CSS to apply styles to your pages and site also to Design interactive features. 64. Add forms to your web pages for visitors to fill out. 65. Illustrate Publishing website to the web	
Practical-60 Hrs Theory-15 Hrs	Implement Audio, Video editing and apply special effects by using Adobe Premier and Adobe After-Effects.	**Using Adobe Premier Project** 66. **Illustrate Editing in Software Adobe Premier Pro;** • Illustrate the interface video editing software. • Creating a new project and importing video footage into the bin and labelling them. • Setting up a mark in & mark out in source monitor and inserting the video into timeline. 67. **Illustrate Cut To Cut technique in Premiere Pro** • Implement the techniques of cut to cut and cutaway. • Applying the techniques of jump cut. • Creating a match cut for the video footage. 68. **IllustrateAudio Editing**	**Adobe Premier Project** • Fundamentals of Audio and Video editing. • Creating a Sequence. • Cut to cut Editing in the Timeline. • Refining the sequence. • Video Transitions. • Audio Editing Techniques. • Titling. • Special and video Effects. • Making Output.

Techniques:

- Recording audio formats.
- Editing recorded audio using audio editing software.
- Adding audio effects to the clips to sync with the video files.
- Creating an audio sync using audio transitions method.

69. **Illustrate how to apply Special Effects:**
    - Implement special effects to the video clips placed on the timeline.
    - Creating special transitions to the video clips placed on the timeline.
    - Adding title to the desired video clip.

70. **Demonstrate how to apply Video Transitions;**
    - Transitions - Working on Zoom & Dissolve Transition
    - Transitions - Working on Page Peel & Slide Transition
    - Transitions - Working on Stretch & Wipe Transition

71. **Illustrate how to apply Video Effects:**
    - Chroma Key - Editing a green/blue matte video footage with key effects.
    - Creating different effects to video clips using distort effects
    - Altering colour correction and grading to video clips based on the scene.

		72. **Evaluate Output**: Creating DVDs, Blu-Ray, SWF, MP4 and FLV Files, Media Encoder for DVD Makers using Clip Notes.	
		Illustrate Visual Effects using Adobe After Effects 73. Illustrate user interface, the layer based software, basic key framing, Basic motion graphic elements, Animation and Title Animation 74. Demonstrate color correction and Night conversion using given footage/ own footage. 75. Illustrate compositing Green Screen/ Normal with animation using given object/own footage 76. Illustrate how to do Rotoscopy in own footage 150 frames. 77. Illustrate how to do Retouch in own footage 150 frames. 78. Illustrate Tracking, Match move, Stabilization and camera shake using given object 79. Demonstrate 3D-compositing on Green Screen/ Normal with animation using given object/own footage 80. Illustrate Compositing Green screen with Effects using own footage.	**Introduction to Adobe AfterEffects** • Perceive interface of the layer based software and the basic key framing. • To understand color correction options and methods. • Compositing tools and properties. • Tools and techniques of doing a Rotoscopy. • To understand Retouch tools • To understand the tracking tools. • To understand 3d compositing techniques. • To understand the Effects and particles
Practical-60 Hrs Theory-15	Demonstrate different techniques related to art for	**Demonstrate 2d animation using Flash Software:** 81. Illustrate 2d software interface, Drawing tools, pen	**Introduction to Flash** • Introduction to 2 D animation. • Flip Book.

15

Hrs	animation, Creating animation projects, character animation, titles for film and video. Storytelling animation and making 2D animation movies.	tools and other necessary tools to create any drawing in the frames. 82. Create a detail flip book with minimum 30 pages following the principles of animation 83. Create simple frame by frame animation for a short animation (maximum 20 sec with color drawings and background. 84. Create simple animation with shape, classic & motion tween. 85. Create simple animation with shape and classic tween together. 86. **Demonstrate the creation of Ball Animation;** • Design the ball with gradient color. • Create key frames for the animation sequence • Create stretch and squash for the ball animation • Implement timing and motion for the ball animation • Implement tween to the sequence of ball animation 87. **Illustrate Character drawing and creating symbols:** • Draw simple character with pen tool or shape tool. • Prepare character for animation: dividing each body parts into symbol. • Create and edit symbols 88. **Illustrate Human walk cycle:**	• Frame by frame animation. • Shape, Classic and Motion Tween Animation. • Ball animation • Character drawing and creating symbols • Human walk cycle • Animal walk cycle • Lip Synchronization • Creating a short animation film

- Draw the cycle sheet for a human walk cycle.
- Create the key frames for the walk cycle.
- Giving the tween to the figure with normal walk cycle.
- Create four different types of walk cycle (jump, run, tip toe, crawl).

89. **Illustrate Animal walk cycle**
- Draw cycle sheet for an animal walk cycle
- Draw an animal and dividing the body parts into symbols
- Create the key frames for the walk cycle
- Create four different types of walk cycle (jump, run, tip toe, crawl)

90. **Demonstrate Lip Synchronization :**
- Identify the alphabets and its movements
- Create the mouth shapes for each letters and movements of the lips.
- Create expression and emotion in character.
- Synchronize character mouth shape according to the dialogue.

91. **Create a short animation film:**
- Draw the detail storyboard for the animation film
- Draw the background in layers and symbols

		• Create the characters in turn around • Create the props • Create the scenes with tween and animation • Completing the whole animation film with background music and dialogues	
Practical-60 Hrs Theory-15 Hrs	Demonstrate the principles of 3D design and create texture a simple 3D Model. Understanding different animation styles and techniques By Using 3DS Max	**Working with 3Ds MAX:** 92. Illustrate User interface, user interface components, and Viewports and viewports configuration. 93. **Illustrate Modeling**; • Create & Edit Standard Primitive Objects • Create & Edit Extended Primitive Objects • Working with Files, Importing & Exporting. 94. **Demonstrate 2D Splines, Shapes & Compound Objects:** • Implement 2D Splines & Shape • Convert 2D to 3D object using extrude, bevel, loft, terrain etc. • Use Morph, Scatter, conform, connect compound objects. • Use Boolean, Proboolean&Procutter 95. Illustrate Importing Legacy, 2d and 3d designs from AutoCAD to 3DS Max. 96. **Illustrate 3D Modeling** • Modeling with polygon	**Introduction to 3ds Max** • Introduction to 3D Studio Max. • 2D Splines, Shapes & Compound Objects. • Importing AutoCAD to 3DS MAX. • 3D Modeling. • Keyframe Animation. • Simulation & Effects. • Lighting & Camera. • Texturing with 3ds Max. • Rendering with V-Ray.

18

		objects Building Simple & Complex Scene
		• Use Mesh Modifier
		• 3dModeling with patches & NURBS
		97. **Demonstrate Keyframe Animation:**
		   • Create keyframes & Auto Key/Set Key
		   • Animating with simple controllers
		   • Animation with complex controllers
		   • Function curves in track view
		   • motion mixer
		98. **Illustrate Simulation & Effects:**
		   • Bind to space warp objects Using Gravity & Wind
		   • Using FFD, wave, ripple, bomb
		   • Using Particle System
		   • Using Particle Flow
		   • Using Hair & Fur Modifier
		   • Cloth & Garment Maker
		99. **Demonstrate the use of Lighting & Camera:**
		   • Configuring & Aiming Cameras
		   • Using Camera Motion Blur & Depth of Field
		   • Using Basic lights
		   • Using Light tracing, radiosity
		   • Video Post
		   • Mental Ray Lighting
		100. **Illustrate Texturing with 3DS Max**	

		- Using Material Editor - Create & Apply standard material - Material Modifier - unwrapping UVs - Mapping texture - Using atmospheric& render effects. 101. **Demonstrate Rendering with V-Ray:** - Basic Settings for Texturing - Create & Assign Textures - Light Setup - V-Ray Rendering Settings - Fine-Tuning 102. Create Curtains using special modifiers 103. Design a big Fountain of Circular shape by Particle System and Space Warp.	
Practical-60 Hrs Theory-30 Hrs	Demonstrate the Design Graphics in animation fundamentals, different animation styles and techniques by using Autodesk MAYA	**Demonstrate Autodesk MAYA** 104. Demonstrate User interface, working in 3D, UV Coordinate space, Camera and Image Planes. 105. Illustrate Dependency Graph i.e. Nodes, Attributes, connections, Pivots and Hierarchies. 106. Illustrate different types of Animation techniques; Keyframe animation, Path animation, Reactive animation and Dynamics Animation 107. Illustrate Modeling with Polygons, NURBS curves, NURBS surfaces, and Subdivisions surfaces. 108. Demonstrate Lattices	**Autodesk maya** - The user interface, - Working in 3d - Uv coordinate space - Cameras - Image planes **The dependency graph** - Nodes - Attributes - Connections - Pivots - Hierarchies - Mel scripting **Animating in maya** - Keyframe animation - Path animation - Reactive animation - Dynamics animation

		deformers, Wire Deformers, Sculpt Deformers, Flexors, Clusters, Wrap Deformers. 109. Design a humanoid character using the technique of Skeletons and joints, Inverse kinematics, Single chain solver, Rotate plane solver, IK spline solver rigging and Skinning. 110. Illustrate Different types of Rendering; Shading groups, Texture maps, Texture maps, Lighting, Motion blur, Hardware rendering, A-buffer rendering, Ray trace rendering and IPR. 111. Design a bouncing ball using polygon moleling and apply path animation with deformation after applying particles and rendering. 112. Write Scripting joints and controls using MEL commands.	**Modeling in maya** • Nurbs curves • Nurbs surfaces • Polygons • Subdivides **Deformations** • Lattices • Sculpt objects • Clusters **Character animation** • Skeletons and joints • Inverse kinematics • Single chain solver • Rotate plane solver • Ik spline solver • Skinning characters • Rigging techniques **Rendering** • Shading groups • Texture maps • Texture maps • Lighting • Motion blur • Hardware rendering. • A-buffer rendering. • Ray trace rendering. • How the renderer works. • Interactive photorealistic renderer.
Practical-60 Hrs Theory-30 Hrs	Perceive scripting and storyboarding techniques, Basic techniques of writing script out of a story and basic techniques of making storyboard out of	**Demonstrate scripting and storyboarding techniques:** 113. Develop a story from a one liner or a concept. 114. Write an original story out of a given basic idea(love, peace, tragedy etc). 115. Develop a screenplay from a given short story.	**Scripting and storyboarding techniques:** • Understanding the story writing: anatomy of the story: beginning, middle and end. • Understanding screenplay, the anatomy and structure of a screenplay.

21

a script.	116. Create a screenplay with proper details out of the original story written by the student. 117. Illustrate camera angles, camera shots, camera transition, scene transition. 118. Create a short animation film story with proper anatomy (beginning, middle, end). 119. Develop the screenplay for the animation film marking each scene description, time, shots, dialogue etc. 120. Create a basic concept and story for a 30 sec commercial, advertisement of any selected Product. 121. Develop the screenplay for the commercial advertisement marking each scene, description, time, shots, dialogues etc. 122. Develop the idea and concept about the subject of the documentary film. 123. Create the basic screenplay for the documentary marking the scenes, camera angles, bgm etc. 124. Develop storyboard in given module with details of camera angles and transitions. 125. Develop the required storyboard in proper panels and in details from the screenplay made for animation, commercial	• Understanding camera angles, camera shots: case, camera transition and scene transition: case study. • Animation film screenplay. • Advertisement film screenplay. • Documentary film screenplay. • Understanding different storyboarding techniques. • Three types of storyboarding. • Complete pipe line of pre-production.

		advertisement and documentary film. 126. Create a basic storyboard with stick figures and rough drawings showing camera movements and transition. 127. Develop a detailed storyboard in color with background and character details showing camera movements and transition. 128. Develop a collage storyboard mainly used for commercial advertisement purpose. 129. Develop and get approved an idea for a short animation film / advertisement /documentary. 130. Develop and get approved the story out of the idea for a short animation film/ advertisement/documentary 131. Create the detail storyboard from the story out of the idea for a short animation film/advertisement/documentary.	
SOFT SKILLS: 75 Hrs.			
Professional Knowledge Soft Skills- 75 Hrs.	Exhibit effective communication skills with logical reasoning ability and quantitative aptitude to maximize efficiency in work.	**COMMUNICATION SKILLS:** Oral communication Skills, Voice, accent, Voice modulation, pace, Intonation, etc. Study of different pictorial expressions of non-verbal communication and its analysis. Demo on Strengths and Weaknesses Demo on Motivation, Positive attitude. Practice on personal appearance, Dressing Manners & Etiquettes. Practice on attending of mock interview of different types. Listening & doubt clarifying etc. Case studies on Interview sessions. **Communication & Listening Skills** Components of effective	

23

communication, Types of communication- Oral, Written, Reading & body language, Handling of communication, Barriers of communication, Listening Tools & Speaking Tools, Non-verbal communication and its importance.

Self-Management& Personality Development Self-Management, SWOT analysis, self-learning and management.
Motivation and Image building Techniques

Personal Grooming & Hygiene Presentation of Self, Formal & Informal Dressing, Dressing for Occasions.

Techniques of Attending Interviews Interview & its types.
Preparation for the interview, stages of interview. Do's & Don'ts in an interview.

BASIC MATHEMATICAL CALCULATION:
Conversions of different units viz. length, area, mass etc. Simple Problems on Perimeter and area of a triangle, a circle, a square, rectangle, semicircle etc. Simple Problems on Comparing quantities, weight, speed, height, age, ratio, percentage, and price, etc. Simple calculation on profit and loss statement, discount calculations of products. Demonstration of utilization of mobile apps for financial transactions. Exercises on aptitude/puzzles
Practice on Types of Charts and Graphs
Introduction to units and dimensions of different objects.
Perimeter, Area of regular shapes, viz. Triangle, Square, and Circle, rectangle, semicircle etc.

Quantitative Aptitude Introduction, Comparing quantities viz. Speed, age, height, ratio, percentage, weight, and price, etc. Introduction to cost price, sale price, profit, loss and discounts of products. Introduction to online internet banking mechanisms, various modes of payments, cash transactions and associated mobile apps. Concept of insurance and taxes and types. Personal saving and investment mechanism.

Logical reasoning Introduction to logical reasoning.
Types of logical reasoning. Principles of logical reasoning with examples on numbers and sequences, arrangement and relations,

Data Interpretation Data analysis and interpretation. Types of variables for different applications. Basic graph types (Bar, Line, PIE Charts).

ENERGY & ENVIRONMENT:
Video demo on different types of energy resources. Conventional & Non-Conventional Energy Resources. Fossil Fuel, Biomass, Bio-Gas, Solar, etc. Public awareness on Energy conservation and use of clean energy.

ENGLISH LITERACY:
Pronunciation of simple words, Diction (use of word and speech)

		Transformation of sentences, Spellings. Reading and understanding simple sentences about self, work and environment. Construction of simple sentences Writing simple English, Speaking with preparation on self, on family, on friends/ classmates, on work. Role-playing and discussions on current affairs. Job description. Practice of Taking messages, passing on instructions. Practice making Resumes or curriculum vita. Letters of application &referencing to previous communication.

Industrial Visit/Project work

Broad Areas:

a) Design and host a web site of at least 6 web pages using adobe dream weaver

b) Design a multimedia project with 3D MAX.

c) Design an animation Project with MAYA.

SYLLABUS FOR CORE SKILLS
1.   Training Methodology (Common for all trades) (270 Hrs + 180 Hrs)

Learningoutcomes,assessmentcriteria,syllabusandToolListofCoreSkillssubjectswhichis common for all the CITS trades, provided separately inwww.bharatskills.gov.in./ dgt.gov.in

7. ASSESSMENT CRITERIA

LEARNING OUTCOMES	ASSESSMENT CRITERIA
TRADE TECHNOLOGY	
1. Perceive the basics and Fundamentals of Multimedia. Illustrate Multimedia components and Tools. (NOS: MES/N9407)	Define what Multimedia is and how that works.
	Understand multimedia components using various tools and techniques.
	Analyse and interpret Multimedia data.
	Discuss about different types of media format and their properties.
	Justify the right way of manipulating multimedia systems.
2. Setup LAN and configure various networking devices and related software. Managing network applications, Secure network and execute on network architecture. (NOS: MES/N9408)	Install and configure Server-Client Network and all related protocol services.
	Configure network devices.
	Configure DHCP(ipv4,ipv6)
	Manage server using various cryptography concept.
	Network security and monitoring.
	Setting password policy.
	Configure Firewall (Hardware and Software).
3. Demonstrate the functional working of a still camera, the Art of Composition, Framing and Lighting. To work with lights and how to capture various emotions through camera. (NOS: MES/N9409)	Operate a Digital SLR Camera, Flash Lights and its related accessories.
	Analyse and infer various conditions and environments for a photo-shoot and capture it.
	Plan the requirements and complete a successful Product or a Model Shoot.
	Visualize concepts and shoot photos based on a theme or a one-liner.
	Appraise photographs based on Composition, Lighting, Subject and Mood.
4. Acquire the competency in technical skills applicable to graphic design. Enrich	Seek design principles, design process, theory, history and contemporary design practice.
	Gain proficiency in identified technical skills, understand the

	the skill level of graphic design through the topics by using Adobe Photoshop and Adobe Illustrator. (NOS: MES/N9410)	process of creating, analysing, and evaluating graphic design solutions.
		Justify the choice of appropriate tools according to the type of digital art work
		Visualize and Illustrate an idea and express it through visual design
		Illustrate the knowledge of design &colors and apply them effectively to various assignments.
5.	Demonstrate the functional working of a video camera, Art of Film Making, manage location and Apply lighting & sound effects. (NOS: MES/N9411)	Operate a Video Camera, Video Lights and its related accessories.
		Analyse and infer various conditions, preparations and environments for shooting a short film. Appraise short films based on Shots, Continuity, Dialogue, Lighting, Audio and Effects.
		Plan the requirements and complete a successful Documentary / Short Film.
6.	Carry out Web browsing, Video streaming, uploading and downloading of video, audio, image on internet and secure information from cyber-attacks. (NOS: MES/N9412)	Down loading and Installation of latest Web browsing Software – Fire Fox, Google Chrome, Internet Explorer.
		Familiarise with social Networking websites – You tube, Face Book.
		Down load Pictures, Audio, Video from different websites.
		Create image, video streaming with sound and Upload on web.
		Understand and familiarise – Computer virus, Antivirus, Copy right, web security.
		Provide firewall security for Internet connection and Network System.
		Secure your Wi-Fi networks using wireless security features.
7.	Demonstrate the concept of website and web pages design and implementation of HTML CSS to design a particular design of their creativity and information	Understand the latest trends used in web designing.
		Illustrate the knowledge and ability to apply the design principles, techniques and technologies to the development of creative websites.
		Understand how to design and conduct user research related to web-usability
		Implement techniques of information design to interactive media

	architecture by using Adobe Dreamweaver. (NOS: MES/N9413)	projects.
		Develop multi-tier fully functional commercial websites.
8.	Implement, Audio, Video editing and apply special effects by using Adobe Premier and Adobe After-Effects. (NOS: MES/N9414)	Editing of video clippings and footage by using Adobe Premier and Adobe After Effect.
		Addition of Captions, Sequence, Titles, Audio timeline.
		Refining sequence, Illustrate with transition.
		Saving in different video formats.
		Creating and using compositions, applying special effect.
		Illustrate on Animate 3D transformations, Rot scoping.
9.	Demonstrate different techniques related to art for animation, Creating animation projects, character animation, titles for film and video. Story telling animation and making 2D animation movies. (NOS: MES/N9415)	Understand and apply various techniques of drawing for animation.
		Process knowledge about art in animation field.
		Understand and create the various human & animal figures for a given storyline or concept.
		Design and finalize animation ready art-work.
		Define and apply design principles and theories to animation production.
		Evaluate and apply the 12 principles of animation based on the requirements of the storyline.
		Illustrate progress in basic drawing and animation skills
10.	Demonstrate the principles of 3D design and create texture a simple 3D Model. Understanding different animation styles and techniques By Using 3DS Max (NOS: MES/N9416)	Create various 3D models according to the topology.
		Texture the 3D models by using UV unwrapping and shading techniques.
		Create realistic and semi realistic models with appropriate details in both mesh and texture level.
		Construct effective modeling& texturing pipeline.
		Justify the right modeling techniques while creating 3D assets.
		Apply principles to create realistic and cartoony animation.
		Create believable body mechanics animation.
		Explore the foundations of physics, weight and movement, and timing.
		Integrate convincing body mechanics with action effectively.
		Use high-quality references and artistic studies to create production quality work.

11. Demonstrate the Design Graphics in animation fundamentals, different animation styles and techniques by using Autodesk MAYA (NOS: MES/N9417)	Design Graphics and Animation by using Autodesk Maya	
	Creation of basic modelling.	
	Applying Rigging and skinning.	
	Working with Lighting and creation of rendering artist.	
12. Perceive scripting and storyboarding techniques, Basic techniques of writing script out of a story and basic techniques of making storyboard out of a script. (NOS: MES/N9418)	Understand the various techniques of writing a script and storyboard out of a given concept.	
	Acquire knowledge and idea about various types of script and storyboarding techniques.	
	Imply the gathered knowledge to write script and storyboard in the industry for animation and related areas.	
	Understanding and implementing the framing of story, script and character for short movie.	
13. Exhibit effective communication skills with logical reasoning ability and quantitative aptitude to maximize efficiency in work. (NOS: MEP/N9446)	Demonstrate reasonable quantitative aptitude and interpret data in the field of work	
	Demonstrate effective communication skills with logical reasoning ability.	
	Describe method of energy conservation and day-to- day contribution to work for optimum utilization of resources.	
	Demonstrate English language fluency while carrying out official work.	

8. INFRASTRUCTURE

LIST OF TOOLS & EQUIPMENT			
MULTIMEDIA, ANIMATION AND SPECIAL EFFECTS			
S No.	Name of the Tools and Equipment	Specification	Quantity
A. TRAINEES TOOLS/ EQUIPMENT			
1.	Desktop Computer	CPU: 64 Bit i5/i7 or latest processor, Speed: 3 GHz or Higher. RAM:-16 GB DDR-III or Higher, Wi-Fi Enabled. Network Card: Integrated Gigabit Ethernet, with USB Mouse, USB Keyboard and Monitor (Min. 17 Inch.) Licensed Operating System and Antivirus compatible with trade related software.	25 Nos.
2.	Server for LAN	CPU: 64 bit i7 processor or Higher with PCI Express Video Card, RAM:-16 GB DDR-III or Higher Hard Disk Drive: 1 TB or Higher 22" TFT Monitor, Keyboard, Mouse, DVD OR BLU-RAY WRITER , Licensed of OS - Server Edition Internet, Antivirus / Total Security - Server Edition & UPS for Power Back up..	1 No.
3.	Wi–Fi Router	With Wireless Connectivity	1 No.
4.	Switch	24 Port	1 No.
5.	Structured cabling in Lab	to enable working with Wired Networks for Practical	As required
6.	Internet Connectivity	Broadband connection with min. 2 mbps speed	As required
7.	Registered Domain	at least 100 MB Web Space	As required
8.	Color Laser Printer	Color A4 Size	1 No.
9.	Network Laser Printer	Monochrome A4 Size	1 No.
10.	Optical Scanner	Flatbed A4	1 No.
11.	Digital Web Cam	High Resolution (3.1 mp or higher)	4 Nos.
12.	DVD or Blu-Ray Writer	24X or higher external (USB)	2 Nos.
13.	LCD Projector	3000 lumens or higher	1 No.
14.	Projector Screen	matte(antiglare) screen	1 No.

15.	UPS		As Required
16.	Crimping Tool	RJ-45	5 Nos.
17.	Network Rack	4U for 24 port	1 No.
18.	Digital Multimeter	3.5 digit handheld type.	4 Nos.
19.	Screw Driver Set	Standard	4 Sets
20.	Mini Dongle for Bluetooth devices Connection	USB	4 Nos.
21.	Headphone & mic. Set	Wired	5 Nos.
22.	Sound System	4:1	2 Nos.
23.	External Hard Disk	1 TB	2 Nos.
24.	Patch Panel	24 Port	2 Nos.
25.	LAN Tester	UTP cat5 cable tester (RJ 45)	5 Nos.
26.	Punching Tool	for punching RJ 45 socket with cat 5 cable	5 Nos.
27.	Digital SLR Camera	24 MP, LCD Viewer, Memory card, Zoom Lens (Optical)	1 No
28.	Digital Video Camera	Semi professional with XLR Audio I/P Video O/P – SDI, Composite, DVI, HDMI	1 No
29.	Audio Cable	Balanced XLR, Umbrela, Stereo and Mono	As required
30.	Video Cable	BNC, HDMI, USB, VGA	As required
31.	Tripod	150cm	2 Nos.
B. SOFTWARE			
32.	Antivirus for – clients / workstations in profile	validity of an year or more which should be renewed upon expiry	25 Licenses
33.	Adobe Bridge	Adobe Bridge (academic edition with 25 user license), Latest version	25 Licenses
34.	Adobe Illustrator CC	Adobe Illustrator CC (academic edition with 25 user license), Latest version	25 Licenses
35.	Adobe After Effects	Adobe After Effects (academic edition with 25 user license), Latest version	25 Licenses
36.	GIMP / IrfanView Image editor or equivalent	Latest version	Open source software
37.	Adobe Photoshop	Adobe Photoshop (academic edition with 25 user license), Latest version	25 Licenses.
38.	Autodesk 3D STUDIO Max	3D STUDIO Max (academic edition with 25 user license), Latest version	25 Licenses

39.	Autodesk MAYA	Maya (academic edition with 25 user license), Latest version	25 Licenses
40.	Adobe Flash	Adobe Flash (academic edition with 25 user license), Latest version	25 Licenses.
41.	Adobe Premiere Suite	Adobe Premiere Suite (academic edition with 25 user license), Latest version	25 Licenses
42.	Adobe Dreamweaver	Adobe Dreamweaver (Academic edition with 25 user license), Latest version	25 Licenses

C. LIST OF OTHER ITEMS/ FURNITURE

43.	Vacuum cleaner	Hand Held	1 No.
44.	Pigeon hole cabinet	20 compartments	1 No.
45.	Chair and table for the instructor	with armrest mounted on castor wheels, adjustable height/Standard	1 each(for class room & laboratory)
46.	Chair and Tables for Trainees	Standard	25 Nos
47.	Computer table	laminated top 150X650X750 mm with sliding tray for key board and one shelf of storage	14 Nos.
48.	Operators chair	without arms mounted on castor wheels, adjustable height	25 Nos.
49.	Printer table	650X500X750 mm can be varied as per local specifications	3 Nos.
50.	Air conditioner		As Required
51.	Storage cabinet	60X700X450mm	1Nos.
52.	White Board	minimum 4X6 feet	1 No.
53.	Steel Almirah	2.5 m x 1.20 m x 0.5 m	1 No.
54.	Fire Extinguisher CO2	2 KG	2 Nos.
55.	Fire Buckets	Standard size	2 Nos.

D. RAW MATERIALS

56.	White Board Marker	Assorted colour	As required
57.	Duster Cloth	2'/2'	As required
58.	Cleaning Liquid	500 ml	As required
59.	Photo Copy Paper	A4	As required
60.	Full Scarp Paper	White	2 reams
61.	Cartridges for printer	Colour/monochrome as per model of the printer	As required
62.	I/O Box with socket	RJ 45	As required
63.	RJ 45 connector	For connecting utp cat 5 cable	200 Pcs.

64.	Optical Mouse	USB/PS2	As required
65.	Key Board	USB/PS2	As required
66.	SMPS	12V DC	As required
67.	CMOS Batteries	3.0 V	As required
68.	Power Chord	3 Pin	As required
69.	Cable	Cat 5/5e	100 meter
70.	Stapler	Small	2 pcs.
71.	Stapler	Big	1 pc.
72.	Battery for remote	AAA	As required
73.	Battery for clock	AA	As required
74.	Pen drive	64 GB	2 Nos.
75.	CDs	52x or higher	500 Nos.
76.	DVDs	4.7GB or higher	100 Nos.
77.	Wall Clock	Analog	1 pcs.
78.	Battery for LAN tester	9 V	As required
79.	Power Adapter	For Hub, Switch, Router	As required