LEARNING OUTCOME BASED VOCATIONAL CURRICULUM

JOB ROLE:

Roto Artist

(QUALIFICATION PACK: Ref. Id. MES/Q3504)

SECTOR: Media and Entertainment

Sub-Sector: Film, Television, Animation, Advertising

NSQF Level 4

Classes 11 and 12

PSS CENTRAL INSTITUTE OF VOCATIONAL EDUCATION
Shyamla Hills, Bhopal – 462 002, M.P., India
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FOREWORD

The Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE) a constituent of the National Council of Educational Research and Training (NCERT) is spearheading the efforts of developing learning outcome based curricula and courseware aimed at integrating both vocational and general qualifications to open pathways of career progression for students. It is a part of Centrally Sponsored Scheme of Vocationalisation of Secondary and Higher Secondary Education (CSSVSHSE) launched by the Ministry of Human Resource Development, Government of India in 2012. The PSS Central Institute of Vocational Education (PSSCIVE) is developing curricula under the project approved by the Project Approval Board (PAB) of *Rashtriya Madhyamik Shiksha Abhiyan* (RMSA). The main purpose of the competency based curricula is to bring about the improvement in teaching-learning process and working competences through learning outcomes embedded in the vocational subject.

It is a matter of great pleasure to introduce this learning outcome based curriculum as part of the vocational training packages for the job role of **Media and Entertainment – Roto Artist.** The curriculum has been developed for the secondary students of vocational education and is aligned to the National Occupation Standards (NOSs) of a job role identified and approved under the National Skill Qualification Framework (NSQF).

The curriculum aims to provide children with employability and vocational skills to support occupational mobility and lifelong learning. It will help them to acquire specific occupational skills that meet employers' immediate needs. The teaching process is to be performed through the interactive sessions in classrooms, practical activities in laboratories and workshops, projects, field visits, and professional experiences.

The curriculum has been developed and reviewed by a group of experts and their contributions are greatly acknowledged. The utility of the curriculum will be adjudged by the qualitative improvement that it brings about in teaching-learning. The feedback and suggestions on the content by the teachers and other stakeholders will be of immense value to us in bringing about further improvement in this document.

Hrushikesh Senapaty
Director
National Council of Educational Research & Training

PREFACE

India today stands poised at a very exciting juncture in its saga. The potential for achieving inclusive growth are immense and the possibilities are equally exciting. The world is looking at us to deliver sustainable growth and progress. To meet the growing expectations, India will largely depend upon its young workforce. The much-discussed demographic dividend will bring sustaining benefits only if this young workforce is skilled and its potential is channelized in the right direction.

In order to fulfill the growing aspirations of our youth and the demand of skilled human resource, the Ministry of Human Resource Development (MHRD), Government of India introduced the revised Centrally Sponsored Scheme of Vocationalisation of Secondary and Higher Secondary Education that aims to provide for the diversification of educational opportunities so as to enhance individual employability, reduce the mismatch between demand and supply of skilled manpower and provide an alternative for those pursuing higher education. For spearheading the scheme, the PSS Central Institute of Vocational Education (PSSCIVE) was entrusted the responsibility to develop learning outcome based curricula, student workbooks, teacher handbooks and e-learning materials for the job roles in various sectors, with growth potential for employment.

The PSSCIVE firmly believes that the vocationalisation of education in the nation need to be established on a strong footing of philosophical, cultural and sociological traditions and it should aptly address the needs and aspirations of the students besides meeting the skill demands of the industry. The curriculum, therefore, aims at developing the desired professional, managerial and communication skills to fulfill the needs of the society and the world of work. In order to honor its commitment to the nation, the PSSSCIVE has initiated the work on developing learning outcome based curricula with the involvement of faculty members and leading experts in respective fields. It is being done through the concerted efforts of leading academicians, professionals, policy makers, partner institutions, Vocational Education and Training experts, industry representatives, and teachers. The expert group through a series of consultations, working group meetings and use of reference materials develops a National Curriculum. Currently, the Institute is working on developing curricula and course-ware for over 100 job roles in various sectors.

We extend our gratitude to all the contributors for selflessly sharing their precious knowledge, acclaimed expertise, and valuable time and positively responding to our request for development of curriculum. We are grateful to MHRD and NCERT for the financial support and cooperation in realising the objective of providing learning outcome based modular curricula and course-ware to the States and other stakeholders under the PAB (Project Approval Board) approved project of *Rashtriya Madhyamik Shiskha Abhiyan* (RMSA) of MHRD.

Finally, for transforming the proposed curriculum design into a vibrant reality of implementation, all the institutions involved in the delivery system shall have to come together with a firm commitment and they should secure optimal community support. The success of this curriculum depends upon its effective implementation and it is expected that the managers of vocational education and training system, including subject teachers will make efforts to create better facilities, develop linkages with the world of work and foster a conducive environment as per the content of the curriculum document.

The PSSCIVE, Bhopal remains committed in bringing about reforms in the vocational education and training system through the learner-centric curricula and course-ware. We hope that this document will prove useful in turning out more competent Indian workforce for the 21st Century.

RAJESH P. KHAMBAYAT
Joint Director
PSS Central Institute of Vocational Education

ACKNOWLEDGMENT

On behalf of the team at the PSS Central Institute of Vocational Education (PSSCIVE) we are grateful to the members of the Project Approval Board (PAB) *of* Rashtriya Madhyamik Shiksha Abhiyan (RMSA) and the officials of the Ministry of Human Resource Development (MHRD), Government of India for the financial support to the project for development of curricula.

We are grateful to the Director, NCERT for his support and guidance. We also acknowledge the contributions of our colleagues at the Technical Support Group of RMSA, MHRD, RMSA Cell at the National Council of Educational Research and Training (NCERT), National Skill Development Agency (NSDA) and National Skill Development Corporation (NSDC) and Media and Entertainment Sector Skill Council (MES) for their academic support and cooperation.

We are grateful to the expert contributors and Deepak D. Shudhalwar, Professor (CSE), PSSCIVE, for their earnest effort and contributions in the development of this learning outcome based curriculum. Their contributions are dully acknowledged.

The contributions made by Vinay Swarup Mehrotra, Professor and Head, Curriculum Development and Evaluation Centre (CDEC), Vipin Kumar Jain, Associate Professor and Head, Programme Planning and Monitoring Cell (PPMC) and Deepak Shudhalwar, Professor (CSE), Head, Computer and ICT Centre, PSSCIVE in development of the curriculum for the employability skills are duly acknowledged.

We are also grateful to the Course Coordinator Deepak D. Shudhalwar, Professor (CSE), Head, Computer and ICT Centre, PSSCIVE, for bringing out this curriculum in the final form.

PSSCIVE Team

CONTENTS

1. COURSE OVERVIEW

COURSE TITLE: Roto Artist

Roto artist in the Media & Entertainment Industry is also known as a Rotoscopy artist. Individuals at this job need to break content down into individual frames/elements and alter/re-create content in accordance to requirements. This job requires the individual to have a good understanding of the fundamentals and principles of film-making. The individual must know the fundamentals of depth and should possess good drawing and illustration skills. The individual must have a good working knowledge of rotoscopy software including Nuke, After Effects, Silhouette etc.

After completion of the job role on Roto Artist, the candidate may opt a career as a VFX Artist.

COURSE OUTCOMES: On completion of the course, students should be able to:

- ✓ Apply effective oral and written communication skills to interact with customers;
- ✓ Identify the principal components of a computer system;
- ✓ Demonstrate the basic skills of using computer;
- ✓ Demonstrate self-management skills;
- ✓ Demonstrate the ability to provide a self-analysis in context of entrepreneurial skills;
- ✓ Demonstrate the knowledge of the importance of green skills in meeting the challenges of sustainable development and environment protection;
- ✓ Understand the creative and technical requirements and expectations in terms of quality of deliverables and timelines.
- ✓ Determine key post-production processes that would be involved to produce the desired outcome and chart-out the process workflow (Supervisor).
- ✓ Translate expectations into effort estimates for each process and prepare a work plan, keeping in mind the impact on the production budget, timelines and technical viability.
- ✓ Gather raw footage/material and select relevant material that can be used for post-production.
- ✓ Ingest the footage/keep the material ready for the post-production process.
- ✓ Save back-ups for interim work-products in the appropriate file formats.
- ✓ Ensure final work-products are prepared in appropriate file formats (such as mp4, avi, wmv, mpg and mov) and appropriate medium (such as DVD, film, tape and digital) compatible with intended distribution/exhibition mediums.
- ✓ Clear logs/data and keep the software and equipment ready for future use.
- ✓ Use the software to break the content down into individual frames in accordance to requirements.
- ✓ Ensure that the work-products meet roto-scopy objectives and quality standards and are ready for compositing.
- ✓ Identify the people responsible for health and safety in the workplace, including those to contact in case of an emergency.
- ✓ Identify security signals e.g. fire alarms and places such as staircases, fire warden stations, first aid and medical rooms.
- ✓ Identify aspects of your workplace that could cause potential risk to own and others health and safety
- ✓ Ensure own personal health and safety, and that of others in the workplace though precautionary measures

COURSE REQUIREMENTS: The learner should have basic knowledge of science.

COURSE LEVEL: This course can be taken up at Intermediate level in Class 11 and Class 12.

COURSE DURATION: **Total : 600 hours** (Class 11 : 300 hours, Class 12 : 300 hours)

2. SCHEME OF UNITS AND ASSESSMENT

This course is a planned sequence of instructions consisting of Units meant for developing employ-ability and vocational competencies of students of Class 11 and 12 opting for vocational subject along with general education subjects. The unit-wise distribution of hours and marks for Class 11 is as follows :

CLASS 11			
	Units	**No. of Hours for Theory and Practical 300**	**Max. Marks for Theory & Practical 100**
Part A	**Employability Skills**		
Unit 1	Communication Skills – III	25	**10**
Unit 2	Self-management Skills – III	25	
Unit 3	Basic ICT Skills – III	20	
Unit 4	Entrepreneurial Skills – III	25	
Unit 5	Green Skills – III	15	
	Total	**110**	**10**
Part B	**Vocational Skills**		
Unit 1	Animation and Visual Effects	40	**40**
Unit 2	Creative and Technical Requirement	40	
Unit 3	Rotoscoping Basics	50	
Unit 4	Maintain Healthy, Safe and Secure Working Environment	35	
	Total	**165**	**40**
Part C	**Practical Work**		
	Practical Examination	6	15
	Written Test	1	10
	Viva Voce	3	10
	Total	**10**	**35**
Part D	**Project Work/Field Visit**		
	Practical File/ Student Portfolio	10	10
	Viva Voce	5	5
	Total	**15**	**15**
	Total	**300**	**100**

The unit-wise distribution of hours and marks for **Class 12** is as follows:

CLASS 12			
	Units	**No. of Hours for Theory and Practical 300**	**Max. Marks for Theory and Practical 100**
Part A	**Employability Skills**		
Unit 1	Communication Skills – IV	25	**10**
Unit 2	Self-management Skills – IV	25	
Unit 3	Basic ICT Skills – IV	20	
Unit 4	Entrepreneurial Skills – IV	25	
Unit 5	Green Skills – IV	15	
	Total	**110**	**10**
Part B	**Vocational Skills**		
Unit 1	Drawing and Animating Roto shapes	55	**40**
Unit 2	Roto Techniques in SilhouetteFX	50	
Unit 3	Advanced Roto Techniques and Applications	30	
Unit 4	Finalizing Matte	30	
	Total	**165**	**40**
Part C	**Practical Work**		
	Practical Examination	6	15
	Written Test	1	10
	Viva Voce	3	10
	Total	**10**	**35**
Part D	**Project Work/Field Visit**		
	Practical File/ Student Portfolio	10	10
	Viva Voce	5	5
	Total	**15**	**15**
	Total	**300**	**100**

3. TEACHING/TRAINING ACTIVITIES

The teaching and training activities have to be conducted in classroom, laboratory/ workshops and field visits. Students should be taken to field visits for interaction with experts and to expose them to the various tools, equipment, materials, procedures and operations in the workplace.

Special emphasis should be laid on the occupational safety, health and hygiene during the training and field visits.

CLASSROOM ACTIVITIES

Classroom activities are an integral part of this course and interactive lecture sessions, followed by discussions should be conducted by trained vocational teachers. Vocational teachers should make effective use of a variety of instructional aids, such as audio-video materials, colour slides, charts, diagrams, models, exhibits, hand-outs, online teaching materials, etc. to transmit knowledge and impart training to the students.

PRACTICAL WORK IN LABORATORY/WORKSHOP

Practical work may include but not limited to hands-on-training, simulated training, role play, case based studies, exercises, etc. Equipment and supplies should be provided to enhance hands-on learning experience of students. Only trained personnel should teach specialized techniques. A training plan that reflects tools, equipment, materials, skills and activities to be performed by the students should be submitted by the vocational teacher to the Head of the Institution.

FIELD VISITS/ EDUCATIONAL TOUR

In field visits, children will go outside the classroom to obtain specific information from experts or to make observations of the activities. A checklist of observations to be made by the students during the field visits should be developed by the Vocational Teachers for systematic collection of information by the students on the various aspects. Principals and Teachers should identify the different opportunities for field visits within a short distance from the school and make necessary arrangements for the visits. At least three field visits should be conducted in a year.

4. ASSESSMENT AND CERTIFICATION

Upon successful completion of the course by the candidate, the Central/ State Examination Board for Secondary Education and the respective Sector Skill Council will certify the competencies.

The National Skills Qualifications Framework (NSQF) is based on outcomes referenced to the National Occupation Standards (NOSs), rather than inputs. The NSQF level descriptors, which are the learning outcomes for each level, include the process, professional knowledge, professional skills, core skills and responsibility. The assessment is to be undertaken to verify that individuals have the knowledge and skills needed to perform a particular job and that the learning programme undertaken has delivered education at a given standard. It should be closely linked to certification so that the individual and the employer could come to know the competencies acquired through the vocational subject or course. The assessment should be reliable, valid, flexible, convenient, cost effective and above all it should be fair and transparent. Standardized assessment tools should be used for assessment of knowledge of students. Necessary arrangements should be made for using technology in assessment of students.

KNOWLEDGE ASSESSMENT (THEORY)

Knowledge Assessment should include two components: one comprising of internal assessment and second an external examination, including theory examination to be conducted by the Board. The assessment tools shall contain components for testing the knowledge and application of knowledge. The knowledge test can be objective paper based test or short structured questions based on the content of the curriculum.

WRITTEN TEST

It allows candidates to demonstrate that they have the knowledge and understanding of a given topic. Theory question paper for the vocational subject should be prepared by the subject experts comprising group of experts of academicians, experts from existing vocational subject experts/teachers, and subject experts from university/colleges or industry. The respective Sector Skill Council should be consulted by the Central/State Board for preparing the panel of experts for question paper setting and conducting the examinations.

The blue print for the question paper may be as follows:

Duration: 3 hrs **Max. Mark: 30**

		No. of Questions			
	Typology of Question	**Very Short Answer (1 mark)**	**Short Answer (2 Marks)**	**Long Answer (3 Marks)**	**Marks**
1.	Remembering – (Knowledge based simple recall questions, to know specific facts, terms, concepts, principles, or theories; identify, define or recite, information)	**3**	**2**	**2**	**13**
2.	Understanding – (Comprehension – to be familiar with meaning and to understand conceptually, interpret, compare, contrast, explain, paraphrase, or interpret information)	**2**	**3**	**2**	**14**
3.	Application – (Use abstract information in concrete situation, to apply knowledge to new situations: Use given content to interpret a situation, private an example, or solve a problem)	**0**	**2**	**1**	**07**
4.	High Order Thinking Skills – (Analysis & Synthesis – Classify, compare, contrast, or differentiate between different pieces of information; Organize and/ or integrate unique pieces of information from a variety of sources)	**0**	**2**	**0**	**04**
5.	Evaluation – (Appraise, judge, and/or justify the value or worth of a decision or outcome, or to predict outcomes based on values)	**0**	**1**	**0**	**02**
	Total	**5x1=5**	**10x2=20**	**5x3=15**	**40 (20 Ques.)**

SKILL ASSESSMENT (PRACTICAL)

Assessment of skills by the students should be done by the assessors/examiners on the basis of practical demonstration of skills by the candidate, using a competency checklist. The competency checklist should be developed as per the National Occupation Standards (NOSs) given in the Qualification Pack for the Job Role to bring about necessary consistency in the quality of assessment across different sectors and Institutions. The student has to demonstrate competency against the performance criteria defined in the National Occupation Standards and the assessment will indicate that they are 'competent', or are 'not yet competent'. The assessors assessing the skills of the students should possess a current experience in the industry and should

have undergone an effective training in assessment principles and practices. The Sector Skill Councils should ensure that the assessors are provided with the training on the assessment of competencies.

Practical examination allows candidates to demonstrate that they have the knowledge and understanding of performing a task. This will include hands-on practical exam and viva voce. For practical, there should be a team of two evaluators – the subject teacher and the expert from the relevant industry certified by the Board or concerned Sector Skill Council. The same team of examiners will conduct the viva voce.

Project Work (individual or group project) is a great way to assess the practical skills on a certain time period or timeline. Project work should be given on the basis of the capability of the individual to perform the tasks or activities involved in the project. Projects should be discussed in the class and the teacher should periodically monitor the progress of the project and provide feedback for improvement and innovation. Field visits should be organised as part of the project work. Field visits can be followed by a small-group work/project work. When the class returns from the field visit, each group might be asked to use the information that they have gathered to prepare presentations or reports of their observations. Project work should be assessed on the basis of practical file or student portfolio.

Student Portfolio is a compilation of documents that supports the candidate's claim of competence. Documents may include reports, articles, photos of products prepared by students in relation to the unit of competency.

Viva voce allows candidates to demonstrate communication skills and content knowledge. Audio or video recording can be done at the time of viva voce. The number of external examiners would be decided as per the existing norms of the Board and these norms should be suitably adopted/adapted as per the specific requirements of the vocational subject. Viva voce should also be conducted to obtain feedback on the student's experiences and learning during the project work/field visits.

CONTINUOUS AND COMPREHENSIVE EVALUATION

Continuous and Comprehensive Evaluation (CCE) refers to a system of school-based evaluation of students that covers all aspects of student's development. In this scheme, the term `continuous' is meant to emphasize that evaluation of identified aspects of students `growth and development' is a continuous process rather than an event, built into the total teaching-learning process and spread over the entire span of academic session. The second term `comprehensive' means that the scheme attempts to cover both the scholastic and the co-scholastic aspects of students' growth and development. For details, the CCE manual of Central Board of Secondary Education (CBSE) or the guidelines issued by the State Boards on the procedure for CCE should be followed by the Institutions.

5. UNIT CONTENTS

CLASS 11

Part A: Employability Skills

Unit No.	Unit Name	Duration in Hours
Unit 1	Communication Skills – III	25
Unit 2	Self-management Skills – III	25
Unit 3	Basic ICT Skills – III	20
Unit 4	Entrepreneurial Skills – III	25
Unit 5	Green Skills – III	15
	Total	**110**

Unit 1: Communication Skills – III

Sn	Learning Outcome	Theory (10 Hours)	Practical (15 Hours)	25 Hrs
1.	Demonstrate knowledge of various methods of communication	• Methods of communication • Verbal • Non-verbal • Visual	• Writing pros and cons of written, verbal and non-verbal communication • Listing do's and don'ts for avoiding common body language mistakes	15
2.	Identify specific communication styles	• Communication styles- assertive, aggressive, passive-aggressive, submissive, etc.	• Observing and sharing communication styles of friends, teachers and family members and adapting the best practices • Role play on communication styles.	10
3.	Demonstrate basic writing skills	• Writing skills to the following: • Sentence • Phrase • Kinds of Sentences • Parts of Sentence • Parts of Speech • Articles • Construction of a Paragraph	• Demonstration and practice of writing sentences and paragraphs on topics related to the subject	15
			Total Duration in Hours	**25**

Unit 2: Self-management Skills – III

Sn	Learning Outcome	Theory (10 Hours)	Practical (15 Hours)	25 Hrs
1.	Demonstrate impressive	• Describe the importance of dressing appropriately, looking	• Demonstration of impressive appearance and groomed	07

	appearance and grooming	decent and positive body language. • Describe the term grooming • Prepare a personal grooming checklist. • Describe the techniques of self-exploration.	personality. • Demonstration of the ability to self- explore.	
2.	Demonstrate team work skills	• Describe the important factors that influence in team building. • Describe factors influencing team work.	• Group discussion on qualities of a good team. • Group discussion on strategies that are adopted for team building and team work.	08
3.	Apply time management strategies and techniques	• Meaning and importance of time management – setting and prioritizing goals, creating a schedule, making lists of tasks, balancing work and leisure, using different optimization tools to break large tasks into smaller tasks.	• Game on time management. • Checklist preparation. • To-do-list preparation.	10
			Total Duration in Hours	**25**

Unit 3: Basic ICT Skills – III				
Sn	**Learning Outcome**	**Theory (08 Hours)**	**Practical (12 Hours)**	**20 Hrs**
1.	Create a document on word processor	• Introduction to word processing. • Software packages for word processing. • Opening and exiting the word processor. • Creating a document	• Demonstration and practice of the following: • List the features of word processing, • List the software packages for word processing, • Opening and exit the word processor, • Creating a document	10
2.	Edit, save and print a document in word processor	• Editing text • Wrapping and aligning the text • Font size, type and face. • Header and Footer • Auto correct • Numbering and bullet • Creating table • Find and replace • Page numbering. • Printing document. • Saving a document in various formats	• Demonstration and practicing the following: • Editing the text • Word wrapping and alignment, • Changing font type, size and face, • Inserting header and footer, • Removing header and footer, • Using autocorrect option, • Insert page numbers and bullet, • Save and print a document.	10
			Total Duration in Hours	**20**

Unit 4: Entrepreneurial Skills – III				
Sn	**Learning Outcome**	**Theory (10 Hours)**	**Practical (15 Hours)**	**25 Hrs**
1.	Describe the significance of entrepreneurial values and attitude.	• Values in general and entrepreneurial values. Entrepreneurial value orientation with respect to inattentiveness, independence, outstanding performance and respect for work.	• Listing of entrepreneurial values by the students. • Group work on identification of entrepreneurial values and their roles after listing or reading 2-3 stories of successful entrepreneur. • Exhibiting entrepreneurial values in Ice breaking, rapport building, group work and home assignments.	10
2.	Demonstrate the knowledge of attitudinal changes required to become an entrepreneur.	• Attitudes in general and entrepreneurial attitudes • Using imagination/ intuition • Tendency to take moderate risk • Enjoying freedom of expression and action • Looking for economic opportunities • Believing that we can change the environment • Analyzing situation and planning action • Involving in activity	• Preparing a list of factors that influence attitude in general and entrepreneurial attitude. • Demonstrating and identifying own entrepreneurial attitudes during the following micro lab activities like thematic appreciation test. • Preparing a short write-up on "who am I". • Take up a product and suggest how its features can be improved. • Group activity for suggesting brand names, names of enterprises, etc.	15
			Total Duration in Hours	**25**

Unit 5: Green Skills – III				
Sn	**Learning Outcome**	**Theory (07 Hours)**	**Practical (08 Hours)**	**15 Hrs**
1.	Describe importance of main sector of green economy	• Main sectors of green economy- E-waste management, green transportation, renewal energy,green construction, water management. • Policy initiatives for greening economy in India.	• Preparing a poster on any one of the sectors of green economy. • Writing a two-page essay on important initiatives taken in India for promoting green economy.	08
2.	Describe the major green Sectors/	• Stakeholders in green economy.	• Preparing posters on green Sectors/Areas: cities, buildings,	07

	Areas and the role of various stakeholder in green economy	• Role of government and private agencies in greening cities, buildings, tourism, industry, transport, renewable energy, waste management, agriculture, water, forests and fisheries.	tourism, industry, transport, renewable energy, waste management, agriculture, water, forests and fisheries.	
			Total Duration in Hours	**15**

Class XI, Part B: Vocational Skills

Unit No.	Unit Name	Duration in Hours
Unit 1	Animation and Visual Effects	45
Unit 2	Creative and Technical Requirement	45
Unit 3	Rotoscoping Basics	50
Unit 4	Maintain Healthy, Safe and Secure Working Environment	25
	Total Duration	**165**

Unit 1: Animation and Visual Effects

Sn	Learning Outcome	Theory (15 Hours)	Practical (30 Hours)	45 Hrs
1.	Describe Animation and Visual Effects	• Animation and visual effects • Differences between Animation and VFX • Media and Entertainment industry • An overview of Indian animation and VFX industry • Animation and VFX in advertising • Key factor of Indian animation and VFX Industry • Job opportunity in Animation • Job opportunity in VFX	• Identify and classify the given video footage as animation or VFX • Collect the information on growth of various areas in Media and Entertainment industry in past 5 years • Download the movies from internet that include animation and visual effects • Identify and list top 5 grossing Indian movies of the year • Identify the advertisement where the animation and visual effects are used • Identify and list the various jobs in animation and VFX	10
2.	Describe Post Production Process	• Video Production process – preproduction, production and post production • Storage devices for videos • Organising the footage in storage Device • Organising the footage in Editing Application	• Create Bin in Adobe Premiere Pro • Import the footage in editing application • Interpret the Footage • Scale a video footage having larger video size than sequence setting	20

		• Aspect Ratio and Resolution • Editing – various editinng tools in Adobe Premiere Pro • Visual effects workflow • Audio effects workflow • Sound editing and mixing • Tools and equipment for mixing • Exporting the footage for VFX from editing software • Colour correction or colour grading • Mastering and create delivery format	• Perform a basic editing in Adobe premiere Pro software • Identify the video and audio layer in Adobe premiere Pro • Demonstrate to export the footage for VFX from editing software • Demonstrate to conform the Adobe Premiere editing timeline to davinci resolve • Create delivery format	
3.	Describe the past, present and future scope of Rotoscopy	• Origins of Rotoscoping • Rotoscoping in other animation • Rotoscoping in visual effects • Digital Rotoscopy • Rotoscoping technique in video game	• Identify and list animation movies where rotoscoping is used • Identify and list movies where digital rotoscoping is used • Identify and list video games where rotoscoping is used	8
4.	Describe the roles and responsibility of Roto Artist	• Rotoartist work profile • Skills required for Roto Artists • Responsibilities of Roto Artists • Job sector of Roto Artists	• List out the work carried out by Roto Artist • List out the skills required by Roto Artists • List out the work area and responsibilities of Roto Artist	7
			Total Duration in Hours	**45**

Unit 2: Creative and Technical Requirement				
Sn	**Learning Outcome**	**Theory (15 Hours)**	**Practical (30 Hours)**	**45 Hrs**
1.	Describe the video basics	• Video content creation – tools and techniques • Types of video camera • Different video camera controls of DSLR • Different shot sizes • Different video file format • Codec – video codec, audio codec, still image codec • Most important codec • Frame Rate • Difference between frame rates • Various frame rates and their specific uses • Frame rates for different medium	• List the various tools for creation of video contents • Capture the video from smartphone camera • Identify the different video camera controls of DSLR • Capture different types of shots from video camera • Make a list of mobile application for video recording, editing, sharing and playback • Identify video formats of the given video • Capture a video clip from smart phone or other video camera and identify its video format	12

		• Resolution • Aspect Ratio • Most widely used aspect ratios • Relationship between Resolution and Aspect Ratio	• List the video format used in film and video production. • Convert 60 fps video at 30fps and observe the change • Capture a video from DSLR camera and change its aspect ratio by cropping frame.	
2.	Describe the tools and technique to capture raw footage	• Chroma keying technique, • Comparison between chroma key and Rotoscoping • Materials required for chroma key • Rotoscoping tools • Traditional or analog rotoscoping • Digital Rotoscoping • Hardware and software for digital Rotoscoping	• Shoot a video with a chroma key background and remove the background using Adobe Premiere Pro software • Record a video clip of 5 second using DSLR or smartphone camera and convert it in 2D animation with traditional rotoscoping	8
3.	Perform Rotoscoping using different Rotoscoping software	• Rotoscoping software – Layer base and Node base software • Layer base software – Adobe After Effects – Key features, System requirement, Advantages in Rotoscoping • Node base software – Nuke, Silhouette – Key features, System requirement, Advantages in Rotoscoping	• Create a composition in After Effects and understand it's interface • Import a video clip in Silhouette and perform basic Roto	12
4.	Perform Rotoscoping in Adobe Photoshop	• Adobe Photoshop interface, menues and tools • Different group of Photoshop tools • Tools used in rotoscoping and their function • Rotoscoping process in Adobe Photoshop • Import the Footage • Video layer used in Rotoscoping • Exporting a video • Object separation for VFX	• Open Adobe Photoshop software and observe its interface, menues and tools • Try out to use various tools in Adobe Photoshop • Create a video layer from video clip in Adobe Photoshop • Create animation from video clip using Adobe Photoshop • Separate an object from live video using Adobe Photoshop	13
			Total Duration in Hours	**45**

Unit 3: Rotoscoping Basics				
Sn	**Learning Outcome**	**Theory (15 Hours)**	**Practical (15 Hours)**	**50 Hrs**
1.	Describe VFX techniques and	• Basic VFX techniques and equipment – Blue and Green	• Identify and list the basic VFX techniques and equipment	6

	Rotoscoping terminologies	screen, Motion Control, Encoda Cam, Motion Capture, • Rotoscopy terminologies – Comp, Matte, Control Points, Spline, Shape, Edge, Motion path, Key frame, Focus Object, Tracking, Alpha Channel, Frame Range, Interpolation, Keying, Object Mode, Sub-Object Mode	• List the various Rotoscopy terminologies	
2.	Draw various shapes in Adobe After Effects using Layers and Pen tool	• Adobe After Effects Layers – Shape Layer, Solid Layer, Text Layer, Adjustment Layer, Null Layer, Camera Layer, Light Layer, • Masking • Shape Layer and Pen Tool	• Draw the various shapes in After Effects – rectangle and rounded rectangle, ellipses and circles, polygons and stars • Create a manual Bezier path using the Pen tool • Draw curved manual Bezier path segments with the Pen tool • Create a S-shaped curve	10
3.	Create Matte and color of video in After Effects	• Matte Creation • Luma Mattes • Alpha Mattes • Colour Correction	• Create Alpha and Luma Matte in Adobe After Effects • Select an image and add an element to the composition using Alpha Matte • Select an image and add an element to the composition using Luma Matte • Change the colour of object in video clip in Adobe After Effects	12
4.	Demonstrate Rotoscoping using Brush and Refine brush tool in After Effects	• Rotoscoping of object • Roto brush and Refine brush tool • Roto Brush and Refine Matte overview and workflow	• Demonstrate rotoscoping of given object using Pen tool and key-frame technique • Breakdown an object in to multiple shapes by using Bezier pen tool in After Effects • Extract foreground object of the given video clip by using Roto brush and refine brush tool	10
5.	Paint and remove the part of object using Motion tracking in After Effects	• Motion tracking • Clone and paint (wire removal) • Clone Stamp	• Paint the given object using Motion tracking • Change the color of the elements of given object in footage using Track and Roto Technique • Remove the part of the given video clip using motion tracking and Clone tool	12

			• Remove the part of a video composition using wire removal/ paint method of composting in Adobe after Effects.	
			Total Duration in Hours	**50**

Unit 4: Maintain Healthy, Safe and Secure Working Environment				
Sn	**Learning Outcome**	**Theory (10 Hours)**	**Practical (15 Hours)**	**25 Hrs**
1	Maintain Health, Safety and Security at Work Place	• Introduction to health, safety and security at work place • Policies and procedures for health, safety and security • Workplace safety hazards • Hazard control • Safety guidelines checklist	• Demonstrate health, safety and security at work place • List and demonstrate the policies and procedures for health, safety and security • List and control the workplace safety hazards • Implement safety guidelines	9
2	Observe Workplace Quality Measures	• Air and water quality monitoring process • Importance of cleanliness at work place • Office ergonomics • Health and safety requirements for computer workplace	• Demonstrate to maintain quality air, water and cleanliness at work place • Implement office ergonomics • List and demonstrate health and safety requirements for computer at workplace	8
3	Prevent Accidents and Emergencies	• Accidents and emergencies • Handling accidents • Types of Emergencies • First Aid for Electrical Emergencies	• List the probable accidents and emergencies at workplace • Demonstrate to handle accidents at workplace • Identify and list different types of emergencies at workplace • Demonstrate to use first aid for electrical emergencies	8
			Total Duration in Hours	**25**

CLASS 12

Part A: Employability Skills

Unit No.	Unit Name	Duration in Hours
Unit 1	Communication Skills – IV	25
Unit 2	Self-management Skills – IV	25
Unit 3	Basic ICT Skills – IV	20
Unit 4	Entrepreneurial Skills – IV	25
Unit 5	Green Skills – IV	15
	Total	**110**

Unit 1: Communication Skills – IV

Sn	Learning Outcome	Theory (10 Hours)	Practical (15 Hours)	25 Hrs
1.	Describe the steps to active listening skills	• Importance of active listening at workplace • Steps to active listening.	• Demonstration of the key aspects of becoming active listener. • Preparing posters of steps for active listening.	10
2.	Demonstrate basic writing skills	• Writing skills to the following: • Sentence • Phrase • Kinds of Sentences • Parts of Sentence • Parts of Speech • Articles • Construction of a Paragraph	• Demonstration and practice of writing sentences and paragraphs on topics related to the subject.	15
			Total Duration in Hours	**25**

Unit 2: Self-management Skills – IV

Sn	Learning Outcome	Theory (10 Hours)	Practical (15 Hours)	25 Hrs
1.	Describe the various factors influencing self-motivation	• Finding and listing motives (needs and desires); • Finding sources of motivation and inspiration (music, books, activities); expansive thoughts; living fully in the present moment; dreaming big.	• Group discussion on identifying needs and desire. • Discussion on sources of motivation and inspiration.	10
2.	Describe the basic personality traits, types and disorders	• Describe the meaning of personality. • Describe how personality influence others.	• Demonstrate the knowledge of different personality types.	

		• Describe basic personality traits. • Describe common personality disorders- paranoid, antisocial, schizoid, borderline, narcissistic, avoidant, dependent and obsessive.		15
			Total Duration in Hours	**25**

Unit 3: Basic ICT Skills – IV				
Sn	**Learning Outcome**	**Theory (06 Hours)**	**Practical (14 Hours)**	**20 Hrs**
1.	Perform tabulation using spreadsheet application	• Introduction to spreadsheet application, • Spreadsheet applications, • Creating a new worksheet, • Opening workbook and entering text, • Resizing fonts and styles, • Copying and moving, • Filter and sorting, • Formulas and functions, • Password protection, • Printing a spreadsheet, • Saving a spreadsheet in various formats.	• Demonstration and practice on the following: • Introduction to the spreadsheet application, • Listing the spreadsheet applications, • Creating a new worksheet, • Opening the workbook and enter text, • Resizing fonts and styles, • Copy and move the cell data, • Sorting and Filter the data, • Applying elementary formulas and functions, • Protecting the spreadsheet with password, • Printing a spreadsheet, • Saving the spreadsheet in various formats.	10
2.	Prepare presentation using presentation application	• Introduction to presentation, • Software packages for presentation, • Creating a new presentation, • Adding a slide, • Deleting a slide, • Entering and editing text, • Formatting text, • Inserting clipart and images, • Slide layout, • Saving a presentation, • Printing a presentation document.	• Demonstration and practice on the following: • List the software packages with features for presentation, • Creating a new presentation, • Adding a slide to presentation, • Deleting a slide, • Entering and edit text, • Formatting text, • Inserting clipart and images, • Sliding layout, • Saving a presentation, • Printing a presentation.	10
			Total Duration in Hours	**20**

Unit 4: Entrepreneurial Skills – IV				
Sn	**Learning Outcome**	**Theory (10 Hours)**	**Practical (15 Hours)**	**25 Hrs**
1.	Identify the general and entrepreneurial behavioral competencies	• Barriers to becoming entrepreneur. • Behavioral and entrepreneurial competencies – adaptability/decisiveness, initiative/perseverance, interpersonal skills, organizational skills, stress management, valuing service and diversity.	• Administering self-rating questionnaire and score responses on each of the competencies. • Collect small story/ anecdote of prominent successful entrepreneurs. • Identify entrepreneurial competencies reflected in each story and connect it to the definition of behavioral competencies. • Preparation of competency profile of students.	10
2.	Demonstrate the knowledge of self-assessment of behavioral competencies	• Entrepreneurial competency in particular: self-confidence, initiative, seeing and acting on opportunities, concern for quality, goal setting and risk taking, problem solving and creativity, systematic planning and efficiency, information seeking, persistence, influencing and negotiating, team building.	• Games and exercises on changing entrepreneurial behavior and development of competencies for enhancing self-confidence, problem solving, goal setting, information seeking, team building and creativity.	15
			Total Duration in Hours	**25**

Unit 5: Green Skills – IV				
Sn	**Learning Outcome**	**Theory (05 Hours)**	**Practical (10 Hours)**	**15 Hrs**
1.	Identify the role and importance of green jobs in different sectors	• Role of green jobs in toxin-free homes. • Green organic gardening, public transport and energy conservation, • Green jobs in water conservation. • Green jobs in solar and wind power, waste reduction, reuse and recycling of wastes, • Green jobs in green tourism • Green jobs in building and construction. • Green jobs in appropriate	• Listing of green jobs and preparation of posters on green job profiles. • Prepare posters on green jobs.	15

		technology. • Role of green jobs in Improving energy and raw materials use • Role of green jobs in limiting greenhouse gas emissions • Role of green jobs minimizing waste and pollution • Role of green jobs in protecting and restoring ecosystems • Role of green jobs in support adaptation to the effects of climate change		
			Total Duration in Hours	**15**

Class XII, Part B: Vocational Skills

Unit No.	Unit Name	Duration in Hours
Unit 1	Drawing and Animating Roto shapes	55
Unit 2	Roto Techniques in SilhouetteFX	50
Unit 3	Advanced Roto Techniques and Applications	30
Unit 4	Finalizing Matte	30
	Total Duration	**165**

Unit 1: Drawing and Animating Roto shapes

Sn	Learning Outcome	Theory (20 Hours)	Practical (35 Hours)	55 Hrs
1.	Describe Rotoscoping Pre-Requisite	• Important terms in Rotoscoping – The Shot Length, Stabilization of the Footage, Identification of the Focus object for rotoscoping, Matte Usage, Edge and Shape, Edge Feather, Multiple Shapes, Positive Space, Motion Path	• Demonstrate to stabilize shaky video footage in Adobe Premiere Pro • Shoot a video footage using smartphone/DSLR and stabilize it • Find the possible path to perform roto in a given video frame	10
2.	Work with Silhouette Software	• User interface of SilhouetteFX • Sources Window • Sessions, Trees, Nodes • Obey Matte • Details of Roto Nodes • Object and Object List • Layer/Shape icon and its function • Object list shortcuts • Viewer and Time bar • Important controls in viewer's panel	• Create a Project in SilhouetteFX and import footage on sources Window. • Create a session in SilhouetteFx software • Illustrate the impact of obey matte • Connect Roto Node between Source and output in tree window	15

3.	Draw Shapes	• Need of creating shapes for rotoscoping • Tools for creating roto shape • Bezier shape • Adjust Bezier curve tension • B-Spline shape • B-Spline Curvature Control • X-Spline shape • X-Spline Curvature control • Comparison between Bezier, B-Spline and X- Spline • Converting B-Splines or X-Splines to Bezier Splines • Square and circle • Open Shapes/ Open Poly • Blend Mode • Reshape tool – Adding, Deleting, Moving Control Point • Magnetic Reshape Tool • Feather • Closed Shapes, Open Shapes • Navigating the viewer with tools • Breakdown subject in to Shapes for rotoscoping	• Create a shape over the focus object using Bezier tool • Shoot a video footage using smartphone or DSLR and create shape over the focus object using B- Spline • Create a shape over the focus object using X-Spline tool • Capture a human activity video and extract human using X-spline • Demonstrate the working of Bend mode while using multiple object • Demonstrate to add, delete and move control point • Demonstrate to create feather in closed shape • Demonstrate to use open shapes in hair rotoscoping • Demonstrate to breakdown the given boat in to multiple shapes	15
4	Animating Shapes	• Animation tools – Transform tool, Reshape tool • Transform tool – Moving, Shearing, Scaling, Corner Pinning, Anchor Point tools • Setting the Anchor Point and using special transformation tool • Using Reshape tool in transformation • Key frame Techniques • Incremental Key Frames	• Demonstrate the tools – Moving, Shearing, Scaling, Corner Pinning, Anchor Point to animate shape according to focus object • Animate any breakdown shape of object by using Q (moving), W (rotation) and E (scale) • Demonstrate to animate the shape by using Bifurcation technique • Demonstrate to animate the shape using incremental key-frame technique	15
			Total Duration in Hours	***55***

Unit 2: Roto Techniques in SilhouetteFX				
Sn	**Learning Outcome**	**Theory (20 Hours)**	**Practical (30 Hours)**	**50 Hrs**
1	Describe Blur and Motion Blur	• Depth of Field Blur • Motion Blur • Comparison between Depth of	• Identify the difference between depth of field blur and motion blur in the given video clip	10

		Field blur and Motion blur	• Create a shape for face having same amount of blurriness • Capture a video with depth of field blur by using a smartphone or DSLR camera. Create a shape over it using SilhouetteFX software and match its blur with focus object's blur • Create a matte for motion object	
2	Demonstrate Motion Tracking in SilhouetteFX	• Motion Tracking • Use of Motion Tracking • SilhouetteFX Motion Tracking – Point Tracker, Planer Tracker, Mocha Planer Tracker • Creating One Point Tracker • Moving and Scaling Tracker component • Pre-Processing the Object • Two Point Tracker • SilhouetteFX Planar Tracker • Mocha Planar Tracker • Use of Planar Tracking – Motion Tracking, Corner Pinning, Stabilizing, Rotoscoping	• Create a single point tracker in SilhouetteFX • Track the object by using one point tracking feature in SilhouetteFX • Demonstrate to use two point Tracker in SilhouetteFX • Demonstrate to track and isolate the object by using two point tracker from the given rotate video footage • Demonstrate to track object using SilhouetteFX planar tracker • Demonstrate to track object by using Mocha Planar Tracker	15
3	Demonstrate the Rotoscoping Human Figure	• Human walking movement • Isolating Extremities • Isolating hands from the video shot • Overlap the shapes • Inverse Kinematics (IK)	• Demonstrate the Rotoscoping left leg of the person • Create and animate shapes for leg movement • Demonstrate to isolate the person from video • Demonstrate to Isolate the palm from video footage • Demonstrate to isolate the fingers from video footage • Demonstrate to isolate the leg from using IK tool from horse running video.	15
4	Demonstrate the Rotoscopy of Hair	• Basic shape of hairs • Standout Shapes • Open Shapes/ Open Poly • Animate the shapes – basic shape and standout shape	• Create basic shape of hairs to the given footage • Demonstrate to Isolate strands and stragglers hair shapes by using Open poly • Demonstrate to animate basic and standout shape of hair	10
			Total Duration in Hours	**50**

Unit 3 : Advanced Roto Techniques and Applications				
Sn	**Learning Outcome**	**Theory (15 Hours)**	**Practical (20 Hours)**	**35 Hrs**
1.	Demonstrate the Useful Nodes of Silhouette	• Power Matte • Matte Creation, • Trimaps, • Open Shape Method • Closed Shape Method • Difference between Open Shape and Closed Shape method • zMatte • Green/Blue screen keying • Holdout Matte • Garbage Matte	• Demonstrate to extract an object by using open shape method • Demonstrate to extract an object by using Close shape method • Create matte for blue screen footage by using green/blue screen keying	10
2.	Demonstrate the techniques to perform repairs in scene salvaging problems	• Wire removal • Rig removal • Wire/Rig Removal by Painting Frame by Frame • Wire/Rig Removal by Patching Over the Top • Paint in SilhouetteFX • Paint the frame by Clone brush	• Demonstrate to use different paint tools in SilhouetteFX • Demonstrate to remove the frame from given video clip • Create Clean Plate from video and utilize it for removing wire • Remove unwanted object from the given video	10
3.	Demonstrate Stereo Roto technique	• Stereography • Convergence • Viewing Stereo • Stereo Conversion • Stereo Roto • Key to good stereo conversion	• Create displacement map for an image • Utilize displacement map for creating stereo image in Adobe After Effects • Create stereo roto of a person	10
			Total Duration in Hours	**30**

Unit 4: Finalizing Matte				
Sn	**Learning Outcome**	**Theory (15 Hours)**	**Practical (15 Hours)**	**30 Hrs**
1.	Finishing the Rotoscoping	• Create a shape and track it • Multi-frame tool • Extracting tracker from the shape • Opacity control in timeline	• Import a video clip in SilhouetteFX and animate it by point tracker • Adjusts eye's shape by using Multi-frame tool • Demonstrate to extract tracker and use it over other layer • Demonstrate to remove unused shape from viewer panel by dragging it out or making its opacity to zero	10
2.	Render and Export Shape	• Rendering • Export/Import shapes from	• Demonstrate to render the focus object	12

		SilhouetteFX • Export the shapes from Silhouette software to After Effects • Import the shapes in After Effects • Export shapes from After Effects • Import After Effects shapes in Silhouette • Rendering shapes to channels • Rendering Shape Outlines or Color Filled Shapes	• Demonstrate to Import shapes in After Effects and use it for compositing • Demonstrate to Import the Silhouette's exported shapes in Adobe After Effects • Demonstrate to Export Adobe after Effects shapes • Demonstrate to Import After Effects shapes in Silhouette • Demonstrate to Render shapes to channels • Demonstrate to Render Shape Outlines or Color Filled Shapes	
3.	Describe the Rotoscopy Work Envionment	• Difference between CGI, VFX, SFX and FX • Different work area – Compositing, Chroma Keying, Rotoscoping, Retouch, Matte Painting, CGI, Motion Tracking • Difference between Compositor and other VFX Artist • Software for visual effects • Software for Compositing – Nuke and After Effect • Software for Keying, Rotoscoping and Retouch – Photoshop, Mocha Pro • Software for Matte Painting – Maya and 3D Max • Software for CGI – Maya and Cinema 4D • Digital effects, Tracking	• Identify the software from given logo. • Identify and list the features of various software for visual effects • Prepare a chart showing the software and related work in VFX	8
			Total Duration in Hours	**30**

6. ORGANISATION OF FIELD VISITS

In a year, at least 3 field visits/educational tours should be organised for the students to expose them to the activities in the workplace.

Visit the animation and VFX studio and observe the following: Location, Site, Office building, Computer systems, VFX software, Drawing tools, Printer, Scanner. During the visit, students should obtain the following information from the owner or the supervisor of the studio.

- Material required for Rotoscoping,
- Computer Infrastructure.
- Hardware and software requirement for digital Rotoscoping,
- Sitting posture while working on computer,
- Preview of ongoing work,
- Manpower engaged
- Total expenditure for creating hand drawn and computerized storybord,
- Total annual income.
- Any other information

7. LIST OF EQUIPMENT AND MATERIALS

The list given below is suggestive and an exhaustive list should be prepared by the vocational teacher. Only basic tools, equipment and accessories should be procured by the Institution so that the routine tasks can be performed by the students regularly for practice and acquiring adequate practical experience.

Item Name, Description & Specification	Quantity
HARDWARE	
Computer with latest configuration or minimum Pentium Processor with 8 GB RAM, 1 TB HDD, 17" LED Monitor, NIC Card, Graphics Card, 3 button Mouse, 105 keys key board and built-in speakers and mic, UPS Color Laser Printer, Scanner Air Conditioner 1.5 tonne Telephone line (For Internet). white board, marker, projector, Sample pictures and videos, Cleaning tools, electricity tester, safety and ergonomics chart, Fire Extinguisher, First-Aid Kit	One computer per student One for lab One for lab
SOFTWARE	
Operating System Windows 10, Anti Virus Latest version LibreOffice or MS Office, Adobe Photoshop, Silhouette, Nuke, Fusion, Combustion, 3DS Max etc.	One for each system
FURNITURE	
Class room chairs and desks Computer Table Computer Chairs Printer Tables Trainers Table Steel cupboards drawer type Cabinet with drawer Steel almirah big size Steel almirah small size	One for each student One for each student One for each student One One One One One One

8. TEACHER'S/TRAINER'S QUALIFICATION

Qualification and other requirements for appointment of vocational teachers/trainers on contractual basis should be decided by the State/UT. The suggestive qualifications and minimum competencies for the vocational teacher should be as follows:

Qualification	Minimum Competencies	Age Limit
Master degree in 3D Animation and Visual Effects. ***Desirable:*** Good working knowledge of rotoscopy software Nuke, After Effects, and Silhouette, advanced compositing VFX software.	The candidate should have minimum 1 year of work experience. Good communication skills in English and local language.	18-37 years (as on Jan. 01 (year)) Age relaxation to be provided as per Govt. rules

Note – The qualifications for vocational teachers mentioned above is suggestive and not prescriptive. The States/ UTs can make modifications in the qualifications for appointment of vocational teachers/ trainers as per their requirement through a committe appointed by the competent authority in the State/ UT Directorate/ Department of School Education.

Vocational Teachers/Trainers form the backbone of Vocational Education being imparted as an integral part of Rashtriya Madhyamik Shiksha *Abhiyan* (RMSA). They are directly involved in teaching of vocational subjects and also serve as a link between the industry and the schools for arranging industry visits, On-the-Job Training (OJT) and placement.

These guidelines have been prepared with an aim to help and guide the States in engaging quality Vocational Teachers/Trainers in the schools. Various parameters that need to be looked into while engaging the Vocational Teachers/Trainers are mode and procedure of selection of Vocational Teachers/ Trainers, Educational Qualifications, Industry Experience, and Certification/ Accreditation.

The State may engage Vocational Teachers/Trainers in schools approved under the component of Vocationalisation of Secondary and Higher Secondary Education under RMSA in following ways:

1. Directly as per the prescribed qualifications and industry experience suggested by the PSS Central Institute of Vocational Education(PSSCIVE), NCERT or the respective Sector Skill Council(SSC). **OR**
2. Through accredited Vocational Training Providers accredited under the National Quality Assurance Framework (NQAF*) approved by the National Skill Qualification Committee on 21.07.2016. If the State is engaging Vocational Teachers/Trainers through the Vocational Training Provider (VTP), it should ensure that VTP should have been accredited at NQAF Level 2 or higher.

* *The National Quality Assurance Framework (NQAF) provides the benchmarks or quality criteria which the different organisations involved in education and training must meet in order to be accredited by competent bodies to provide government-funded education and training/skills activities. This is applicable to all organizations offering NSQF-compliant qualifications.*

The educational qualifications required for being a Vocational Teacher/Trainer for a particular job role are clearly mentioned in the curriculum for the particular NSQF compliant job role. The State should ensure that teachers / trainers deployed in the schools have relevant technical competencies for the NSQF qualification being delivered. The Vocational Teachers/Trainers preferably should be certified by the concerned Sector Skill Council for the particular Qualification Pack/Job role which he will be teaching. Copies of relevant certificates and/or record of experience of the teacher/trainer in the industry should be kept as record.

To ensure the quality of the Vocational Teachers/Trainers, the State should ensure that a standardized procedure for selection of Vocational Teachers/Trainers is followed. The selection procedure should consist of the following:

1. Written test for the technical/domain specific knowledge related to the sector;
2. Interview for assessing the knowledge, interests and aptitude of trainer through a panel of experts from the field and state representatives; and
3. Practical test/mock test in classroom/workshop/laboratory.

In case of appointment through VTPs, the selection may be done based on the above procedure by a committee having representatives of both the State Government and the VTP.

The State should ensure that the Vocational Teachers/ Trainers who are recruited should undergo induction training of 20 days for understanding the scheme, NSQF framework and Vocational Pedagogy before being deployed in the schools.

The State should ensure that the existing trainers undergo in-service training of 5 days every year to make them aware of the relevant and new techniques/approaches in their sector and understand the latest trends and policy reforms in vocational education.

The Head Master/Principal of the school where the scheme is being implemented should facilitate and ensure that the Vocational Teachers/Trainers:

- Prepare session plans and deliver sessions which have a clear and relevant purpose and which engage the students;
- Deliver education and training activities to students, based on the curriculum to achieve the learning outcomes;
- Make effective use of learning aids and ICT tools during the classroom sessions;
- Engage students in learning activities, which include a mix of different methodologies, such as project based work, team work, practical and simulation based learning experiences;
- Work with the institution's management to organise skill demonstrations, site visits, on-job trainings, and presentations for students in cooperation with industry, enterprises and other workplaces;
- Identify the weaknesses of students and assist them in up-gradation of competency;
- Cater to different learning styles and level of ability of students;
- Assess the learning needs and abilities, when working with students with different abilities
- Identify any additional support the student may need and help to make special arrangements for that support;
- Provide placement assistance

Assessment and evaluation of Vocational Teachers/Trainers is very critical for making them aware of their performance and for suggesting corrective actions. The States/UTs should ensure that the performance of the Vocational Teachers/Trainers is appraised annually. Performance based appraisal in relation to certain pre-established criteria and objectives should be done periodically to ensure the quality of the Vocational Teachers/Trainers. Following parameters may be considered during the appraisal process:

- Participation in guidance and counseling activities conducted at Institutional, District and State level;
- Adoption of innovative teaching and training methods;
- Improvement in result of vocational students of Class X or Class XII;
- Continuous up-gradation of knowledge and skills related to the vocational pedagogy, communication skills and vocational subject;
- Membership of professional society at District, State, Regional, National and International level;
- Development of teaching-learning materials in the subject area;
- Efforts made in developing linkages with the Industry/Establishments;
- Efforts made towards involving the local community in Vocational Education
- Publication of papers in National and International Journals;
- Organisation of activities for promotion of vocational subjects;
- Involvement in placement of students/student support services.

9. LIST OF CONTRIBUTORS

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