



GOVERNMENT OF INDIA  
MINISTRY OF SKILL DEVELOPMENT & ENTREPRENEURSHIP  
DIRECTORATE GENERAL OF TRAINING

**COMPETENCY BASED CURRICULUM**

# MULTIMEDIA, ANIMATION & SPECIAL EFFECTS

(Duration: One Year)

**CRAFTSMEN TRAINING SCHEME (CTS)**

**NSQF LEVEL - 4**



**SECTOR – IT & ITES**



Directorate General of Training

# MULTIMEDIA, ANIMATION & SPECIAL EFFECTS

(Non-Engineering Trade)

(Revised in 2019)

Version: 1.2

**CRAFTSMEN TRAINING SCHEME (CTS)**

**NSQF LEVEL - 4**

Developed By

Ministry of Skill Development and Entrepreneurship

Directorate General of Training

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## 1. COURSE INFORMATION

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During the one-year duration of Multimedia, Animation & Special Effects trade a candidate is trained on professional skill, professional knowledge and Employability skill related to job role. In addition to this a candidate is entrusted to undertake project work and extra-curricular activities to build up confidence. The broad components covered under Professional Skill subject are as below:-

During one year duration the trainee learns about safety and environment, use of fire extinguishers. They learn about computer peripherals, Windows interface and its related software installation process. Trainees will work with MS Office package for basic knowledge of computer. Trainees will work with Photography like Adobe Photoshop to edit image, retouch and fixing image using color, filter and for digital painting. They also learn and experience with application software with Adobe Photoshop illustrator for advance editing and graphic design. The trainees also learn Videography to practice the craft of film making, video streaming with advance features of camera. At the mid of the year the trainees can go on industrial visit or projects specified in the syllabus. The trainee learns to browse internet, upload/download video streaming and secure data from different cyber attack. They will work with Adobe Premier for video editing, mixing audio, text, image and video. Trainees will work with Adobe after effect to add special effect and compositing on video. They will work with Flash to create 2D animation, graphic illustration and compositing sound animation. The trainees will learn and experience in 3Ds Max to create 3D architectural Design, 3D modeling and texturing. Finally, the trainees will work with Maya to create 3D animation, 3D modeling, Texturing, Rigging, Lighting, Rendering artist. At the end of the year trainees can go on industrial visit or projects specified in the syllabus.

## **2. TRAINING SYSTEM**

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### **2.1 GENERAL**

The Directorate General of Training (DGT) under Ministry of Skill Development & Entrepreneurship offers a range of vocational training courses catering to the need of different sectors of economy/ Labour market. The vocational training programmes are delivered under the aegis of Directorate General of Training (DGT). Craftsman Training Scheme (CTS) with variants and Apprenticeship Training Scheme (ATS) are two pioneer programmes of DGT for strengthening vocational training.

Multimedia, Animation and Special Effect trade under CTS is one of the popular course delivered nationwide through a network of ITIs. The course is of one-year duration. It mainly consists of Domain area and Core area. In the Domain area (Trade Theory & Practical) impart professional skills and knowledge. While the core area (Employability Skill) imparts requisite core skills, knowledge and life skills. After passing out the training program, the trainee is awarded National Trade Certificate (NTC) by DGT which is recognized worldwide.

#### **Trainees broadly need to demonstrate that they are able to:**

- Read and interpret technical parameters/ documentation, plan and organize work processes, identify necessary materials and tools;
- Perform task with due consideration to safety rules, accident prevention regulations and environmental protection stipulations;
- Apply professional knowledge & employability skills while performing the job and repair & maintenance work.
- Check the system specification and application software as per requirement of the design of job.
- Document the technical parameter related to the task undertaken.

### **2.2 PROGRESSION PATHWAYS**

- Can join industry as Technician and will progress further as Senior Technician, Supervisor and can rise up to the level of Manager.
- Can become Entrepreneur in the related field.

- Can join Apprenticeship programme in different types of industries leading to National Apprenticeship certificate (NAC).
- Can join Crafts Instructor Training Scheme (CITS) in the trade for becoming instructor in ITIs.
- Can join Advanced Diploma (Vocational) courses under DGT as applicable.

### 2.3 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.	Professional Skill (Trade Practical)	1200
2.	Professional Knowledge (Trade Theory)	240
3.	Employability Skills	160
	<b>Total</b>	<b>1600</b>

### 2.4 ASSESSMENT & CERTIFICATION

The trainee will be tested for his skill, knowledge and attitude during the period of course through formative assessment and at the end of the training programme through summative assessment as notified by the DGT from time to time.

a) The Continuous Assessment (Internal) during the period of training will be done by **Formative Assessment Method** by testing for assessment criteria listed against learning outcomes. The training institute has to maintain individual *trainee portfolio* as detailed in assessment guideline. The marks of internal assessment will be as per the formative assessment template provided on [www.bharatskills.gov.in](http://www.bharatskills.gov.in)

b) The final assessment will be in the form of summative assessment. The All India Trade Test for awarding NTC will be conducted by Controller of examinations, DGT as per the guidelines. The pattern and marking structure is being notified by DGT from time to time. **The learning outcome and assessment criteria will be basis for setting question papers for final assessment. The examiner during final examination will also check** individual trainee's profile as detailed in assessment guideline before giving marks for practical examination.

### 2.4.1 PASS REGULATION

For the purposes of determining the overall result, weightage of 100% is applied for six months and one year duration courses and 50% weightage is applied to each examination for two years courses. The minimum pass percent for Trade Practical and Formative assessment is 60% & for all other subjects is 33%. 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 assessment. Due consideration should be given while assessing for teamwork, avoidance/reduction of scrap/wastage and disposal of scrap/wastage as per procedure, behavioral attitude, sensitivity to environment and regularity in training. The sensitivity towards OSH and self-learning attitude are to be considered while assessing competency.

Assessment will be evidence based, comprising the following:

- Job carried out in labs/workshop
- Record book/ daily diary
- Answer sheet of assessment
- Viva-voce
- Progress chart
- Attendance and punctuality
- Assignment
- Project work

Evidences and records of internal (Formative) assessments are to be preserved until forthcoming examination for audit and verification by examination 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 produce work which demonstrates attainment of an acceptable standard of craftsmanship with occasional guidance, and due regard for safety procedures and practices.	<ul style="list-style-type: none"> <li>• Demonstration of good skills and accuracy in the field of work/ assignments.</li> <li>• A fairly good level of neatness and consistency to accomplish job activities.</li> <li>• Occasional support in completing the task/</li> </ul>



	job.
<b>(b) Weightage in the range of above 75% - 90% to be allotted during assessment</b>	
For this grade, a candidate should produce work which demonstrates attainment of a reasonable standard of craftsmanship, with little guidance, and regard for safety procedures and practices.	<ul style="list-style-type: none"><li>• Good skill levels and accuracy in the field of work/ assignments.</li><li>• A good level of neatness and consistency to accomplish job activities.</li><li>• Little support in completing the task/ job.</li></ul>
<b>(c) Weightage in the range of above 90% to be allotted during assessment</b>	
For performance in this grade, the candidate, with minimal or no support in organization and execution and with due regard for safety procedures and practices, has produced work which demonstrates attainment of a high standard of craftsmanship.	<ul style="list-style-type: none"><li>• High skill levels and accuracy in the field of work/ assignments.</li><li>• A high level of neatness and consistency to accomplish job activities.</li><li>• Minimal or no support in completing the task/ job.</li></ul>

### 3. JOB ROLE

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**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) 2166.0201 - Multi Media Artist and Animator/Animator
- ii) 3521.0300 - Cameraman, Animation

## 4. GENERAL INFORMATION

<b>Name of the Trade</b>	<b>MULTIMEDIA, ANIMATION &amp; SPECIAL EFFECTS</b>
<b>Trade Code</b>	DGT/1084
<b>NCO - 2015</b>	2166.0201, 3521.0300
<b>NSQF Level</b>	Level-4
<b>Duration of Craftsmen Training</b>	One Years (1600 Hours)
<b>Entry Qualification</b>	Passed 10 <sup>th</sup> class examination
<b>Minimum Age</b>	14 years as on first day of academic session.
<b>Eligibility for PwD</b>	LD, CP, LC, DW, AA, LV, AUTISM, SLD
<b>Unit Strength (No. Of Student)</b>	24 (There is no separate provision of supernumerary seats)
<b>Space Norms</b>	80 Sq. m Lab & 50 Sq. m. Studio
<b>Power Norms</b>	6 KW
<b>Instructors Qualification for</b>	
<b>1. Multimedia, Animation and Special Effect trade</b>	<p>B.Voc/Degree in Multimedia and Animation from a UGC recognised University with one year working experience in the relevant field.</p> <p style="text-align: center;"><b>OR</b></p> <p>Diploma (Minimum 2 years) in Multimedia and Animation from recognized board of technical education or relevant Advanced Diploma (Vocational) from DGT with two years working experience in the relevant field.</p> <p style="text-align: center;"><b>OR</b></p> <p>NTC/NAC holder in Multimedia Animation &amp; Special Effects trade with three years working experience in the relevant field.</p> <p><b>Essential Qualification:</b> Relevant National Craft Instructor Certificate (NCIC) in any of the variants under DGT.</p> <p><b>Note: Out of two Instructors required for the unit of 2(1+1), one must have Degree/Diploma and other must have NTC/NAC qualifications. However, both of them must possess NCIC in any of its variants.</b></p>
<b>2. Employability Skill</b>	MBA/ BBA / Any Graduate/ Diploma in any discipline with Two years' experience with short term ToT Course in Employability Skills from DGT institutes.

	(Must have studied English/ Communication Skills and Basic Computer at 12th / Diploma level and above)		
	<b>OR</b>		
	Existing Social Studies Instructors in ITIs with short term ToT Course in Employability Skills from DGT institutes.		
<b>3. Minimum Age for Instructor</b>	21 Years		
<b>List of Tools &amp; Equipment</b>	As per Annexure-I		
<b>Distribution of training on Hourly basis: (Indicative only)</b>			
<b>Total Hrs /week</b>	<b>Trade Practical</b>	<b>Trade Theory</b>	<b>Employability Skills</b>
40 Hours	30 Hours	6 Hours	4 Hours

## 5. LEARNING OUTCOME

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

### 5.1 LEARNING OUTCOMES (TRADE SPECIFIC)

1. Apply Computer basics and perform installation, customization of Operating System, related software in a computer for Multimedia purpose following safety precaution.
2. Perform safe handling of Multimedia devices Video Camera, Digital Camera, Microphone, Webcam and Basics of Digital Photography, Video Recording and data transfer.
3. Perform Photo editing and apply special effects by using Adobe Photoshop and Adobe Illustrator.
4. Carry out Web browsing, Video streaming, uploading and downloading of video, audio, image on internet and secure information from cyber attacks.
5. Implement Video editing and apply special effects by using Adobe Premier and Adobe After Effect.
6. Create Graphics Animation and sound effect by using Flash and Maya, 3Ds Max.

## 6. ASSESSMENT CRITERIA

LEARNING OUTCOMES	ASSESSMENT CRITERIA
1. Apply Computer basics and perform installation, customization of Operating System, related software in a computer for Multimedia purpose following safety precaution.	Demonstrate internal component and peripheral of Computer.
	Working on Windows Interface and customize the system properties.
	Install and configure Windows OS and application software.
	Install the printer and other peripheral devices.
	Burn CD/DVD.
	Install Photoshop, Flash, Maya and 3Ds Max.
2. Perform safe handling of Multimedia devices Video Camera, Digital Camera, Microphone, Webcam and basics of Digital Photography, Video Recording and data transfer.	Identify Photo capturing and storing devices and accessories.
	Digital Photography, Basic techniques.
	Transferring of files to a Computer and storing.
	Conversion of data into different formats.
	Video shooting, practicing the craft of film making.
3. Perform Photo editing and apply special effects by using Adobe Photoshop and Adobe Illustrator.	Editing of Images using essential basic tools of Adobe Photoshop.
	Edit pictures applying selection, transforming layer, filter, color correction mode.
	Edit image with different types of palettes and layer.
	Apply 3D Effect using Layer, mixing of Layers.
	Creation of Digital Painting.
	Photo retouching, applying mask.
4. Carry out Web browsing, Video streaming, uploading and downloading of video, audio, image on	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.

internet and secure information from cyber attacks.	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.
5. Implement Video editing and apply special effects by using Adobe Premier and Adobe After Effect.	Editing of video clippings and footage by using Adobe Premier and Adobe After Effect.
	Addition of Captions, Sequence, Titles, Audio timeline.
	Refining sequence, practice with transition.
	Saving in different video formats.
	Creating and using compositions, applying special effect.
	Practice on Animate 3D transformations, Rotoscoping.
6. Create Graphics Animation and sound effect by using Flash and Maya, 3Ds Max.	Create Graphics and Animation by using Hand Drawing and Adobe Flash.
	Create Graphics and Animation by using Autodesk Maya, 3D Studio Max.
	Creation of basic modelling.
	Applying Rigging and skinning.
	Working with Lighting and creation of rendering artist.

## 7. TRADE SYLLABUS

SYLLABUS FOR MULTIMEDIA, ANIMATION & SPECIAL EFFECTS TRADE			
DURATION: ONE YEAR			
Duration	Reference Learning Outcome	Professional Skills (Trade Practical) With Indicative Hours	Professional Knowledge (Trade Theory)
Professional Skill 120 Hrs;  Professional Knowledge 24 Hrs	Apply Computer basics and perform installation, customization of Operating System, related software in a computer for Multimedia purpose following safety precaution.	<p><b>Safe working practices</b></p> <ol style="list-style-type: none"> <li>1. Visit MASE Lab. of the institutes and locate the power supply to computer and its peripherals. (06 hrs)</li> <li>2. Identifying safety symbols and hazard identification. (04 hrs)</li> <li>3. Practice safe methods of fire fighting in case of electrical fire. (04 hrs)</li> <li>4. Use of fire extinguishers. (04 hrs)</li> </ol> <p><b>Computer Components</b></p> <ol style="list-style-type: none"> <li>5. Demonstrate of various parts of computer system such as mother board, RAM, CPU, serial and parallel ports. (6 hrs)</li> <li>6. Power on start button of a computer system and check power supply to computer and all the connected peripherals of the system. (06 hrs)</li> </ol>	<p><b>Safe working practices</b></p> <ul style="list-style-type: none"> <li>• Scope of the MASE trade.</li> <li>• Safety rules and safety signs.</li> <li>• Types and working of fire extinguishers.</li> </ul> <p><b>Introduction to Computer components</b></p> <ul style="list-style-type: none"> <li>• Introduction to computer system. Concepts of Hardware and Software.</li> <li>• Function of motherboard components and various processors.</li> <li>• Various Input/ Output devices in use and their features. (06 hrs)</li> </ul>
		<p><b>Using Operating System and Software Installation</b></p> <ol style="list-style-type: none"> <li>7. Practice on Windows interface using start menu,</li> </ol>	<p><b>Introduction to Operating System and Software Installation process</b></p>



		<p>task bar, title bar, Windows help, My computer, Recycle Bin. (06 hrs)</p> <p>8. Customize the desktop settings and manage user accounts. (03 hrs)</p> <p>9. View system properties and customize the same using control panel details. (06 hrs)</p> <p>10. Work with keyboard shortcut commands. (06 hrs)</p> <p>11. Create, delete, copy, move, rename, view, sort, zip and unzip of files &amp; folders. (06 hrs)</p> <p>12. Use Multimedia tools and windows media player for image, audio and video. (03 hrs)</p> <p>13. View the BIOS settings and their modifications. (01 hrs)</p> <p>14. Install Windows operating system. (05 hrs)</p> <p>15. Format hard disk and create partition. (03 hrs)</p> <p>16. Install necessary application software for Windows i.e. Office Package, PDF Reader, Media Player, Antivirus etc. (05 hrs)</p> <p>17. Install Drivers for printer, scanner, webcam and DVD etc. (05 hrs)</p> <p>18. Burn data, video and audio files on CD/DVD using</p>	<ul style="list-style-type: none"> <li>• Introduction to Windows Operating System.</li> <li>• Main features of Windows OS.</li> <li>• File Management through Windows explorer.</li> <li>• Introduction and applications of essential Accessories, Multimedia players.</li> <li>• Introduction to the booting process.</li> <li>• Introduction to various types of memories and their features.</li> <li>• Concept of installation process of Operating System and software.</li> <li>• Basic Hardware and software issues and their solutions.</li> <li>• Usage of Application software and Antivirus.</li> </ul> <p>(12 hrs)</p>
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		<p>application software. (05 hrs)</p> <p>19. Install Photoshop, Flash, Maya and 3Ds Max. (06 hrs)</p>	
		<p><b>Using MS Office</b></p> <p>20. Open MS Word, familiarise with basic word components and practice on creating, saving, closing and renaming of word documents. (03 hrs)</p> <p>21. Edit document using basic formatting tools. (03 hrs)</p> <p>22. Practice Inserting and formatting tables, pictures, videos and other objects. (03 hrs)</p> <p>23. Use Mail merge tool. Use conditional Mail Merge, External Data Source. Practice Letters, Label &amp; Envelop printing using Mail Merge. (03 hrs)</p> <p>24. Open MS Excel, familiarise with basic application components and practice creating, saving and formatting excel spread sheets. (03 hrs)</p> <p>25. Practice Excel functions of all major categories i.e. Financial, Logical, Text, date &amp; time, Lookup, Math, Statistical etc. (02 hrs)</p> <p>26. Use various data types in Excel, sorting, filtering and validating data. (02 hrs)</p>	<p><b>Introduction to MS Office</b></p> <ul style="list-style-type: none"> <li>• Introduction to the various applications in MS office.</li> <li>• Introduction to Word features, Office button, toolbars.</li> <li>• Creating, saving and formatting and printing documents using Word.</li> <li>• Introduction to Excel features, data types and various functions in all categories of Excel.</li> <li>• Concepts of sorting, filtering and validating data.</li> <li>• Introduction to Power Point Slide Show creation process.</li> <li>• Fine tuning the presentation and good presentation technique. (06 hrs)</li> </ul>



		<p>27. Modify Excel page setup and print a worksheet. (02 hrs)</p> <p>28. Open power point presentation, familiarise with basic application components and practice on creating Slide shows, Inserting picture and theme. (02 hrs)</p> <p>29. Add new slide, format text, link with word and excel documents. (02 hrs)</p> <p>30. Practice animating slide transitions and objects. (02 hrs)</p> <p>31. Create slide shows by inserting audio &amp; video and synchronise with presentation. (03 hrs)</p>	
<p>Professional Skill 30 Hrs;</p> <p>Professional Knowledge 06 Hrs</p>	<p>Perform safe handling of Multimedia devices Video Camera, Digital Camera, Microphone, Webcam and Basics of Digital Photography, Video Recording and data transfer.</p>	<p><b>Digital Photography (photo session)</b></p> <p>32. Identify different parts of digital camera; know the operating procedure and internal functions of the camera. (03 hrs)</p> <p>33. Practice to change important settings of camera. (03 hrs)</p> <p>34. Practice on focusing using tools and auto focus. (03 hrs)</p> <p>35. Practice on digital Photo Shooting with shallow depth of field. (03 hrs)</p> <p>36. Practice on using neutral density (ND) filters to</p>	<p><b>Digital Photography</b></p> <ul style="list-style-type: none"> <li>• Learning digital camera anatomy.</li> <li>• Exploring important camera settings.</li> <li>• Understanding how to focus.</li> <li>• Introducing the subject for the photo shoot.</li> <li>• Understanding lighting setup and working process with lighting instruments. (06 hrs)</li> </ul>



		<p>correct overexposure. (03 hrs)</p> <p>37. Practice on gain to artificially brighten an underexposed photo shot. (03 hrs)</p> <p>38. Practice on color temperature, white balancing a shot. (03 hrs)</p> <p>39. Working with lighting instruments, understanding lighting concepts, creating a four-point lighting setup for a scene, using corrective gels (06 hrs)</p> <p>40. Data transfer from Camera, SD card to Computer and Vice Versa. (03 hrs)</p>	
<p>Professional Skill 330 Hrs;  Professional Knowledge 66 Hrs</p>	<p>Perform Photo editing and apply special effects by using Adobe Photoshop and Adobe Illustrator.</p>	<p><b>Working with Images in Photoshop</b></p> <p>41. Scan images with digital scanner and save with appropriate image format. (03 hrs)</p> <p>42. Open Adobe Photoshop to practice with image editing tool, workspace-navigation, palettes, arranging document windows. (12 hrs)</p> <p>43. Crop and rotate an image, change image size, pixels and resolution, color Depth and apply the color modes- RGB, CMYK and Grayscale. (12 hrs)</p> <p>44. Edit image using bridge, brushes, choosing colors, sampling colors from an</p>	<p><b>Introduction to Photoshop</b></p> <ul style="list-style-type: none"> <li>• Implementation of Scanner</li> <li>• Image Editing techniques</li> <li>• Retouching techniques</li> <li>• Selection technique</li> <li>• Composition and design techniques</li> <li>• Colour correction</li> <li>• Working with type</li> <li>• Effects and Filters</li> <li>• Production (30 hrs)</li> </ul>



		<p>image, using Pantone colors, multiple undo and taking Snapshots, use the History palette. (12 hrs)</p> <p>45. Retouch to Fix images using the Clone Stamp. (06 hrs)</p> <p>46. Practice with Healing tools: The history brush, the Red-Eye and colour replacement tools. (09 hrs)</p> <p>47. Practice for selection techniques using the marquee and the lasso tools, the quick selection tool, working in quick mask mode, adding and subtracting selections, saving a selection. (12 hrs)</p> <p>48. Composition and design techniques: Working with layers moving content to new layer, opacity, transforming layers, creating reflection and other effects. (12 Hrs)</p> <p>49. Transformation- Scaling and rotating, using color fill layers, using gradients and patterns, combing images with layer masks, applying a Mask to an Adjustments layer. (09 hrs)</p> <p>50. Practice for Color correction using the levels command histogram, curves and exposure, using the color balance command to modify color casts, adjusting</p>	
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		<p>vibrance, Hue and Saturation: general and specific color range adjustment, colorizing. (12 hrs)</p> <p>51. Working with type layers, formatting type, converting type to pixels. (09 hrs)</p> <p>52. Applying Effects and Filters: working with layers Styles-Drop shadows, glows, bevels etc., using filters-corrective and creative filtering technique, using the filter gallery. (12 hrs)</p> <p>53. Practice with Production technique: importing and exporting images the main stream file types and their uses, web graphics-Using the Save for Web command-Optimization and file formats. (12 hrs)</p> <p>54. Printing- recognizing nonprintable colors, converting images to CMYK, saving for print, 3d (Menu), Color Correction (Adjustments), Smart Objects, Content Aware, Puppet Wrap Define(Brush, Pattern, Custom Shape). (12 hrs)</p> <p>55. Preferences, Masking (Layer, Vector, Clipping, Channel), Video Layers, Filters (All), actions (Panel), Animation, Channel, Text</p>	
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		<p>(Character /Paragraph Panels), using Bridge. (12 hrs)</p>	
		<p><b>Advance Image Editing in Photoshop</b></p> <p>56. Work with Palettes, i.e., layers palette, navigator palette, info palette, color palette, Swatches palette, Styles palette, History palette, Actions Palette, Tool preset palette, Channels Palette and Path Palette. (10 hrs)</p> <p>57. Work with Layers and edit photo using Image adjustment options - Labels, Auto labels, Auto contrasts, Curves, Color balance, Brightness /Contrast, Posterize, Variations. (10 hrs)</p> <p>58. Prepare the file and work area. (02 hrs)</p> <p>59. Creating different shapes. (03 hrs)</p> <p>60. Create three Dimensional effects using Layers. (05 hrs)</p> <p>61. Work with the magic wand tool and lasso tool. (04 hrs)</p> <p>62. Create images using Symbol Sprayer Tool. (03 hrs)</p> <p>63. Edit the images using options of Warp Tool. (03 hrs)</p> <p>64. Use Dodge tool, Burn tool, Sponge Tool and Clone Stamp Tool. (10 hrs)</p>	<p><b>In depth Image Editing</b></p> <ul style="list-style-type: none"> <li>• Exploring new creative options and producing high quality images for print &amp; web.</li> <li>• Creating exceptional imagery with easier access to file streamlined web design.</li> <li>• Photo re-touching, colourful image collages, artistic backgrounds.</li> <li>• Creation of the optimized images with roll over effects and image mapping.</li> <li>• Special effects on images using. (12 hrs)</li> </ul>



		<p>65. Edit Selections; create images and giving special effects using Filters. (05 hrs)</p> <p>66. Produce an image by mixing two or more different Layer. (05 hrs)</p>	
		<p><b>Graphics Editing using Adobe Illustrator/Corel draw</b></p> <p>67. Fundamental techniques of drawing in pencil, charcoal and ink. Emphasis is on realistic representation and visual observation. (06 hrs)</p> <p>68. Advanced drawing giving emphasis on design and composition and experimental techniques in different media: creating area text, applying basic character settings, paragraph settings, creating text threads, creating text on a path, converting text to outlines. (06 hrs)</p> <p>69. Using the basic selection tools, magic Wand and the Lasso tool, selecting objects by attribute, saving and reusing selections. (06 hrs)</p> <p>70. Appearances-Targeting objects attributes: adding multiple attributes, applying live effects, expanding appearances, creating graphic styles. (06 hrs)</p> <p>71. Modifying graphic styles: appearance palette settings,</p>	<p><b>Graphics Editing</b></p> <ul style="list-style-type: none"> <li>• Traditional Design concepts</li> <li>• Traditional and digital applications of color, concept and composition.</li> <li>• Making Selections</li> <li>• Understanding Appearances</li> <li>• Working with Groups and Layers</li> <li>• Advanced Drawing and Path Editing</li> <li>• Working with Color</li> <li>• Object Transformation and Positioning</li> <li>• Use of Brushes</li> <li>• Use of Masks</li> <li>• Use of Symbols</li> <li>• Application of Filters and Live Effects</li> <li>• Advanced Text Editing</li> <li>• Designing for the Web</li> <li>• Creation of Blends</li> <li>• Working with Images</li> <li>• Performing Specialized Tasks Saving and printing</li> <li>• Working with Other programs</li> </ul> <p>(24 hrs)</p>



		<p>copying appearance. (06 hrs)</p> <p>72. Working with Groups and Layers: defining and editing groups, working with Layers, Layers and object hierarchy, creating template layers, object, group, and layer attributes. (06 hrs)</p> <p>73. Advanced Drawing and Editing Path: creating Live Paint groups, detecting gaps in Live Paint groups, path editing with Live Paint, using Offset Path, dividing an object into a grid, cleaning up errant paths. (09 hrs)</p> <p>74. Working with Color: defining swatches, creating swatch groups and libraries, working with gradients, patterns, using the Color Guide, experimenting with color, finding colors with kuler, modifying color in artwork. (06 hrs)</p> <p>75. Transformation and Positioning: Rotating and scaling objects, reflecting and skewing objects, using the free Transform panel, Aligning objects. (06 hrs)</p> <p>76. Distributing objects-Using Brushes: Creating a calligraphic brush, creating a scatter brush, creating an art brush, creating a pattern brush. (06 hrs)</p>	
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		<p>77. Working with Masks: Understanding clipping masks, using layer clipping masks, creating opacity masks. (06 hrs)</p> <p>78. Using Symbols: Defining and editing symbols, using the symbolism toolset. (06 hrs)</p> <p>79. Applying Filters and Live Effects: Minding your resolution settings, Mapping artwork to 3Dobjects, using the Transform effect. (06 hrs)</p> <p>80. Using the pathfinder effects: Using the Stylize effect, Scribble effect, Warp effect. (06 hrs)</p> <p>81. Advanced Text Editing: taking advantage of Open type fonts, using the Glyphs panel, wrapping text around objects, checking spelling, using the change cash function, Setting tabs and leaders, managing fonts, dealing with legacy text. (09 hrs)</p> <p>82. Web Designing using pixel preview, specifying web slicing, Optimizing web graphics, Creating simple animations. (06 hrs)</p> <p>83. Creating a basic Blends, using a blend to create an airbrush Effect, using a blend to create an animation, using a</p>	
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		<p>blend to evenly distribute. (06 hrs)</p> <p>84. Working with Images: Placing images, using the Links panel, The Edit Original workflow, Live Trace, Rasterizing artwork, Object mosaic creating graphs, creating a lens flare, using gradient Mesh, Envelope Warps, Liquefy distortion tools, saving your Graphics Editing Tool Document, Printing your Graphics Editing Tool Document, Using the Crop Area tools, setting up page tiling. (09 hrs)</p> <p>85. Adding XMP metadata Exporting programs: Exporting files for use in QuarkXPress, In Design, Word /excel /PowerPoint, image Editing Tool, Authoring Tool, Special effects Tool, Effects (Ps-Ai), Preferences. (09 hrs)</p>	
<p>Professional Skill 90 Hrs;</p> <p>Professional Knowledge 18 Hrs</p>	<p>Perform safe handling of Multimedia devices Video Camera, Digital Camera, Microphone, Webcam and Basics of Digital Photography,</p>	<p><b>Digital Videography (Practice shooting and Recording)</b></p> <p>86. Safe handling of Multimedia devices: demonstrate how to Keep and carry how to fix in camera stand, how to remove from Stand. (06 hrs)</p> <p>87. Identify different parts of video camera; know the operating procedure and</p>	<p><b>Digital Videography</b></p> <ul style="list-style-type: none"> <li>• Introduction to video camera</li> <li>• Learning camera anatomy</li> <li>• Exploring important camera settings</li> <li>• Understanding how to focus using tools to achieve better focus</li> </ul>



	<p>Video Recording and data transfer.</p>	<p>internal functions of the video camera. (06 hrs)</p> <p>88. Practicing important settings of camera. (06 hrs)</p> <p>89. Practice on focusing using tools and auto focus. (06 hrs)</p> <p>90. Practice on Shooting with shallow depth of field. (06 hrs)</p> <p>91. Practice on using neutral density (ND) filters to correct overexposure. (06 hrs)</p> <p>92. Practice on gain to artificially brighten an underexposed shot. (06 hrs)</p> <p>93. Practice on choosing the right shutter speed. (06 hrs)</p> <p>94. Practice on color temperature, White balancing a shot. (06 hrs)</p> <p>95. Practice on choosing the right tripod, camera moves and Mastering hand-held shooting. (06 hrs)</p> <p>96. Practice on Audio Essentials for Five sound rules to live by, using the types of microphones for video shooting, setting up microphones for a video shoot, using a boom microphone, setting proper audio levels. (12 hrs)</p> <p>97. Practicing the lighting essential: working with lighting instruments,</p>	<ul style="list-style-type: none"> <li>• Introducing the subject for the video shoot</li> <li>• Learning the craft of filmmaking</li> <li>• Shooting with shallow depth of field</li> <li>• Understanding exposure</li> <li>• Using neutral density (ND) filters to correct overexposure</li> <li>• Using gain to artificially brighten an underexposed shot</li> <li>• Choosing the right shutter speed</li> <li>• Understanding colour temperature</li> <li>• White balancing a shot</li> <li>• Data transfer process. (18 hrs)</li> </ul>
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		<p>understanding lighting concepts, creating a four-point lighting setup for a scene, using corrective gels. (12 hrs)</p> <p>98. Data transfer from Camera to Computer and vice versa using CD, DVD, Hard Disk, Pen Drive, SD card etc. (06 hrs)</p>	
<p>Professional Skill 30 Hrs;</p> <p>Professional Knowledge 06 Hrs</p>	<p>Carry out Web browsing, Video streaming, uploading and downloading of video, audio, image on internet and secure information from cyber attacks.</p>	<p><b>Using Internet and Cyber Security</b></p> <p>99. Browse the Internet for information (use at least 3 popular browsers). (03 hrs)</p> <p>100. Create and use e-mail for communication with attachment, priority setting, and address book. (03 hrs)</p> <p>101. Browse social networking site and communicate with text, audio, video chatting. (03 hrs)</p> <p>102. Practice to create image, video streaming with sound and upload /download the same to /from internet. (06 hrs)</p> <p>103. Protect information, computers and networks from viruses, spyware and other malicious code. (03 hrs)</p> <p>104. Provide firewall security for Internet connection and Network System. (06 hrs)</p>	<p><b>Concepts of Internet and Cyber Security</b></p> <ul style="list-style-type: none"> <li>• Introduction to www, Concept of Internet, Web Browsers, internet servers and search engines.</li> <li>• Concepts of Domain naming Systems and E mail communication.</li> <li>• Upload, download techniques in internet.</li> <li>• Overview of Information Security, SSL, HTTPS, Security threats, information Security vulnerability and Risk management.</li> <li>• Introduction to Directory Services, Access Control, Security, Privacy protection, Audit and Security.</li> <li>• Introduction to IT Act and penalties for cyber crimes. (06 hrs)</li> </ul>



		105. Secure your Wi-Fi networks using password, WEP, WPA-PSK, WPA2-PSK, SSID, MAC address filtering. Create individual user accounts for each member. (06 hrs)	
Professional Skill 180 Hrs;  Professional Knowledge 36 Hrs	Implement Video editing and apply special effects by using Adobe Premier and Adobe After Effect.	<p><b>Using Adobe Premier Project</b></p> <p>106. Practice to change Project settings, Preference settings, Asset Management, Sequences &amp; Clips, Offline On-line Clips. (08 hrs)</p> <p>107. Managing Clips: The Project panel, Views, The preview area, Organizing clips and bins, Duplicating and copying clips, Renaming clips, Finding clips(search function), Interpreting Footage, Unlinking and Re-linking Media, The Project Manager. (08 hrs)</p> <p>108. Working with Monitor Panels: Viewing Clips, Playback Controls, Audio Clips, Cuing Clips, Time Ruler Controls, Safe Zones, Display Mode, Wave form and Vector scope Options, The Reference Monitor, Ganging source and Program Monitor. (08 hrs)</p> <p>109. Creating a Sequence Editing Methods, In And Out Points, Sub Clips,</p>	<p><b>Adobe Premier Project</b></p> <ul style="list-style-type: none"> <li>• Introduction to Adobe Premier Project</li> <li>• Creating a Sequence</li> <li>• Editing in the Timeline</li> <li>• Refining the sequence</li> <li>• Transitions</li> <li>• Audio</li> <li>• Tiles</li> <li>• Effects</li> <li>• Output</li> </ul> <p>(18 hrs)</p>



		<p>Source And Target Tracks, Overlay And Insert Edits, Adding Clips By Dragging, 3 And 4 Point Edits, Lift And Extract, Storyboard Editing, Multiple And Nested Sequences. (08 hrs)</p> <p>110. Editing in the Timeline: The Time Ruler, Adding, Deleting and Renaming Tracks, Markers, Selecting, Splitting Clips, Speed, Duration and Reverse, Multicam Editing, Synchronizing Clips, Replace Clips. (08 hrs)</p> <p>111. Refining the sequence: Snapping, Trimming Methods, Trimming Clips, Ripple , Roll, Slip and Slide Edits, the Trim Panel, Split Edits (L And J Cuts). (08 hrs)</p> <p>112. Practice with Transitions: The Effects Panel, Understanding Transitions, Applying A Transitions, Editing A Transitions. (08 hrs)</p> <p>113. Working with Audio: The audio mixer, recording with the audio mixer, Fading panning and balancing Effects, Corrective measures and Routing tracks. (08 hrs)</p> <p>114. Practice with Titles: Creating a title Text paths,</p>	
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		<p>Roll and crawl titles, Text configuration. (08 hrs)</p> <p>115. Working with Effects: Effect Types, Effect Properties, The Effects Control Panel, Key framing, Motion Effects, Opacity and Volume, Lighting Effects, Time warp (pixel motion Blending), Special effect Tool and Premiere. (10 hrs)</p> <p>116. Making Output: Creating DVDs, Blu-Ray, SWF, MP4 and FLV Files, Media Encoder for DVD Makers using Clip Notes. (08 hrs)</p>	
		<p><b>Applying Adobe After Effects</b></p> <p>117. Practice on User interface. (06 hrs)</p> <p>118. Creating and using compositions. (06 hrs)</p> <p>119. Practice on Key framing and using time line. (06 hrs)</p> <p>120. Practice on Looping animation. (06 hrs)</p> <p>121. Practice on Editing motion path. (06 hrs)</p> <p>122. Create the arrivals Bound Effects. (06 hrs)</p> <p>123. Simulation between Authoring Tool &amp; Special effects Tool. (06 hrs)</p> <p>124. Apply filter effects and mask to components. (06 hrs)</p> <p>125. Practice on Animate 3D transformations. (12 hrs)</p>	<p><b>Introduction to Adobe After Effects</b></p> <ul style="list-style-type: none"> <li>• Special effect Techniques</li> <li>• Introduction to User interface</li> <li>• Concepts of compositions, Key framing, Looping animation, motion path</li> <li>• Introduction to Bound Effects, Authoring Tool &amp; Special effects Tool, filter effects and mask to components</li> <li>• 3D Animation transformations, use of common loop sound, simple scripting in special effect Tool</li> <li>• Rotoscoping, Chroma, 2D &amp; 3D tracing, Green/Blue</li> </ul>



		<p>126.Include a common loop sound. (09 hrs)</p> <p>127.Practice on simple scripting in special effect Tool. (09 hrs)</p> <p>128.Rot scoping, Chroma, 2D &amp; 3D tracing, Green/Blue screen technique/shooting. Colour Correction. (12 hrs)</p>	<p>screen technique/shooting. Colour Correction (18 hrs)</p>
<p>Professional Skill 420 Hrs;  Professional Knowledge 84 Hrs</p>	<p>Create Graphics Animation and sound effect by using Flash and Maya, 3Ds Max.</p>	<p><b>Using Flash</b></p> <p>129.Practice on Tool Features, User interface, Image Editing Tool and Graphics, Editing Tool integration, Authoring Tool Video Technology, UI components. (12 hrs)</p> <p>130.Practice on Creating and Importing Graphics Assets, Working with different graphic. (18 hrs)</p> <p>131.Practice on formats - Importing bitmap graphics, working with layers and layer folder. (18 hrs)</p> <p>132.Use the drawing tools, Using object and merge drawing, Working with the colour panels, Creating and using Graphic symbols, using the Library panel. (18 hrs)</p> <p>133.Practice on Text Effectively- Text tool, Adding and formatting static text, Changing font rendering methods, Adding</p>	<p><b>Introduction to Flash</b></p> <ul style="list-style-type: none"> <li>• About Flash and General overview - Stage and Work area of Flash, using guides, grid &amp; rulers.</li> <li>• Using frames and key frames, Working with time line.</li> <li>• Using layers - to create a layer, to create a layer folder, to show or hide a layer or folder, to view the contents of the layer as outlines, to change the layer height in the timeline, to change the order of the layers or folders. Using Guide layers.</li> <li>• Drawing in Flash - to raw with a pencil tool, to paint with a brush tool, to draw with pen tool.</li> <li>• Using colours in Flash, to use a gradient fill. Importing Artwork, Video and Audio. Different file formats in Video &amp; Audio.</li> </ul>



		<p>input text fields, Embedding fonts in input text fields, Using for best practices. (18 hrs)</p> <p>134.Practice on Creation of Animations - Working with the timeline, using key frames, blanks key frames and frames, Creating motion tweens, Creating shape tweens, creating transition effects, using animation best practices. (18 hrs)</p> <p>135.Practice on Basic Action Script - Using Script Assist, Adding actions to a frame, Creating and using Button symbols. (18 hrs)</p>	<p>Flash Compatible Audio &amp; Video file formats. (24 hrs)</p>
		<p><b>Working with 3Ds MAX</b></p> <p>136.Practice on creating projects and Scenes. (12 hrs)</p> <p>137.Practice on Transform tool basics, Pivot points, Grouping and parenting, Modelling with primitives. (12 hrs)</p> <p>138.Practice on User Interface - Setting up project, Views/panels, Hotbox, Viewing Geometry, Channel Box, Layer Box, Attributes Editor, QWERTY Navigation. (12 hrs)</p> <p>139.Working with the camera, over view of MEL, Outliner/ Hyper graph, Grouping</p>	<p><b>Introduction to 3ds Max</b></p> <ul style="list-style-type: none"> <li>• Fundamentals &amp; concepts of Animation</li> <li>• 3D Animation Techniques</li> <li>• User Interface</li> <li>• Modelling</li> <li>• Lighting /Rendering</li> <li>• Character Setup &amp; Animation</li> <li>• Dynamics</li> </ul> <p>(24 hrs)</p>



		<p>/parenting Shelf Marking Menus. (15 hrs)</p> <p>140.Practice on Modelling – Curve Tools /snapping, Revolving, History, Duplicating, Working with NURBS, Detaching surfaces, Grouping /Duplicating. (15 hrs)</p> <p>141.Working with polygons, Sub-divisional surfaces, Split polygon Tool, Lofting, Extruding. (12 hrs)</p> <p>142.Practice on MODELLING, POLYGON TOOLS, WITH PROXY, NORMALS, Lighting /Rendering. (12 hrs)</p> <p>143.Practice on Hyper shade, Materials, Apply Materials, Making Shader Networks, Combining Ramps, Layered Textures, Intro to lights, Making Bump Maps. (15 hrs)</p> <p>144.Working with Shadows, UV Mapping, Specular Maps, Paints FX, Render View, Camera Settings, Render Globals, TOON SHADER. (15 hrs)</p>	
		<p><b>Working with MAYA</b></p> <p>145. Practice on navigation with view port, view port menu, forms and grids, selecting objects, move rotate and scale, manipulating pivote, channel box, attributed</p>	<p><b>Introduction to MAYA</b></p> <ul style="list-style-type: none"> <li>• Introduction to Maya interface and functions of port menu, forms and grids, objects, move rotate and scale, pivote, channel box, attributed editor, Marking menu</li> </ul>



		<p>editor, Marking menu. (24 hrs)</p> <p>146. Practice on Polygon modelling: Polygon components, soft selection, extrude tools, extruding curves, polygon vels, subdivide surface, character body. (24 hrs)</p> <p>147. Practice on NURBS Modeling: NURBS primitive NURBS carv tools, Text creations, NURBS revolve, NURBS loft, NURBS extrude, NURBS planner. (24 hrs)</p> <p>148. Practice on Organising Maya scene, out liner, group object, hierarchies, duplicating objects, hypergraph, hide /show object, players. (24 hrs)</p> <p>149. Practice on using Materials: Render Material, basics of material, applying of maps, BIP map picture, hyper shade, mental ray material, bump mapping, ramp shader, 3d paint tools. (24 hrs)</p> <p>150. Animation, time line animation, adjusting key, editing key, graph editor, dope sheet, break down keys, path animation, play blast, constrains,</p>	<ul style="list-style-type: none"> <li>• Concept of Ploygon components, soft selection, extrude tools, extruding curves, polygon vels, subdivide surface, character body</li> <li>• Introduction to NURBS, NURBS primitive NURBS carv tools, Text creations, NURBS revolve, NURBS loft, NURBS extrude, NURBS Planner</li> <li>• Organising Maya scene, out liner, group object, hierarchies, duplicating objects, hypergraph, players</li> <li>• Basics of Render Material, BIP map picture, hyper shade, mental ray material, bump mapping, ramp shader, 3d paint tools</li> <li>• Animation, time line animation, adjusting key, editing key, graph editor, dope sheet, break down keys, path animation, play blast, constrains, animation cycles, adding sound.</li> <li>• Rendering: Lights, depth map shadow, raterace shadows, basics of camera, depth of field, mental ray, software rendering, reflection and refraction, IPR rendering, lighting to scene Batch rendering.</li> </ul>
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		<p>animation cycles, adding sound. (30 hrs)</p> <p>151.Practice on Rendering: Lights, depth map shadow, raterace shadows, basics of camera, depth of field, mental ray, software rendering, reflection and refraction, IPR rendering, lighting to scene, Batch rendering. (30 hrs)</p>	(36 hrs)
<p><b>Industrial Visit/Project work</b></p> <p><b>Broad Areas:</b></p> <ul style="list-style-type: none"> <li>a) Create and host a web site of at least 6 web pages using Front Page.</li> <li>b) Create a multimedia project with 3D MAX.</li> <li>c) Create an animation Project with MAYA.</li> </ul>			

<b>SYLLABUS FOR CORE SKILLS</b>
<p>1. Employability Skills (Common for CTS all trades) (160 Hrs.)</p>

Learning outcomes, assessment criteria, syllabus and Tool List of Core Skills subjects which is common for a group of trades, provided separately in [www.bharatskills.gov.in](http://www.bharatskills.gov.in)

<b>LIST OF TOOLS &amp; EQUIPMENT</b>			
<b>MULTIMEDIA, ANIMATION AND SPECIAL EFFECTS (For batch of 24 candidates)</b>			
<b>S No.</b>	<b>Name of the Tools and Equipment</b>	<b>Specification</b>	<b>Quantity</b>
<b>A. TRAINEES TOOLS/ EQUIPMENT</b>			
1.	Desktop Computer	CPU: 32/64 Bit i3/i5/i7 or latest processor, Speed: 3 GHz or Higher. RAM:-4 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.	12 Nos. (For Trainee) + 1 No. for Instructor
2.	Server for LAN	CPU: 32/64 bit i7 processor or Higher with PCI Express Video Card, RAM:-8 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.	Colour Laser Printer	Colour 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 Multimeters	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 MB, 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, Umbrella, Stereo and Mono	As required
30.	Video Cable	BNC, HDMI, USB, VGA	As required
<b>B. SOFTWARE</b>			
31.	MS Office	2010 (professional) or the latest version available at the time of procurement	13 Licenses
32.	Antivirus for – clients / workstations in profile	validity of an year or more which should be renewed upon expiry	13 Licenses
33.	Open Office or equivalent	Latest version	Open source software
34.	GIMP / IrfanView Image editor or equivalent	Latest version	Open source software
35.	Adobe Photoshop	Adobe Photoshop (academic edition with 10 user license)	1 No.
36.	3D STUDIO Max	3D STUDIO Max (academic edition with 10 user license)	1 No.



37.	Maya	Maya (academic edition with 10 user license)	1 No.
38.	Adobe Flash	Adobe Flash (academic edition with 10 user license)	1 No.
39.	Adobe premier Suite	Adobe premier Suite (academic edition with 10 user license)	1 No.
40.	Front Page Editor	Front Page Editor (Academic edition with 10 user license)	1 No.

**C. LIST OF OTHER ITEMS/ FURNITURE**

41.	Vacuum cleaner	Hand Held	1 No.
42.	Pigeon hole cabinet	20 compartments	1 No.
43.	Chair and table for the instructor	with armrest mounted on castor wheels, adjustable height/Standard	1 each(for class room & laboratory)
44.	Dual Desk or Chair and Tables for Trainees	Standard	12 / 24 Nos
45.	Computer table	laminated top 150X650X750 mm with sliding tray for key board and one shelf of storage	13 Nos.
46.	Operators chair	without arms mounted on castor wheels, adjustable height	24 Nos.
47.	Printer table	650X500X750 mm can be varied as per local specifications	3 Nos.
48.	Air conditioner		As Required
49.	Storage cabinet	60X700X450mm	1Nos.
50.	White Board	minimum 4X6 feet	1 No.
51.	Steel Almirah	2.5 m x 1.20 m x 0.5 m	1 No.
52.	Fire Extinguisher CO2	2 KG	2 Nos.
53.	Fire Buckets	Standard size	2 Nos.

**D. RAW MATERIALS**

54.	White Board Marker	Assorted colour	As required
55.	Duster Cloth	2'/2'	As required
56.	Cleaning Liquid	500 ml	As required
57.	Photo Copy Paper	A4	As required
58.	Full Scarp Paper	White	2 reams
59.	Cartridges for printer	Colour/monochrome as per model of the printer	As required
60.	I/O Box with socket	RJ 45	As required



61.	RJ 45 connector	For connecting utp cat 5 cable	200 Pcs.
62.	Optical Mouse	USB/PS2	As required
63.	Key Board	USB/PS2	As required
64.	SMPS	12V DC	As required
65.	CMOS Batteries	3.0 V	As required
66.	Power Chord	3 Pin	As required
67.	Cable	Cat 5/5e	100 meter
68.	Stapler	Small	2 pcs.
69.	Stapler	Big	1 pc.
70.	Battery for remote	AAA	As required
71.	Battery for clock	AA	As required
72.	Pen drive	8 GB	2 Nos.
73.	CDs	52x or higher	500 Nos.
74.	DVDs	4.7GB or higher	100 Nos.
75.	Wall Clock	Analog	1 pcs.
76.	Battery for LAN tester	9 V	As required
77.	Power Adapter	For Hub, Switch, Router	As required

The DGT sincerely acknowledges contributions of the Industries, State Directorates, Trade Experts, Domain Experts, trainers of ITIs, NSTIs, faculties from universities and all others who contributed in revising the curriculum.

Special acknowledgement is extended by DGT to the following expert members who had contributed immensely in this curriculum.

<b>List of Expert Members contributed/ participated for finalizing the course curriculum of Multimedia, Animation &amp; Special Effects on 06.06.2017 at CSTARI, Kolkata.</b>			
<b>S No.</b>	<b>Name &amp; Designation Sh/Mr/Ms</b>	<b>Organization</b>	<b>Mentor Council Designation</b>
1.	H. V. Samvatsar Director	CSTARI, Kolkata	Chairman
2.	Sanjay Kumar Joint Director of Trg.	CSTARI, Kolkata	Member
3.	L. K. Mukherjee Dy. Director of Trg.	CSTARI, Kolkata	Member
4.	B. Das Asst. Director of Trg.	CSTARI, Kolkata	Member
5.	Smt. Sudakshina Ghosal Master	Govt. ITI for PCBG, Kolkata	Member
6.	Shri. Ananta Paul Instructor	DIT Head Quarter , West Bengal	Member
7.	S. K. Altaf Hossain Training Officer	ATI Kolkata	Member
8.	Budhaditya Biswas Training Officer	RDAT, Kolkata	Member
9.	Arijit Bhattacharya Founder & CEO	Virtual Infocom, Kolkata	Member
10.	Somanath De Director	IMAGIC, Kolkata	Member
11.	Ranjan Sen Business Development Executive	Motion Pallate, Kolkata	Member
12.	Ravish Pandey Compositing Head	Motion Pallate, Kolkata	Member
13.	Sanjeev Shah Marketing & Training Director	AFX Animation, Kolkata	Member
14.	Manoj Bise Production Head	Hitech Animation, Kolkata	Member
15.	Sanjoy Adhikary	Hitech Animation, Kolkata	Member

	Academic Head		
16.	Ashis Kumar Mandal Asst. Director of Trg.	CSTARI, Kokata	Member
17.	B. K. Nigam Training Officer	CSTARI, Kokata	Member
18.	Anurag Vats Training Officer	CSTARI, Kokata	Member
19.	Akhilesh Pandey Training Officer	CSTARI, Kokata	Member

<b>MEMBERS OF SECTOR MENTOR COUNCIL</b>			
<b>S No.</b>	<b>Name of the member with Post (Shri /Smt/Ms)</b>	<b>Organisation</b>	<b>Position in SMC</b>
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2.	R Chandrasekaran, Chief Executive, Technology & Operations	Cognizant Technology Solutions India Pvt. Ltd., 12th & 13th Floor, "A" wing, Kensington Building Hiranandani Business Park, Powai, Mumbai - 400 076	Member
3.	Srikantan Moorthy, SVP & Head, Education & Research	Infosys Electronics City, Hosur Road, Bangalore 560 100	Member
4.	Deepak Jain, Senior VP & Global Head-Work Force Planning	WIPRO, Doddakannelli, Sarjapur Road, Bangalore - 560 035	Member
5.	K. Ganesan Vice President -Global Head Talent Acquisition Group TCS House, Raveline street Fort, Mumbai - 400 001	TCS, TCS House, Raveline street, Fort, Mumbai - 400 001	Member
6.	Avinsh Vashishta, Chairman & GU Managing Director	Accenture Services Pvt. Ltd., 71, Cunningham Road, Bangalore – 560052	Member
7.	Ravi Shankar B.	Mindtree Ltd, Global Village, RCVE Post, Mysore Road, Bangalore 59	Member

8.	Mr. Umesh Gupta, Network of ICT Entrepreneurs and Enterprises	USO House, USO Road, 6 Special Institutional Area, New Delhi-110067	Member
9.	Prof. S.C. De Sarkar	Indian Institute of Technology Bhubaneswar, Bhubaneswar-751 013	Member
10.	Dr. Arti Kashyup, Associate Professor	Academic Block, Indian Institute of Technology Mandi, PWD Rest House, Near Bus Stand, Mandi - 175 001, Himachal Pradesh	Member
11.	Dr. B. Mahanty, Professor	Indian Institute of Technology Kharagpur, Kharagpur, India - 721302	Member
12.	Dr. Narayanaswamy N S, Associate Professor	D/o Computer Science and Engg Indian Institute of Technology Madras IIT P.O., Chennai 600 036	Member
13.	Ms. Koushalya Barik,AD (VE)	National Institute of Open Schooling, Noida	Member
14.	Prof. Ashis.K. Pani, Professor, XLRI Jamshedpur	XLRI Jamshedpur	Member
15.	Shri S.K. Prasad	National Institute of Open Schooling, Noida	Member
16.	P N Nayak, Head - Organizational Training	HCL Services Ltd., (A subsidiary of HCL INFOSYSTEMS LTD.), Hyderabad Campus, Road No 2, Hardware Technology Park, Kancha Imarat, Pahadi Shareef, Hyderabad – 500005	Member
17.	Hemant Darbadi, Ex. Director	CDAC, Pune University Campus, Pune-411007	Member
18.	Arnab Bhattacharya, Associate Professor	Department of Computer Science and Engineering, IIT, Kanpur	Member
19.	Ms. Sheetal Chopra, Dy. Director	NIELIT,Delhi, 2nd Floor Parshwanath Mero Mall, Indralok Metro Station, New Delhi	Member
20.	Dr Vijayarajeswaran, Managing Director	VI Micro Systems Pvt. Ltd, Chennai	Member

21.	Pramod Tripathi, SEO	National Institute of Open Schooling, Noida	Member
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24.	Shri Sundar Rajan, DPA Gr. B	NIMI, Chennai	Representative of NIMI
25.	Dr. M. Jayprakasan, DDT	ATI, Chennai	Champion Master Trainer
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31.	Sanjay Kr. Gupta, VI –COPA	RVTI Vadodara	Member
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38.	P. Parthiban, Assistant Training Officer (ITESM)	Govt ITI(W),Salem, TN	Member
39.	S. Raja, ADT	DET, Telangana	Member
40.	Mohd. Akram,	ITI, Shanthi Nagar, Hyderabad	Member
41.	Geeta Sikhen , VI	RVTI, Panipat	Member

**ABBREVIATIONS:**

CTS	Craftsmen Training Scheme
ATS	Apprenticeship Training Scheme
CITS	Craft Instructor Training Scheme
DGT	Directorate General of Training
MSDE	Ministry of Skill Development and Entrepreneurship
NTC	National Trade Certificate
NAC	National Apprenticeship Certificate
NCIC	National Craft Instructor Certificate
LD	Locomotor Disability
CP	Cerebral Palsy
MD	Multiple Disabilities
LV	Low Vision
HH	Hard of Hearing
ID	Intellectual Disabilities
LC	Leprosy Cured
SLD	Specific Learning Disabilities
DW	Dwarfism
MI	Mental Illness
AA	Acid Attack
PwD	Person with disabilities



Industrial Training Institute

**Multimedia, Animation & Special Effects**

