National Policy
On
Information and Communication Technology
(ICT)
In
School Education

Department of School Education and Literacy
Ministry of Human Resource Development
Government of India

CONTENTS

INTRODUCTION

Information and Communication Technologies (ICTs) have made a huge impact on Education in most countries across the world. Substantive investments have been made to put new era technologies in classrooms so that every learner is equipped with the skills needed to live and work in the new Information World.

However, it is important to understand that integration of new technologies into existing education mechanisms will require substantial understanding and learning before they can be utilised to achieve maximum benefits and improved outcomes in learning. Governments across the world are eager to adopt ICTs as the most viable vehicle to address the problems of Univeralisation of education and addressing challenges of access and quality education, ICT have made good strides in that arena.

The policy is an integrated approach on using ICTs for school education in India, using an end-to-end framework, that will look at all the various issues related to using ICTs in Schools, and aims to achieve educational objectives. It will help State governments and schools to make informed decisions on investing in ICTs and realising the maximum benefits that technology can bring in school education.

ICTs are revolutionising educational methodologies worldwide. An integration of ICTs in our school education system will accelerate achievement of quality school education for all. Technology in School Education will provide India an opportunity to leapfrog inherent limitations and acquire new resources to formulate innovative strategies for achieving educational goals and gear the next generation of learners for 21st century skills in the digital age.

Section 1. Vision
To empower a whole generation of Indians with ICTs and to gear to engage constructively with the knowledge driven economy.

Section 2. Mission
To integrate and leverage ICTs in School Education for improved quality, delivery and administration of primary and secondary education and to build national capacities for the future development of an efficient workforce which can contribute effectively to the global knowledge economy.

Section 3. Guiding principles
This policy aims to lay down the following guiding principles to ensure effective use of ICTs in school education.

3.1 Learner-paced and Learner-centric
To increase the flexibility of learners and educators to address individual needs and preferences in school education.

3.2 Accessible
To use ICTs to expand access to education opportunities through blended learning to each child, including girls, physically challenged children, learners residing in remote areas and those belonging to socially disadvantaged sections.

3.3 Equitable
To use technology infrastructure and applications in schools to leverage the delivery of quality education to all.

3.4 Accountable
To use ICTs to increase the flexibility of educators and administrators in the school education system and enhance efficiency and performance in education delivery in schools.

3.5 Collaborative
To use ICTs to build relationships and foster multi-stakeholder partnerships with all involved in the field of education to contribute towards universalising school education.

3.6 Research and Innovation
To use ICTs to achieve educational goals through identification and evaluation of existing educational technologies and where appropriate, adoption of emerging technologies and promising practices into our education delivery system.

Section 4: Background

4.1 Rationale for ICTs in School Education

ICTs have the potential to contribute to different facets of educational development in schools; revolutionizing the delivery of quality education, teacher training, and students' achievements towards a new paradigm of effective learning for all, any-time, anywhere.

The Policy recognizes the significant shift all over the world, from the use of technology as a delivery device for school children to use of technology as a tool for exploration for knowledge and self-learning.

The emergence and convergence of various ICTs such as radio, television, computer, the Internet, telephone, cell phone, video, multimedia, CD-ROM, software and hardware provide unique opportunities for promoting primary and secondary education, on a mass scale, in India. ICT literacy to all school students will make each student competent with 21st century skills. ICTs as a tool for effective classroom teaching will make learning fun and prepare today's students to be tomorrow's workforce.

4.2 ICT Education in India

Strengthening the ICT-based School Education in the country at school level is one the major initiatives undertaken by MHRD. In 1970, the Ministry of Education, took up a scheme of Education Technology (ET). Under this scheme, an ET unit in the Ministry, a Center for Educational Technology (CET) under NCERT, and ET cells in six States were set up in 1974.

One of the earliest systematic and large-scale efforts in India to run an educational programme with ICTs was SITE (Satellite Instructional Television Experiment) in 1975–76. The launch of the **Indian National Satellite (INSAT)** in 1980, and its availability for educational purposes, an Educational Technology Division in the Ministry of HRD was set up; Central Institute of Educational Technology (CIET) came into picture; State Institutes of Educational Technology (SIETs) and ET cells were opened in States. CIET was charged with the task of undertaking educational television and radio production, conducting training and research, and performing as a central coordination agency for all production and utilization efforts. Television and radio sets were supplied to schools over many years. AIR and Doordarshan were chosen as the carriers of the broadcasts.

During 1984- 85 the **Computer Literacy And Studies in Schools (CLASS)** Project was introduced. A total of 12,000 computers were distributed to secondary and senior secondary schools through the State Governments. During the 9th Plan period, CLASS scheme was discontinued and a revised scheme was launched during 2001-02.

National Task Force on Information Technology and Software Development constituted in 1998 made specific recommendations on

introduction of IT in the education sector including schools. The Report recommended provision of computer systems to all educational institutions up to Higher Secondary/Secondary Schools by suitable investments (about 1-3%) of the total budget during the next five years. The centrally sponsored scheme of 'Educational Technology' and 'CLASS' then suitably modified keeping in view the past experience, the feedback and changing needs to form the new scheme of **'ICT in Schools'**.

A large number of institutions exist with educational technology components in one form or another - CIET, SIETs, state ET cells, SCERTs, and more than 450 DIETs. The Regional Institutes of Education (RIEs) of NCERT also have educational technology cells. More than 250 universities offer education technology as an optional subject in B.Ed. and M.Ed. Courses. Technical Teachers Training Institutes (TTTIs) also have facilities for technical education. Several state open schools, the National Institute of Open Schooling (NIOS), several state open universities, the national open university, IGNOU, and the distance education departments of conventional universities all have facilities to provide learning through alternative modes. However, there is need to learn to collaborate, share, and revitalize themselves in order to meet the educational challenges that the future will bring.

Table 4.3: Descriptions of the major ICT initiatives in School Education in India

Programmes	Descriptions
IT Policy	An Act to provide legal recognition for transactions carried out by means of electronic data interchange and other means of electronic communication, commonly referred to as "electronic commerce", which involve the use of alternatives to paper-based methods of communication and storage of information, to facilitate electronic filing of documents. Most of the States have an computer education component built-in as part of the State IT policy.
SSA/ CAL	Sarva Shiksha Abhiyan (SSA) is Government of India's flagship programme for achievement of Universalization of Elementary Education (UEE) in a time bound manner. Computer aided Learning (CAL) remarkable computer presence in the district visited, even in the remote schools. Another initiative in the form of mobile computer lab has been taken by the district administration in the district visited. A van has been fitted with four computers, one projector and a screen. The unit travels to all such schools which still do not have a computer. In the evening, the same unit runs programmes on adult education.
CLASS	Universalisation of computer literacy would percolate to students in small towns and the subordinate divisions of a district in India. The scheme has four main components such as partnership with state governments and union territories for providing computer-aided education to secondary and higher secondary government schools; establishment of two self-monitoring analysis and reporting technology (SMART) schools in each state which would be technology demonstrators; universalisation of computer literacy through the network of Kendriya Vidyalayas and

Programmes	Descriptions
	Navodaya Vidyalaya Samiti to incorporate computer literacy to 10 neighbouring schools; and financial assistance to State Institutes of Educational Technologies under the project mode so that they become self-sufficient. HRD officials feel that the new scheme would enable pupils to acquire necessary skills required for both higher education and employment.
Digital Library	Digital Library projects in India are digitizing all the significant literary, artistic, and scientific works and making them freely available, in every corner of the world, for education, study and appreciation. In india, major agencies who are running these programs in schools are CDAC, RoomToRead Foundation, British Council, etc.
EDUSAT	EDUSAT is the first Indian satellite built exclusively for serving the educational sector. It is mainly intended to meet the demand for an interactive satellite based distance education system for the country. It strongly reflects India's commitment to use space technology for national development, especially for the development of the population in remote and rural locations.
State Institute of Educational Technology (SIET)	State Institute of Educational Technology (SIET) Project has been made responsible for the planning, research, production and evaluation of educational softwares like video, audio programmes and computer multimedia.
District Information System for Education (DISE)	With a major emphasis on user orientation in the use of educational and allied data for planning, management, monitoring and feedback on the DPEP interventions.
National Task Force on Information Technology and Software Development	Made specific recommendations on introduction of IT in the education sector including schools. The Report recommended provision of computer systems to all educational Institutions up to Higher Secondary/ Secondary Schools by suitable investments.

Section 5. Definition of ICT

ICTs stand for Information and Communication Technologies and are defined, as a "diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information." These technologies include computers, the Internet, broadcasting technologies (radio and television), and telephony. **(UNDP, 2000)**

The term, information and communication technologies (ICT) refers to forms of technologies that are used to   create, store, share or transmit, exchange information. This broad definition of ICT includes such technologies as: radio, television, video, DVD, telephone (both fixed line and mobile phones), satellite systems, computer and network hardware and software; as well as the equipment and services associated with these technologies, such as videoconferencing and electronic mail. **(UNESCO 2002)**

Information and Communication Technologies consist of the hardware, software, networks, and media for collection, storage, processing, transmission and presentation of information (voice, data, text, images), as well as related services. ICTs can be divided into two components, Information and Communication Infrastructure (ICI) which refers to physical telecommunications systems and networks (cellar, broadcast, cable, satellite, postal) and the services that utilize those (Internet, voice, mail, radio, and television), and Information Technology (IT) that refers to the hardware and software of information collection, storage, processing, and presentation. **(WORLD BANK 2002)**

In this document, the term ICTs refer to all the technologies used for handling and communication of information in School Education.

Section 6. Goals

- ICT literacy for all, and using ICT as a tool for basic literacy

- Ubiquitous ICT-enabled schools, for ICT-aided teaching and learning environment, and for school information and administration

- Every school teacher to be ICT literate

Section 7: Objectives and Targets

7.1 ICT literacy for all

- Every child leaving high school will be ICT literate

- Every child will be introduced to the basics of computers class VI onwards. Targeted achievements of computer literate students will be attained at least 25% by 2012, 50% by 2015, 100% by 2017.

7.2 Ubiquitous ICT-enabled schools by 2012

- All high schools will have basic ICT infrastructure installed by 2012. Basic ICT infrastructure is defined in Annexure I.

- Initial Computer lab based infrastructure will be finally replaced by ICT enabled/ supported classrooms for more effective delivery of lessons

- All high schools will be connected to Internet by 2012

- Each school will have a component of ICT integrated in the over-all development plan of schools

7.3 Empower school teachers with ICT tools

- All teachers in high school will be trained in the use of ICTs for teaching/ learning/ assessment.

- All teachers will move from a teacher-centric to learner-centric teaching-learning classroom environment, where the teacher would act as a facilitator.

Section 8. Thematic or Strategic Objectives

8.1 Infrastructure

8.1.1 Connectivity

Each student will have access to ICT-based learning technology. The State education departments will develop a long-term plan and strategy for providing connectivity to Internet in all schools by 2012. Each school will act as an information hub for community access to education.

8.1.2 Electricity

Priority will be given to provide power supply to all secondary schools to equip those to use ICTs in teaching and learning. There should be endeavours to secure alternate sources of electricity/renewable energy to meet power requirements.

8.1.3 School ICT Infrastructure

Each school will be equipped with ICT-enabled classrooms. An ICT room will also be designed for students to experience self-learning. The ICT tools and equipments will be integrated in the school ICT plan keeping in mind affordability and sustainability factors of the school.

8.1.4 School as an Information-hub

a. The States should enhance the ability of the School Education system to share resources and increase access to learning opportunities and information by all. Schools will act as information and learning centre, equipped to use video, radio and TV for teaching and learning.

b. Community libraries will be established with a digital repository of educational materials along with books. States will work with NGOs as partners to provide education facilities to out-of-school youth through these community libraries and school as an information hub as a whole. Thus, the school infrastructure will be accessible to communities, which can also ensure sustainability of ICT infrastructure so created in schools.

c. There are other e-governance initiatives such as Village Knowledge Centers (VKCs) and Community Service Centres (CSCs) that can be integrated with the schools, to act as Knowledge Centers, designed to empower rural learners with new knowledge and skills through a dual-approach for ICT literacy and ICT as the mode of education delivery. Village kiosks can also be set up near the school premises to avail connectivity and ICT infrastructure.

8.1.5 Ownership and sustainability

Each State will institute an ICT cell within the State Education Department for planning, implementation and evaluation of ICT in Education plans and

programmes in schools. Their responsibilities include laying down norms and standards for ICT infrastructure for hardware, software and digital content, along with regular revision and updating once in every three years to keep pace with the technology advancement and to incorporate dynamic changes. An annual e-readiness survey of schools will be carried out by each State to evaluate the impact of policy intervention.

8.2: ICT Content Development and Delivery

8.2.1 Quality digital content for students and teachers

The States will provide quality digital content to all learners and educators to support a range of learning activities in schools. The content will aim at providing ICT literacy for students in schools and teachers in teacher training programmes.

The content should focus on making conceptual learning of school subjects, such as Science and Mathematics, more interesting specially addressing hard-spot topics.

8.2.2 Digital content standards

Quality benchmarks and standards on digital content will be developed by a designated nodal agency. Every State will aim to meet the prescribed national standards on digital content developed for students and teachers separately. The States will identify the best digital content available for schools. It will develop a quality assurance framework to ensure that all digital content is reliable. All the content developed for school students should be based on the prescribed syllabus laid down by the States.

The states will develop a framework for managing copyrights and authenticity of content.

Publicly funded digital content will be accessible free of cost or at/below the dissemination cost. an effort should be made to prevent lock-in, resulting from softwares' or developers' copyright issues.

8.2.3 Content in medium of instruction

A large number of students are learning in regional medium of instruction. Each State will make content available in the medium of instruction followed in the State.

8.2.4 Promote local content

The content available to the schools should address the specific needs of the schools, both in rural and urban locations. in terms of local and low-cost content that is designed or adapted locally by making an appropriate choice of ICT content/medium. Community access points such as public kiosks should be made available to access local content.

8.2. 5 Digital content for self-learning

The digital content provided to schools should be designed to ensure students' interaction with technology and promote self-learning. The content should support a graded approach to cater to the needs of students from different classes.

8.2.6 Digital content for blended learning

Digital content should be creative and support a blended learning approach, and not be mere digitisation of textbooks.

8.2.7 Digital content for teacher training

Digital content for teacher training curriculum will empower them to use technology in pedagogy. The content development will be based on instructional design. ICTs are not to replace teachers but to empower them with tools for effective teaching and learning. The teachers are to play the role of the facilitator and enjoy the experience of using ICTs in the school/classroom/lesson delivery/self-learning.

8.2.8 Digital Repositories

Digital content is developed/acquired to share and adapt for multiple purposes. Online digital repository of content will provide universal access to learning resources and services for continuous improvement in curriculum practice, in classroom and distance learning settings.

The State Education Departments will develop cost-effective systems for schools to access online resources with in-built systems for upgradation according to the national/state curriculum modifications. The States will encourage innovative methods to create offline Intranet content available in local repositories – where Internet connectivity is not reliable or unavailable.

8.2.9 Digital content for Project-based Learning

The digital content should encourage project-based learning. ICT projects will be included as part of the school curriculum in all subjects.

8.3 Capacity Building

Every teacher will be capacitated to use ICTs effectively in classrooms. ICTs will be integrated in the teacher-training curriculum, which will empower them to prepare today's students for tomorrow's workforce and for lifelong learning. Training will also be provided to school principals, ICT coordinators and school administrative staff to ensure a technologically sound school environment.

8.3.1 ICTs in Teacher Training-Pre-service and In-service

ICTs in teacher training will be integrated both in pre-service and in-service courses and programmes and pervade through all institutions involved in teacher training.

In all pre-service teacher-training programmes, there will be a compulsory subject on ICTs to enable all teachers to use technology confidently to create, organise, communicate, and apply knowledge.

Regular in-service training for teachers and refresher course for education sector personnel on effective use of ICT tools will be mandatory.

The online teacher training courses for pre-service and in-service should be developed by a Government appointed nodal agency. The license and distribution of online course materials will be made available to educational institutes at all levels. An online assessment system along with certification of proficiency levels in ICTs should be developed as part of Teacher Training.

8.3.2 Capacity building for Vocational Education and Training (VET)

Professional training of all teachers and trainers, focused on implementation of ICT based teaching-learning practices in VET, will be organized.

8.3.3 Capacity building of School Principals in ICTs

The States will see to building capacity of school principals in ICTs as pivotal leaders to ensure educationally sound, well-planned and sustainable ICT-integration plans.

8.3.4 ICT competency areas

Use of ICTs to improve capacity building is planned for ICTs competencies of teachers in the following four areas:

a. ICT Literacy: It is about using digital technology, communications tools, and/or networks to access, manage, integrate, evaluate, and create information in order to function in a knowledge society. This is an awareness stage in which teachers and staff become 'ICT literate' with regard to availability of a particular technology and its usability. Elementary concepts of ICT, using computers and managing files, word processing, spreadsheets, databases, creating presentations, finding information with the help of

computers will be incorporated in the training for basic ICT literacy. It also includes training on troubleshooting, repair and maintenance of equipments.

b. ICT in pedagogy: It focuses on teachers' instructional practices and knowledge of the ICT curriculum. Teachers will develop ICT applications within their subject disciplines and syllabus for effective delivery of lesson.

c. Project-based Learning: As teachers become more familiar and confident with ICTs, they will begin to integrate subject areas and tools to work on project-based learning across subject areas.

d. ICT as an elective subject (Specialisation): ICT as a senior secondary level elective subject will introduce diverse ICT related subjects in addition to IT/Computer education, such as web designing, engineering drawings, media tools and handling, etc. to develop entrepreneurial skills in workforce.

8.3.5 Alternate modes of Capacity Building

Each village will have a school-based Telecentre with computers and Internet connectivity to act as teacher professional development centre. Radio and television will be used for teacher training. Virtual Resource Centres can be also used for in-service teachers to avail training facilities via video-conferencing.

8.3.6 ICT Lab Assistant

Each school will have an ICT Lab Assistant, to assist teachers to use and maintain ICT tools/equipment. He/she will be trained upto a certain proficiency level required to use ICTs in subject teaching and to maintain equipment.

8.3.7 Neighbourhood Schools Network

Different schools are at various levels of ICT-readiness. Networking of schools will be promoted, wherein the schools will build knowledge sharing partnerships with each other to support the comparatively lesser-abled schools.

8.4 Innovations and Research

8.4.1 There is a need for innovations in delivery of education using ICTs, for increased effectiveness in pedagogy and cost at all levels. The States will encourage and promote the innovative use of ICTs for improved learning and teaching. States will promote research on ICTs in education to focus on improving prevalent technologies and developing new indigenous ones.

8.4.2 In the context of ICT and education, innovation is not only about technology but also about understanding untapped user needs. By innovation, it is meant; schools, teachers or support agencies creatively adapt technologies for effective application of available technology and access resources, where such innovations are adaptable and scalable.

8.4.3 ICT in Education Innovation Portal

A typical innovation ecosystem provides linkages among the various stakeholders including firms and entrepreneurs, government, educational and research institutions. These linkages encourage collaboration for idea generation and transformation of ideas into a business outcome.

Each State should have an online repository hosted to highlight and encourage research and innovation on use of technology in education sector and to promote localised and cost-effective solutions which maximise effective use of ICT in education and training in the state and regional context. The portal will identify, document and disseminate ICT in education innovations, acknowledge and reward local innovations.

8.4.4 National ICT in Education Excellence Awards

Each year National ICT Excellence Awards will be announced to identify and celebrate the best practices in ICTs in schools demonstrated by students/teachers/schools.

Section 9: School Information Management System

9.1 The present day education requires a professional, streamlined and effective administration. ICTs should intrigue new efficiencies and an increased capacity to utilise data in schools.

9.2 School ICT Plan

ICTs play a major role in improving the efficiency and effectiveness of school information management and administration systems. Schools will have a comprehensive long-term plan for the use of ICTs to establish a holistic, planned and sustained ICT integration program with quality technical support.

Each school will have an ICT School Plan integrated in the over-all school development plan. The schools will also have an ICT implementation strategy for hardware, connectivity, software, technical support and digital resource materials.

Use of GIS for planning of new schools in districts should be encouraged.
The schools will hire trained data entry operators to collect and feed data.

9.3 School Digital Repository

Each school will maintain all information of the school in a centralized database. Each school will have its own portal featuring all school related information to allow access to each stakeholder (principal, teachers, students, parents, and staff) from anywhere, anytime.

The digital repository will consist of syllabus, curriculum-related courseware; digital library linked to various classes will also be available for students and teachers.

Section 10: Public Private Partnerships (PPP)

10.1 Public Private Partnership to leverage economies of scale

PPP will be encouraged at all levels of ICT in education delivery mechanism to provide quality education to all by leveraging economies of scale through channelisation of the social responsibilities of private companies in the education sector. PPP is fundamental to the integration ICT in education sector, as it will create an ecosystem for private sector to work with government and development organisations to extend the benefits of technologies to schools.

10.2 Roles and Responsibilities

The PPP should clearly indicate the roles, responsibilities and well-defined accountability procedures of the partners. There should be a built-in monitoring and evaluation component in the PPP based on schools' feedback.

The partnerships will ensure that the latest advancements in information technology reach all schools, as the private sector would act as service providers by combining their assets and skills to accelerate the benefits of ICT in education delivery. The partners will be encouraged to emphasise on education of girls, women, and the less privileged. PPP will be encouraged in providing ICT infrastructure, implementing latest technologies in classrooms, developing and distributing digital content and skills training at school level to improve the quality of education.

10.3 Vocational Education

Participation of private sector and NGOs will be encouraged in improving ICT facilities and resources of vocational education technology (more information available in Section14(ICT in Vocational Education).

Section 11: Monitoring and Evaluation (M&E)

11. 1 Annual Survey in Schools

M&E process to be an integral component to keep the process up-to-date and incisive, ICT policies and practices to be reviewed and revised periodically. Every year a survey of e-readiness of all schools will be done. It will involve variable indicators of e-assessment and readiness of schools. The respective State Education Departments will institutionalise that survey under the ICT cell.

11.2 Educational Management Information System (EMIS) of schools

The   EMIS of schools will measure the impact of ICT intervention annually on a number of educational indicators like enrolment, gross enrolment ratio, net enrolment ratio, retention rate, dropout rate, completion rate, repetition rate, transition rate, etc. The EMIS will reflect the impact of ICTs on overall achievement levels of schools and students.

11.3 Monitoring mechanism and agency

 A three tier monitoring mechanism will be followed, ie first at an internal or school level, external (agency allotted), annual EMIS School level, State Level and National Level monitoring required., institutions of proven excellence will be involved in monitoring at all stages to encourage independent evaluation .

Section 12: Financing

12.1 ICT integration at all levels in the education sector is a capital-intensive process. Sound management and financing of ICTs in education policy are necessary conditions for the effective integration of ICTs in schools. Financial management for (ICTs) includes improved teaching and learning investments for skill development of learners, teachers, support staff and leaders, educational content and school administration investments on technical infrastructure.

12.2 Special Budget Allocations

To facilitate annual budgetary provisions for ICT-in-education activities for children with special needs, girl education and socially disadvantaged and out-of-school learners. Computer recycling and refurbishment should be encouraged by the States through financial incentives.

12.3 ICT Infrastructure

To ensure the site readiness of all schools, there must be an initial financial investment by the government at the national level, especially in basic ICT infrastructure and resources.[1]Consideration must therefore be given to implementing a maintenance strategy that can prolong the life span of the computer equipment installed in schools and minimize any additional cost associated with the malfunctioning of equipment.

12.4 Sustainability

Encourage the formation of school ICT leadership for financial planning and implementation plans in schools. Schools are provided with basic technological infrastructures and are given the autonomy to decide on the kind of ICT resources and tools that they should acquire, based on their own visions and analyses of their students' learning needs. Each school should have an ICT procurement plan as part of the school overall budget. Feasibility studies should be conducted for cost-effective ICT interventions in schools.

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Section 13: Norms and Standards

13.1 The policy recognises the need for agreed standards for ICT infrastructure, equipment (hardware and software), content development and capacity building, to deliver effective education through ICTs.

13.2 The ICT in School Education Steering Committee will develop and maintain a list of standards. The Committee will ensure the selected standards allow for reasonable interoperability (open standards), diversity, vendor independence, functionality, and value for the education community. The Committee will recommend changes to the standards, which must be endorsed by the Policy Executives to officially become a policy. Specifically the standards policy should include, Hardware Platforms, Operating Systems, Software, Database, Network Infrastructure, Management Systems, Software required for the national curriculum and digital repositories, Audio Visual resources and Archiving etc. All donations and private/civil partnerships will be expected to follow the standards.

Section 14: ICT in Vocational Education

14.1 ICT as a tool and as a vocational subject will play a major role leveraging the delivery of vocational training and skills to school students. To improve occupational skills and technical knowledge enhance individual employability; reduce the mismatch between demand and supply of skilled manpower.

14.2 Vocational Education and Training (VET) in Schools

Secondary and Higher Secondary Education are important terminal stages in the system of general education. At this stage, the youth decide whether to pursue education, opt for technical training or join the workforce. Vocational Education and Training should be promoted through both formal and non-formal education system. Access, through Open and Distance Learning (ODL) mode will be enhanced along with Educational Satellite (EDUSAT) for popularization of VET programmes. The option of providing vocational training through the Internet will also be explored for development of multi-skills and regular updation with technology advancement.

14.3 The States will introduce ICTs in the secondary and higher secondary schools as optional vocational subjects to simulate work atmosphere. ICT as a mode of subject delivery is aimed as a remedial measure to tackle shortage of teachers in Vocational education and improve the quality of education delivery. Intensive teacher training should be conducted for teachers teaching vocational subjects.

14.4 The subject delivery will provide modular learning opportunities, and be practical oriented. Virtual labs will be set up with public private partnerships for computerized vocational training. Strategies for encouraging access to Vocational Education and Training (VET) for marginalized groups, including SCs, STs, OBCs, Minorities, girls, street children, working children and differently-abled children, will be adopted.

14.5 The policy will encourage digital content design and production of a wide range of vocational training courses for all levels with a special focus on higher secondary levels.

14.6 ICT Learning Resource Centres (LRCs)

The existing secondary schools will act as extension centers for ICT vocational courses. Schools will be equipped with Learning Resource Centres (LRC). This resource room could be used for vocational education purposes by the school in post-school hours. It should be equipped with a library and ICT infrastructure and connectivity with a Vocational Education teacher-in-charge.

Section 15: Open and Distance Education

15.1 States will promote open and distance learning using ICTs for education delivery for expanding access to primary and secondary education through open schools.

15.2 Educational councils and boards will promote use of online learning tools, CD modules, EDUSAT facilities to augment the reach of educational opportunities in dispersed locations where conventional schools are not viable. It will provide a choice to learners of what, when and where they want to learn. ICTs in open and distance learning through National Institute of Schooling will ensure a safety net to school dropouts to continue their education and offer a choice for continuing education to those who want to combine work with learning.

Online education and blended learning will form an integral part of open and distance learning.

15.3 Online Registration: An online registration system will be adopted by NIOS and State agencies for open schooling.

Section 16: ICT for Special Needs

16.1 The policy will encourage use ICTs to engage 'hard to reach' learners, with special needs support, more motivating ways of learning, and more choice of how and where to learn. ICTs will provide them a medium for education.

The States will introduce ICTs as a medium and a powerful tool to support inclusive practices to address issues like under-achievement and educational exclusion.

16.2 Remote Areas: In India, there is large variation between States, districts and blocks with respect to educational infrastructure and outcomes. ICTs as a tool can be used to address the issues of accessibility and connectivity as these areas need special attention. ICT school programmes should be given priority in the geographically difficult and remote areas. Mobile computers vans with ICT Infrastructure can be a good resource for these children.

16.3 Disadvantaged Groups

SC and ST children, children belonging to religious, linguistic and ethnic minorities and girls, who have lagged behind in education will be dealt with special focus and strategies both in education planning and implementation.

16.4 ICTs for addressing disabilities

ICTs can be instrumental in providing alternative ways of learning, the basic elements of School Education and developing life skills for increasing employment opportunities with the supporting software and multimedia. The policy will urge the States to use Open and Distance education and e-learning tools for the physically challenged learners to provide a customized pace of learning.

16.5 ICT for girl education

While planning for ICTs in School Education, due attention will be given for greater access and use of ICT facilities by girls. Convenient time should be allocated for access and has to be formalised under the existing NPEGEL / KGBV schemes to facilitate inclusion of girls in ICT interventions and programmes in schools. The schools will build a strategy to recruit more ICT-trained women teachers in schools to increase the pool of educated / trained women from specific areas / social groups.

ICT centres will be directed to provide facilities for girls to avail the services of the centre outside school hours.

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ANNEXURE I

ICT Infrastructure

1. **Computer Aided Learning:** 3 CPU with 9 monitors per school – locally networked with modem – both CDMA and GSM – Multiple monitor model – 2 years warranty, UPS –2 hours power back up for facility, step up stabilizer & electrical wiring, Inkject Printer, Furniture

2. **Computer Aided Instruction:** 29" TV (for satellite based program as well), CPU with Combo drive, Key board, mouse along with PC to TV connection device, Trolley with enclosed cabinet

3. **Satellite based Programs:** IP ROT, Antenna – Receiver terminal, Digital Receiver with set top box

4. **Radio Programs:** Radio Program monitoring: Phone / Mobile device for transmission of reports