

5 ICT in Education Curriculum for Teachers

The teachers' curriculum is considered a significant vehicle for the realisation of the goals of the National Curriculum Framework and consequently is designed to provide an enhanced exposure to information and resources for ongoing professional support, improved teaching-learning-evaluation-tracking, and increased productivity. The National Policy on ICT in School Education organises the competencies for ICT Literacy into three broad levels, basic, intermediate and advanced, and the curriculum subsumes them.

Stage 1

Basic Basics of computers and basic use of tools and techniques – operate a computer, store, retrieve and manage data, use a computer to achieve basic word and data processing tasks; connect, disconnect and troubleshoot basic storage, input and output devices. Connect to the internet, use e-mail and web surfing, use search engines; keep the computer updated and secure; operate and manage content from external devices (sound recorders, digital cameras, scanners etc.); connect, disconnect, operate and troubleshoot digital devices.

Stage 2

Intermediate Create and manage content using a variety of software applications and digital devices; using web sites and search engines to locate, retrieve and manage content, tools and resources; install, uninstall and troubleshoot simple software applications.

Stage 3

Advanced Use different software applications to enhance one's own learning – database applications, analysis of data and problem solving, computing, design, graphical and audio-visual communication; undertake research and carry out projects using web resources; use ICT for documentation and presentation; create and participate in web based networks for cooperative and collaborative

learning; become aware of issues of cyber security, copyright and safe use of ICT and take necessary steps to protect oneself and ICT resources

The content of the curriculum involves activities which simultaneously draw upon competencies from different levels, such that a completion of all levels is ensured. The ICT in Education curriculum broadly attempts to equip teachers with ICT competencies to strengthen their own professional capacities and to effectively use ICT tools and devices in their teaching- learning. Teacher will also be trained to manage the ICT environment in the school and function as a local coordinator for organising capacity building programmes.

The curriculum therefore is rolled out as a series of short courses, spanning the six strands and ensuring together the basic, intermediate and advanced levels of competence. Three induction and twenty refresher courses leading to a diploma in ICT in Education is proposed. Induction courses are to be conducted in face to face mode whereas State (SCERTs/ SIEs) may chose to conduct the refreshers in face to face or in online mode.

- Induction 01* (For beginners) – 10 days (4 credits)
- Refresher 01 -10 (For all teachers) – Each refresher 40 hours: 24 hrs of transaction and 16 of project & presentation (20 credits)
- Induction 02 (For all teachers) – 5 days (4 credits)

(*Note – A large number of teachers are likely to have been trained or acquired qualifications making them advanced users of ICT. Such teacher shall be permitted to complete all activities and assignments populating their e-portfolio at their own pace without attending the face to face training.)

In addition, advanced refreshers (11-20) and induction 03 are available to extend teachers a range of exposure to ICT. State may choose some or all based on the availability of time/ resources. Refresher 14 to 17 will include optional courses; a number of subject specific courses will be offered under the advanced refreshers so that the teacher may choose minimum of any four courses from

them. Based on developments in the field of ICT and ICT in Education, newer modules will be continuously added and teachers can be encouraged to undertake the module.

5.1 Objectives

After undergoing this course the teacher will be able to:

1. Effectively use ICT tools, software applications and digital resources
2. Integrate ICT into teaching-learning and its evaluation
3. Acquire, organize and create her own digital resources
4. Participate in the activities of teachers' networks
5. Participate in the evaluation and selection of ICT resources
6. Practice safe, ethical and legal ways of using ICT
7. Use ICT for making classroom processes more inclusive and to address multiple learning abilities

5.2 Course Structure

Course structure is organised as three inductions and twenty refreshers.

5.2.1 Induction 01 - Basics (10 days)

Ses. No	Session Title	Description
1	Registration and Entry level assessment	Registering in course port, introducing to the co-learners and filling the entry level competency questionnaire
2	Creating with ICT – Media : Images	Creating/ capturing images as piece of communication in multiple ways using mobile
3	Creating with ICT – Media : Audio and video	Creating audio and video as piece of communication in multiple ways using mobile
4	Creating with ICT – Text	Creating text as a piece of communication by inputting and formatting text.

Session No	Session Title	Description
5	Inputting in regional language	Creating text as a piece of communication in regional language by inputting and formatting text
6	Creating with ICT – Data	Understanding forms of data, different formats in which data can be captured - images, numbers, text, audio, video etc and various ways of representing data. Reading data and making meaning out of it
7	Bringing together hardware and software	Acquainting with the functionalities of a system and general features of operating system. Connecting and configuring the hardware for specified purpose.
8	Introduction to browser and browsing	Accessing relevant information from the web using URL
9	Accessing information through web	Accessing textual information using search engines
10	Exploring Web resources I	Accessing images in several ways and using various techniques
11	Communicating through Email	Communicating through email using the web in a safe and responsible manner
12	Exploring Web resources II	Accessing media resources by exploring various repositories
13	Working with data – Exploring spreadsheet 1	Working with spreadsheets to input, organise, classify, order and analyse data – text and numeric
14	Working with data – Exploring spreadsheet 2	Working with spreadsheets to extend and represent data using graphs.
15	Creating with ICT - Textual Communication	Creating textual communication and enhancing with tables, various media, special characters, symbols and formulae
16	ICT in the classroom – hardware and software	Practising various possibilities of using hardware and software in classroom environment

Session No	Session Title	Description
17	Introduction to Assistive technologies	Understanding assistive technologies and ICT based assistive devices
18	Collaborating and transacting with Web	Collaborating with others through e-groups. Acquainting with web based courses platforms and transacting through web
19	MIS systems for educational management	Understanding the need, important, structure and functioning of School based MIS
20	Exhibition and Evaluation of e-portfolio submission	Output created for assignments will be evaluated based on the rubric. Best works will be showcased

5.2.2 Basic Refreshers (Each refresher for 40 hours)

Refresher No	Refresher Title	Description
1	ICT for teaching-learning – 1	Appreciate the potential of ICT in Education, specifically in teaching and learning. Releasing the importance of learner analysis and classroom analysis. Analyzing curriculum to identify areas for ICT infusion (analyzing and abstracting, evaluating and problem solving). Determining the ICT resources for teaching-learning.
2	Digital storytelling	Capturing information in non-textual ways; appropriate media choices for a given communication need. Combining text, graphic and audio visuals to create a communication. Developing a story and scripting by combining multiple digital media. Developing digital stories for communication in classrooms. Evaluating digital stories. Exploring possibilities for inclusive using digital story telling.

Refresher No	Refresher Title	Description
3	Internet as a learning resources	Exploring the internet and Identifying appropriate resources for personal enrichment, professional learning, teaching learning ideas and creation of multiple learning spaces. Organizing the identified resources. Evaluating resources for use in specific contexts
04 – A/B/C/D	ICT for teaching of Languages/ Mathematics/ Sciences/ Social Sciences	Understanding the scope of using ICT in teaching of subjects. Exploring range of ICT tools such as subject specific FOSS, internet based resources, mobile apps etc for teaching and learning of specific subject.
05 – A/B/C/D	Simulations for teaching of Languages/ Mathematics/ Sciences/ Social Sciences	Exploring various simulation based tools/ resources for teaching specific subject. Creating e-resources for specific subjects using simulation tools. Building personal libraries of content resources.
06 – A/B/C/D	Interacts for teaching of Languages/ Mathematics/ Sciences/ Social Sciences	Exploring various interactive tools/ resources for teaching specific subject. Creating e-resources for specific subjects using interactive tools. Building personal libraries of content resources.
07 – A/B/C/D	Games and Apps for teaching of Languages/ Mathematics/ Sciences/ Social Sciences	Exploring various mobile apps and games for teaching specific subject. Creating e-resources for specific subjects. Building personal libraries of content resources.
8	ICT for teaching-learning – 2	Designing and organizing learning environments for classrooms. Mapping skills to be built and the content. Identifying applications, media and materials to enhance teaching learning process. Developing ICT infused instructional plan and build personal libraries of classroom ideas and resources.

Refresher No	Refresher Title	Description
9	ICT for teaching-learning – 3	Deconstructing ICT for teaching-learning (Using ICT in the classroom, technologies and methods. Organizing learning and designing learning environments (classroom organisation and adaptation for ICT). . Interacting with hardware and software. Building personal libraries of classroom resources.
10	ICT for evaluation	Exploring ICT based tools and techniques. Building personal libraries of evaluation resources. Applying ICT tools for evaluation of teaching-learning process.

5.2.3 Induction 02 - Intermediate (5 days)

Session No	Session Title	Description
01	Trouble shooting and seeking help	Solving problems while working with ICT tools. Getting assistance on solving the issues from web.
02	Installing hardware and software	Identifying the requirement for installing software. Understanding the process of installation.
03	Synchronous communication on web	Communicating with other at real time. Exploring various tools for communicating with others at real time
04	Uploading to the web	Sharing resources in web for wider dissemination
05	Advanced text processing 01	Creating blogs for sharing information.
06	Advanced graphics 01	Exploring various tools for editing images. Creating graphics by applying editing images
07	Advanced spreadsheets 01	Analysing data using advanced formulae and functions. Working with multiple worksheets

Session No	Session Title	Description
08	Storage and backup	Exploring various ways storing resources offline and online
09	Evaluation of e-portfolio	Output created for assignments will be evaluated based on the rubric.
10	Showcase of e-portfolio	Best works will be showcased

5.2.4 Advanced Refreshers (Each refresher for 40 hours)

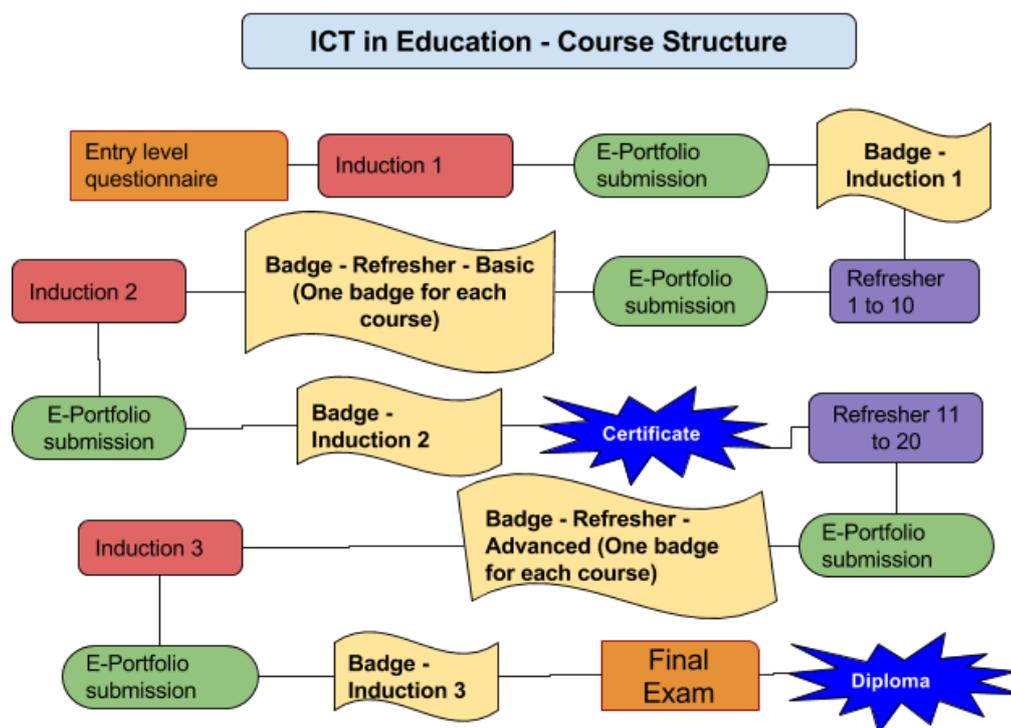
Refresher No	Refresher Title	Description
11	ICT for Documentation and Communication	Deconstructing documentation, communication and media. Exploring tools and techniques for documentation and communication. . Interacting with appropriate software and building personal libraries of documentation and communication resources
12	Data Analysis	Looking at data, reading data and making meaning (using a variety of data sets). Plotting the data set and reading the graph. Querying data sets and plots for analysis, including multiple data set. Using data visualization. Exploring data collection, data capture and analysis formats 6. Evaluating data, data sources and visualizations 7. Using data tables and graphs for communicating
13	Building Communities and Collectivising	Exploring online communities and participating in them. Integrating communities into teaching-learning. Participating in online communities and collectives
14	Social, ethical and legal aspects of ICT & cyber safety	Explore legal aspects of handling issues in cyberspace. Understand the social and ethical behaviour in cyberspace.

Refresher No	Refresher Title	Description
15	Assistive & adaptive technologies	Explore various assistive and adaptive technologies to support teaching and learning.
16	Game Based Learning	Exploring educational games and game source. Creating games infused learning environments. Building personal libraries of gaming resources
17	Data management	Exploring various MIS systems and tools for managing data safely and securely
18	ICT for teaching learning - 4	Exploring various Learning Management Systems (LMS). Understanding the ways and means of delivering courses through LMS. Conducting various activities through learning management system.
19	ICT for Educational Administration and Management	Exploring tools and techniques for administration and management. Interacting with appropriate applications and data source. Participating in ICT based educational administration and management
20	Handling ICT course for students	Explore the ICT course for students. Understand the ways and means of conducting the course.

5.2.5 Induction 03 - Advanced (5 days)

Session No	Session Title	Description
01	Safe and clean ICT environment	Understanding the security measures to safeguard the system in the school
02	Updating and upgrading software	Getting and installing updates operating system and application software
03	Exploring educator communities	Exploring various educational groups for sharing informations, ideas and resources

Session No	Session Title	Description
04	Exploring social networks	Exploring various social networking websites and apps. Communicating through social networking sites and apps in safe mode
05	Advanced text processing 02	Development of text based interactive resources
06	Advanced graphics 02	Development of graphic based interactive resources
07	Advanced spreadsheets 02	Understanding analytics based on school data. Analysing and interpreting school based data
08	Creating a web communication	Identifying ways of communicating through web and being connected to the world
09	Evaluation of e-portfolio	Output created for assignments will be evaluated based on the rubric.
10	Showcase of e-portfolio	Best works will be showcased



5.3 Assessment

Each session of the induction and refresher courses involves an instructor led session followed by hands on session, during which teachers undertake a number of activities. Each activity has an associated deliverable to be recorded in a portfolio (an e-portfolio). Teachers also have to submit various assignments as part of the courses. The cumulative record in the portfolio, representing their achievements during the courses provides comprehensive and continuous assessment. Provision for improving upon one's performance is also built in. Each of the induction and refresher courses also has a summative evaluation. The portfolio attempts to capture all learning and complements the periodic summative assessment through the course.

5.4 Certification

Together, the courses constitute Forty eight credits for a Diploma. Any teacher completing two induction and ten refresher courses becomes eligible to receive a certificate of course completion by SCERTs/ SIEs. Any teacher completing the three induction and the twenty refresher courses becomes eligible to take an examination leading to a Diploma in ICT in Education. This Diploma would be awarded by the NCERT.