विद्यालयी शिक्षा हेतु डीटीएच टी वी चैनल्स
टीवी के माध्यम से सर्वसुलभ शिक्षा

DTH-TV CHANNELS FOR SCHOOL EDUCATION
Reaching the Unreached

दिशा-निर्देश

व्

मानक संचालक प्रक्रियाएं

संस्करण 2.0

Guidelines
&
Standard Operating Procedure (SOP)
Version 2.0

सत्यमेव जयते
स्कूल शिक्षा और साक्षरता विभाग
शिक्षा मंत्रालय
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Department of School Education and Literacy
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ೞ **FOREWORD** ೠ

The National Education Policy 2020 (NEP 2020) aspires and aims to make our country a global knowledge superpower. The policy built on the foundational pillars of Access, Equity, Quality, Affordability and Accountability has been aligned to the 2030 Agenda for Sustainable Development and aims to transform India into a vibrant knowledge society and global knowledge superpower by ensuring equitable and universal access to the highest-quality education for all learners regardless of social or economic background.

In order to achieve the goals of equitable and universal access to the highest-quality education for all, NEP 2020 has laid down various fundamental principles. One of these fundamental principles directs towards the extensive use of technology in teaching and learning. The use of technology in and for education needs to be enhanced further to the extent of its integration in education at all levels.

The role of technology in education is enabling as it can be leveraged to enrich, enhance and expand the educational processes and outcomes. Since the relationship between technology and education is bi-directional, the integration of technology in education will evolve into a mutually enriching phenomenon. The major areas of education where technological intervention are: teaching- learning and evaluation processes, supporting teacher preparation & professional development, streamlining educational management and administration, enhancing educational access for all, removing language barriers and catering to the needs of CWSN.

The vision outlined in NEP 2020 for creating a coherent and resilient system of education has been taken up by Ministry of Education (MoE), Government of India as a mission to accomplish and CIET-NCERT under the aegis of the MoE has been trying its best to actualise the mission. CIET-NCERT since its inception has been involved in the development, research and extension of educational training and resources involving various technologies. CIET-NCERT has been developing various resources keeping pace with the advancement in the world of technology as well as in the field of education.

CIET-NCERT, an apex organisation in the field of education, has been entrusted by the MoE to cater to the education needs of the country which is full of diversity. The diversity in the country is not just limited to geographical, cultural and linguistic but also brings in the socio-demographic challenges. Therefore, the educational needs of the country necessitate different types of technological interventions.

With the backdrop of the diversified educational needs of the country, PM eVIDYA was launched in 2020 to ensure access to quality educational contents for all in anytime and anywhere mode. It is a comprehensive initiative which aims to unify all efforts related to digital, online and

on-air education and thereby reaching the unreached. PM eVIDYA initiative is unique in different ways as it offers multimodal access to education resources or eContents through digital/online/on-air including radio technology. The uniqueness of this initiative also lies in simultaneous and coherent access to the resources on various platforms.

One of the major components of PM eVIDYA initiative is DTH TV channels branded as One Class One Channel. Initially, 12 DTH TV channels as part of One Class One Channels scheme were launched on September 1, 2020 as part as part of *Atma Nirbhar Bharat Abhiyaan*. The initiative specially 12 DTH TV Channels for school education under One Class One Channel scheme was introduced to provide help to the learners and teachers lacking access to internet facility. The aim of the initiative was, therefore, to ensure access to quality educational eContents for all including those living in the remote parts of the country where ICT infrastructure is inadequate.

The 12 DTH TV Channels under PM eVIDYA One Class One Channel have received further impetus upon their successful contribution in school education during the intermittent closing of schools caused by the COVID-19 pandemic. As per the Union Budget 2022 Announcement, 'One Class-One TV Channel' programme of PM eVIDYA is to be expanded from 12 to 200 TV channels to enable all states to provide supplementary education in regional languages for classes 1-12.

Based on the above backdrop and our endeavour to build to build a resilient mechanism for education delivery, the following Guidelines and Standard Operating Procedure (SOP) has been developed for the purpose of training cum development of a robust mechanism for running the proposed channels. The document is exhaustive and detailed hence to enable the stakeholders carry out the tasks easily without any glitches. I personally feel the present document will serve to be a departure point for our collaborative and cooperative journey in the extension of the DTH TV channels for school education.

Prof. Amarendra Prasad Behera

Joint Director CIET-NCERT

National Coordinator, PM eVIDYA Project

❧ PREFACE ❦

Television is one of the sustainable and popular media of communication with unique features of audio-visual technologies. With the constant evolution in technology and therefore in ways of communication including internet and communication technology (hereafter ICT), television has acquired the status of 'domestic medium' or precisely regarded as 'domestic medium' due to its wider and universal presence and application.

Like other ICT media, television was also initially used as a medium to disseminate information. However, by virtue of its unique feature of combining audio-visual technology which was unprecedented, television was soon adopted to serve multiple purposes of entertainment, information and also education. Use of television as a tool of instruction was initiated in USA in early 1930. In India, the use of television for educational purpose began soon after the inception of TV network in 1959. The first instance of the educational use of television dates back to 1961 with Secondary School Television Project. Following the Secondary School Television Project, several formal initiatives such as Satellite Instructional Television Experiment (SITE), Indian National Satellite Project (INSAT), UGC-Higher Education Television Project (HETV), IGNOU-Doordarshan Telecast, and Gyan-Darshan Educational Channel have been taken from time to time alongside the evolution of technology.

The development in the field of transmission technology as well as evolution in television technology have not only enriched the experience of the users but also enabled the users for seamless access to high quality digital content on TV. The arrival of Direct-to-Home (DTH) transmission technology has revolutionized both the quantity and quality of television service. The DTH technology was adopted by the largest by Public Service Broadcaster Prasar Bharati, Government of India in 2004 which transformed the erstwhile Doordarshan into DD Free Dish with 167 channels. As per the current status, 51 Educational channels are being offered under DD Free Dish. These channels include Swayam Prabha, a group of 34 DTH channels devoted to telecasting of high-quality educational programmes on 24X7 basis using the GSAT-15 satellite. These channels cater to both school as well as higher education.

The use of DTH TV for school education received fresh and unprecedent push during the outbreak of COVID-19 pandemic. The pandemic induced lock down and closure of schools had massively disrupted the teaching-learning activity. As a response to this crisis, education was affected dramatically. School, parents and students had to completely rely on eLearning methods especially online learning. However, such alternatives ways of teaching-learning were mostly available to urban areas or where ICT infrastructure was adequate. In rural areas lacking proper ICT infrastructure like access to internet and availability of devices students were completely deprived from any kind of learning.

In order to help the students, teachers and parents Government of India announced PM eVIDYA program, a comprehensive initiative aimed at unifying all efforts related to digital/online/on-air education, on 17th May, 2020. One of the major components of PM eVIDYA program is 12 eVIDYA DTH TV channels for school education as part of 'One Class One Channel' scheme for classes 1-12.

12 eVIDYA DTH TV Channels are dedicated for the telecast of educational videos based on NCERT curriculum for classes 1 to 12. These 12 eVIDYA TV channels are run in 24x7 mode. Currently, the total duration of the fresh programmes daily on the telecast is 2 to 3 hours (2 hours for classes 1-10 and 3 hours for classes 11-12). The timings of the telecast of the channels begin at 12 midnight and the programmes are repeated every 2 and 3 hours to make them 24x7 channels. These 12 eVIDYA channels are run through SWAYAM PRABHA. The channels are uplinked from BISAG, Gandhinagar and the SWAYAM PRABHA web portal is maintained by INFLIBNET Centre, Gandhinagar.

The trial run of 12 PM eVIDYA DTH TV Channels under 'One Class One Channel' started on 1st September 2020. After successful running of these channels for more than a year, Government of India has decided to extend the scope and number of such channels. To this effect, an announcement in this regard along with many other initiatives for education sector, was made in the Union Budget 2022-23. As per the announcement, the Hon'ble Finance Minister informed that 'one class-one TV channel' programme of PM eVIDYA will be expanded from 12 to 200 TV channels and this will enable all states to provide supplementary education in regional languages for classes 1-12.

The present SOP document is based on the standard practices employed in running the 12 PM eVIDYA DTH TV Channels for school education under One Class One Channel scheme. Now, the scope and number of DTH TV Channels for School Education is extended to 200 more channels for facilitating States/UTs and other organisation in telecasting appropriate eContents based on their educational needs. The SOP is prepared by the team of experts at PM eVIDYA Cell, CIET-NCERT, New Delhi. It presents the procedural information in great details for assisting the stakeholders in undertaking various tasks related to the project. It has been purposively made comprehensive to cover every step and process involved in production as well as dissemination of eContents.

Dr. Abhay Kumar

In-Charge, PM eVIDYA Cell, CIET-NCERT

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1. Introduction

1.0 Genesis of the Programme

The use of television and associated technologies in education is not a new phenomenon as television has been used as a medium of disseminating knowledge since the 60s, the years when television was introduced in our country. With the modest beginning of the Secondary School Television Project in 1961 for the secondary school students of Delhi, the use of the medium of television has witnessed various developments along with the evolution of television technology.

In recent times, the use of television as an effective medium has received further impetus with the Government of India's move to support educational activities of school children during the ongoing crisis caused by the outbreak of COVID-19 pandemic. The aim of the move was to help the children and teachers continue the learning and teaching activities during the months-long closure of schools and educational activities due to the lockdown.

It was with the above backdrop that PM eVIDYA initiative was announced by the Hon'ble Finance Minister, Government of India on 17th May, 2020 as part of *Atma Nirbhar Bharat Abhiyaan* or Self-Reliant India Movement announced by the Hon'ble Prime Minister on 12th May 2020. As part of the Hon'ble Prime Minister's appeal for *Aapda me Avsar* in the difficult times of the pandemic and in order to attain the goals of *Aatma Nirbhar Bharat Abhiyan*, the Hon'ble Finance Minister exclusively mentioned that the aim of the initiative was to *ensuring learning for all, with equity, so as to cover all students at all levels of education and in all geographical locations, even in the remotest parts of the country.*

Thus, PM eVIDYA was rolled out in integration with various other ongoing initiatives such as DIKSHA (Digital Infrastructure for Knowledge Sharing) branded as One Nation, One Digital Platform and designed as Digital Infrastructure for School Education, SWAYAM (Study Webs of Active–Learning for Young Aspiring Minds) online courses in MOOCs (Massive Open Online Courses) format for school education, IITPAL (IIT-Professor Assisted Learning) for IITJEE/NEET preparation with an

addition of 12 DTH TV Channels branded as One Class, One Channel for school education.

With the successful implementation of PM eVIDYA initiative especially the 12 DTH TV channels branded as One Class One Channel; the Government of India, as per the Budget 2022-23 announcements, has decided to expand the 12 DTH TV channels to 200 more channels to enable states and UTs to provide quality supplementary education in regional languages.

1.1 About PM eVIDYA

PM eVIDYA is designated as a comprehensive initiative aims to unify all efforts related to digital/online/on-air education.
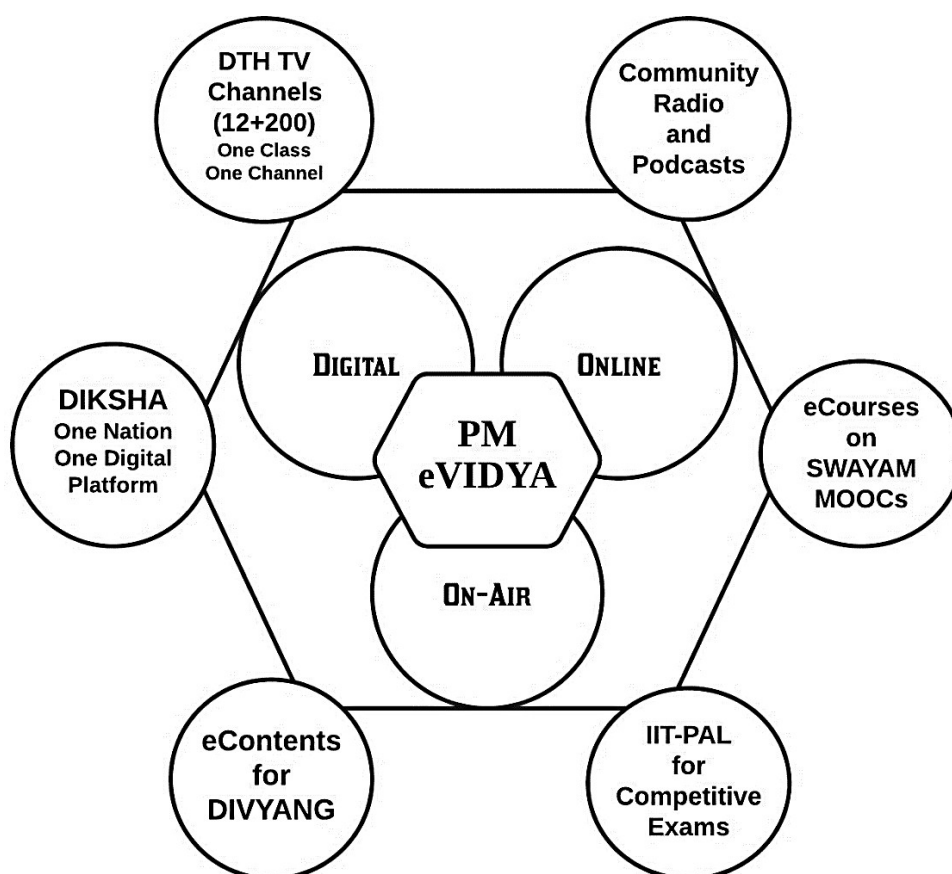
Figure 1.1 Integration of Efforts through PM eVIDYA

PM eVIDYA is unfolded through 6 components integrated/introduced as part of the initiative:

(i) DIKSHA-One Nation, One Digital Platform as Digital Infrastructure for School Education

(ii) DTH TV Channels (12+200)-One Class, One Channel for School Education

(iii) SWAYAM Courses in MOOCs Format for School Education

(iv) Community Radio Stations (CRS) and Podcast for School Education

(v) eContents for DIVYANG for School Education

(vi) IIT-PAL for Competitive Exams

The 6 components of PM eVIDYA are enabled for multimodal access i.e., digital/online/on-air, both separately as well as simultaneously using different platforms. These components are also enabled for coherent access of the eContents across different platforms (telecast, broadcast, podcast, web portal and mobile apps) for the convenience of the users.

1.1.1 PM eVIDYA 12 DTH TV Channels: A Journey

PM eVIDYA 12 DTH TV channels in One Class One Channel scheme is the major addition to the ongoing digital/online/on-air education initiatives. These channels are not only introduced and integrated with the ongoing initiatives but also augmented by leveraging the existing technologies for ensuring access to educational eContents for all.

1.1.1.1 PM eVIDYA 12 DTH TV Channels and Swayam Prabha

The 12 DTH TV channels are run as eVIDYA channels for school education under the bouquet of Swayam Prabha, a group of 34 DTH channels devoted to telecasting of high-quality educational programmes on 24X7 basis using the GSAT-15 satellite. Swayam Prabha was launched on July 9, 2017 by then the Ministry of Human Resource Development (now Ministry of Education), Government of India. Initially, Swayam Prabha consisted of 32 DTH channels including 3+1 channels earmarked for school education run by National Institute of Open Schooling (NIOS) and National Council of Educational Research and Training (NCERT) respectively. With the

introduction of the PM eVIDYA initiative, 8 more channels were added to school education as part of One Class One Channel scheme. Under this scheme channel 23 to 34 are earmarked for school education.

1.1.1.2 PM eVIDYA 12 DTH TV Channels' Operation

PM eVIDYA 12 DTH TV Channels are centrally managed by Central Institute of Educational Technology (CIET), a constituent unit of NCERT, an apex educational body under Department of School Education and Literacy (DoSEL), Ministry of Education (MoE), Government of India. CIET-NCERT primarily designs, produces and manages the video programmes for the telecast.

1.1.1.3 PM eVIDYA 12 DTH TV Channels' Telecast

The telecast work of the channels is facilitated by Bhaskaracharya National Institute for Space Applications and Geo-informatics (BISAG-N), Gandhinagar. Swayam Prabha manages the scheduled telecast of the channels on its web portal which is maintained by Information and Library Network (INFLIBNET) Centre, an Inter University Acceleration Centre of University Grants Commission, Gandhinagar. The programs and their telecast schedules for PM eVIDYA 12 DTH TV channels are created by CIET-NCERT and subsequently shared with BISAG-N, Gandhinagar for final telecast.

1.1.1.4 PM eVIDYA 12 DTH TV Channels' Feedback and Support Mechanism

CIET-NCERT also manages a feedback and support mechanism for the viewers of PM eVIDYA 12 DTH TV channels. There are dedicated emails for each channel corresponding to each class from 1 to 12. The email IDs are given as under.

Class I	Class II	Class III
dth.class1@ciet.nic.in	dth.class2@ciet.nic.in	dth.class3@ciet.nic.in
Class IV	Class V	Class VI
dth.class4@ciet.nic.in	dth.class5@ciet.nic.in	dth.class6@ciet.nic.in
Class VII	Class VIII	Class IX
dth.class7@ciet.nic.in	dth.class8@ciet.nic.in	dth.class9@ciet.nic.in
Class X	Class XI	Class XII
dth.class10@ciet.nic.in	dth.class11@ciet.nic.in	dth.class12@ciet.nic.in

Table 1.1 Email IDs of 12 DTH TV Channels

For further help of the learners regarding their queries and related issues, CIET-NCERT has installed an IVRS system (☎ **8800440559**) where learners/teachers/parents can seek help regarding their queries.

1.1.1.5 PM eVIDYA 12 DTH TV Channels' Operation: A Synoptic View

The 12 DTH TV channels branded as One Class One Channel for classes 1 to 12 involve a collaborative and collective effort of various organizations. CIET-NCERT is the nodal agency for management and monitoring of eContents and its dissemination through different channels. A synoptic view of the process map of the PM eVIDYA 12 DTH TV channels is illustrated as following:
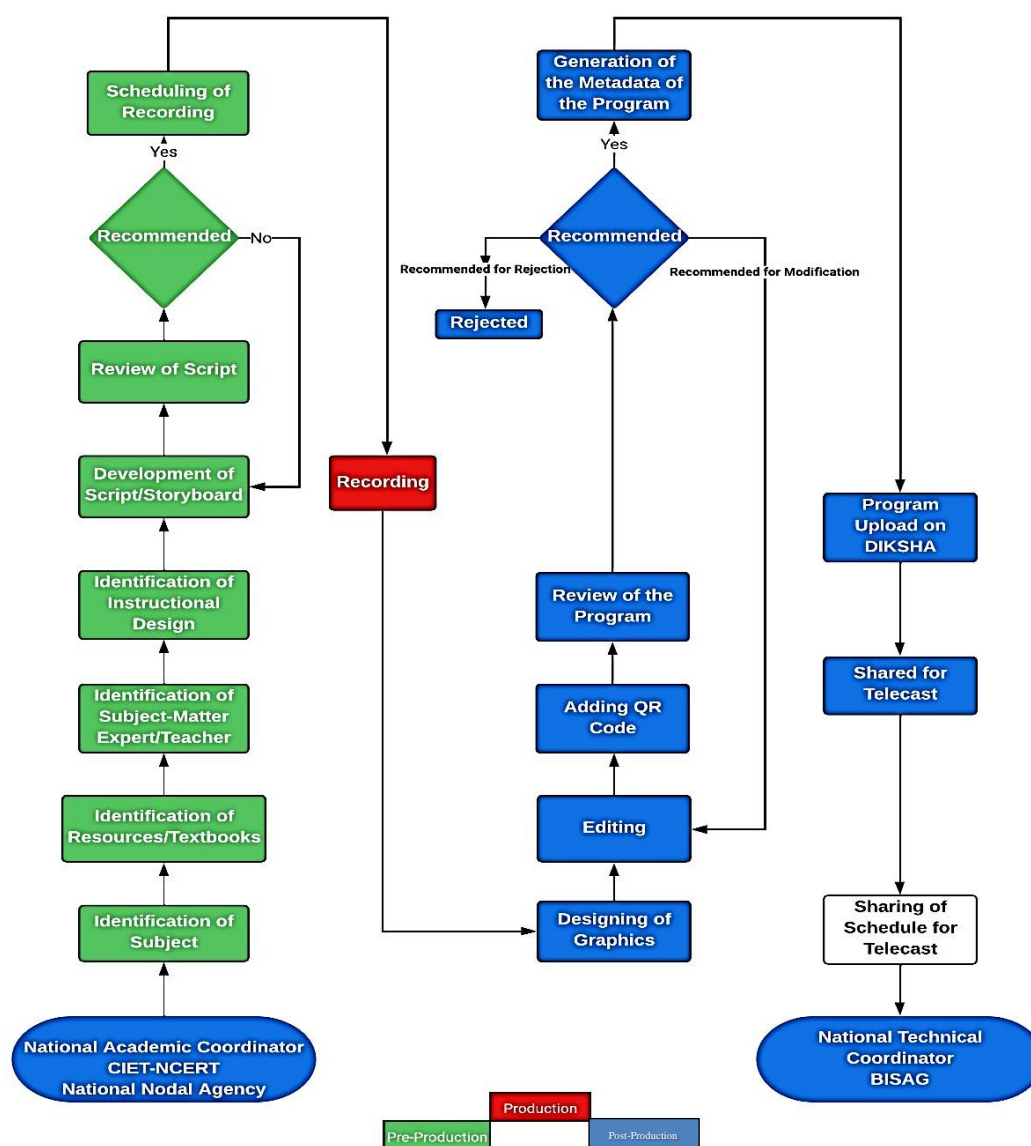
Figure 1.2 PM eVIDYA 12 DTH TV Channels: Process Overview

1.2 NEP 2020: Ensuring Equitable Use of Technology for Education

National Education Policy 2020 (NEP 2020) aims to make making way for large scale, transformational reforms in both school and higher education sectors. NEP 2020 first education policy of the 21st century and replaces the thirty-four-year-old National Policy on Education (NPE), 1986. This policy is aligned to the 2030 Agenda for Sustainable Development and aims to transform India into a vibrant knowledge society and global knowledge superpower by making both school and college education more holistic, flexible, multidisciplinary, suited to 21st century needs and aimed at bringing out the unique capabilities of each student. The 5 foundational pillars or the guiding goals of the NEP 2020 are presented in the following illustration:
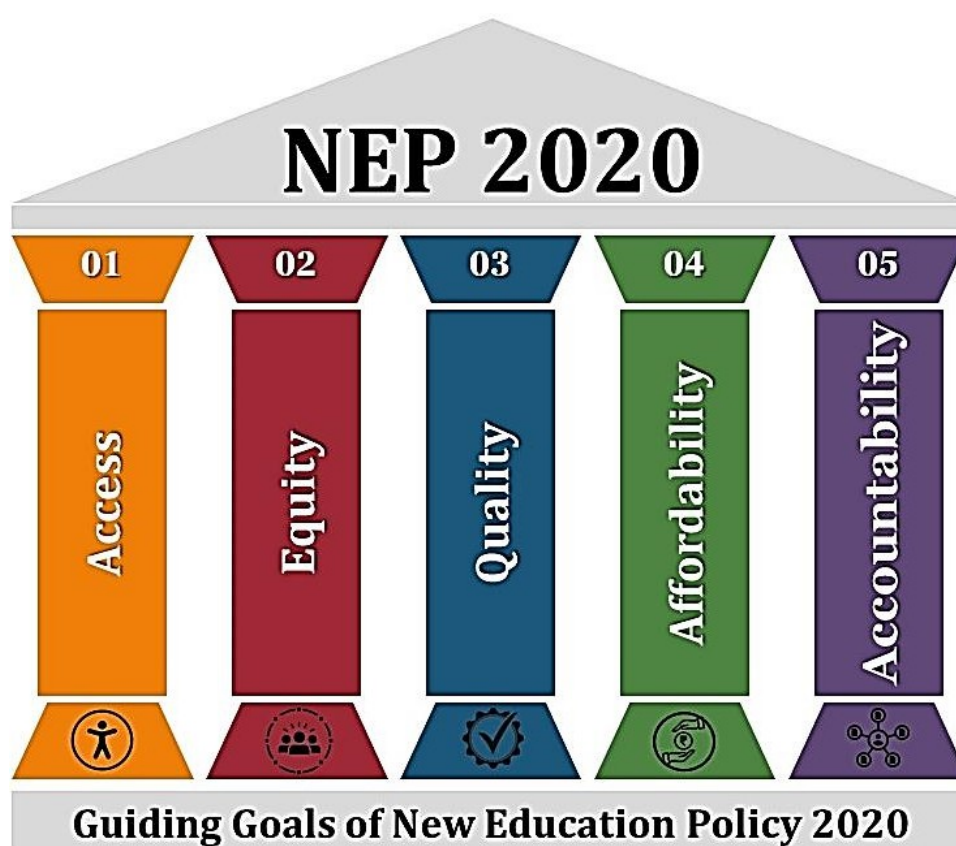
Figure 1.3 Guiding Goals of NEP 2020

With the above illustrated guiding goals, NEP 2020 has laid down various unprecedented and transformative changes in educational policy and praxis. NEP 2020 aims at making India global knowledge super power. One of the ways of achieving the aims of the policy is adoption and integration of technology *in* and *for* education.

NEP 2020 has envisioned with emphasis on extensive use of technology to ensure quality education for all in general and equity in education in particular. The emphasis on the use of technology can be understood by a trivial yet significant fact that the term technology has occurred 77 times in the document pertaining to NEP 2020. Under the part entitled 'Other Key Areas of Focus', there are two dedicated chapters i.e., 23 and 24 on 'Technology Use and Integration', and 'Online and Digital Education: Ensuring Equitable Use of Technology'.

With the backdrop of the ongoing Digital India initiative, NEP 2020 also aims to contribute in transforming the entire nation into a digitally empowered society and knowledge economy. It reiterates the role of educational technology in the improvement of educational processes and outcomes. The use of technology in education is in reciprocal relationship. In other words, the relationship between education and technology is bi-directional. NEP 2020 recommends various technological interventions in education. The major thrust areas of these interventions include:

·   Teaching- learning and evaluation processes

·   Supporting teacher preparation & professional development

·   Enhancing educational access

·   Streamlining educational management and administration

·   Removing language barriers

·   Access to DIVYANG students

The use and integration of technology in education is applicable for all the major areas of the field: research, development, training and extension. NEP 2020 underlines the importance of leveraging the advantages of technology while acknowledging the potential risks and dangers, need of carefully designed and appropriately scaled pilot studies to determine the benefits of digital/ online education, optimizing and expanding the existing digital platforms and ongoing ICT-based educational initiatives to meet the current needs and future challenges and using technology for online and digital education adequately to address concerns of equity.

Use of DTH TV technology is one of the ICT-based educational initiatives which received further impetus recently during the ongoing period of COVID-19 pandemic and proved to be immensely useful for children, teachers and parents in continuing the teaching-learning activities in an uninterrupted manner.

2. DTH TV for Education

2.0 Technology and Learning

Technology and learning are basically two different phenomena. However, there is an interrelation between the two. Technology and learning are related in terms of means and end. The means and end relationship between technology and learning is by virtue of the enabling nature of technology. The essential role of technology is to facilitate any kind of human endeavor and therefore it applies to the endeavor of learning too.

2.1 What is technology?

Technology is not just a term in vogue but a keyword for many things at once. The term technology collectively refers to any tool, method, process and skill used in doing things in an optimal way. Technology is not an entirely new thing. It has been part of human endeavors and civilization since the dawn of humanity. Technology, in fact, has been an integral part of the evolutionary process of human civilization. In today's world, technology has accomplished a phenomenal role in our life.

2.2 What is Learning?

According to UNESCO, *learning is defined as a process that brings together personal and environmental experiences and influences for acquiring, enriching or modifying one's knowledge, skills, values, attitudes, behaviour and world views*[1]. The definition of learning is always a contentious issue as there are innumerable approaches and views on the subject. However, the definition of learning mentioned above attempts to encapsulate the essential elements of learning at large.

The relationship between technology and learning has led us to construe and evolve various terms like educational technology (ET), ICT in Education, technology-enabled learning, technology-enhanced learning, technology-intensive learning and digital education. The emergence of such terms is the result of the evolution of technology and the integration of technology in education.

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[1] *Most influential theories of learning*. International Bureau of Education. Retrieved March 2, 2022, from http://www.ibe.unesco.org/en/geqaf/annexes/technical-notes/most-influential-theories-learning

The phenomenal relationship between technology and learning has been evolving from the era of abacus and blackboard to the computer and digital interactive boards. The enabling potential of technology has enhanced the human potential in every domain of life including education. The activities pertaining to learning and teaching have leveraged the appropriate technologies to the effect of the transformation of the process of learning and teaching at large. The technology-learning relationship has created a new space called eLearning.

2.3 eLearning

eLearning is any kind of learning which involves 'the electronic' ways, methods, processes, tools and techniques in the delivery of the learning contents to the learner. In other words, eLearning is primarily technology-enabled learning which may involve different electronic modes for the dissemination of learning contents. A comprehensive view of eLearning refers to a wide set of applications and processes, such as web-based learning, computer-based learning, virtual classrooms and digital collaboration, and also learning through the delivery of content via audio and video tape, satellite broadcast, interactive TV and CD-ROM.

eLearning is variously categorized into different types. From the learners' involvement angle, eLearning is divided into different types: synchronous, asynchronous and blended. Synchronous refers to interactive mode of learning while asynchronous allows flexibility in terms of time and space and blended involves a blend of both the types.

The types of eLearning can also be categorized on the basis of the modes of deliveries: on-air, online and digital. The contents used in eLearning are typically called eContents (eBooks, audio/video programmes, digital contents like animation or software etc.), all electronic in nature. Based on the modality of the delivery of the eContents, eLearning can be associated with either of the types viz. digital/online/on-air.

2.3.1 ETV and DTH for School Education

ETV is an abbreviated form applicable to the expressions like 'Education Through Television' and 'Educational Television'. ETV also known as STV (School Television) commenced in India as early as in 1961 with the Secondary School Television Project for the secondary school students of Delhi.

The aim of the project was to improve the standard of teaching in view of shortage of laboratories, space, equipment and dearth of qualified teachers in Delhi. The project started on experimental basis in October 1961 for teaching of Physics, Chemistry, English and Hindi for students of Class XI. The programs comprised syllabus-based lectures and were telecasted in school hours as a part and parcel of school activities.

The Secondary School Television Project was an eLearning initiative based on the use of television. Television was received as a powerful medium of mass communication and infotainment. Since the inception of television technology in India 1959 and establishment of Doordarshan, the mandate behind the use of television technology was to use it as an instrument of education and information. Thus, television was inherently an instrument of learning.

After Secondary School Television Project at Delhi, use of television or ETV extended to various subsequent projects/experiments; Delhi Agriculture Television (DATV) Project (also known as Krishi Darshan) in 1966 at Delhi, Satellite Instructional Television Experiment (SITE) in 1975 in in six states namely Rajasthan, Karnataka, Orissa, Bihar, Andhra Pradesh and Madhya Pradesh, Post-SITE project in 1977 in Rajasthan, Indian National Satellite project (INSAT) in 1982, UGC-Higher Education Television Project (HETV) in 1984, IGNOU-Doordarshan Telecast in 1991, Gyan-Darshan Educational Channel in 2000, and Swayam Prabha DTH TV channels in 2016-2017.

The use of ETV transformed with the arrival of DTH (Direct-To-Home). Unlike the cable-operated transmission technology, it allowed the viewers to directly access the television channels through digital mode directly to their home with the help of personal dish and associated devices. Prasar Bharati, India's public broadcaster introduced DD Free Dish DTH service in 2004. With the arrival of DTH, the ETV initiatives were augmented and in 2016-2017, Swayam Prabha; a group of 34 educational channels, was introduced with active support from ISRO and BISAG.

ETV or precisely DTH TV for education received further impetus in 2020 during the COVID-19 pandemic induced disruption of educational activities and closure of schools due to lockdown. The Government of India introduced a unique initiative branded as One Class One Channel for classes 1 to 12 under PM eVIDYA programme. These 12 DTH TV channels were introduced to telecast educational contents for school students and teachers on 24x7

basis. These 12 DTH TV channels under PM eVIDYA branded as One Class One Channel began on 1st September 2020.

The 12 DTH TV channels, in addition to the telecast of educational programs based on NCERT curriculum, also facilitate the states to telecast their educational contents. Some of the states who have contributed and/or contributing are Punjab, Haryana, Uttar Pradesh and Assam. The 12 DTH TV channels received warm welcome from all the stakeholders e.g., students, parents, teachers and teacher educators alike. The successful contribution of these 12 channels in continuing the educational activities in the disrupted times led the Government of India to extend them with 200 more channels. The 200 channels for school education under PM eVIDYA aim to address curricular issues related to regional language and to ensure equitable quality education for all across the country.

3. *e*Contents for DTH TV: Production

3.0 eContent: An Introduction

eContent is any form of learning material available digitally which a learner access or interacts with to achieve related learning outcomes. eContent is becoming popular because it allows flexibility in terms of time, place and pace of learning. A resource rich environment is necessary for teaching and learning to be effective. However, many of the educational resources are not easily accessible because of issues related to copyright. Hence, there is a movement to produce learning resources and make them available with open licenses which are known as Open Educational Resources (OER). Open Educational Resources (OER) are freely available. Openly licensed materials and media are useful for teaching, learning and assessing as well as for research purposes. Wide variety of OER is available for free use for teachers, instructors, researchers and students. If used appropriately, digital learning resources can add considerable value to the quality of teaching and to the learners' experience. eContent is often made up of separate units or a combination of text, video, images and sound. These are the building blocks which are often used to make composite learning objects that can be exhibited in various presentation formats. Various forms of eContent are shown below:
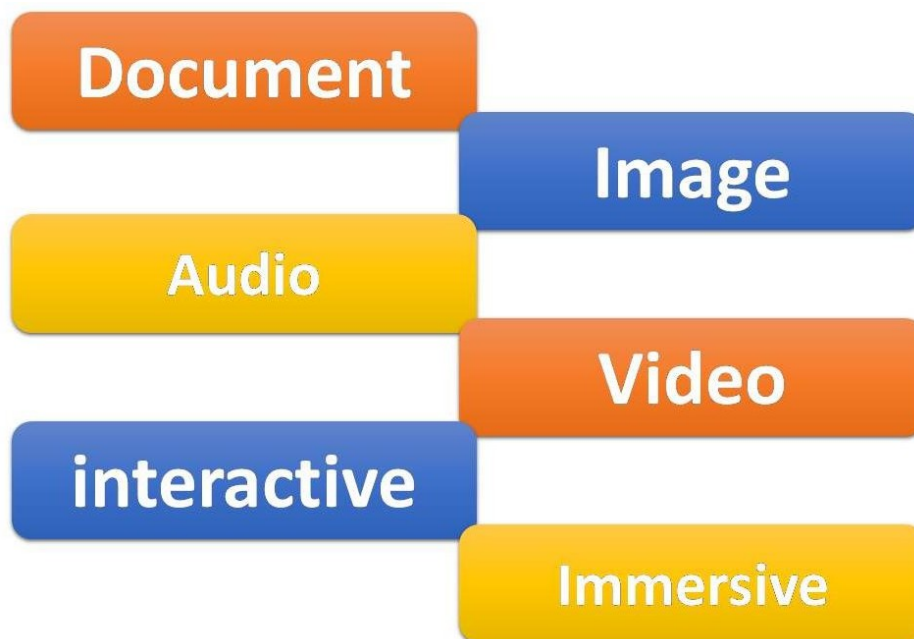
Figure 3.1 (a) Various Forms of eContents
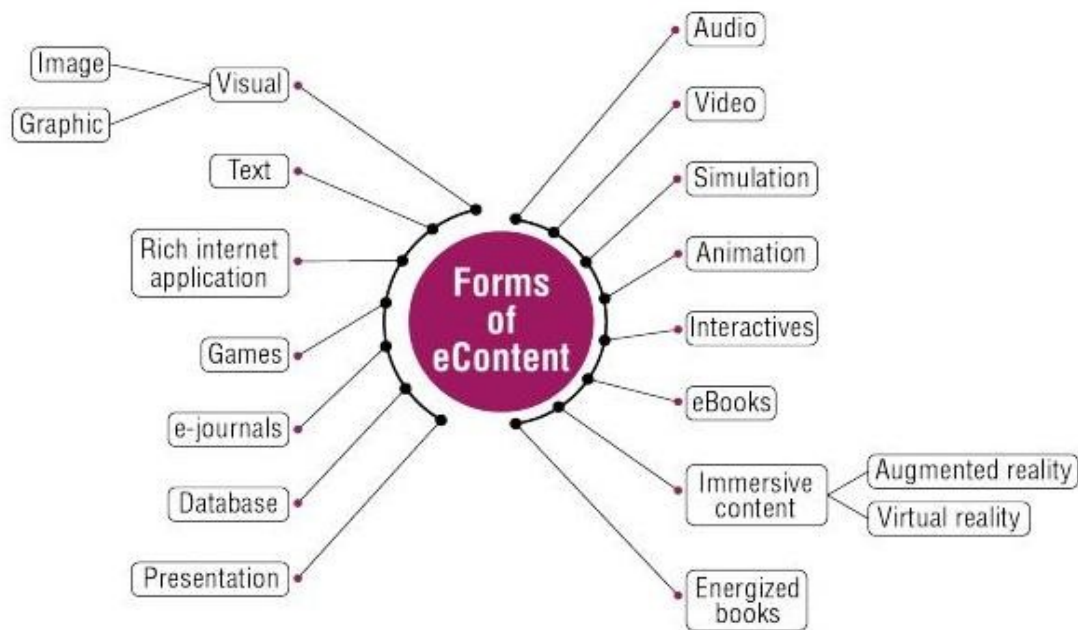
Figure 3.1 (b) Various Forms of eContents

3.1 Technological Pedagogical and Content Knowledge(TPACK)

Classroom teaching and learning is undergoing unprecedented change with time. Various theories of education play their best role in the teaching/learning

process, and Educational Technology provides an extra edge in implementing the same. Although we may not always realise but technology is an integral part of our daily lives. It influences how we communicate, socialise, connect, play and learn. Technology augments its presence in our daily lives; it would be imperative to ensure the presence of the same in the classroom.

Figure 3.2 TPACK Integration

Gradually, technology has been making its way to revolutionizing the methods of teaching and learning. Technology has made its way to the classroom, increasing the engaging and interactive elements; many students are benefitting from it, right from Audio, Video, Graphics and Simulations. Learners, in today's context, are

already familiar with various technologies, which helps in modernizing the classroom with computerized tools and apps that make sense in a classroom setting but many teachers face difficulties in doing so. Cost, access, and time often form considerable barriers to classroom implementation, but another obstacle is a lack of knowledge regarding how technology can best be used to benefit students across diverse subject matter.

Punya Mishra and Matthew J. Koehler's (2006) suggested TPAC (Technological Pedagogical Content Knowledge) framework, which focuses on technological knowledge (TK), pedagogical knowledge (PK), and content knowledge (CK), offers a productive approach to many of the dilemmas that teachers face in implementing educational technology (EdTech) in their classrooms. By differentiating among these three types of knowledge, the TPACK framework outlines how content (what is being taught) and pedagogy (how the teacher imparts that content) must form the foundation for any effective EdTech integration. This order is important because the technology being implemented must communicate the content and support the pedagogy in order to enhance students' learning experience.

3.2 File format in eContents

Each type of resource has several presentation formats. Depending on the nature of the content and purpose of the resource, one can choose the presentation format while developing the eContent. eContent should be saved in the appropriate file format. For video production, .MP4 file format is most appropriate.
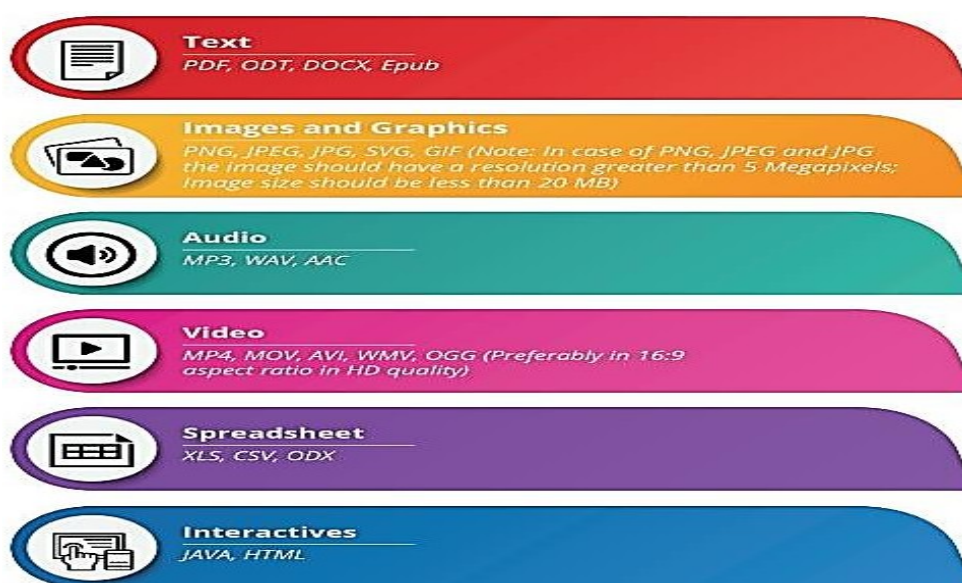
Figure 3.3 File Formats in eContents

3.3 Intellectual Property and Copyright in eContent Development

This section provides basic definition, information and guidelines, pertaining to Intellectual Property issues. In the absence of clarification provided here, all legal frameworks for Intellectual Property are applicable as present in the Copyright Act (1957), Designs Act (2000) and other relevant laws.

3.3.1 Intellectual Property

Intellectual property is the name given to legal rights which protect creative works, inventions and commercial goodwill. It includes a collection of various rights: copyright, patents, designs, trademarks, other types of confidential information, trade secrets, expertise or know-how, reputation, assets that are not necessarily intellectual but have commercial value, chip topography, and other sector-specific rights.

Basically, Intellectual Property Rights are designed to provide remedies against those who steal another person's ideas or work. For example, if a person writes a computer program, he/she will be able to take legal actions to obtain an injunction against anyone who copies the program without his/ her permission.

Any content creator, as an individual or an organisation who creates eContent aligned to the guidelines, should be able to claim intellectual property on the same, provided the content is originally created. It is proposed to adopt the Creative Commons Licensing Protocol so that the content can be freely shared and customised as per local needs.

3.3.2 Indian Copyright Act – A Glimpse

The Copyright Act, 1957 (the 'Act') came into effect from January 1958. The Act has been amended five times since then, i.e., in 1983, 1984, 1992, 1994, 1999 and 2012. The Copyright (Amendment) Act, 2012 is the most substantial. The main reasons for amendments to the Copyright Act, 1957 include to bring the Act in conformity with two WIPO internet treaties concluded in 1996 namely, the WIPO Copyright Treaty ("WCT") and WIPO Performances and Phonograms Treaty ("WPPT"); to protect the Music and Film Industry and address its concerns; to address the concerns of the physically disabled and to protect the interests of the author of any work; Incidental changes; to remove operational facilities; and enforcement of rights.

Some of the important amendments to the Copyright Act in 2012 are extension of copyright protection in the digital environment such as penalties for circumvention of technological protection measures and rights management information, and liability

of internet service provider and introduction of statutory licenses for cover versions and broadcasting organizations; ensuring right to receive royalties for authors, and music composers, exclusive economic and moral rights to performers, equal membership rights in copyright societies for authors and other right owners and exception of copyrights for physically disabled to access any works.

Copyright act provides:

- The right to reproduce the work
- To prepare derivative works
- To distribute copies
- To perform the work
- And to display the work publicly

As defined by the Berne Convention, the moral rights of an author are as follows:

- The right to claim authorship of the work
- The right to object to any distortion, mutilation, or modification of the work
- The right to object to any derogatory action that may damage the authors honour or reputation

Term of Copyright:

The general rule is that copyright lasts for 60 years. In the case of original literary, dramatic, musical and artistic works the 60-year period is counted from the year following the death of the author. In the case of cinematograph films, sound recordings, photographs, posthumous publications, anonymous and pseudonymous publications, works of government and works of international organisations, the 60-year period is counted from the date of publication.

3.3.3 Difference between Copyright, Patent and Trademark

	Copyright	Patent	Trademark
What is protected	Original works of authorship, such as books, articles, songs, photographs, sculptures, choreography, sound recordings, motion pictures, and other works	Inventions, such as processes, machines, manufactures, compositions of matter as well as improvements to these	Any word, phrase, symbol, and/or design that identifies and distinguishes the source of the goods of one party from those of others

Requirements to be Protected	A work must be original, creative and fixed in a tangible medium	An invention must be new, useful and nonobvious	A mark must be distinctive (i.e., that is, it must be capable of identifying the source of particular goods)
Term of Protection	Author's life plus 60 more years.	20 years	For as long as the mark is used in commerce
Rights Granted	Right to control the reproduction, making of derivative works, distribution and public performance and display of the copyrighted works	Right to prevent others from making, selling using or importing the patented invention	Right to use the mark and to prevent others from using similar marks in a way that would cause a likelihood-of-confusion about the origin of the goods or services.

Table 3.1 Comparison among Copyright, Patent and Trademark

3.4 Creative Commons Licensing

Copyright is a legal right as per a country's law that grants the creator of an original work the exclusive rights for its use and distribution. This is usually only for a limited time. Traditional educational materials, such as textbooks, are protected under conventional copyright terms. Previously copyright was binary i.e., all rights retained or available in public domain. However, alternative and more flexible licensing options are available as a result of the work of Commons. Creative Commons (CC) is a global non-profit organization which provides free legal tools i.e., Copyright licenses. It is an organization that provides ready-made licensing agreements that are less restrictive than the "all rights reserved" terms of standard international copyright.

These copyright licenses enable sharing and reuse of creativity and knowledge. These legal tools allow us to reuse the work of others. The vision of CC is to help people to realize the full potential of the internet. CCs offer other legal and technical tools that also facilitate sharing and discovery of creative works such as CC0 a public domain dedication. CC0 is for rights holders who wish to put their work into the public domain before the expiration of copyright.

Another license, typically used by developers of OER software, is the GNU-General Public License from the free and open-source software (FOSS) community. Open licensing allows the user to adopt and adapt the work done by someone under different circumstances. Open licensing allows us to use the materials that would not be easily permitted under copyright alone. It is essential to know that open licensing is a concept within copyright law.

3.4.1 Creative Commons Licensing System

In the field of education, Creative commons (CC) has become the popular licensing system. All Creative Commons Licenses are constructed from a combination of four specific ―rights or conditions that can be reserved by the creator or author of the resource. They are provided below:

Attribution (BY)	Share-alike (SA)	Non-commercial (NC)	No Derivative Works (ND)
Licensees may copy, distribute, display and perform the work and make derivative works based on it only if they give the author the credits in the manner specified by these.	Licensees may distribute derivative works only under a license identical to the license that governs the original work.	Licensees may copy, distribute, display, and perform the work and make derivative works based on it only for non-commercial purposes.	Licensees may copy, distribute, display and perform only verbatim copies of the work, not derivative works based on it.

Figure 3.4 Creative Commons Licensing System

CC **BY**
Attribution CC By

This license lets others distribute, remix, tweak, and build upon your work, even commercially, as long as they give credit for the original creation.

CC **BY SA**
Attribution-ShareAlike CC BY-SA

This license lets others remix, tweak, and build upon your work even for commercial purposes, as long as they give credit and license their new creations under identical terms.

CC **BY ND**
Attribution-NoDerivatives CC BY-ND

This license allows for redistribution, commercial and non-commercial, as long as it is passed along unchanged and in whole, with due credit to you.

CC **BY NC**
Attribution-NonCommercial CC BY-NC

This license lets others remix, tweak, and build upon your work non-commercially, and although their new works must also acknowledge you and be non-commercial, they don't have to license their derivative works on the same terms.

CC **BY NC SA**
Attribution-NonCommercial-ShareAlike CC BY-NC-SA

This license lets others remix, tweak, and build upon your work non-commercially, as long as they credit you and license their new creations under the identical terms.

CC **BY NC ND**
Attribution-Non Commercial-No Derivatives CC BY-NC-ND

This license is the most restrictive of six main licenses, only allowing others to download your works and share them with others as long as they credit you, but they can't change them in any way or use them commercially.

Figure 3.5 Creative Commons Licensing System

3.4.2 Images/Graphics on Web under Creative Commons

Sometimes we may search image/graphics to be used in videos from the internet. It is very evident to take only creative commons image/graphic to avoid any copyright violation. For example, you are making a program on different parts of flower and needs some image/graphics to be searched on internet. So, open a web browser (like google) and type your keyword (flower). Click on image to get image/graphics relevant to flower:

Step I
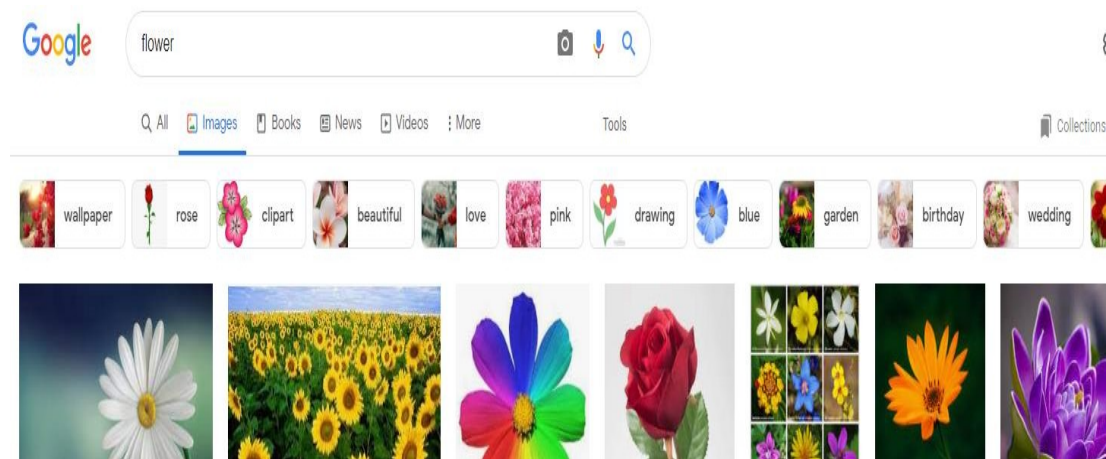
Figure 3.6 Searching Images/Graphics on Web

Step II

Now click on theTool button, a new menu window will appear:
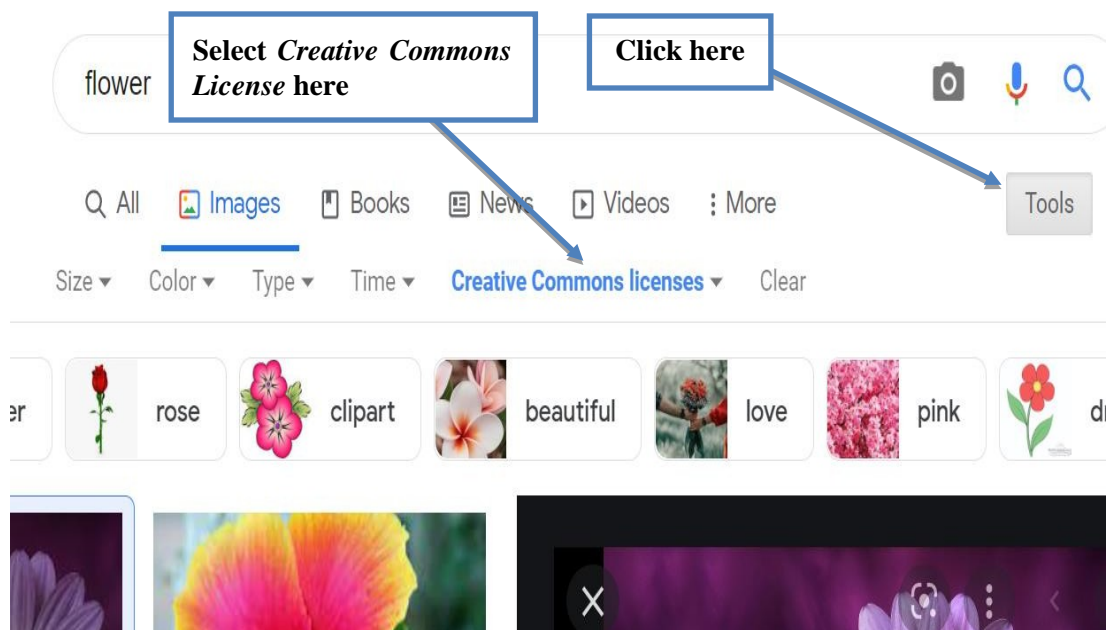
Figure 3.7 Searching Images/Graphics on Web under Creative Commons License

Step III

Following step II, we get the Creative Commons licensed images. By clicking on the image, we want to use, we visit the page from where it is being fetched, to verify the license:
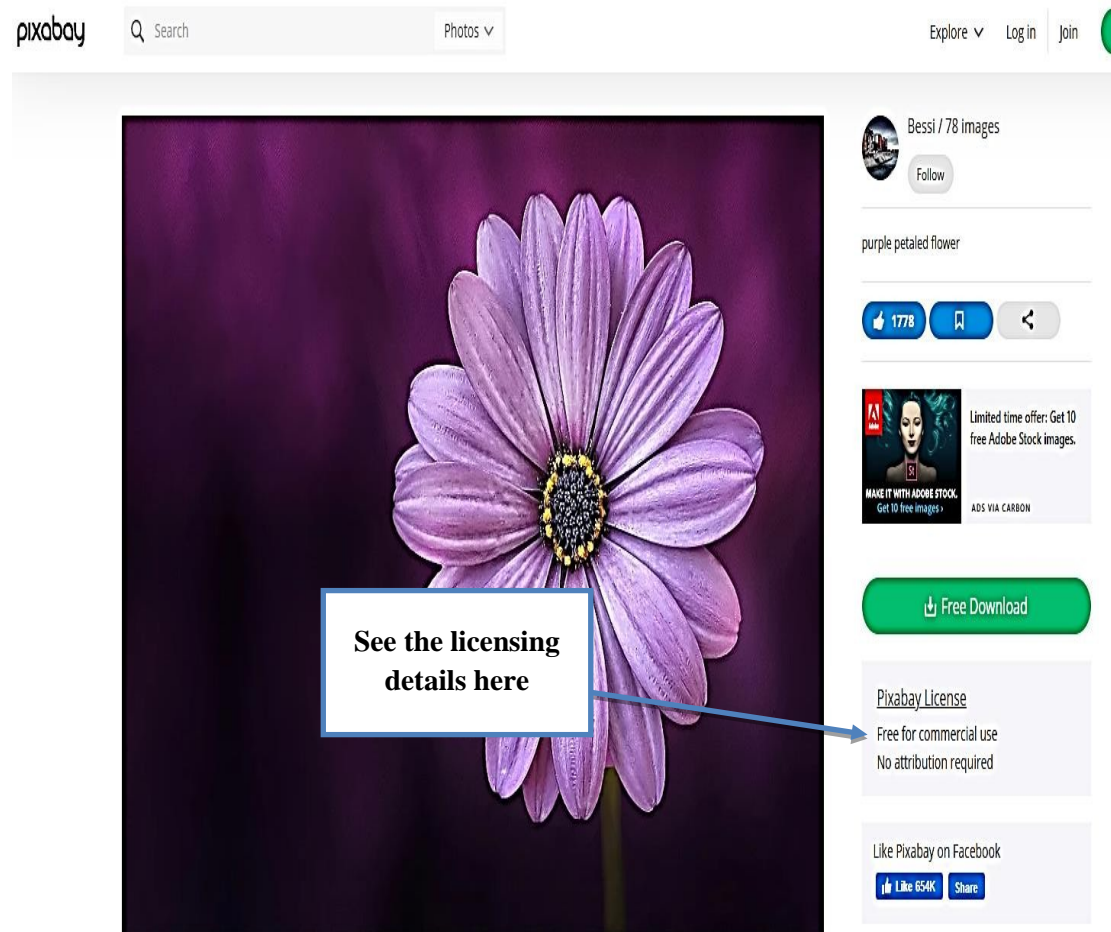
Figure 3.8Locating the original source of the image under Creative Commons

As shown in the Figure 3.8 above, the image comes from "Pixabay" under "Public Domain", We can download this image in high resolution and also save the URL to give the attribution (if required) simply by copying it from the address bar as:

https://pixabay.com/photos/flower-purple-petals-purple-flower-729512/

3.4.3 Mixing of Creative Commons Licenses

Since every CC license has its own condition to use and if you are using images/graphics of different licenses together in a single video programme. It is very important to know that images/graphics from which licenses you can mix. The following table will help in mixing the content of different licenses:

	Public Domain	Public Domain	CC BY	CC BY-SA	CC BY-NC	CC BY-ND	CC BY-NC-SA	CC BY-NC-ND
Public Domain	✓	✓	✓	✓	✓	✗	✓	✗
Public Domain	✓	✓	✓	✓	✓	✗	✓	✗
CC BY	✓	✓	✓	✓	✓	✗	✓	✗
CC BY-SA	✓	✓	✓	✓	✗	✗	✗	✗
CC BY-NC	✓	✓	✓	✗	✓	✗	✓	✗
CC BY-ND	✗	✗	✗	✗	✗	✗	✗	✗
CC BY-NC-SA	✓	✓	✓	✗	✓	✗	✓	✗
CC BY-NC-ND	✗	✗	✗	✗	✗	✗	✗	✗

Figure 3.9 License Compatibility Chart

3.5 Development of Video Content: Prerequisites

3.5.1 Instructional Design

Process of developing eContents depends upon the nature of the content and its target learners. It will also depend on the quality and complexity of the learning to be achieved. Instructional design is the practice of creating instructional experiences that make the acquisition of knowledge and skill more efficient, effective, and appealing.The process broadly consists of determining the status of learners' understanding, defining the end goal of the instructional material, and creating some 'intervention' to assist the transaction. This systematic approach provides a step-by-step process for the analysis of the learners' needs, the design and development of the material. There are various instructional design models available like:

- ADDIE
- Cathy Moore's Action Mapping
- Dick and Carey Model
- Kemp Design Model
- Merrill's First Principles of Instruction
- SAM (Successive Approximation Model)

- Agile or rapid prototyping

Most of the models involve the process of analyzing the learners' needs and goals of the instructional material development, development of a delivery system and content, pilot study of the material developed, implementation, evaluation, refinement of the materials etc. In designing and developing the eContent, a suitable instructional design approach based on our requirements can be adopted. One of the most generic, common, and popular approaches for instructional design is ADDIE (See detail in https://ciet.nic.in/upload/GuidelinesforeContent3.pdf).

Figure 3.10 ADDIE Model

3.5.2 Selection of Subject-Matter Experts (SME)

Subject-Matter Experts should have some proven experience of teaching/developing e-resources in their subjective background. A team of SMEs should contain practicing school teachers, college and university teachers, and teacher educators. They should well verse in writing scripts and storyboards. They should be trained in Content-pedagogy integration and use of ICT tools. A screen test is mandatory before recording the video programme. A training program for all SMEs

before starting the work is mandatory. A unique code be assigned to the topic allotted to SME as per subjective background (See Annexure 3.1) for future tracking.

3.6 Development of Video Content: Process

3.6.1 Pre-Production

3.6.1.1 Formats of Video Production

(i) Educational Videos

Educational videos are excellent examples of teaching and learning concepts. As video uses the primary senses of sight and sound, using video in education allows concepts to be taught more easily and be retained better than reading off a page.

Educational videos go beyond merely informing the viewer – these videos go deeper into the 'why' such and such is important, in addition to just the 'what'. Educational videos should be concept based, started with objectives, introduction and culminate with summary.

Examples of Educational Videos are:

- Video Lesson Series
- Animated Videos
- Remote Online Classroom Instruction
- Online Courses with Video Lessons (MOOCs)
- How-To Training Videos
- Student 'Show and Tell' Videos
- Webinar Informational Videos

(ii) Promotional Videos

A critical distinction is that promotional videos are *not* advertisements like we would see on TV commercial breaks. With a promotional video, the choice to watch is with the viewer. The person is interested to see if the video will offer a solution to their problem and presses play.

The promotional videos marketing therefore to suggest value upfront. Promotional video differs from instructional and educational videos in that they're targeting a very specific viewer and speaking to their needs, then presenting a solution and concluding with a 'call to action', asking the viewer to take action.

With the art of persuasion and rapport, similar to an experienced salesperson, a viewer will ideally feel that the video offered value – and it's their choice if they

respond to the call to action. Taking action: a social like or share, or a purchase, are all common goals for promotional video marketers.

Few examples of Promotional Videos are:

- Talking-head Videos
- Corporate Videos
- Testimonial Videos
- Presentation Videos
- Explainer Videos
- Unboxing Videos
- Product Demonstration Videos
- Real Estate Tour Videos
- Event Videos
- Presentation Videos
- Keynote Slideshow Presentation Videos
- Advertising Videos
- Comparison Videos
- Product Review Videos
- Announcement Videos
- Destination Videos

(iii) Informational Videos

These are the most simplistic types of videos – cut and dry information delivered as succinctly as possible. Think of a news host delivering current news, with a quick story sound bite and moving on to the next story in rapid succession.

Mass media video is a good example of purely informational video. News and information videos give you the sounds and sights of the news events as if you were right there on location.

Examples of Informational Videos are:

- Television Newscasts
- Interview Question & Answer Videos
- Streaming Video Online News Websites
- Socially-Shared News Snippets (Face book, Twitter, etc)
- Public Service Announcements (PSAs)

(iv) Documentary Films (and Videos)

The definition of a documentary film is '*nonfictional motion picture intended to document some aspect of reality, primarily for the purposes of instruction, education, or maintaining a historical record*'. (Wikipedia)

Documentaries are typically a mix of entertainment and information dispensing, and very popular. There are three main types of documentaries; observational (or Cinéma vérité) mainly without any narration moving the process forward, participatory, such as a character taking part in the events as we watch, and expository, with the narrator chiefly explaining and the events as we watch.

Examples of Documentary genres are

- Poetic documentaries
- Observational documentaries
- Reflexive documentaries
- Performative documentaries
- Expository documentaries
- Participatory documentaries

(v) Entertainment Videos

Finally, the fun stuff, entertaining videos simply for entertainment's sake. The sky is the limit here, and many of the prior examples of video can fall under entertainment as well, so it's not a hard and fast category. Entertaining videos can vary in scope, genre and purpose. Videos on Netflix, online movies, YouTube video stars, video clips, and more all fall under the scope of entertainment.

Examples of Entertainment Videos are:

- Music Videos
- Travel Videos
- Automotive Enthusiast Videos
- YouTube Channel Stars
- Reality Shows
- Movies (Hollywood, etc.)
- Episodic-Drama and Comedy Shows
- Streaming Services (Netflix, Amazon Prime, HULU, etc.)

- Solid Media (DVD and Blu-Ray)

3.6.1.2 Programme Brief and Script Writing

The Programme Brief is an outline definition of what a programme is expected to achieve in terms of benefits, outcomes, scope and objectives. Each video programme should have a separate programme brief attached with the script and storyboard.

Scriptwriting or screenwriting is the art and craft of writing scripts for mass media such as feature films, television productions or video games. Screenwriters are responsible for researching the story, developing the narrative, writing the script, screenplay, dialogues and delivering it, in the required format, to development executives.

Before writing the Script for Video programme, following points should be addressed:

- Need Analysis
- Context Analysis
- Learner Analysis
- Content Analysis
- Learning Objectives/goals
- Content Structure
- Leaning Strategies
- Selecting suitable Media
- Learning outcomes

Format of Script Writing: Although, one can write simply on a plane paper, but it is advisable to write the script in designated format as follows (Annexure 3.2):

S.No.	Content/dialogue	Suggestive visual	Audio	Remark

Table 3.2 Format of Script Writing

Once script writing is done, it needs to be converted to storyboards with visual treatment.

3.6.1.3 Storyboard and Script Enrichment (Media Selection)

A storyboard is a graphic representation of how your video will unfold, shot by shot. It's made up of a number of squares with illustrations or pictures representing each shot, with notes about what's going on in the scene and what's being said in the script during that shot. Think of it as sort of a comic book version of your script (Annexure 3.3).

Need of a Storyboard

- Best way to share the vision
- Makes production easier
- Saves time

Story board contains detailed plan of all actions for a video production.

A script for an educational video production confirms the range of shots, visuals, spoken works or commentary, background music, special effect, duration of each shot and remarks. The script along with programme brief should be submitted for review (Annexure 3.4).

Review of the script and storyboards:

- Peer review: Colleague from same subject area may review the scripts
- Expert review: Scripts may be sent to experts, who have immense experience in script writing, or a workshop may be organised to review scripts.
- Script committee review: After peer/expert review, the scripts should be submitted to script committee.

A script committee should have following experts:

Chairperson, Subject experts, Producer, Script writer and faculty from the similar subject area.

After finalization, the script should reach to the production department.

3.6.2 Production

3.6.2.1 Setting Up Studio

A studio environment is ideal for creating professional, high-quality videos. Following are key points to setup a good video studio with minimal requirements (Annexure 3.5):

(i) **Space:** Choose the right space. While having dedicated video studio space is ideal, combining it with a meeting/waiting room along with dressing is also possible. A permanent studio setup will save a lot of prep time and motivate employees to record. Studio time should be distraction-free for production staff.

(ii) **Size of the Room**: Generally, room dimensions should be not smaller than 12 feet by 18 feet. There should be at least four feet between the camera and the subject, and another four feet between the subject and the background. Shooting very close to a wall isn't optimal because doing so can cast harsh shadows.

(iii) **Soundproofing**:

Finding a quiet space is often one of the most challenging aspects of setting up a corporate video studio, but it is also among the most important. After all, nobody wants air conditioning, construction, wailing sirens, and other background noises to end up in the final video.

Additionally, sound will bounce off walls and create echoes if the space is too large and sparsely furnished with acoustic foam panels to "dampen" echoes and outside sounds.

(iv) **Equipment:** Video production studio will need reliable, high-end equipment. Following is the list of equipment require in the studio:

- Sony Camcorder
- Croma Green Background
- Desktop
- Headphone
- Lavalier Mic for recording
- Editing software's
- TV for display
- Mic stands
- Various cables
- Speakers for audio output
- 2 TB Storage Unit (HDD)
- Furniture
- Network router
- Sony MCX-500

- Audio mixture
- Lighting - Studio Cool Light

3.6.2.2 Recording and Set Instructions

Production of the scripts involves the actual recordings as per the script and storyboard. A copy of script/storyboard should be available with all stakeholders involved in production and post-production work viz; Producer, Cameraman, editor etc. Normally during the recording, the experts should keep following points in mind:

☞ Use of teleprompter: teleprompter helps the experts to keep the pace as per script. If the expert wants to use teleprompter, then only written part (yet black) of the script should be sent to producer in requisite format and font size. Like in .ppt with larger font size to be readable from the distance.

☞ Use of Chroma set: If chroma is being used during recording, expert should avoid wearing anything green/blue (not even buttons/Bindi).

☞ Makeup: Too much makeup is not advisable, also experts may come with talcum powder, needed incase sweating (although available in studio).

☞ Dress: Always come with an extra dress, avoid too much shiny clothes, avoid small check shirts, and avoid excessing ornamental/jewelry.

3.6.2.3 Recording Schedule

Once the reviewed scripts be handed over to Production department, a producer is to be assigned to the scripts. The production assistant, prepares schedule for all available scripts after discussion with producer and SMEs in the format given in Annexure 3.6

3.6.3 Post-Production

After recording, the data will be ingested on the server/hard drive along with metadata and unique serial number of the program.

3.6.3.1 Editing

Editing involves the mixing of recording videos with graphics, texts, animations, audio etc., as per storyboard. To edit the video, a video editor is then assigned to the concerned producer. The editor then downloads the recorded data from the server/hard drive to his/her computer.

3.6.3.1.1 Technical Specifications

The editor then edits the video as per script/storyboard and submit the edited video to the producer with following prescribed parameters:

Format	: .mp4
Video Resolution	: 1920*1080i or 720*576i
Audio sampling	: 48khz
Frame rate	: 25fps
Overall Bit rate	: more than 2.5Mbps

3.6.3.1.2 Review of the Video Content

Review the programme is most important check point to find out any subjective/technical error.

(i)   Checklist for Review

Every programme should follow the basic ethos like:

(a) **Factual Accuracy:** Content being presented through text, diagrams, pictures, maps, data, audio/video, animation, simulation, etc. have no factual errors. Utmost care be taken while using the maps. Only authorized maps by "Survey of India", Department of Science and Technology in current version be used. This is the responsibility of the Subject Matter experts, Reviewers and State coordinator/Nodal person to verify this.

(b) **Legal Use of Proprietary Content:** The content piece should not use proprietary content unauthorized.

(c) **Content Piece Free from Technical Glitches:** Sound is in sync with visuals, there is general usability in terms of rendering and visual experience.

(d) **Constitutional and Statutory Appropriateness of Content:** Content does not reflect violation of constitutional obligations.
For example, the content should be adhering to Fundamental Rights and Duties, the content should not promote any stereotypes or derogatory depiction based on caste/class/gender/community/ethnic groups/religions etc.)

(e) **Correspondence with Topics/Subtopics Covered in the Textbook**: Relevance of the content piece with the topics/subtopics mentioned in the textbook.

(f) **Pedagogic/Andragogic Structure:**
(*The Suggestive Criteria do not offer an Exhaustive but an Indicative List)
✓Content presentation is supported by relevant examples.
✓Content piece is learning outcome oriented

✓ Cause and effect relationship is used to explain various phenomenon wherever applicable, Concrete to abstract.

✓ Content piece attempts to initiate reflective thinking among learners

✓ Content piece attempts to integrate with other domains of knowledge

✓ Content piece prescribes to the following Maxims of Teaching and Learning

✓ Easy to difficult

✓ Simple to complex.

✓ Concrete to abstract

✓ Whole to parts/Parts to Whole

✓ Content prescribes to the following Maxims of Teaching and learning

✓ Spatial contiguity of message forms: Corresponding words and pictures are presented near rather than far from each other.

✓ Temporal contiguity of message forms: Corresponding words and pictures are presented simultaneously successively.

(g) **Language and Comprehensibility:** Content should have no grammatical errors. Content is presented in a manner which is understandable as per the grade/level of the learner.

(h) **Format of Content Presentation:**Content has been presented in a format that is best suited for the theme, (For instance, a content which is in the form of a group discussion would score low on these criteria, if the best way to explain the concept would have been an experiment.)

(i) **Pace of the Programme:** The content is appropriately paced leading to ease of comprehension.

(ii) **Points to Remember while Reviewing Video Program**

    (i) The target audience should be kept in mind.

    (ii) The main focus is on the concept and accuracy in the context/text- As conceptual errors are unavoidable, please ensure there are no such errors in the program.

    (iii) The video program should neither start nor end abruptly.

    (iv) The objective of the video should be achieved by the end of the video.

    (v) Video programs should not hurt any caste, creed, gender, race, color, etc. in any case.

    (vi) The audio of the program should be appropriately audible.

(vii) If National symbols or National Anthem or National Flag is used in a video program, then it should be carefully and used appropriately.

The programs would be categories into the following categories: -

1. **Recommended** i.e., it can be uploaded on the portal or telecast without any modifications.

2. **Recommended after Modification** i.e., it can be uploaded on the portal or can be used for telecast with minor modifications. (Note: If mentioning Recommended after Modification in Review Report, please maintain a time-line review report: mentioning the time with specific modifications that need to be done/ corrected before uploading on various NCERT Platforms or using the video for telecast purpose)

3. **Not recommended** i.e., the program is not suited to be uploaded web portals or telecast.

(iii) Peer Review/Self Review

The producer sends the edited programme to concerned experts if everything is arranged as per the script, spelling error etc. The concerned expert sendsthe review report to producer for any modification along with time stamp.

(iv) Expert review

After incorporating the suggestions by peer/self-review, the producer submits the programme for expert review. Expert review may be managed by a separate faculty. A list of experts in all subjects/languages will be helpful to coordinate the process of review. The programme may be sent to experts along with the guidelines to review the video programme or a workshop may be arranged for speedy work.

Central Institute of Educational Technology, NCERT has developed the Tool of evaluation of Video content that will be helpful for reviewers. Annexure 3.7, 3.8 and 8.9 are very help for reviewers and needs to be shared with them while sending scripts and video programmes with them.

3.6.3.1.3 Re-editing and Finalization of the Video Programme

The reviewer then submits the signed report with time stamp, comments/suggestions to the concerned faculty. The concerned faculty the discuss the report with producer. The producer then incorporates the changes suggested in the final expert review and process the final programme for QR (Quick Response) codes. Every programtelecast on PMeVIDYA need to have a QR code embedded on it. These

QR code embeds the link of same programme on DIKSHA portal/App. This help to provide coherent access to educational resources on DIKSHA portal.
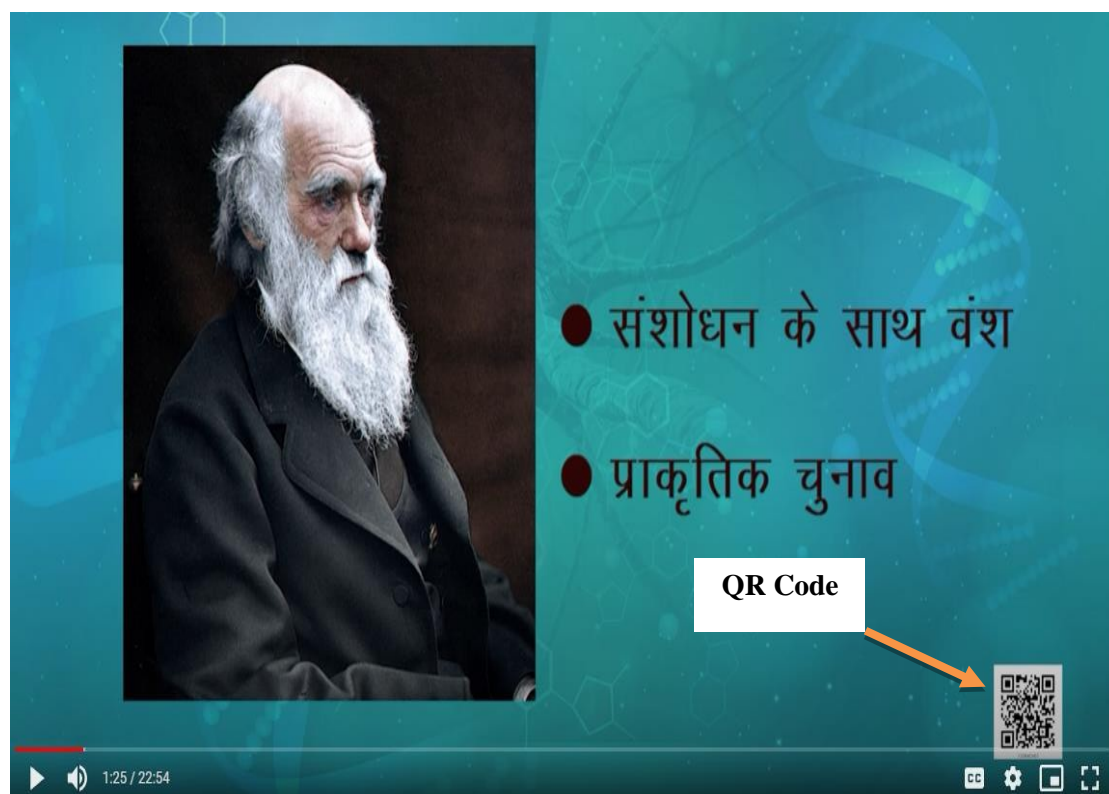
Figure 3.11 Screenshot of a QR Code Embedded Video

These codes can be scanned by using DIKSHA app.After embedding the QR code in video, the programme will be given to data handling team and channel coordinator to telecast and uploading on DIKSHA portal/app.

Note: It is very important to keep the record of every file at a secure place including in digital formats. The scripts, storyboard, raw video footage, master copy of the video programme and review report should be saved on server or secure location for further use.

3.6.3.2   Translation of Video Programmes

Translation of video programme is very hectic job to do and require academic and technical skills. Translation may be done manually or machine translation, automatically by using third party software/portals.

3.6.3.2.1 Manual Translation: The best way is the translation of final version of the script with the help of experts. Once, subject experts finish the translation, it should be properly betted by language experts.

3.6.3.2.2 Machine Translation: There are many third-party software/portals are available for machine translation. But betting of machine translation should be done by external expert manually to avoid any confusion.

After translation, it depends on the institute to provide sub-title in translated content on original video or to record a new video. But lip-syncing (translated audio on original video) should be avoided.

3.7 Sharing the Programmes for Telecast:

State Nodal officer/Programme Coordinator is the responsible person for sharing the programme. Before sharing the programme, he/she should check all the review reports of the programme and share further with other stakeholders for telecast. After finalization of the development process, SMEs and other engaged persons may be paid as per prescribed rates (Annexure 3.10).

4. *e*Content for DTH TV: Storage and Management

4.0 *e*Content: Data Storage and Management

*e*Content is abbreviated term for electronic content. *e*Content is inclusive of any content which is created or modified, stored-cum-transmitted and accessed electronically. *e*Content is, therefore, a generic term used to refer to all kinds of electronic contents and also a hypernym for terms like digital and multimedia contents.

*e*Content by virtue of their electronic nature are essentially constitute data or precisely electronic data. The electronic data needs to be stored and managed for further processing and use. The storage and management of electronic data involves various tasks as prerequisites.

4.1 Need for Metadata

In every media production be it long-term or short-term project, it is essential to manage and archive all heterogeneous production data, produced by the Media Department/institute during the course of *e*Content creation and post – production setup. Therefore, data management of the content becomes very crucial for an efficient conception and dissemination of the *e*Content. This has to include sustainable storage, description with metadata, easy and secure provision/exchange of the *e*Content, backup, and visualization of all collected or created data. A server based data storage with appropriate backups and management mechanism may be developed to facilitate storage, retrieval and sharing of *e*Content.

4.1.1 Defining Metadata

Metadata is a type of descriptive data that helps a person or a professional to identify the characteristics of a file. In other words, metadata is a set of data that illustrates and gives information about other data.

Metadata is so significant because it ensures you and enables you to find data, use data, and preserve and re-use data in the future.

4.1.2 Types of Metadata

Metadata can be categorised into different types. In the present context, following types of metadata is identified:

4.1.2 (a) Technical Metadata

Generally, technical metadata covers the range of information that is derived from the camera. It is the technical information about the media file. This includes the obvious technical information on Image size, Frame rate, Codec, Formats, etc.

4.1.2 (b) Content Metadata

Content Metadata is the part of the metadata spectrum that is most useful in terms of media production. It carries the information about what is in the media file. In other words, Content metadata is all about the descriptions and attributes of the content itself, whether it be an image, video, audio, or other pieces of media that are stored in centralized repositories within the control of the institution.

Content Metadata describes the contents of the film or video image by applying a description of the content to all, or a part of the file. Without the content metadata, nothing is known about the content of the media file.

4.1.3 Various Elements Comprising the Metadata

As discussed in the previous chapter, *e*Content creation goes through a three-stage process i.e.,*Pre-Production*, *Production* and *Post-Production*, therefore data needs to be managed on every single stage of this process, so the creation and management of the metadata sheet could be qualitative and authentic. Metadata can be created using a spreadsheet which can make the extraction and retrieval of data related to production much easier.

The creation of metadataat each stage of content production can be structured and managed using the following attributes in the following stages (Refer Annexure 4.1):

Stage I Pre-Production

Attributes for Metadata		
S. No.	Attribute	Description
1	**Class**	Refer to the particular class to which the resource is related.
2	**Subject**	Refer to the subject/discipline to which the resource is related.

3	Textbook	Refer to the textbook, the particular resource is associated with.
4	Chapter No.	Refer to the chapter number in the textbook mentioned.
5	Chapter Name	Refer to the chapter name in the textbook mentioned.
6	Video Title	Refer to the video title of the program
7	Medium	Refer to the medium (language) of the resource.
8	Organisation	Refer to the name of the organisation producing the resource.
9	Program ID	Refer to the pre-defined program identification number.
10	Subject Matter Expert (SME)	Refer to the name of the SME involved in the creation/production of the resource.
11	SME Affiliation	Refer to the name of the organisation the SME is affiliated/associated with.
12	Script	Refer to the status of the script submitted/accepted/modified/finalised.
13	Date of Script	Refer to the date of the script submission/finalisation for production.

Table 4.1(a): Fields in Metadata Sheet

Stage II Production

Attributes for Metadata		
S. No.	Attribute	Description
14	Episode No.	Refer to the episode number if part of a series
15	DoR	Refer to the date of the recording/production
16	Producer	Refer to the producer of the program (i.e., resource/eContent)
17	Prod. Assistant	Refer to the production assistant of the program (i.e., resource/eContent)

Table 4.1(b): Fields in Metadata Sheet

Stage III Post-Production

Attributes for Metadata		
S. No.	Attribute	Description
18	DoSE	Refer to the date of submission of the raw footage to the editor for editing.
19	Editor	Refer to the editor of the program (resource/eContent).
20	DoE	Refer to the date of export post editing of the program (resource/eContent).
21	Duration	Refer to the duration of the finally edited program.
22	QR Code	Refer to the inserted QR code appropriate to the program.
23	DoSR	Refer to the date of sharing the program for review.
24	DoRR	Refer to the date of the receipt of the Review Report of the program.
25	Result RR	Refer to the result of review report as R-Recommended, RM-Recommended with modification and NR-Not recommended
26	Sharing RR	Refer to sharing Review Report as document (.pdf/.doc) via Google Drive link for further processing and record.

27	**DoSM**	Refer to the date of submission of program for modification as per RR
28	**DoMP**	Refer to the receipt of the Modified Program
29	**File Name**	Refer to the file naming of the program with a suffix of 'MOD' due to modification in the program
30	**Link**	Refer to the link of final program to be shared in Google Drive for further use by the channel co-coordinators for telecast on DTH and uploading on DIKSHA.
31	**RoS for Telecast**	Refer to the Record of Sharing the program file with the channel co-coordinators for telecast
32	**RoS for upload on DIKSHA**	Refer to the Record of Sharing the program file with the DIKSHA team for simultaneous upload on DIKSHA before DTH telecast
33	**DoU**	Refer to the Date of Upload of the program on DIKSHA
34	**DIKSHA do_id**	Refer to the do_id" is a system generated unique identifier for each content created/uploaded in DIKSHA.
35	**SoM on DIKSHA**	Refer to the Status of Mapping of the program on DIKSHA.
36	**SoL on DIKSHA**	Refer to the Status of Live program on DIKSHA.
37	**VIS Video ID**	Refer to the placement of Video Identification Number from the Video Information Sheet for DTH telecast along with the corresponding do_id of the program uploaded on DIKSHA.

Table 4.1(c): Fields in Metadata Sheet

4.1.4 Salient features of the Metadata Sheet

(i) Details about the Content

The attributes from 1-7 provides the details of the content based on the identified scope and thus will feed into the generation of Unique Program ID (Attribute 9). Program ID can be generated in the following manner (Refer Annexure 4.2 for Subject codes):

*FirstTwoNumbersForClass_**SubjectCodeFirstThreeletters**_BookCodeFirstTwoLettersFollowingTheNumericDigit_**LanguageCode_CH**chapternumber_**Ep**episodenumber*

Unique Program ID: Class12_GEO_BK01_HIN_CH01_EP01
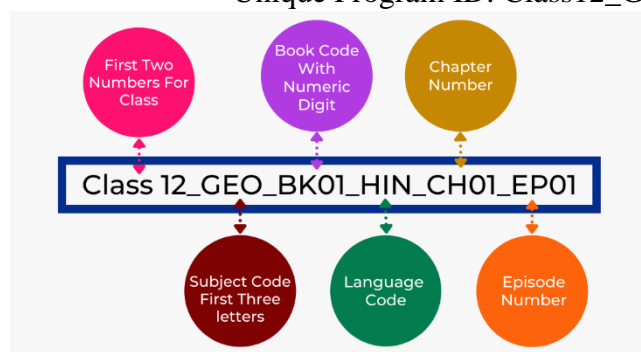
If the same program is re-recorded an 'RE' can be put at the end of the Unique Program ID for the initiation of the recording process of the new program.

Moreover if a subject has more than

one book, then the Books can be numbered as Book 1, Book 2 and the Program ID can have the no. of the Book after the three letters signifyingsubject.

Eg: Class12_GEO_BK01_HIN_CH01_EP01 or Class12_GEO_BK02_HIN_CH01_EP01

Listing all the chapter titles of all the textbooks considered part of the syllabus is the beginning of the Metadata creation; all the details get anchored to this parent list. CIET, NCERT being the central body considers NCERT textbooks as base for creating content, in case of States, state textbooks or NCERT textbook content in regional language can be considered as the scope for content creation.

(ii) Details of the SME and Scripting Process

Details of the SME and Scripting process: The attributes from 8-13 captures the details about the SME which are required for accreditation later. Attributes at point 12 and 13 would help in ensuring quality of the program, as no program should be recorded without the finalization and approval through script committee.

(iii) Details of the Recording

Attributes from 14-17 would help in keeping a track of the recorded program and taking a follow-up with the production team. Moreover, this would give us the data for the number of recordings done during a time frame (Attribute 15) to track the progress and efficiency.

(iv) Details of Post-Production and Finalization of a Program

Attributes from 18-28 records the details of the program at three stages after being recorded. First stage is the post production, attributes from 18,19,20,21 and 22 record the details of the editing process and the final program. The second stage is Reviewing, attributes from 23 to 26 are relevant for the data of the review process. The last stage, Modification, gets captured through the data of attributes from 27 to 29, during which the final errors in the programs are rectified as per the reviews and the program is ready for transmission and the final file name (29) and Google Drive link/ any Virtual Drive Link (30) of the Program is recorded for future reference.

(v) Dissemination of the Program

The final program needs to be shared for telecast and for upload on DIKSHA, so for coherence between the two modes of dissemination, attributes from 31 to 37 are essential.

4.2   Maintaining Scheduling Details of the recording(s)

As mentioned in Section 3.6.2.3, a recording schedule is prepared for the recordings. The final schedule should be shared with all the stakeholders in the process of production including the data management team. Attributes from 14-17 should be filled as soon as the schedule is approved. In case of cancellation of any scheduled recordings due to unforeseen circumstances, the information for the cancellation should be shared with all the stakeholders and subsequently information for the attributes from 14-17 should be updated.

4.3   Processing, Managing and Storing Final Video Files

4.3.1 Editing and Exporting Video Files

The content after being recorded undergoes post-production phase and is exported as a media file. After exporting producer/editors should keep a track of the raw footage of a program so that it can be retrieved at a later stage. At this stage utmost care needs to be taken in naming the media file, as this would be an important piece of information on the Metadata sheet and will be the only way to retrieve a program at a later stage. The following file naming convention should be followed to ensure that the file name encloses the essential details for the retrieval of the correct media file:

TN*_Class 12_GEO_BK01_TAM_CH01_EP01

(Initials of the State in Capitals_Class in numerals_SUBJECT initial three letters_Book Code_Initial three letters of the Medium in Capitals_CH shortform for Chapter number_Episode Number)

Similarly for a modified program file, the naming/coding convention should be as:

TN*_Class 12_GEO_BK01_TAM_CH01_EP01_MOD

(Initials of the State in Capitals_Class in numerals_SUBJECT initial three letters_Book Code_Initial three letters of the Medium in Capitals_CH shortform for Chapter number_Episode Number_MOD)
(Note: MOD only if the program is modified)

*(Refer Annexure 4.3 for State Codes)

As soon as the modified program is received, Attribute 21 (i.e the duration of the program), in the Metadata sheet {Table 4.1(c): Fields in Metadata Sheet} should be replaced with the new duration of the program.

Programs should be edited and exported following a sequence; so that the subsequent steps can be completed for a Unit in a coherent manner, disturbing the sequence at this stage would consequently affect the following processes like reviewing, modification, and DIKSHA mapping and can lead to the loss of program at one or more stages.

4.3.2 Storage of Final Media Files

Media files are sometimes very heavy given the parameters for broadcast, lack of enough storage space on physical drives (Hard Drive) could present as a major challenge in the long run. Therefore, first, the program file should be exported using the compatible encoder (Eg: Adobe Media Encoder) to reduce the size of the final program, also a Google Workspace (formerly GSuite) account may be purchased for the storage of content online, along with an offline copy of each program on a server/Hard Drive. Google Workspace is everything you need to get anything done at one place and the best way to create, communicate, and collaborate. It includes all the productivity apps to increase the efficiency of your tasks.

By using Google Drive for storage of produced content, we can achieve the following:

● Eliminates the issue of limited storage capacity of a physical drive.
● A copy of a program will always be available on the drive and can be accessed easily by the producers, class coordinators, or any other authority.
● Sharing of programs for internal and external review becomes more convenient.
● An additional backup helps eliminate the sole dependence on the physical servers.

☞ **Some points to consider while using Google Drive**

Google Drive provides an option to set different types of access permissions to any file. The screenshot of Google Drive is produced below for illustration, how a file stored in the drive can be shared among people or organisations.
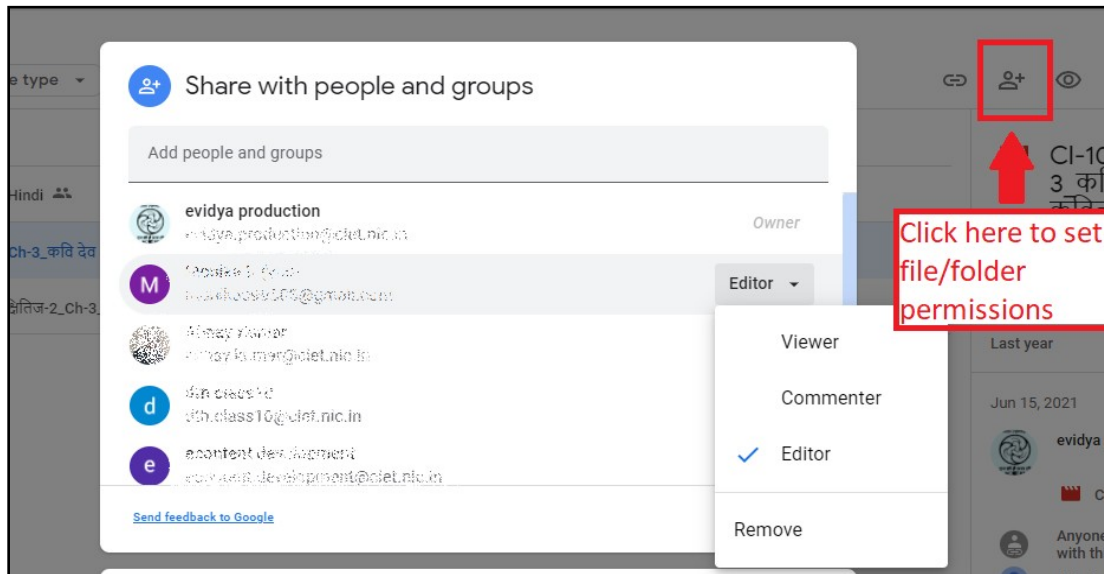
Figure 4.2: Screenshot of Google Drive for Folder/File Permissions

When a file/folder is shared, it can be shared with either of the 3 rights. The Editor will be able to make changes to the file/folder, rename, move, modify it and can also delete it, therefore editing rights should be given with utmost care. The Commenter will only be able to comment on the file/folder. The Viewer will be able to view and download the file/folder, make its copy but can't make any changes to file or the folder. You can set the default permissions (Figure 4.2) Viewer and later give advanced permissions to a limited number of people/organizations.
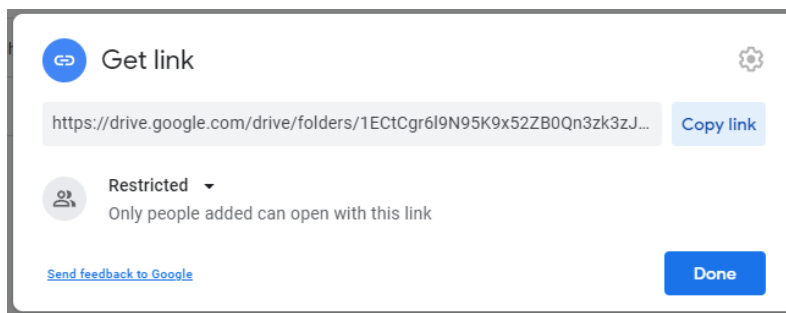
Further permission for the link should be modified as per the requirement, my default it would be restricted, but you can change it to "anyone with the link" can View/Edit/Comment.

There will be two kinds of storage for the Content Files:

   (a) Pre-Review   (b) Post-Review

4.3.2 (a) Pre-Review Storage

The first storage of media files will be created to process them for review. Date wise folders can be maintained on an HDD/Server as well as on Google Drive, where all the submission for the day can be collected. If media files are submitted offline, a google drive copy of it should be maintained. A date wise Video Information Sheet (Figure 4.3) should be created for all the submissions on a day, consequently attributes from 19 to 23 of the Metadata sheet should be filled and data available for attributes 1,2,3,4,5,6,7,8,10,14,15,16 and 17 should be re-checked for any error, in case of error in any of these, the media file should be rejected and sent for modification.

S.No.	Class	Video File Name	Book Name	Chapter No.	Chapter Name	Title/ Topic - Covered	Duration (MM : SS)	Language	File Drive Link
1	10	Cl-10_क्षितिज-2_Ch-1_कवि सूरदास और उनके पद.mp4	क्षितिज-2	1	सूरदास: औधो तुम हौ अति बाड़भागी; मन की मन ही माँझ रही; हमारैं हरि हारिल की लकरी; हरि हैं राजनीति पढ़ि आए	कवि और कविता : कवि सूरदास और उनके पद	0:29:09	Hindi	https://drive.google.com/file/d/1BctcSjw7ZgR3eWxQwA_dkA0ViCJKxGPw/view?usp=sharing
2	10	Cl-10_क्षितिज-2_Ch-2_तुलसीदास और उनकी कविता- राम-लक्ष्मण परशुराम संवाद.mp4	क्षितिज-2	2	तुलसीदास:राम-लक्ष्मण परशुराम संवाद	कवि और कविता : तुलसीदास और उनकी कविता- राम-लक्ष्मण परशुराम संवाद	0:27:35	Hindi	https://drive.google.com/file/d/14VVhGL2NptDE0FqNcl7dozY_BIDgmClv/view?usp=sharing
3	10	Cl-10_क्षितिज-2_Ch-3_कवि देव और उनकी कविताएं.mp4	क्षितिज-2	3	देव: पाँयनि नूपुर; डार द्रुम पलना ; फटिक सिलानी	कवि और कविता : कवि देव और उनकी कविताएँ	0:28:51	Hindi	https://drive.google.com/file/d/113J-2jFL41llpW3w_SbN6kepKliP_w5L/view?usp=sharing

Figure 4.3 Screenshot of Video Information Sheet (VIS) for Review

As Review is done by a subject expert therefore VIS entries need to be separated Class Wise and Subject wise so that segregated files can be shared with the Reviewers. As the programs are processed for review, attribute 22 can be filled on the Metadata sheet.

For Review a list of Experts should always be prepared, so that enough number of Expert resource persons are available for each subject and grade level, so that they can give quality remarks on content and pedagogy. A separate sheet similar to Metadata should be maintained {Figure 4.4 (a) & 4.4 (b)} for the Review report process as the identity of thereviewers need to be kept confidential for keeping the review process unbiased and objective.

A	B	C	D	E	F	G	H	I	J
S.No	Class	Link of the Program	Subject	Textbook	Chapter no.	Chapter Name	Title of the Video	Medium	Name of Organisation
1	Class 1	https://drive.google.com	Mathematics	गणित का जादू भाग - 1	1	Chapter 1- आकृतियाँ और	आकृतियाँ और स्थान	Hindi	CIET
2	Class 1	https://drive.google.com	Mathematics	गणित का जादू भाग - 1	1	Chapter 1- आकृतियाँ और	आकृतियाँ और स्थान	Hindi	Rotary

Figure 4.4 (a): Screenshot of Sheet for Review Process (continued.)

K	L	M	N	O	P	Q	R	S	T	U
Subject Matter Expert	Episode No.	Episode Duration	Name of the Producer	Received for Review On	Name of the Reviewer	Designation of Reviewer	Organization of the Review	Review report received date	Status of Review	Linnk of the Review Report
Qwerty	1	0:16:43	Poius	25/2/2022	Abcd	PRT	XYZ Institute	Not Yet Received		
Asdfgh	1	0:27:46	Loiuse	21/2/2022	Defg	PRT	ABC Institute	25/2/2022	Recommended	https://drive.google.c

Figure 4.4(b): Screenshot of Sheet for Review Process (continued.)

When the review process gets completed the Review Report of the program is generated by the reviewer and shared with the Organization ID. A folder should be maintained where all the review reports of all the classes need to be saved, for better organization, these folders should be Class wise and Subject wise and report should always be named in the following format:

20200827_Geography_CIET _ Review_Report_Class_1

YYYYMMDD(Date when Program/s were reviewed)_Subject_Short form of the Name of the Organization_Review_Report_Class_1

This folder can be created and maintained on Google Drive for easily sharing the reports with the channel coordinator, faculty members, producers and other stakeholders for further action.

There can be three outcomes of the Review process:

✓**Recommended**

This implies that the program passes the review criteria and isappropriate for dissemination. In this case the Media file can be copied/moved from the Pre-Review Storage {4.3.2 (a)} and moved to the Post-Review Storage {4.3.2 (b)}.

✘Not Recommended:

This implies that the program was not at par with the review criteria and therefore needs to be re-recorded. These files will remain in the Pre-Review Storage, and can be deleted at a later stage.

✍Recommended with Modification: This implies that the program failed to meet the quality criteria it was reviewed for therefore needs modification before dissemination. These files will be modified and resubmitted in the Pre-Review Storage with the modified file name, indicating revision in the original program.

The review details of each program need to be updated in the Metadata sheet i.e., attributes 24,25 and 26.

4.3.2 (b) Post-Review Storage

This is the second storage that will be created to organize the final program (Recommended and Modified Programs) in a Class Wise, Subject Wise, Textbook-wise, Unit-wise and Chapter-wise manner. This storage can be used to share the produced programs with other organizations for future use. Such backup created on Google Drive would make sharing convenient with CIET, NCERT (the Nodal Agency for PM eVIDYA 200 DTH TV Channels) or state organizations responsible for transmission or any other organisations requiring support of eContent in their school education system.

As stated earlier, recommended programs can directly be copied or moved from the Pre-Review Storage to the Post-Review Storage, attribute 27 and 28 do not apply to these programs but for the Modified programs submitted in the Pre-Review Storage when they are copied/moved to the Post-Review Storage, attribute 27 and 28 needs to be filled for the programs and hence the final link and file name of the modified program needs to be filled in attribute 29 and 30.

4.4 Sharing of eContent for Transmission and DIKSHA

The Post-Review Storage folder will be used to share final eContent with the channel coordinators to their respective channel email ids. Each channel should have a Gmail and Google Workspace Account for sharing and storage. Each time media files are moved from Pre-Review Storage to Post-Review Storage, the list of programs should be shared with the Channel Coordinators so that they can process the programs further for transmission and uploading.

Post-Review Storage will be shared with all the Channel email accounts with Viewing/Editing rights, so that they can create their own copies of the program, store them in their respective drives and rename them for the transmission in the Video Information Sheet (Refer Section 5.1).

For DIKSHA uploading, a spreadsheet tracker (Figure 4.5) should be maintained where the Channel coordinator will provide the metadata of the Videos in the following format and the Uploading, Mapping Team fill in the rest of the fields.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
	Mapped to Chapter	Book name	Class	Chapter No.	Chapter Name	Subject	Medium	Video URL	Video ID	Title Covered	Uploaded by	Status	Do_id	Organisation	Date	DIKSHA Link	Remarks
	☑	Yes	Marigold	1	A Happy Child	English	English	ea4dKJSrm(	A66	A Happy Child	Monira	Live	do_3 1307 6021 6513 7408 0110 311	Rotary	31/07/2020	https://diksha.gov.in/play/content/do_31307602 165137408 0110311	

Figure 4.5: Screenshot of Metadata Sheet to track eContent Uploading and Mapping on DIKSHA

4.5 Coherence of eContent on various Platforms

As stated earlier, PM eVIDYA provides multi-modal access to education but at the same time focuses on establishing coherence across the modes. Therefore, content should be accessible through DTH TV, Radio Broadcasting, and on DIKSHA, and switching from one mode to another should be made convenient for the learner, this is where QR codes are used. NCERT textbooks are energized with QR codes and for coherent access DTH video programs are also embedded with these QR codes. At the level of Data, utmost care should be taken in following the process in a sequence:

(i) QR Code Generation for each Chapter of the Textbooks in a Board-Database will have a class-wise list of textbooks and respective QR codes. It will be provided to the production team so that they always have the QR codes handy, to use them in all the programs being edited and produced.

(ii) Content created for each chapter is embedded with respective QR code-Metadata will capture the presence and functioning of the QR code in an edited program.

(iii) QR embedded content goes for broadcast and on DIKSHA. The coherence between the two platforms makes it easier for the learners to Scan the QR code of a program on TV with Diksha App QR code scanner and access the content on DIKSHA app at their convenience.

5. Transmission of eContents on DTH TV

5.0 Transmission of eContents on DTH Television

The process of transmission of eContents on DTH television is primarily a technical process undertaken by Bhaskaracharya National Institute for Space Applications and Geo-informatics (BISAG-N), Gandhinagar. However, there are some prerequisite processes required to facilitate the transmission.

It is important to remember that nothing except academic, skill-based, vocational, teacher training related content will be transmitted on these TV channels. Transmission of any other types of content including advertisement of any kind is strictly prohibited.

The placement of logo should be appropriate and as per the BISAG parameters. In the case channels managed by states/UTs, the logo should be designed and supplied by themselves to BISAG for placement before transmission. States/UTs can collaborate for their logo with CIET-NCERT and BISAG.

5.1 Creation of Video Information Sheet (VIS)

The first step is the creation of a Video Information Sheet (VIS). This format is required in order to ease the understanding and functioning of those involved. Therefore, a VIS is created with all the important details of the video. This includes, video name, subject, course name, title of the video, duration, institution that has created the video, date of uploading, DIKSHA link, target user, language and video folder where the video has been shared.

The VIS is shared in Google Drive. Some of the details of videos are shared by the institution whereas, others are shared by BISAG after cross-checking the transmission standards of the video (technical specifications as given in the section on production). The following format has to be filled up by the institution and shared with BISAG for their input.

To be filled by the Institution												To be filled by BISAG-N						
Sr. No.	Video (File) Name	Links	Subject	Course Name	Title / Topic	Duration (HH:MM:SS)	Affiliation/Institute of Presenter	Upload date	DIKSHA Links	Target User	Language	Video Folder	Video File Size	Bit Rate	Upload Status	Video ID	Download Status	Received Through	Verification Status

Table 5.1 Schematic Order of Data in VIS

5.2 Management of Video Metadata in VIS

The second step is the management of the created VIS. VIS is to be maintained and managed on a regular basis with the addition of new videos and their respective details. The metadata to be filled in the VIS is already generated and shared along with the video files from the source. The details pertaining to the metadata is described in chapter 4 of this document.

5.3 Creation of Transmission Folder

The videos for which details have been given in the VIS need to be shared with the BISAG. These are done with the help of creating folders in the Google drive and putting the videos in these folders so that the videos can be accessed by more than one person.

5.4 Storage and Linking of Videos in Transmission Folder

In order to store and share a video file in the Transmission Folder, a copy of the video from the source destination is to be made and moved to the Transmission Folder as destination. Each moved video file is given a file name (or code) as per the name (or code) given in the VIS. For each of the moved file, a fresh link is to be generated and pasted along the Video ID (to avoid using unnecessary column for this). Similar to that of VIS, each class will have a separate transmission folder.

The sharing rights of these videos is given to all the concerned. Links of each video are given in the VIS in the respective row. Transmission folders will get updated on a regular basis as and when new videos are to be added in VIS.

5.5 Preparation of Weekly Time Table for 1/2/3/4/6/8/12 Hours

After the VIS is created and respective videos have been shared in the transmission folder, schedule needs to be prepared. A time-table like the school time-table is prepared with a mix of curriculum-based and co-curricular videos for a specific time duration such as, 1/2/3/4/6/8/12 hours of fresh slot so that it can be repeated 24/12/7/6/4/3/2 times to make a full day telecast. While preparing a weekly schedule care is taken to include following points:

☞ All the subjects are covered in a week

☞ Each subject is followed by a co-curricular video

☞ The time-table starts with a montage/introductory video and an invocation song

☞ The schedule ends with an invocation/patriotic song

☞ ISL/Vocational education videos are scheduled after the curricular videos

A sample of the weekly schedule is given below for reference.

Figure 5.1 Sample Weekly Transmission Schedule

5.6 Preparation of Monthly Telecast Schedule

Based on the sample of the weekly schedule, a schedule for the whole month is prepared for each class separately depending upon the number of subjects covered and the number of chapters in each subject. The schedule is shared in the form of Google sheet and in the same one as that of VIS. Since the sharing rights are already given to all the concerned, the schedule is shared with all the concerned mainly with the BISAG. The schedule includes details like, date, day, video name (or code), subject, title, duration, etc. The format of a monthly schedule for each class is given below:

Date	Day	Video (File) Name	Subject	Title/Topic	Duration (HH:MM: SS)	Organisation	Medium

Table 5.2 Format of Details for Monthly Schedule

Apart from the monthly schedule a schedule sheet can also be prepared in a separate sheet with year, month, day (no.), week, serial no. of the video and video name. The format of schedule sheet is given below:

Year	Month	Day (No.)	Week	Serial No. of Video	Video FileName or Code

Table 5.3 Format of Schedule Sheet for Monthly Schedule

As mentioned earlier, all the sheets and folders related to transmission of videos are shared with the BISAG. The BISAG picks up the videos of the scheduled date as per the schedule and telecasts. The five broad stages of transmission of eContents of DTV Tv can be summarized as below:

Stages of Transmission of eContents of DTH TV

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Creation of VIS	Management of Video Metadata in VIS	Creation of Transmission folder, storage & linking of videos	Preparation of Weekly time-table	Preparation of Weekly time-table
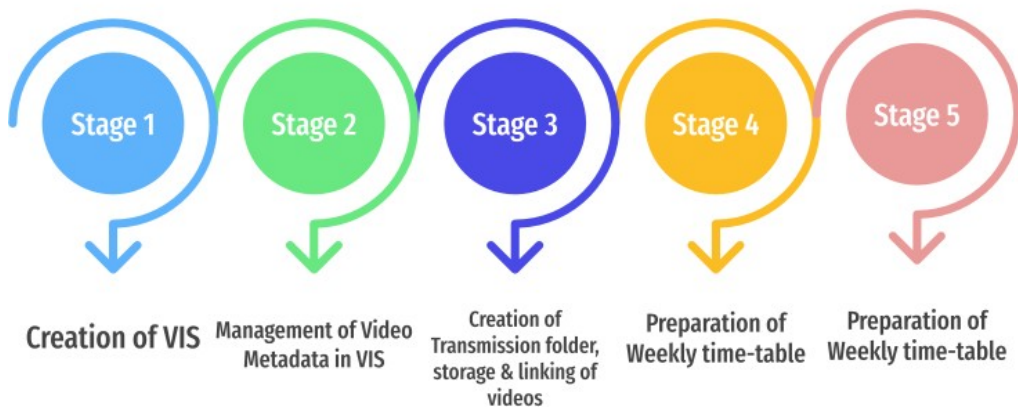
6. Advocacy and Support System

6.0 Advocacy and Support

Advocacy is an activity by the individual or organization to publicize/spread awareness of their work across all the stakeholders. So, the major responsibility of both is to take action so the outreach of the programme can be extended to every child of the nation. This activity will create more change and get collaborative support/partnership from others too. Advocacy will also help to identify the impact and needs of the stakeholders for improvement in the initiative. Similarly, support is also a necessary activity that needs to be maintained to help/facilitate the end users of our services.

6.1 Channels of Advocacy and Support

Advocacy and Support can be rendered through the following channels/ways:

(i) Use of Social Media Platforms

Nowadays the most prominent means of advocacy is through social media. Banners and Promotional Videos for advocacy can be posted on official pages of Facebook, Twitter, Instagram and Telegram groups.

(ii) Use of Mass Media Platforms

Advertisements in newspapers, Promotional Audios and Videos can be telecast and broadcast on Television and Radio Channels respectively. Inter-channel promotion can be done through videos/audios.

(iii) Use of Public Speaking Platforms

Awareness can be given at the webinars, conferences, interviews

(iv) Organization of Competitions

e-Contents Competitions for students and teachers can be organized at State/District level.

(v) Research

Short term research can be conducted for studying the impact of the channels and educational content delivered and the results can be documented in the form of research.

(vi) Campaigning in Schools

Invited lectures/ competitions can be organized in the schools for advocacy.

(vii) IVR System and Chatbot Services

Interactive Voice Response System (IVRS) and Chatbot can be activated in the organization and can be used for advocacy/support.

(viii) Creation of Web Portal

NCERT has already created the web portal DIKSHA where all the educational content like Textbooks, Videos, Audios, practice questions in different languages and as per curricula of NCERT, CBSE and SCERTs has been uploaded on a regular basis. The uploading on the DIKSHA website is the responsibility of the state (as discussed in section 3).
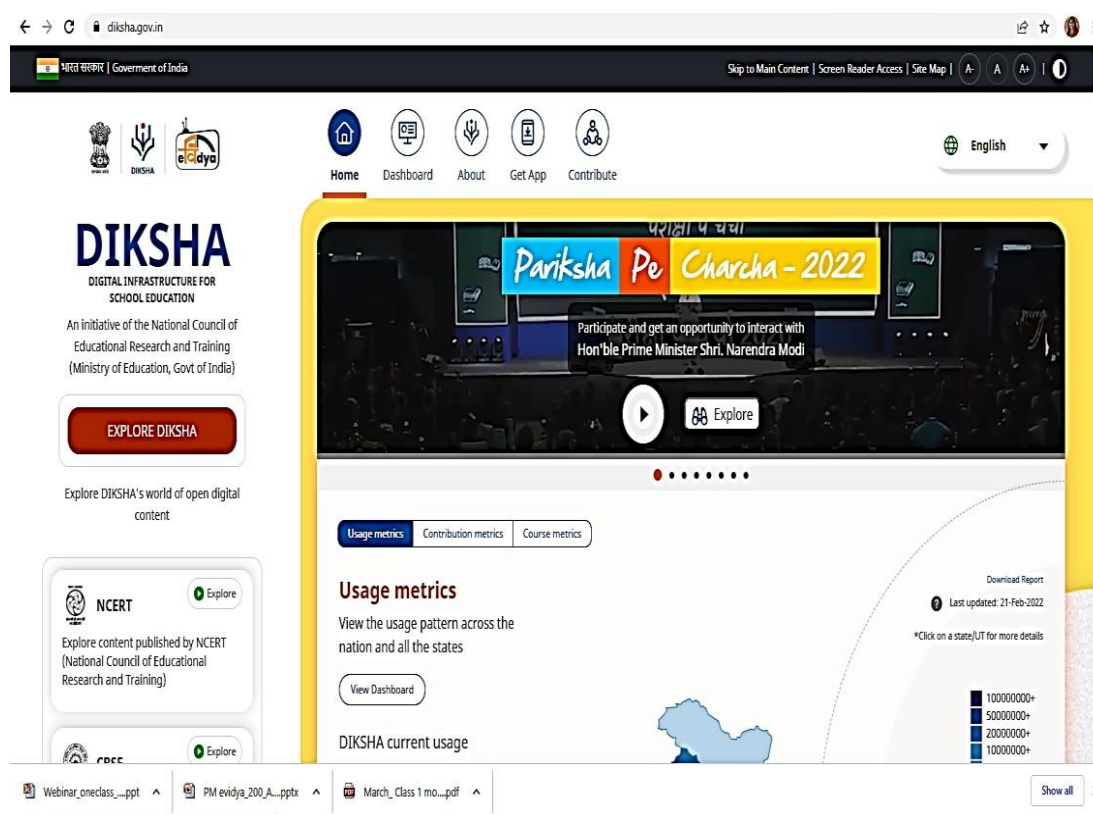
Figure 6.1 A Screenshot of DIKSHA Web Portal

A web page having the information of the channels can be created and embedded into an already existing website or a separate web portal can also be created for the dissemination of information. The page must contain the information regarding the Monthly Transmission Schedules of the particular channel allotted so that students can access and see the transmission timings. All the updates regarding the live shows and others must be updated on a regular basis on the website.

Transmission schedule is also shared on Swayam Prabha website by INFLIBNET: https://www.swayamprabha.gov.in/index.php/schooledu. So, the data has to be shared with them also.

Dissemination of content can also be done through the State YouTube channels. The content must be organized class-wise or channel-wise.

(ix) Development of Mobile App

Similar to the DIKSHA web portal mobile app named 'DIKSHA' was already created by NCERT and the educational content is available on it. State can create a mobile app of its own and disseminate the telecast content through it.

(x) Collaboration with different Stakeholders

State can collaborate with other established educational organizations for creation, curation, sharing, and reviewing of the content for TV Channels.

1. **State Institute of Educational Technology (SIETs):** There are 5 State Institute of Educational Technology (SIETs) in India i.e., Andhra Pradesh, Gujarat, Kerala, Telangana and Uttar Pradesh work as an autonomous organization to provide educational support to the states by creating various educational programmes in regional languages. These organizations have been creating a lot of e-content in their respective states for the past many years. So particular states can use their created e-content for telecasts. States can also collaborate with them for the advocacy of the channels as they are already established organizations.

2. **State Council Educational Research and Training (SCERTs)-** Every state has its own SCERT and some of them have established infrastructure for creating e-content. The already created content can be used for telecast purposes.

3. **Private Companies/NGOs:** The state can collaborate with the Ed Tech companies/NGOs who are creating the quality e-content by applying the stringent review mechanism and use them for telecast purposes.

4. **Teacher Educations/Trainee Teachers/Parents**: Individuals can also contribute the content for the channels. The state has a responsibility to adhere to the norms of quality content creation and the steps suggested in the earlier sections of SOP for this whole process of curation. The teachers can support the response of Subject Specific queries received during feedback and review mechanisms of prepared video content.

5. **Media Institutions:** The content development can be initiated with the support of the media organizations/Universities/colleges in the state. State can use the resources/setup of the organization for creating e-content.

6. **State Educational TV Channels:** Collaboration for the e-content can be done through the running educational TV Channels in the state like Vande Gujarat has been running in the state for the past many years.

7. **Local Cable Operators:** State can collaborate with Local cable operators for running of PM eVIDYA channels.

8. **Local Industries:** For creating the programmes on skill development, the state can collaborate with the various industries for developing the skill-based programmes. These programmes will provide the opportunity to learners for the employability skills in the state.

7. Feedback Mechanism and Support System

7.0 Feedback Mechanism/Support

For any successful implementation of a programme step of feedback plays a very important role. Any process will not be completed without the feedback mechanism. Feedback provides the opportunity to the owner to evaluate the practices done and those practices can be improved. Feedback helps the owner to learn from the mistakes and thus works on the improvement. Besides this positive feedback encourages the owner and the team. Feedback should be a spontaneous and regular mechanism in every project. So, to maintain an appropriate feedback mechanism through which the stakeholders can reach the owners is necessary. There can be many ways for receiving the feedback through the channel viewers:

7.1 Email-based Feedback and Support System

Feedback can be received through a dedicated email IDs (email ID dedicated for each channel provided by Google suite account) of particular class/channels and that must be displayed on the channels. The emails should be responded to by the concerned channel coordinators on a daily basis. A record of these emails has to be tracked and on the basis of this a report can be compiled.

Figure 7.1 Screenshot of the Track Record of Email-based Feedback

7.2 Interactive Voice Response System (IVRS)

It is a feedback mechanism through a phone system that interacts with callers and gathers information by giving them choices via a menu. It then performs actions based on the answers of the caller through the telephone keypad or their voice response. The choices of the caller decide the actions of the IVRS — it can provide information or, if the issue is more complex, route callers to a human agent who can better handle their needs. CIET, NCERT has a dedicated IVR System from the past 11 months for receiving the feedback by the viewers.

The steps to initiate the IVR System are:

☞ Set up/Installation of IVR System through a third-party organization and a dedicated Toll-Free Number (which must be displayed in the channels). Set up of the system must be done internally like setting up the landline phones/mobile phones for the team who will be responding to the queries.

☞ Writing of a Script for the menu of IVR on the basis of the target audience or the data which the state will further require for data analysis. Translation of that script in the regional languages as per the requirement. (Sample Script Attached in Annexure 7.1)

☞ Implementation of the Script on the IVRS and testing the script for finalization.

☞ Preparation of the Frequently Asked Questions (FAQs) and shared with the internal IVRS team. Orientation of the team for better addressing of the queries.

☞ Management of the queries received and tracking all the queries on a regular basis.

Figure 7.2 Screenshot of the Track Record of IVRS Feedback

The Track Record sheet helps to:

☞ Compile a report of the queries and necessary action to be taken for that on a regular basis.

☞ Record Appreciating feedback which can be used for advocacy also.

In IVRS based Feedback system, voice calls can also be activated for non-working hours and the queries must be addressed.

7.3 Creation of AI based Chatbot

AI based technology using the WhatsApp business account or any other chat bot services can be initiated. Though this auto generated response mechanism can be implemented. This will help to provide instant solutions for the majority of the feedback.

7.4 Instant Messaging Apps

Telegram Groups at State/Block level can be created for resolving the queries of teachers and students. Especially the Subject Specific Queries received from the students can be catered. State can also ask the students for sending queries through text, videos and audio messages for more clarity and later this can be showcased as testimonials on TV or web portals.

8. Roles and Responsibilities

8.0 Organisational Collaboration

PM eVIDYA DTH TV Channels programme is a PAB project undertaken by Central Institute of Educational Technology (CIET), a constituent unit of National Council of Educational Research and Training (NCERT) and sponsored by the DoSEL (Department of School Education and Literacy), MoE (Ministry of Ministry of Education), Government of India.

PM eVIDYA DTH TV Channels is a collaborative project with two major agencies: CIET-NCERT, New Delhi (under the aegis of Ministry of Education, Government of India) and BISAG-N, Gandhinagar (under the aegis of MeitY, Government of India). CIET-NCERT undertakes the academic tasks e.g., development and management of the eContents for telecast while BISAG-N technically facilitates the telecast. Thus, PM eVIDYA DTH TV Channels' operation involves two agencies at national level.

8.1 Roles of the Organisations/Agencies

(i) **National Coordinating Agency (NCA):** Headed by Joint Director, CIET, NCERT, New Delhi, and the overall supervision of the channels will be done by him. He has a responsibility to form an Academic Advisory Committee (AAC) which will be composed of experts in the field of DTH and would suggest the overall management and operations of the project. AAC will meet once a quarter to review the quality of the content on the channels based on the feedback from the stakeholders/end users, and would give further directions to the Nodal Officers and others involved.

(ii) **National Technical Agency:** BISAG will be responsible for the up linking of the channels and maintenance of all equipment that is procured and installed by ECIL. BISAG will maintain a dedicated facility for this purpose with required equipment to run this on a 24X7 basis.

8.2 National Level Functionaries

(i) **In-Charge PM eVIDYA Cell:** He/she will be overall coordinating all the 212 PM eVIDYA channels. His/her prime responsibility is to provide the orientation to the State Nodal Officers for the initiation of channels and smooth functioning of the channels allocated. To receive funds for content preparation, release the same to the subject matter experts (SMEs) and render accounts/utilization certificates to the State Nodal Officers.

(ii) Technical Coordinator: He/she will be a person from CIET and will supervise the up-linking arrangements from the Bhaskaracharya Institute of Space Applications and Geo-Informatics, (BISAG-N), MeitY. He/she will orient the states regarding the technical facilities required and the setup of the studios for the content development. They must also take care of the server space for the data management of the content for longer use. Maintaining a dedicated 'teaching end' or satellite enabled studio for preparing the content.

PM eVIDYA Cell is consist of Channel Coordinators, Channel Co-coordinators, and Academic Coordinators in addition to the In-Charge PM eVIDYA Cell.

(iii) Channel Coordinator: For each Channel, there shall be a Channel Coordinator (CC). The CC shall be responsible for the following:

☞ Identifying the SMEs for the content creation and allocating topics to expert teachers and getting the video content prepared, reviewed and approved by committees. Finalizing the pedagogy/methodology for development of and dissemination of the lessons on the channel.

☞ Regular coordination with the production coordinator for the content development

☞ Regular coordination with the Academic coordinator and Project staff for the content finalization and review process.

☞ Coordination with BISAG for the smooth telecast of the content. Finalizing the programme to telecast for the next 30 days, duly dividing it date and topic wise; and notifying the same by publishing on the Channel web portal. To keep 120 hours of fresh video content ready for telecast at any point of time.

☞ To ensure that the video content is of the highest standards; and is recorded in HD, as per a schedule and stored in MPEG4 format. The content shall be shared with BISAG in time for processing and up linking as per the schedule.

☞ Orienting the State Channel coordinators for the whole process of channel coordination.

☞ To improve the quality of content on the basis of feedback received from the viewers.

☞ To conduct small scale research at the national level on various aspects of the channels like the outreach study, impact study of channels, the quality of the video programmes created, etc.

☞ To work for the advocacy of the channels so that the outreach can be expanded.

☞To resolve the queries of viewers received through Emails/IVRS.

(iv) **Channel Co-Coordinator:**Channel Co-Coordinator will also work with the close consonance of the Channel Coordinators for smooth running of the channels.

(v) **Academic Coordinators:** Their role is to manage the complete review mechanism process of the content received from the data team. They have to coordinate with the SMEs and share the reports with the concerned channel coordinators and the production Coordinator.

(vi) **Technical Consultant:** The person will be responsible for the website /webpage creation, Uploading and managing all the content created on DIKSHA web portal, coordinating with the SWAYAM Prabha team for the technical requirements, updating the websites on regular basis, creation of Mobile app if required, etc. He/she will also have to orient the State technical consultants for the tasks.

(vii) **Production Consultant:** The person for the whole production management is the Video Producer. He / She has to take care of the whole production mechanism starting from the Script evaluation till the final content after the review mechanism. The production team involving various personnel will be headed by him/her. The roles of all the production personnel will be assigned and evaluated by him/her. His task will be the orientation to the state production team for the technical and production set up also.

8.3 State Level Functionaries

(i) **State Nodal Officer (SNO):** There will be one State Nodal officer in each state who shall be overall in-charge for producing quality content for the channel(s). He/she will also be responsible for the smooth functioning of channels. To receive funds for content preparation, release the same to the subject matter experts (SMEs) and render accounts/utilization certificates to the National Nodal Officer. He/she will submit the final programmes for telecast toin-charge PM eVIDYA cell along with the certificate (as mentioned in Section 3). They would appoint the State Channel Coordinators working under their jurisdiction on an honorary basis. It is their responsibility to ensure that content being aired is of the comparable

standards and already prescribed under the project. The SNO is also responsible for creation, curation, transcription and translation of content into regional/local languages. Efforts shall be made to transcribe videos to enable translation of all text and then dub the voice; in as many state/local languages as possible. For this purpose, the services of *Bharatvani*, Central Institute of Indian Languages (CIIL) & other institutions in the state/UTcan be used.

(ii) **State Technical Coordinator:** They will work with the National Technical Coordinator for supervising the up-linking arrangements from the Bhaskaracharya Institute of Space Applications and Geo-Informatics, (BISAG-N), MeitY.

(iii) **State Channel Coordinator:** The State/UTs will designate the Channel Coordinators for each channel. The State Channel Coordinator shall be responsible for the following:

☞ Identifying the SMEs for the content creation and allocating topics to expert teachers and getting the video content prepared, reviewed and approved by committees. Finalizing the pedagogy/methodology for development of and dissemination of the lessons on the channel.

☞ Regular coordination with the production coordinator for the content development

☞ Regular coordination with the Academic coordinator and Project staff for the content finalization and review process.

☞ Coordination with BISAG for the smooth telecast of the content. Finalizing the programme to telecast for the next 30 days, duly dividing it date and topic wise; and notifying the same by publishing on the Channel web portal. To keep 120 hours of fresh video content ready for telecast at any point of time.

☞ To ensure that the video content is of the highest standards; and is recorded in HD, as per a schedule and stored in MPEG4 format. The content shall be shared with BISAG in time for processing and up linking as per the schedule.

☞ Sharing of all the content created and telecast with the National Channel Coordinators.

☞ To improve the quality of content on the basis of feedback received from the viewers.

☞ To conduct small scale research at the national level on various aspects of the channels like the outreach study, impact study of channels, the quality of the video programmes created, etc.

☞ To work for the advocacy of the channels so that the outreach can be expanded.

☞ To resolve the queries of viewers received through Emails/IVRS.

(iv) **State Channel Co-Coordinators:** They will also work with the close consonance of the State Channel Coordinators for smooth running of the channels.

(v) **State Technical Consultant:** The person will be responsible for the website /webpage creation, Uploading and managing all the content created on DIKSHA webportal, coordinating with the SWAYAM Prabha team for the technical requirements, updating the websites on regular basis, Creation of Mobile app if required, etc.

(vi) **State Production Consultant:** His/her role will be to lead the production team at the state level and also to coordinate with the national production coordinators for the production report.

8.4 Other Personnel

1. **Academic Coordinators/Subject Matter Experts (SME):**

   The Channel Coordinator either at the National/State level shall identify as many Subject Matter Experts (SMEs) as needed keeping in view the requirements of programme production and telecast. SMEs transact the teaching learning process on the DTH-TV. The SMEs shall not only be expert teachers with experience and reputation, but shall have excellent communication abilities and screen presence. The Channel Coordinator allocates topics to the SME and would fix the date for telecast. The selected SME has to record his/her lecture at least 15 days prior to the date for transmission.On intimation of the topic and the date for the telecast, The SMEs shall take the following steps:

   - Prepare lesson plan/script for the topic assigned to them, along with the exhibits, models, slides, multimedia required for teaching the concepts scientifically and pedagogically. They must follow some instruction design model as suggested in Previous section of content development.

- The lesson plan/script and pedagogy shall be examined by a Script Evaluation Committee and approved along with suitable modifications.

- Based on the approved lesson plan/script, the SME shall prepare for the lesson and finalize the schedule for recording of the lesson.

- SME should provide relevant images, storyboard, animations, graphics etc., before recording.

- Depending on the level of students, a teacher in camera may appear. It was suggested to appear only up to 25% of the time; and for the rest of the time, the timeline may carry teacher's voice on which graphics, animation, text etc. But for Activity based videos the ratio may vary.

- The performance before the Camera would require clear speech without the Teleprompter/Autocue.

- The video content shall be designed in a way that holds the attention of the viewers. It should contain Animation, Simulations, video demonstrations, Virtual Labs etc. apart from the video lecture, Copyright free images etc..

- The programmes should address the following pedagogic issues: appropriate level/class, language, interesting presentation and plurality of formats (drama, role play, demonstrations, field trips, puppet, cartoon character, docu-drama, feature, documentaries, magazine etc.), constructivists approaches.

- Besides the recording SME will also be involved in the Content review process after the creation of content. They must adhere to the guidelines for evaluation of content provided by the coordinators.

2. **Media Production Unit:** This unit plays a very important role for creating the video programme. They will be the force who will be involved from the Pre to Post production of the content development. The staff which will be involved for the video production and their roles are:

- **Video Producers:** They will be part of a script evaluation committee where they will provide the feedback regarding the feasibility of the script during recording. They will put their opinion regarding the other technical aspects and also understand the perspective of the video programme to be produced. The producer has a role for budgeting the video programmes they will behandling. They will take the budgetary approval for the productions. They will also place their technical requirement depending on the format of the programme to be recorded. They will take the auditions of the SME and

approve them for recording. Later they will coordinate with the SME for the recording dates as per studio availability. During the production phase the producers will instruct the whole team about the format of the programme and as per that recording will be done. They will guide the whole team for the recording.

- **Production Assistants:** They will be supporting the producers during the whole production process. Besides accompanying during the editing of videos, they will be involved in the Pre-Review storage process as discussed in Section 4 of the document.

- **Camerapersons/Photographers:** They will be handling the camera during the recordings. Their role is to take different shots at different angles during recordings. Their role is to click the photographs which is required for the video programmes.

- **Graphic Artists/Animation Artists:** They will be designing the story boards as per the script, designing the presentation shared by the SME, creating graphics and animation as per requirement of the script, creating the advocacy material like banners, posters.

- **Video Editors:** They will finalize all the videos after recording by inserting appropriate images/graphics/presentations provided by SMEs. They have to also follow the technical specifications required for the telecast of videos and the QR codes insertion. Re-editing of the programmes after the review reports.

- **Makeup Artist:** Every presenter or expert looks presentable on screen so the role of the person is to take care of dress and make up.

All the above-mentioned persons will be involved from the Pre-Production to the Post Production stage.

3. **Technical Personnel:** The team will be associated with the National and State Technical coordinators for the setup of Studios and the transmission process. They will be involved during the Recordings of the content. There must be personnel appointed for the studio recordings like Sound Engineers, lightmen, Studio setup, floor manager, etc.

4. **Project Staff:** They will be responsible for the data management of the final content received from the production team. Their prime responsibility

is to create metadata of the content, sharing the content for the review process to the experts, sharing the final recommended content to the channel Coordinators for transmission, sharing of final programmes to technical consultant for uploading on DIKSHA, as discussed in Post Review storage section 4.3.2 (b). Project staff can also be given the responsibility of IVRS feedback mechanism.

COMMITTEES
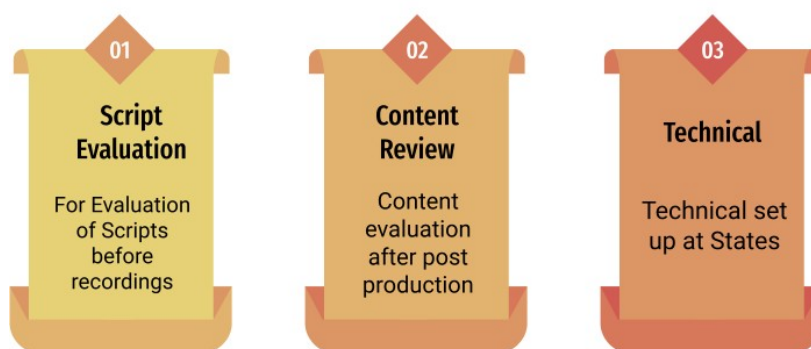
1. **Script Evaluation Committee:** This committee will be formed for evaluation of the lesson and the scripts received from SMEs. A script committee should have the following experts: Chairperson, Subject experts, Video Producer, Script writer and faculty from the similar subject area. Their role is to evaluate the script conceptually, format, presentation etc. and suggest the points if any to the script writers. Video producers should also review the script from the production point of view.

2. **Content Review Committee:** Each state must create an Expert review committee in which the experts of each subject/language must be listed. They will be helpful to coordinate the process of review. Their role is to review the video programs as per the evaluation tool shared in annexure and provide suggestions for modifications if any.

3. **Technical Committee:** This committee will be set up for the technical coordination among the states and BISAG. Also, this committee has a role for

the technical requirements of the video production stage. The entails are shared in annexure.

8.5 Work Flow in Different Tasks under PM eVIDYA

There are different kinds of tasks involved in PM eVIDYA 12 DTH TV Channels programme. These can be summarised under the headings of Content Creation, Content Curation and Content Dissemination consisting of different activities illustrated in the diagram below:

CONTENT CREATION
- Selection of Instructional Design
- Topic Identification
- Allocation of Topic to SMEs
- Script Writing and evaluation
- Production of content: Pre and Post
- Review of created content
- Content Translation

CONTENT CURATION
- Content Management
- Metadata creation
- Transmission Schedule
- Sharing content with BISAG
- Uploading and mapping of content on DIKSHA

CONTENT DISSEMINATION
- Telecast of content
- Feedback mechanism
- Live Interactive sessions
- Advocacy
- Research

Annexures

☞ **Refer Annexure # 3 for references in Chapter 3**

☞ **Refer Annexure # 4 for references in Chapter 4**

☞ **Refer Annexure # 5 for MoU between NCERT and BISAG**

☞ **Refer to Annexure # 6 for Suggestive List of Channel Allocation**

Additional Resources

1. **Guidelines for Development of eContent for School Education Version-3.0**

This document can be accessed/downloaded from CIET website from the following:

URL: https://ciet.nic.in/upload/GuidelinesforeContent3.pdf

2. **Guidelines for the Development of e-Content for Children with Disabilities**

This document can be accessed/downloaded from CIET website from the following:

URL: https://ciet.nic.in/upload/CWSN_E-Content_guidelines_2021_new.pdf

3. **PRAGYATA Guidelines for Digital Education**

This document can be accessed/downloaded from MoE website from the following:

URL: https://www.education.gov.in/en/pragyata-guidelines-digital-education

4. **Students' Learning Enhancement Guidelines**

This document can be accessed/downloaded from MoE website from the following:

URL: https://www.education.gov.in/en/students-learning-enhancement-guidelines

Annexure 3.1

Subject Codes

Subject	Code
Accountancy	ACC
Biology	BIO
Business Studies	BST
Chemistry	CHM
Economics	ECO
English	ENG
Environmental Studies	EVS
Geography	GEO
Hindi	HIN
History	HIS
Mathematics	MAT
Physics	PHY
Political Science	POL
Psychology	PSY
Science	SCI
Social Science	SSC
Sociology	SOC
Physical Education	PED
Computer Science	CSC
Home Science	HSC
Sanskrit	SKT
Urdu	URD

Annexure 3.2

Sample Programme Script

Energized Video Production

Topic 01: Life Processes - Introduction

Class	**: 9th**	**Time duration**	**: 10-15 Minutes**
Subject	**: Science**	**Chapter**	**: 6 (Life Processes)**

Programme brief: The programme is about the introductory part of Digestion in Humans. The programme is a part of the energized video series in which the immersive 3 D graphic content will be used.

Objectives: The programme will be helpful for the learner:

1. To understand the difference about living and nonliving things
2. To understand the process of digestion

S. No.	VO (Voice Over)	Visual	Text
1	Dear learners, you must have seen various things around you, some are alive and some are not. How do we tell the difference between what is alive and what is not alive?	Anchor	
2	If we see a dog running, or a cow chewing cud, or a man singing on the street, we know that these are living beings because they are performing some activities. What if the dog or the cow or the man were asleep?	Dog running, Cow chewing, Man	
3	We would still think that they were alive, but how did we know that? Yes, we see them breathing, and we know that they are alive.	Anchor	
4	What about plants? How do we know that they are alive? Some of us will say, we see them green. But what about plants that have different coloured leaves? They grow over time, so we know that they are alive, some will say.	Plants with green leaves	

5	In other words, we tend to think of some sort of movement, either growth related or not, as common evidence for being alive. But a plant that is not visibly growing is still alive, and some animals can breathe without visible movement. So using visible movement as the defining characteristic of life is not enough.	Anchor	Text in 3D visual format
6	Movements over very small scales will be invisible to the naked eye – for example the movements of molecules. Is this invisible molecular movement necessary for life? If we ask this question to professional biologists, they will say yes. Why are molecular movements needed for life?	Anchor	
7	We have seen in earlier classes that living organisms are well organised structures; they can have tissues, tissues have cells, cells have smaller components in them, and so on.	Tissues, Cell, Cell components	AR cell video
8	Because of the effects of the environment, this organised, ordered nature of living structures is very likely to keep breaking down over time. If order breaks down, the organism will no longer be alive.	Anchor	Text in 3D visual format
9	So living creatures must keep repairing and maintaining their structures. Since all these structures are made up of molecules, they must move molecules around all the time. Did you know the maintenance processes in living organisms? So, let us explore.	Anchor	Text in 3D visual format

10	The maintenance functions of living organisms must go on even when we are not doing anything particular. Even when we are just sitting in the classroom, even if we are just asleep, this maintenance job has to go on. The processes which together perform this maintenance job are life processes.	Classroom, asleep,	
11	Since these maintenance processes are needed to prevent damage and break-down, energy is essentially required to carry out these maintenance processes. This energy comes from outside the body of the individual organism in the form of food. So there must be a process to transfer a source of energy from outside the body of the organism, which we call food, to the inside, a process we commonly call nutrition.	Anchor Food resources Transfer to body (animated)	Text in 3D visual format
12	If the body size of the organisms is to grow, additional raw material will also be needed from outside. Since life on earth depends on carbon-based molecules, most of these food sources are also carbon-based. Depending on the complexity of these carbon sources, different organisms can then use different kinds of nutritional processes.	Anchor Cardon based molecules in 3D	
13	The outside sources of energy could be quite varied, since the environment is not under the control of the individual organism. These sources of energy, therefore, need to be broken down or built up in the body, and must be finally converted to a uniform source of energy that can be used for the various molecular	Anchor molecules in 3D	

	movements needed for maintaining living structures, as well as to the kind of molecules the body needs to grow.		
14	For this, a series of chemical reactions in the body are necessary. Oxidising-reducing reactions are some of the most common chemical means to break-down molecules. For this, many organisms use oxygen sourced from outside the body. The process of acquiring oxygen from outside the body, and to use it in the process of break-down of food sources for cellular needs, is what we call respiration.	Anchor	Text in 3D visual format
15	In the case of a single-celled organism, no specific organs for taking in food, exchange of gases or removal of wastes may be needed because the entire surface of the organism is in contact with the environment. But what happens when the body size of the organism increases and the body design becomes more complex? In multi-cellular organisms, all the cells may not be in direct contact with the surrounding environment. Thus, simple diffusion will not meet the requirements of all the cells.	Single celled organisms structure Multicellular organisms videos	
16	We have studies in previous class how, in multi-cellular organisms, various body parts have specialised in the functions they perform. We are familiar with the idea of these specialised tissues, and with their organisation in the body of the organism.	Anchor Few bodies system images, one by one	
17	It is therefore not surprising that the uptake of food and of oxygen will also be the function of specialised	Anchor Combine structure of DS and RS.	

	tissues. However, this poses a problem, since the food and oxygen are now taken up at one place in the body of the organisms, while all parts of the body need them.		
18	This situation creates a need for a transportation system for carrying food and oxygen from one place to another in the body. When chemical reactions use the carbon source and the oxygen for energy generation, they create by-products that are not only useless for the cells of the body, but could even be harmful.	Anchor	
19	These waste by products are therefore needed to be removed from the body and discarded outside by a process called excretion. Again, if the basic rules for body design in multi-cellular organisms are followed, a specialised tissue for excretion will be developed, which means that the transportation system will need to transport waste away from cells to this excretory tissue.	Anchor	
20	So, my dear learners, different systems in our body works together while performing different specialised functions. The food that we take from outside is processed in our body, the bi product produced are removed from the body in a very systematically manner. In the coming episodes, we will discuss the various systems of our body and the specialised process they carried out. Thanks!	Anchor	

Storyboard Sample – Structure of Nephron

Title of the Program: Structure of Nephron

Class: 10th

Subject: Science (Biology)

Chapter: 6

Name of the SME: Dr. Yash Paul Sharma
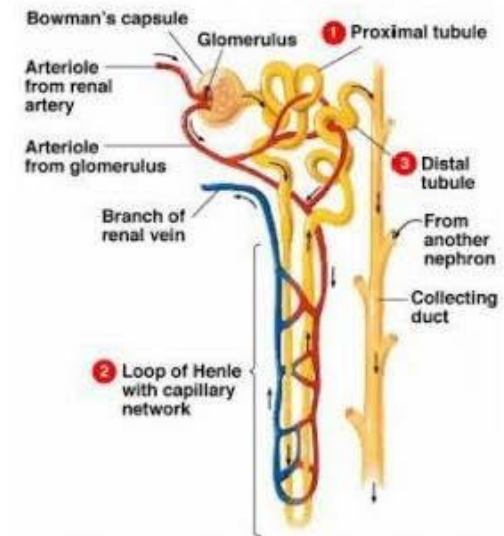
Content (Voice Over)	Visuals

Learning objective

1. Let us learn about the structure and function of a nephron.

Nephron

2. A nephron is a basic structural and functional unit of a kidney. Each kidney has a large number of nephrons packed close together.
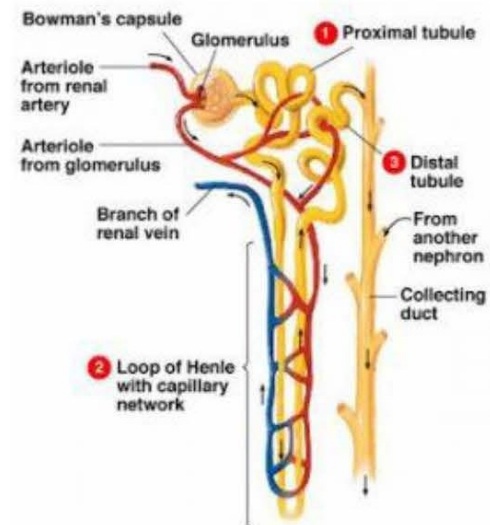
Structure
3. A nephron consists of a tubule that is connected with a collecting duct at one end and a cup-shaped structure (Bowman's capsule) at the other end.
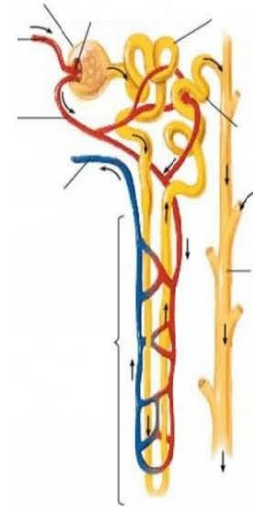
Content (Voice Over)	Visuals

Bowman's capsule

4. Bowman's capsule is a double-walled cup. There is a group of blood capillaries called 'Glomerulus' in the cavity of the Bowman's capsule. The glomerulus is a site of filtration.
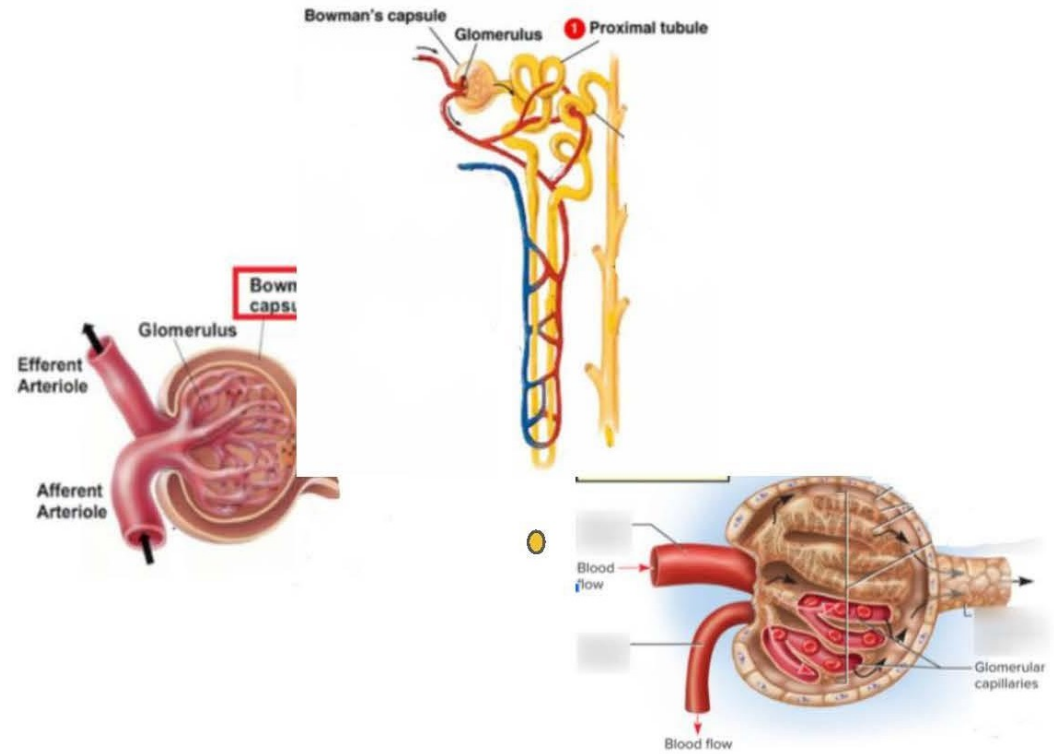
Content (Voice Over)	Visuals

Proximal tubule
5. It is a proximal part of tubules next to Bowman's capsule. It is lined with microvilli.
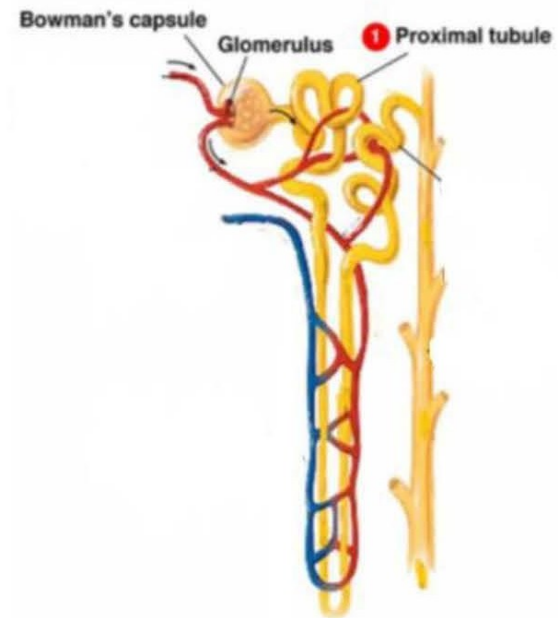
Content (Voice Over)	Visuals

Loop of Henle

6. The loop of Henle (selectively permeable loop) is U-shaped and it is a middle portion of tubules. It is composed of ascending and descending loops.

7. The ascending loop is thick-walled and impermeable to water while the descending loop is thin-walled and permeable to water.

Bowman's capsule
Glomerulus
1 Proximal tubule
2 Loop of Henle with capillary network
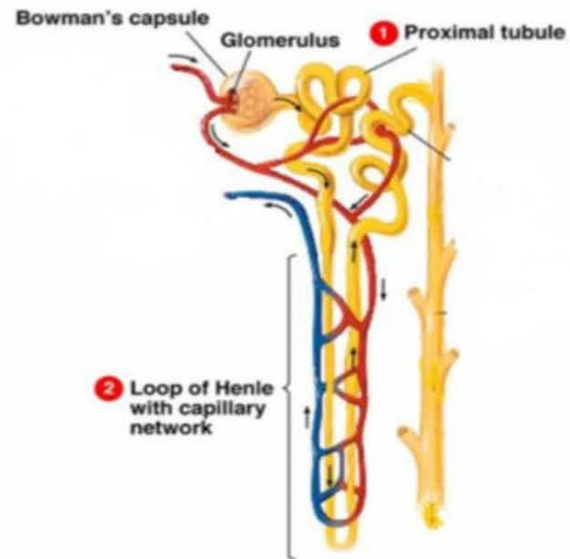
Content (Voice Over)	Visuals

Distal tubule

8. It is the distal part of tubules. It is folded structure connected to the loop of Henle and leads to collecting duct.
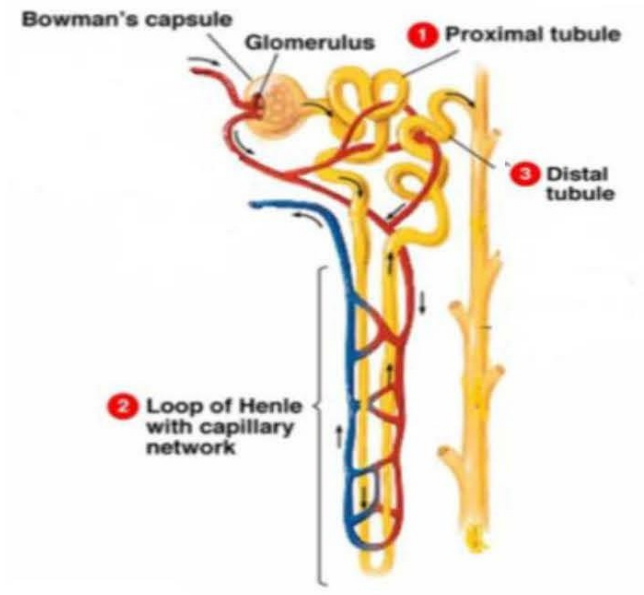
Content (Voice Over)	Visuals

Collecting duct

9. Each nephron connects to a collecting duct (via the distal convoluted tubule), which feeds into the renal pelvis.

10. The collecting ducts are shared by nephrons and hence are not technically considered to be part of a single nephron.
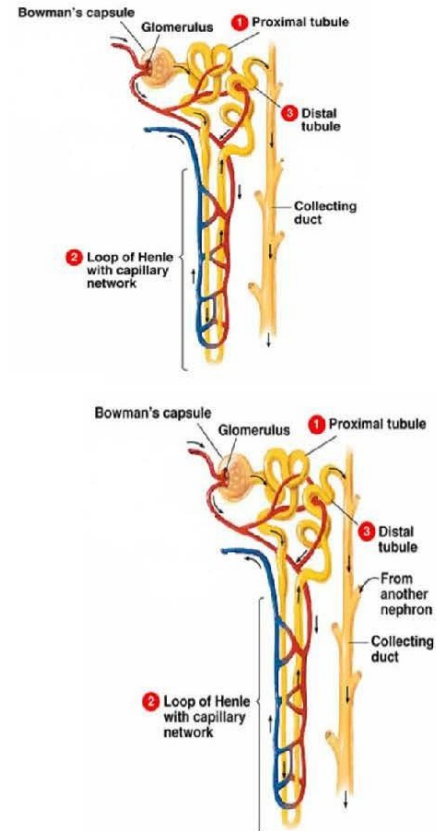
Content (Voice Over)	Visuals

Function

11. Nephrons filter blood and then reabsorb useful materials from the filtrate before eliminating the waste as urine.

12. The blood to be filtered enters the Bowman's capsule via an afferent arteriole and leaves the capsule via an efferent arteriole after filtration.
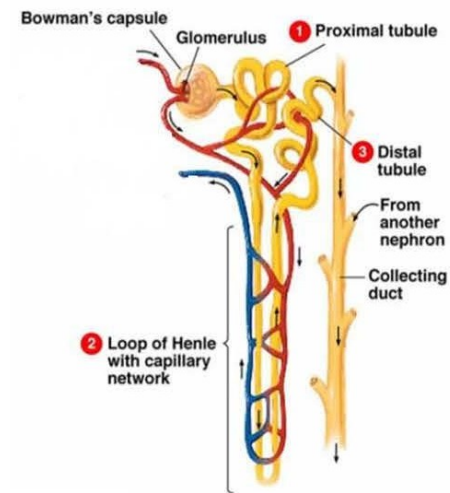
Content (Voice Over)	Visuals

Bowman's capsule

13. Bowman's capsule is the first part of the nephron where blood is initially filtered (to form filtrate). Filtration of blood takes place in Bowman's capsule from the capillaries of the glomerulus. This filtrate contains glucose, amino acids, urea, uric acid, salts, and a major amount of water.
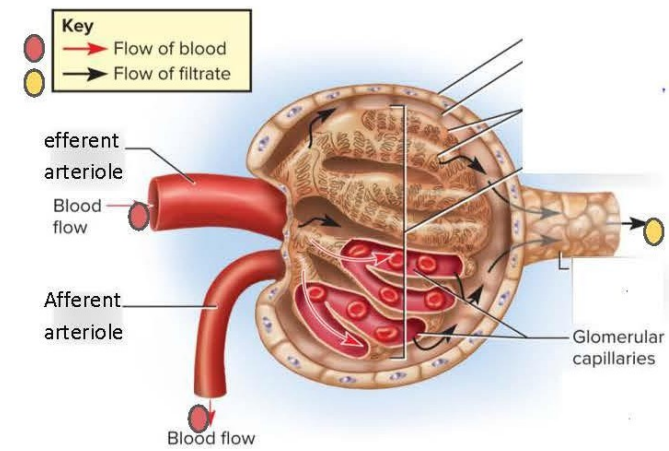
Proximal tubule

14. Once filtrate enters into proximal tubule the maximum reabsorption of water, glucose, amino acids, and electrolytes takes place as the urine flows along this part of the tube.
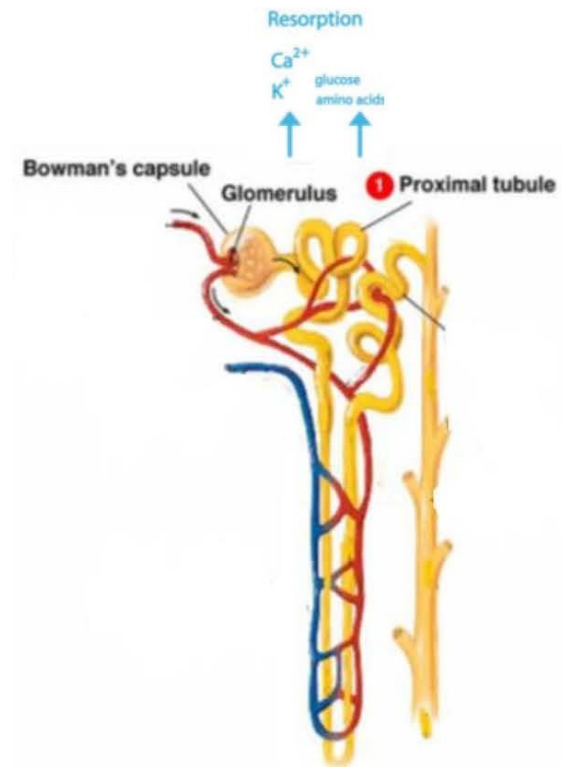
Content (Voice Over)	Visuals

Loop of Henle

15. In the loop of Henle filtrate first, pass through ascending loop where absorption of excess water takes place then remaining filtrate passes through descending loop where sodium ions get absorb from the filtrate.

16. The efferent arteriole forms a blood network called the vasa recta that reabsorbs components of the filtrate from the nephron.

	Visuals
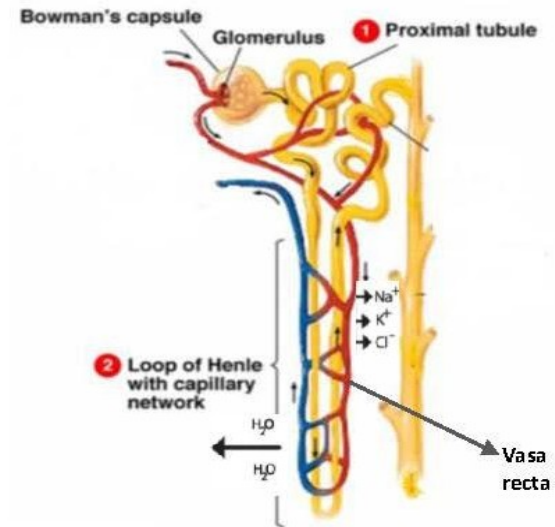
Distal tubule

17. In distal tubule secretion of ions, acids, drugs, toxins from the filtrate take place in the distal tubule, and variable reabsorption of water, sodium ions, and calcium ions also take place.

18. The filtrate which remains after reabsorption is called urine. Urine contains dissolved nitrogenous waste, i.e. urea and uric acid, excess salts, and water.
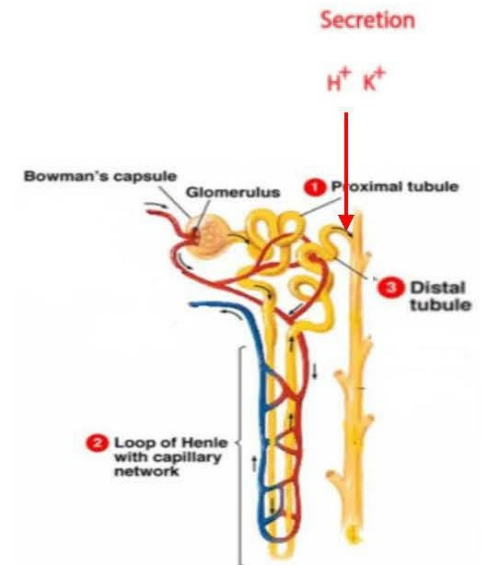
Content (Voice Over)	Visuals

Collecting duct

19. Collecting ducts are then largely responsible for reabsorbing water as required to produce urine.

20. The final filtrate collected from nephrons by the collecting duct enters into the ureters which connect the urinary bladder of the kidney. Urine is stored in the urinary bladder until the pressure of the expanded bladder leads to the urge to pass it out through the urethra.

Learning outcome

21. A nephron is the basic structural and functional unit of the kidneys that removed excretory products in the form of soluble nitrogen compounds.

wman's capsule
Glomerulus
❶ Proximal tubule
H₂O
H₂O
H₂O
H₂O
❷ Loop of Henle with capillary network
Collecting duct

Urine
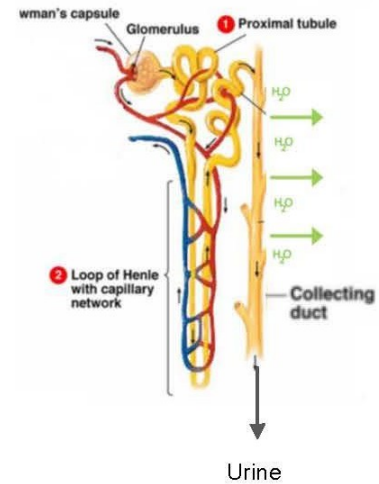
Annexure 3.4

Sample Programme Brief

Programme Brief

This is in reference to the series of meetings with Joint Director CIET, NCERT and as per the directions of MoE, GoI to develop pedagogically enrich programmes. These programmes are expected to be embedded with latest technologies like AR-VR for explanation of the content covered in the programmes. To start with five scripts from Class 10 Science has been developed in following topics:

1. Life processes – Introduction
2. Process of Nutrition
3. Nutrition in Human beings
4. Respiration
5. Transportation

All the programme will follow the following pattern:
1. Script: Scripts will be written keeping in mind the available AR 3D resources developed by CIET and freely available through creative commons licenses. The scripts developed will be analyzed by the script committee at CIET, NCERT.
2. Instructional design: After finalizing the content of the scripts, it will be discussed with instructional designers to enrich the scripts along with subject matter experts and practicing teachers.
3. 3D resources mentioned will be curated as per script.
4. Recording: Scripts will be recorded as per instructional design.
5. Editing and finalizing: After editing, the video will be peer revied and undergoes expert review.
6. Metadata will be developed and processed for DIKSHA upload/mapping and telecast on DTH channels.

Annexure 3.5

List Of Studio Equipment for Professional 3 Camera HD Studio
(With suggested model, make and estimated cost*)

S. No.	Name of items	Suggested make /Model	Qty	Unit price in INR	Total Price in INR
1	Studio Camera	SONY – PXW-Z280 or equivalent	3	400,000/-	12, 00,000/-
2	Recording Media 64 GB/32 GB Compatible with camera	Compatible with camera	6	35000/-	2,10,000/-
3	Card reader Compatible with camera	Compatible with camera	3	20000/-	60,000/-
4	Batteries pack Compatible with camera	Compatible with camera	6	22,000/-	1,32,000/-
5	Battery charger Compatible with camera	Compatible with camera	3	25000/-	75,000/-
6	Tripod with accessories	Manfretto or equivalent	3	50.000/-	1,50,000/-
7	Tripod attachment base plate	compatible with camera	3	10000/-	30,000/-
8	Camera bag	Compatible	3	5000/-	15,000/-
9	8 Input Vision Mixer	Panasonic/Datavideo/Sony	1	3,50000/-	3,50,000/-
10	Video recorder	AJA KI PRO GO	1	350000/-	3,50,000/-
11	16 ch Audio mixer	Yamaha MG16- XU or equivalent	1	15000/-	15,000/-
12	Wired or wireless lapel Microphone	SENNHEISER /SONY/AKG	5	50000/-	2,50,000/-
13	Gun mike	SENNHEISER /SONY/AKG	3	50000/-	1,50,000/-
14	45-watt power amplispeaker	Yamaha HS5 or equivalent	2	15000/-	30,000/-
15	Professional Head Phone	Maudio /JBL/ SENNHEISER	2	7500/-	1,50,00/-
16	Document Camera	Aver media or equivalent	1	50000/-	50,000/-
17	I Mac 27" (16 GB RAM, 1TB SSD) for Graphics system with Adobe Creative Cloud and Microsoft for Mac software,	Apple	1	500000/-	5,00,000/-
18	Studio talk back	Data video ITC 100 or equivalent	1	150000/-	1,50,000/-
19	8 TB external hard disk USB3.0	Lacie/Seagate	1	60000/-	60,000/-
20	64 TB NAS for storage	Infortrend/ Thecus/HP	1	7,00,000/-	7,00,000/-
21	32" TV with Multi-viewer	SONY /LG/ SAMSUNG	1	50000/-	50,000/-
22	5KVA Online UPS with minimum 30 minutes battery back up		1	100000/-	1,00,000/-
23	8 Port GBPS LAN Switch	NET GEAR/ I LINK	1	6000/-	6000/-
24	Audio /video cables, connectors and converters with Installation	As per requirement and need		200000/-	2,00,000/-
	Total estimated cost				**Rs.48,83,000/- + 18% GST**

* The cost of individual items quoted above are subject to change from time to time.

Annexure 3.6

Format of Recording Schedule

S.No.	Class	Subject	Textbook Name	Chapter No.	Chapter Name	No. of Content for the chapter	Medium	Name of the Resource Person(RP)	Designation	Name of the Organization	Contact No. of RP	Date of recording	Venue of recording	Time of Recording	Name of the Producer	Name of the Production Assistant	Props Required
1	10	सामाजिक विज्ञान (इतिहास)	भारत और समकालीन विश्व 2	3	भूमंडलीकृत विश्व का बनना	1/4 (Episode 1 of 4)	Hindi	Ms. Xyz	PGT, History (Hindi)	ABC School	1248579568	20/04/2020	Studio A, CIET, NCERT	11.00-13:00	Ms. Lmn	Mr. Qwe	Smartboard
2	10	सामाजिक विज्ञान (इतिहास)	भारत और समकालीन विश्व 2	4	औद्योगिकीकरण का युग	2/2 (Episode 2 of 2)	Hindi	Mr. AK	TGT History (Hindi)	XYZ School	9876543210	20/4/2020	Studio B, CIET, NCERT	11.00-13:00	Ms. Trd	Mr. Ert	Table for Artefacts

Annexure IV

Assessment tool for Digital Content (AUDIO)

1. Title of the programme   **2. Subject**

Please rate the digital content to the following quality indicators by circling one response for each item (1 equals poor, 2 average, 3 good, 4 very good and 5 excellent)

A.	CONTENT APPROPRIATENESS	poor	average	good	very good	excellent
1.	Objectives are clearly stated in the brief accompanying the digital content	1	2	3	4	5
2.	Content meets objectives	1	2	3	4	5
3.	Content has no factual errors	1	2	3	4	5
4.	Content is sufficient to meet objectives	1	2	3	4	5
5.	Content is appropriate for the target groups	1	2	3	4	5
6.	Content is comprehensible for the target groups	1	2	3	4	5
7.	Content is pedagogically structured	1	2	3	4	5
8.	Content is not derogatory to particular gender/community/group	1	2	3	4	5
9.	Data, statistics, if any, is updated	1	2	3	4	5
10.	Content is supported by relevant examples	1	2	3	4	5

B.	CONTENT PRESENTATION	poor	average	good	very good	excellent
1.	Introduction is well established	1	2	3	4	5
2.	Format of the programme is appropriate	1	2	3	4	5
3.	Pace of the programme is appropriate (programe is not too fast or slow)	1	2	3	4	5
4.	Appropriate use of music and sound effects	1	2	3	4	5
5.	Commentary/Dialogue Delivery is comprehensible	1	2	3	4	5
6.	Content is enriched/enhanced by using special effects	1	2	3	4	5
7	Motivates learner to reflect & contemplate	1	2	3	4	5
8.	Free from any technical glitches	1	2	3	4	5

Total Score: A+B = …………………

C. Mention the specific instances, if the score given on any of the indicators is less than three.

    i.   ……………………………………………………………………………………………………

   ii.   ……………………………………………………………………………………………………

  iii.   ……………………………………………………………………………………………………

   iv.   ……………………………………………………………………………………………………

D. Any other observations and comments to improve the digital content.

……………………………………………………………………………………………………..

……………………………………………………………………………………………………..

……………………………………………………………………………………………………..

……………………………………………………………………………………………………..

Overall Grading……………………..

A-100 & Above

B- 70-89

C-50-69

D-30-49

E-Less than 30

Signature of the Reviewer

Name:

Contact No.:

Email Id.:

Address:

Assessment tool for Digital Content (VIDEO)

1. Title of the programme   **2. Subject**

Please rate the digital content to the following quality indicators by circling one response for each item (1 equals poor, 2 average, 3 good, 4 very good and 5 excellent)

A.	CONTENT APPROPRIATENESS	poor	average	good	very good	excellent
1.	Objectives are clearly stated in the brief accompanying the digital content	1	2	3	4	5
2.	Content meets objectives	1	2	3	4	5
3.	Content has no factual errors	1	2	3	4	5
4.	Content is sufficient to meet objectives	1	2	3	4	5
5.	Content is appropriate for the target groups	1	2	3	4	5
6.	Content is comprehensible for the target groups	1	2	3	4	5
7.	Content is pedagogically structured	1	2	3	4	5
8.	Content is not derogatory to particular gender/community/group	1	2	3	4	5
9.	Data, statistics, if any, is updated	1	2	3	4	5
10.	Content is supported by relevant examples	1	2	3	4	5

B.	CONTENT PRESENTATION	poor	average	good	very good	excellent
1.	Introduction is well established	1	2	3	4	5
2.	Format of the programme is appropriate	1	2	3	4	5
3.	Pace of the programme is appropriate (programe is not too fast or slow)	1	2	3	4	5
4.	Appropriate use of font size, colour scheme and graphics	1	2	3	4	5
5.	Appropriate use of music and sound effects	1	2	3	4	5
6.	Commentary/Dialogue Delivery is comprehensible	1	2	3	4	5
7.	Adequate use of shots/visuals	1	2	3	4	5
8.	Audio is in sync with the video	1	2	3	4	5
9.	Content is enriched/enhanced by using special effects	1	2	3	4	5
10.	Motivates learner to reflect & contemplate	1	2	3	4	5
11.	Free from any technical glitches	1	2	3	4	5

Total Score: A+B = ……………….

C. Mention the specific instances, if the score given on any of the indicators is less than three.

i ....

ii ....

iii..

iv..

D. Any other observations and comments to improve the digital content.

....

....

....

....

Overall Grading……………………..

A-100 & Above

B-70-89

C-50-69

D-30-49

E-Less than 30

Signature of the Reviewer

Name:

Contact No.:

Email Id.:

Address:

Assessment tool for Digital Content (MULTIMEDIA)

1. Title of the programme   **2. Subject**

Please rate the digital content to the following quality indicators by circling one response for each item (1 equals poor, 2 average, 3 good, 4 very good and 5 excellent)

A.	CONTENT APPROPRIATENESS	poor	average	good	very good	excellent
1.	Objectives are clearly stated in the brief accompanying the digital content	1	2	3	4	5
2.	Content meets objectives	1	2	3	4	5
3.	Content has no factual errors	1	2	3	4	5
4.	Content is sufficient to meet objectives	1	2	3	4	5
5.	Content is appropriate for the target groups	1	2	3	4	5
6.	Content is comprehensible for the target groups	1	2	3	4	5
7.	Content is pedagogically structured	1	2	3	4	5
8.	Content is not derogatory to particular gender/community/group	1	2	3	4	5
9.	Data, statistics, if any, is updated	1	2	3	4	5
10.	Content is supported by relevant examples	1	2	3	4	5

B.	CONTENT PRESENTATION	poor	average	good	very good	excellent
1.	Appropriate use of font size, colour scheme and graphics	1	2	3	4	5
2.	Easy to navigate through	1	2	3	4	5
3.	The GUI (Graphical User Interface) is visually appealing	1	2	3	4	5
4.	Digital content is interactive	1	2	3	4	5
5	Inbuilt mechanism for self evaluation feedback	1	2	3	4	5
6.	Appropriate use of music and sound effects	1	2	3	4	5
7.	Audio is in sync with the video	1	2	3	4	5
8.	Content is enriched/enhanced by using special effects	1	2	3	4	5
9.	Motivates learner to reflect & contemplate	1	2	3	4	5
10.	Free from any technical glitches	1	2	3	4	5

Total Score: A+B = …………………

C. Mention the specific instances, if the score given on any of the indicators is less than three.

    i. ………………………………………………………………………………………………

   ii. ………………………………………………………………………………………………

  iii. ………………………………………………………………………………………………

  iv. ………………………………………………………………………………………………

D. Any other observations and comments to improve the digital content.

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

Overall Grading…………………..

A-100 & Above

B-70-89

C-50-69

D-30-49

E-Less than 30

Signature of the Reviewer

Name:

Contact No.:

Email Id.:

Address:

Annexure 3.8

Programme Assessment Checklist

<table>
<tr><td colspan="4" align="center">Parameters for eContent Evaluation</td></tr>
<tr><td colspan="2">Class</td><td colspan="2"></td></tr>
<tr><td colspan="2">Subject</td><td colspan="2"></td></tr>
<tr><td colspan="2">Book Name</td><td colspan="2"></td></tr>
<tr><td colspan="2">Chapter No.</td><td colspan="2"></td></tr>
<tr><td colspan="2">Video No.
(With duration i.e., minutes: seconds)</td><td colspan="2"></td></tr>
<tr><td colspan="2">Video Link</td><td colspan="2"></td></tr>
<tr><td colspan="2">Content approved/requires modification</td><td colspan="2"></td></tr>
<tr><td>S. No.</td><td>PARAMETERS</td><td>RESPONSE</td><td>REMARKS/RATING (If NO/POOR/VERY POOR, give justification)</td></tr>
<tr>
<td>1</td>
<td>Factual accuracy
1.1 Content being presented through text, diagrams, maps, pictures, audio, animation, simulation etc. have no factual errors.

1.2 Whether the updated facts/data are represented. e.g., Personalities/ State/UTs/Districts/Country/Geographical territory/Articles in the constitution/ Governance/ GST/ Demonetization/COVID protocol etc.

1.3 The content is sensitive towards CWSN/peace-oriented values/Gender/environmental concerns etc.</td>
<td>Yes-Content is factually accurate
No-Content is not factually inaccurate</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Legal use of proprietary content
2.1 The content piece should not use proprietary content which is unauthorized.</td>
<td>Yes-Content legally uses proprietary content or doesn't use any proprietary content at all
No-Content may have used proprietary content in an illegal manner</td>
<td></td>
</tr>
</table>

3	Content piece free from technical glitches 3.1 Sound is in sync with visuals 3.2 There is general usability in terms of rendering and visual experience	Yes/No Yes-Content piece is free from technical glitches No-Content piece has technical glitches	
4	Constitutional and statutory appropriateness of content 4.1 Content does not reflect violation of constitutional obligations. (For example a. Adhering to Fundamental Rights and Duties b. Should not promote stereotypes or derogatory/discriminatory depiction based on caste/class/gender/community/ethnic/ religious groups etc.)	Yes/No Yes-Content does not reflect violation of constitutional obligations. No-Content may be violating of constitutional obligations.	
5	Correspondence with topics/subtopics covered in the textbook 5.1 Relevance of the content piece with the topics/subtopics mentioned in the textbook	Rating (1-5) 1. Excellent 2. Very Good 3. Good 4. Poor 5. Very Poor	
6	Pedagogic structure *SUGGESTIVE CRITERIA (NOT AN EXHAUSTIVE LIST BUT AN INDICATIVE LIST)* 6.1 Content delivery is supported by relevant examples. 6.2 Content piece is learning outcome oriented. 6.3 Cause and effect relationship is used to explain various phenomenon wherever applicable, 6.4 Concrete to abstract 6.5 Content piece attempts to initiate reflective thinking among learners 6.6 Content piece attempts to integrate with other domains of knowledge Content piece prescribes to the following Maxims of Teaching and Learning 6.7 Easy to difficult 6.8 Simple to complex 6.9 Concrete to abstract 6.10 Whole to parts/Parts to Whole Content piece prescribes to the following Maxims of Teaching and learning	Rating (1-5) 1. Excellent 2. Very Good 3. Good 4. Poor 5. Very Poor	

	6.11 Spatial contiguity of message forms: Corresponding words and pictures are presented near rather than far from each other. 6.12 Temporal contiguity of message forms: Corresponding words and pictures are presented simultaneously rather than successively.		
7	Language and Comprehensibility 7.1 Content piece should have no grammatical errors 7.2 Content is presented in a manner which is understandable as per the grade of the learner	Rating (1-5) 1. Excellent 2. Very Good 3. Good 4. Poor 5. Very Poor	
8	Format of content presentation 8.1 Content has been presented in a format that is best suited for the theme, (For instance, a content which is in the form of a group discussion would score low on these criteria, if the best way to explain the concept would have been an experiment.)	Rating (1-5) 1. Excellent 2. Very Good 3. Good 4. Poor 5. Very Poor	
9	**Pace of the programme** 9.1 The content is appropriately paced leading to ease of comprehension.	Rating (1-5) 1. Excellent 2. Very Good 3. Good 4. Poor 5. Very Poor	
10	**Duration of the program** 10.1 The content is of appropriate duration to sustain attention of the learner.	Rating (1-5) 1. Excellent 2. Very Good 3. Good 4. Poor 5. Very Poor	

Notes for Content Curation Administrator:

1. Parameter 1 to 4 to be responded as Yes or No. Parameter 5 to 10 should be rated as per the (1-5) rating scale as follows: 1. Excellent, 2. Very Good, 3. Good, 4. Poor, 5. Very Poor

2. Each content piece shall be curated by a single curator.

3. A content piece shall be deemed fit for consumption when it has scored 'Yes' in the first 4 curation parameters (i.e., Factual Accuracy, Legal use of proprietary content, Content pieces free from technical glitches, Constitutional and statutory appropriateness of content) and has scored 3 or above in the remaining 6 curation parameters.

4. Curation process shall be terminated for a content piece if it has scored 'No' in the first 4 curation parameters (i.e., Factual Accuracy, Legal use of proprietary content, Content

pieces free from technical glitches, Constitutional and statutory appropriateness of content). Such content pieces need not be evaluated with respect to the remaining 6 curation parameters. Such content pieces shall be deemed unfit for consumption.

5. In the interest of reducing the positive or negative bias in the curation process, the curators shall not be informed of the ratings required for content to be deemed fit for consumption. This information shall be restricted to the person who is overseeing the curation process.

Reviewer's Details	
Name of the Reviewer:	
Designation:	
Mobile Number:	
Email ID:	
Date	
Place	
Signature	

Annexure 3.9

Format of Review Report

Media Production Division
Central Institute of Educational Technology
NCERT, New Delhi

Date:

Sub: Feedback on _____

The committee constituted for vetting the_____for various digital platforms of CIET - NCERT, such as DIKSHA, ePathshala, NROER, etc. Experts have gone through the following mentioned eContent below and evaluation reports are as follows: -

S. No	Subject	Book Name	Chapter No.	Name of Chapter	Topic Covered	Language	Comments & Suggestions received from Expert

PARAMETERS FOR E-CONTENT EVALUATION			
S. No.	**PARAMETERS**	**RESPONSE**	**REMARKS/RATING (If NO/POOR/VERY POOR, give justification)**
		PART-1	
1	**Factual accuracy** Content being presented through text, diagrams, maps, pictures, audio, animation, simulation etc. have no factual errors. Whether the updated facts/dates/data are represented e.g., Personalities/State/UTs/Districts/Country/Geographical territory-maps and boundaries/Articles in the constitution/Governance/GST/ Demonetization/COVID protocol etc. The content is sensitive towards CWSN/peace-oriented values/Gender/environmental concerns etc.	Yes-Content is factually accurate No-Content is not factually accurate	
2	**Legal use of proprietary content** 2.1The content piece should not use proprietary content which is unauthorized.	Yes-Content legally uses proprietary content or doesn't use any proprietary content at all No-Content may have used proprietary content in an illegal manner	
3	**Content piece free from technical glitches** 3.1 Text is in sync with visuals/audio/signs 3.2 There is general usability in terms of rendering and visual experience- there is no random cut/absence of sound/black screen/lag of audio, video, sign	Yes/No Yes-Content piece is free from technical glitches No-Content piece has technical glitches	

	Constitutional and statutory appropriateness of content 4.1 Content does not reflect violation of constitutional obligations. (For example a. Adhering to Fundamental Rights and Duties b. Should not promote stereotypes or derogatory depiction based on caste/class/gender/disability/community/ethnic/religious groups/Socio-Economic Disadvantaged Groups (SEDG) etc.)	Yes/No Yes-Content does not reflect violation of constitutional obligations. No-Content may be violating of constitutional obligations.	
4			
PART-2			
5	**Correspondence with topics/subtopics covered in the textbook/LO** 5.1 Relevance of the content piece with the topics/subtopics mentioned in the textbook/LO	Rating (1-5) 1. Excellent 2. Very Good 3. Good 4. Poor 5. Very Poor	
6	**Pedagogic structure** SUGGESTIVE CRITERIA (NOT AN EXHAUSTIVE LIST BUT AN INDICATIVE LIST) 6.1 Content delivery is supported by relevant examples. 6.2 Content piece is learning outcome oriented. 6.3 Cause and effect relationship is used to explain various phenomenon wherever applicable, 6.4 Content piece attempts to initiate reflective thinking among learners 6.5 Content piece attempts to integrate with other domains of knowledge (Art, ICT, toy, textbook, etc.) 6.6 Easy to difficult 6.7 Simple to complex 6.8 Concrete to abstract 6.9 Whole to parts/Parts to Whole 6.10 Spatial and temporal contiguity of message forms: Words and figure explaining each other are placed together.	Rating (1-5) 1. Excellent 2. Very Good 3. Good 4. Poor 5. Very Poor	
7	**Language and Comprehensibility** 7.1 Content piece should be simple and comprehendible 7.2 Content should be error free and should have no spelling error	Rating (1-5) 1. Excellent 2. Very Good 3. Good 4. Poor 5. Very Poor	
8	Format of content presentation 8.1 Content should be age appropriate 8.2 Content has been presented in a format that is best suited for the theme (For instance, content which is in the form of a group discussion would score low on criteria)	Rating (1-5) 1. Excellent 2. Very Good 3. Good 4. Poor 5. Very Poor	
9	**The pace of the program** **9.1 The content transaction/delivery is appropriate**	Rating (1-5) 1. Excellent 2. Very Good 3. Good 4. Poor 5. Very Poor	
10	**Duration of the program** **10.1 The content is of appropriate to sustain the attention of the learner-** It should be maximum of 30minutes. If more than that then there has to be mixture of mode to sustain attention span of viewers	Rating (1-5) 1. Excellent 2. Very Good 3. Good 4. Poor 5. Very Poor	

Annexure 3.10

Rates of Payment for Hiring Staff as per NCERT Norms

N F 35-4/2006-07/CIET/P&C
Central Institute of Education Technology
(P&C Section)

Dated:16.06.2015

Notification

In supersession of earlier notification No. F35-4/2002-03/CIET/P&C DATED 2.09.2005 & No.f.35-4/2006-07/CIET/P&C dated 31.01.2008 as per decision taken in the meeting of the Finance Committee held on 24.02.2015 the rate of the following of media programmes have been approved from data of above notification.

S. No.	Category of Media Person	Existing rated/day	Rates approved/day
1.	Adult Artist/ Narration (Voicing)/ Presentation/ Subject Expert Musicians with Instrument/ Puppeteer Voicing/ Puppet Manipulation	Rs. 1000/- (Narration) Rs. 1500/- (Puppet) Manipulation& Voice) Rs. 2500/- (Sub. Exp.) Rs. 1500/- (Musicians with Instrument	Rs. 2500/-(Narration) Rs. 2500/-(Puppet) Manipulation & Voice) Rs. 3000/- (Sub. Exp.) Rs. 2500/- (Musicians with Instrument)
2.	Technical Personnel (Graphic/Light/SOUND/prod. Asstt. Editors/ Cameraman/	Rs.600/- (Light man) Rs.1000/-(Sound) Rs.1500/-(Editor) Rs.2000/-(Cameraman) Rs. 370/- Pro. Asstt. Rs.285/-(Carpentry, Painter, Tailor etc	Rs.2500/- (Light man) Rs.2500/- (Sound) Rs. 2500/-(Editor) Rs.2500/- Cameraman) Carpentry, Painter, Tailor as per minimum wages rate
3.	Mentors for Online courses (Per credit: batch of 20 students;30 hrs. course; 8 hrs./week;	Nil	Rs.2500/-
4.	Regular Drama Voice / Drama Artist/ Panelist	Rs. 1000/-	Rs. 2500/-
5.	Singer/ Dancer (Classical / Folk)	Rs. 3000/-	Rs.5000/-
6.	Music Composer	Rs. 1500/-	Rs. 5000/-
7.	Singer/ Dancer (Child)	Rs. 1000/-	Rs. 2000/-
8.	Chorus (Child)	Rs. 500/-	Rs. 1000/-
9.	Child Artist (Audio)	Rs. 150/-	Rs. 1000/-
10.	Child Artist (Video)	Rs. 750/-	Rs. 2000/-
11.	Child Artist in group (Per child artist)	Rs. 150/-	Rs. 250/-
12.	Up to two rehearsals	Rs.600+Rs.600/-	Rs. 1000/-
13.	Script up to 30 mts (including research) Audio/ Video/ Online course module/ interactive objects	Rs.9000/-	Rs.2500/-
14.	Script more than 30 mts (including research)	Nil	Rs. 4500/-
15.	Production/ Direction/ Cinematography	Rs.11250/-15mts.Direction Rs. 18000/- 30 mts Direction Rs. 4500/- (Cinematography B)	Rs. 4500/-
16.	Translation/ Transcription up to 30 mts	Rs. 2000/- Programme	Rs. 2500/-
17.	Drama Script up to 30mts	Rs. 3000-7500	Rs. 4500/-
18.	Drama Script more than 30 mts	Nil	RS. 6000/-
19.	Adult Artist (Special Programmes)- AIR Top Grade Artist or Equivalent, e.g., renowned musician/Singer etc.	Rs.4500- 9000	Rs 11000/-
20.	Daily Wager (Skilled) Carpenter/Painter/ Tailor, Make-Up Artist etc.	Rs. 370/-	As per minimum wages rates
21.	Daily Wager (Unskilled)	Nil	As per minimum wages rates
22.	Hospitality (Tea& Snacks; Lunch) including Drinking water etc.	Rs.60/- per head	As per NCERT norms

Annexure 4.1

Sample Metadata Sheet

*The metadata sheet (referred to in Chapter 4) has been presented in different parts due to its dimension across a large number of columns.

a) Attributes: 1-8

S.No.	Class	Subject	Textbook	Chapter No.	Chapter Name	Video Title	Medium	Organisation
1	Class 1	Mathematics	गणित का जादू भाग - 1	1	आकृतियाँ और स्थान	आकृतियाँ और स्थान-1	Hindi	CIET, NCERT
2	Class 1	Mathematics	गणित का जादू भाग - 1	2	एक से नौं तक की संख्याएँ	एक से नौं तक की संख्याएँ-1	Hindi	CIET, NCERT

b) Attributes: 9-17

Program ID	Subject Matter Expert (SME)	SME Affiliation	Script Approved	Date of Script	Episode No.	DoR	Producer	Prod. Assistant
01MATHINCH01EP01*	Ms. Gunjan	KVS, Delhi	Yes	22/2/20222	1	28/2/2022	Danish	Meena
01MATHINCH02EP01	Mr. Dharamvir	NVS, New Delhi	Yes	25/2/2022	1	1/3/2022	Nitiya	Ram

c) Attributes: 18-28

DoSE	Editor	DoE	Duration	QR Code Verified (Yes/No)	DoSR	DoRR	Result RR	Sharing RR	DoSM	DoMP
3/3/2022	Jay	8/3/2022	0:28:00	Yes	8/3/2022	12/3/2022	Recommended	https://drive.google.com/file/d/1kr2xW-CPI0c8NGcHAXtDmpPorRqW31rv/view?usp=sharing	N/A	N/A
5/3/2022	Jiya	10/3/2022	0:29:45	Yes	10/3/2022	14/3/2022	Recommended after Modification	https://docs.google.com/document/d/1DBjmT5Y5ErjNl4alYqlaCzHVwk3oxHlw/edit?usp=sharing&ouid=117177993762280272813&rtpof=true&sd=true	14/3/2022	16/3/2022

d) Attributes:29-37

File Name	Link	RoS for Telecast	RoS for upload on DIKSHA	DoU	DIKSHA do_id	SoM on DIKSHA (Yes/No)	SoL on DIKSHA	VIS Video ID
CIET_01MAT_HIN_CH1_EP01	https://drive.google.com/file/d/1t6fFNvpJcMBsCipU4TsAgJLi7mr7FRP9/view?usp=sharing	Shared	Shared	15/3/2022	do_31307602165137408011077	Yes	Yes	A44
CIET_01MAT_HIN_CH2_EP01	https://drive.google.com/file/d/1t6fFNvpJcMBsCipU4TsAgJLi7mr7FRP9/view?usp=sharing	Shared	Shared	18/3/2022	do_313080171292852224110568	Yes	Yes	A46

Annexure 4.2

Subject Codes

Subject	Code
Accountancy	ACC
Biology	BIO
Business Studies	BST
Chemistry	CHM
Economics	ECO
English	ENG
Environmental Studies	EVS
Geography	GEO
Hindi	HIN
History	HIS
Mathematics	MAT
Physics	PHY
Political Science	POL
Psychology	PSY
Science	SCI
Social Science	SSC
Sociology	SOC
Physical Education	PED
Computer Science	CSC
Home Science	HSC
Sanskrit	SKT
Urdu	URD

Annexure 4.3

List of Codes for States and UTs

S. No	States and UTs	Codes
1	Andhra Pradesh	AP
2	Arunachal Pradesh	AR
3	Assam	AS
4	Bihar	BR
5	Chhattisgarh	CG
6	Goa	GA
7	Gujarat	GJ
8	Haryana	HR
9	Himachal Pradesh	HP
10	Jharkhand	JH
11	Karnataka	KA
12	Kerala	KL
13	Madhya Pradesh	MP
14	Maharashtra	MH
15	Manipur	MN
16	Meghalaya	ML
17	Mizoram	MZ
18	Nagaland	NL
19	Odisha	OD
20	Punjab	PB
21	Rajasthan	RJ
22	Sikkim	SK
23	Tamil Nadu	TN
24	Telangana	TG
25	Tripura	TR
26	Uttarakhand	UK
27	Uttar Pradesh	UP
28	West Bengal	WB
29	Andaman and Nicobar Islands	AN
30	Chandigarh	CH
31	Dadra and Nagar Haveli and	DN
32	Daman & Diu	DD
33	The Government of NCT of Delhi	DL
34	Jammu & Kashmir	JK
35	Ladakh	LA
36	Lakshadweep	LD
37	Puducherry	PY

Annexure 5

Allocation of 200 PM eVIDYA DTH TV Channels to States/UTs/Institutions/Autonomous Bodies

• The Five channels to States and UTs are based on assumption that 4 channels will be utilised for Class 9 to 12. (However, the user can decide based on their requirement).

• One channel will be for Professional Examinations, Teacher Training etc.

• For Five small UTs, they can use content from neighbouring states and one channel has been allotted for any special purpose, UT-specific content.

S. No.	States/UTs	*No. of Schools	No. of Channels Allocated
1	Andaman and Nicobar Islands (UT)	416	1
2	Andhra Pradesh	61948	5
3	Arunachal Pradesh	3603	5
4	Assam	60859	5
5	Bihar	93165	5
6	Chandigarh (UT)	233	1
7	Chhattisgarh	56512	5
8	Dadra, Nagar Haveli, Daman and Diu (UT)	460	1
9	Delhi (UT)	5619	5
10	Goa	1510	5
11	Gujarat	53851	5
12	Haryana	23726	5
13	Himachal Pradesh	18028	5
14	Jammu and Kashmir (UT)	28805	5
15	Jharkhand	44855	5
16	Karnataka	76450	5
17	Kerala	16240	5
18	Ladakh (UT)	978	5
19	Lakshadweep (UT)	38	1
20	Madhya Pradesh	125582	5
21	Maharashtra	109605	5
22	Manipur	4617	5
23	Meghalaya	14600	5
24	Mizoram	3911	5
25	Nagaland	2718	5
26	Odisha	62291	5
27	Puducherry (UT)	736	1
28	Punjab	27701	5
29	Rajasthan	106373	5
30	Sikkim	1259	5
31	Tamil Nadu	58801	5
32	Telangana	43083	5
33	Tripura	4929	5
34	Uttar Pradesh	258054	5
35	Uttarakhand	22815	5
36	West Bengal	94744	5
37	CBSE	24000	1
38	KVS	1,248	1
39	NVS	661	1
40	NCERT + FLN (1) + Adult Education (1)	N.A.	14
41	NIOS	N.A.	4

Annexure 5.1

List of 200 PM eVIDYA DTH TV Channels

S. No.	States/UTs/Institutions/Autonomous Bodies	Channel No.
1	NCERT	DD PM eVIDYA NCERT 1
2		DD PM eVIDYA NCERT 2
3		DD PM eVIDYA NCERT 3
4		DD PM eVIDYA NCERT 4
5		DD PM eVIDYA NCERT 5
6		DD PM eVIDYA NCERT 6
7		DD PM eVIDYA NCERT 7
8		DD PM eVIDYA NCERT 8
9		DD PM eVIDYA NCERT 9
10		DD PM eVIDYA NCERT 10
11		DD PM eVIDYA NCERT 11
12		DD PM eVIDYA NCERT 12
13		DD PM eVIDYA NCERT 13
14		DD PM eVIDYA NCERT 14
15	Central Board of Secondary Education (CBSE)	DD PM eVIDYA CBSE 15
16	Kendriya Vidyalaya Sangathan (KVS)	DD PM eVIDYA KVS 16
17	National Institute of Open Schooling (NIOS)	DD PM eVIDYA NIOS 17
18		DD PM eVIDYA NIOS 18
19		DD PM eVIDYA NIOS 19
20		DD PM eVIDYA NIOS 20
21	Navodaya Vidyalaya Samiti (NVS)	DD PM eVIDYA NVS 21
22	Ministry of Skill Development and Entrepreneurship	DD PM eVIDYA MoSDE 22
23		DD PM eVIDYA MoSDE 23
24		DD PM eVIDYA MoSDE 24
25		DD PM eVIDYA MoSDE 25
26		DD PM eVIDYA MoSDE 26
27		DD PM eVIDYA MoSDE 27
28	Andaman and Nicobar Islands (UT)	DD PM eVIDYA AN 28
29	Chandigarh (UT)	DD PM eVIDYA CH 29
30	Dadra and Nagar Haveli and Daman and Diu (UT)	DD PM eVIDYA DN 30
31	Delhi (UT)	DD PM eVIDYA DL 31
32		DD PM eVIDYA DL 32
33		DD PM eVIDYA DL 33
34		DD PM eVIDYA DL 34
35		DD PM eVIDYA DL 35
36	Jammu and Kashmir (UT)	DD PM eVIDYA JK 36
37		DD PM eVIDYA JK 37

Annexure 5.1

List of 200 PM eVIDYA DTH TV Channels

38		DD PM eVIDYA JK 38
39		DD PM eVIDYA JK 39
40		DD PM eVIDYA JK 40
41		DD PM eVIDYA LA 41
42		DD PM eVIDYA LA 42
43	Ladakh (UT)	DD PM eVIDYA LA 43
44		DD PM eVIDYA LA 44
45		DD PM eVIDYA LA 45
46	Lakshadweep (UT)	DD PM eVIDYA LD 46
47	Puducherry (UT)	DD PM eVIDYA PY 47
48		DD PM eVIDYA AP 48
49		DD PM eVIDYA AP 49
50	Andhra Pradesh	DD PM eVIDYA AP 50
51		DD PM eVIDYA AP 51
52		DD PM eVIDYA AP 52
53		DD PM eVIDYA AR 53
54		DD PM eVIDYA AR 54
55	Arunachal Pradesh	DD PM eVIDYA AR 55
56		DD PM eVIDYA AR 56
57		DD PM eVIDYA AR 57
58		DD PM eVIDYA AS 58
59		DD PM eVIDYA AS 59
60	Assam	DD PM eVIDYA AS 60
61		DD PM eVIDYA AS 61
62		DD PM eVIDYA AS 62
63		DD PM eVIDYA BR 63
64		DD PM eVIDYA BR 64
65	Bihar	DD PM eVIDYA BR 65
66		DD PM eVIDYA BR 66
67		DD PM eVIDYA BR 67
68		DD PM eVIDYA CG 68
69		DD PM eVIDYA CG 69
70	Chhattisgarh	DD PM eVIDYA CG 70
71		DD PM eVIDYA CG 71
72		DD PM eVIDYA CG 72
73		DD PM eVIDYA GA 73
74	Goa	DD PM eVIDYA GA 74
75		DD PM eVIDYA GA 75

Annexure 5.1

List of 200 PM eVIDYA DTH TV Channels

76		DD PM eVIDYA GA 76
77		DD PM eVIDYA GA 77
78	Gujarat	DD PM eVIDYA GJ 78
79		DD PM eVIDYA GJ 79
80		DD PM eVIDYA GJ 80
81		DD PM eVIDYA GJ 81
82		DD PM eVIDYA GJ 82
83	Haryana	DD PM eVIDYA HR 83
84		DD PM eVIDYA HR 84
85		DD PM eVIDYA HR 85
86		DD PM eVIDYA HR 86
87		DD PM eVIDYA HR 87
88	Himachal	DD PM eVIDYA HP 88
89		DD PM eVIDYA HP 89
90		DD PM eVIDYA HP 90
91		DD PM eVIDYA HP 91
92		DD PM eVIDYA HP 92
93	Jharkhand	DD PM eVIDYA JH 93
94		DD PM eVIDYA JH 94
95		DD PM eVIDYA JH 95
96		DD PM eVIDYA JH 96
97		DD PM eVIDYA JH 97
98	Karnataka	DD PM eVIDYA KA 98
99		DD PM eVIDYA KA 99
100		DD PM eVIDYA KA 100
101		DD PM eVIDYA KA 101
102		DD PM eVIDYA KA 102
103	Kerala	DD PM eVIDYA KL 103
104		DD PM eVIDYA KL 104
105		DD PM eVIDYA KL 105
106		DD PM eVIDYA KL 106
107		DD PM eVIDYA KL 107
108	Madhya Pradesh	DD PM eVIDYA MP 108
109		DD PM eVIDYA MP 109
110		DD PM eVIDYA MP 110
111		DD PM eVIDYA MP 111
112		DD PM eVIDYA MP 112
113	Maharashtra	DD PM eVIDYA MH 113

Annexure 5.1

List of 200 PM eVIDYA DTH TV Channels

114		DD PM eVIDYA MH 114
115		DD PM eVIDYA MH 115
116		DD PM eVIDYA MH 116
117		DD PM eVIDYA MH 117
118		DD PM eVIDYA MN 118
119		DD PM eVIDYA MN 119
120		DD PM eVIDYA MN 120
121		DD PM eVIDYA MN 121
122	Manipur	DD PM eVIDYA MN 122
123		DD PM eVIDYA MN 188
124		DD PM eVIDYA MN 189
125		DD PM eVIDYA MN 190
126		DD PM eVIDYA MN 191
127		DD PM eVIDYA MN 192
128		DD PM eVIDYA ML 123
129		DD PM eVIDYA ML 124
130	Meghalaya	DD PM eVIDYA ML 125
131		DD PM eVIDYA ML 126
132		DD PM eVIDYA ML 127
133		DD PM eVIDYA MZ 128
134		DD PM eVIDYA MZ 129
135	Mizoram	DD PM eVIDYA MZ 130
136		DD PM eVIDYA MZ 131
137		DD PM eVIDYA MZ 132
138		DD PM eVIDYA NL 133
139		DD PM eVIDYA NL 134
140	Nagaland	DD PM eVIDYA NL 135
141		DD PM eVIDYA NL 136
142		DD PM eVIDYA NL 137
143		DD PM eVIDYA OD 138
144		DD PM eVIDYA OD 139
145	Odisha	DD PM eVIDYA OD 140
146		DD PM eVIDYA OD 141
147		DD PM eVIDYA OD 142
148		DD PM eVIDYA PB 143
149		DD PM eVIDYA PB 144
150	Punjab	DD PM eVIDYA PB 145
151		DD PM eVIDYA PB 146

Annexure 5.1

List of 200 PM eVIDYA DTH TV Channels

152		DD PM eVIDYA PB 147
153		DD PM eVIDYA RJ 148
154		DD PM eVIDYA RJ 149
155	Rajasthan	DD PM eVIDYA RJ 150
156		DD PM eVIDYA RJ 151
157		DD PM eVIDYA RJ 152
158		DD PM eVIDYA SK 153
159		DD PM eVIDYA SK 154
160	Sikkim	DD PM eVIDYA SK 155
161		DD PM eVIDYA SK 156
162		DD PM eVIDYA SK 157
163		DD PM eVIDYA TN 158
164		DD PM eVIDYA TN 159
165	Tamil Nadu	DD PM eVIDYA TN 160
166		DD PM eVIDYA TN 161
167		DD PM eVIDYA TN 162
168		DD PM eVIDYA TG 163
169		DD PM eVIDYA TG 164
170	Telangana	DD PM eVIDYA TG 165
171		DD PM eVIDYA TG 166
172		DD PM eVIDYA TG 167
173		DD PM eVIDYA TR 168
174		DD PM eVIDYA TR 169
175	Tripura	DD PM eVIDYA TR 170
176		DD PM eVIDYA TR 171
177		DD PM eVIDYA TR 172
178		DD PM eVIDYA UP 173
179		DD PM eVIDYA UP 174
180	Uttar Pradesh	DD PM eVIDYA UP 175
181		DD PM eVIDYA UP 176
182		DD PM eVIDYA UP 177
183		DD PM eVIDYA UK 178
184		DD PM eVIDYA UK 179
185	Uttarakhand	DD PM eVIDYA UK 180
186		DD PM eVIDYA UK 181
187		DD PM eVIDYA UK 182
188	West Bengal	DD PM eVIDYA WB 183
189		DD PM eVIDYA WB 184

Annexure 5.1

List of 200 PM eVIDYA DTH TV Channels

190		DD PM eVIDYA WB 185
191		DD PM eVIDYA WB 186
192		DD PM eVIDYA WB 187
193	Yet to be allocated	DD PM eVIDYA 193
194		DD PM eVIDYA 194
195		DD PM eVIDYA 195
196		DD PM eVIDYA 196
197		DD PM eVIDYA 197
198		DD PM eVIDYA 198
199		DD PM eVIDYA 199
200		DD PM eVIDYA 200

A comprehensive initiative aims to unify all efforts related to digital/ online/ on-air education

_____

For more details and feedback
Write to us: evidya@ciet.nic.in
Call on PM eVIDYA IVRS: 8800440559