Post Graduate Certificate

Reflective Teaching with ICT

HANDBOOK 2017

Tata Institute of Social Sciences

Postgraduate Certificate
in
Reflective Teaching with ICT (RTICT)

HANDBOOK

(for States with CLIx Student Module Implementation)

May 2017

Centre for Education, Innovation and Action Research

TATA INSTITUTE OF SOCIAL SCIENCES

(A Deemed University, established under Section 3 of the UGC Act, 1956)
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INSTITUTE DEEMED TO BE A UNIVERSITY

Number F, 11-22/62-U2,
Government of India
Ministry of Education
New Delhi, the 29th April, 1964

NOTIFICATION

In exercise of the powers conferred by Section 3 of the University Grants Commission Act, 1956 (3 of 1956) the Central Government, on the advice of the Commission, hereby declared that the Tata Institute of Social Sciences, Bombay, which is an institution for higher education, shall be deemed to be a University for the purpose of the said Act.

Sd/-
(PREM KRIPAL)
Secretary

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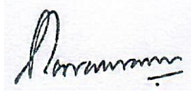
DIRECTOR'S NOTE

Foreword

This Post Graduate Certificate Programme in Reflective Teaching with ICT has been designed to give teachers a new pathway for inservice professional development. The Centre for Education, Innovation and Action Research has designed this programme on the principle that teacher's own practice must be made the centre in INSET, teachers should also be able to take up modules that are relevant and of interest to them and a professional community should be developed. We are pleased to engage with practicing teachers directly and contribute to strengthening and enriching your work. We hope that you will find this programme relevant and useful. Please do send us your feedback so that we can develop and improve this programme.



6th July 2017

Prof S. Parasuraman

Director

1.0 TATA INSTITUTE OF SOCIAL SCIENCES

1.1 About TISS

The Tata Institute of Social Sciences (TISS), which was established in 1936, is a deemed university fully funded by the University Grants Commission (UGC), Government of India. The TISS offers a range of professional programmes and research degrees at its Mumbai, Tuljapur, Guwahati and Hyderabad campuses.

From its inception, TISS has aimed to be at the cutting edge of education, research and outreach in important areas of human development and public policy concerns. It has provided support to government institutions and grassroots organisations and applied its academic research and field expertise to assess policies addressing social needs and social welfare. TISS has consistently tried to seek solutions to the complex real world issues that concern people in India. In the past decade, the Institute has demonstrated its capacity to understand, learn from and respond to the transformations in the country brought by the liberalised economy and globalisation. The Institute has imparted education to and trained generations of social work, management and development professionals.

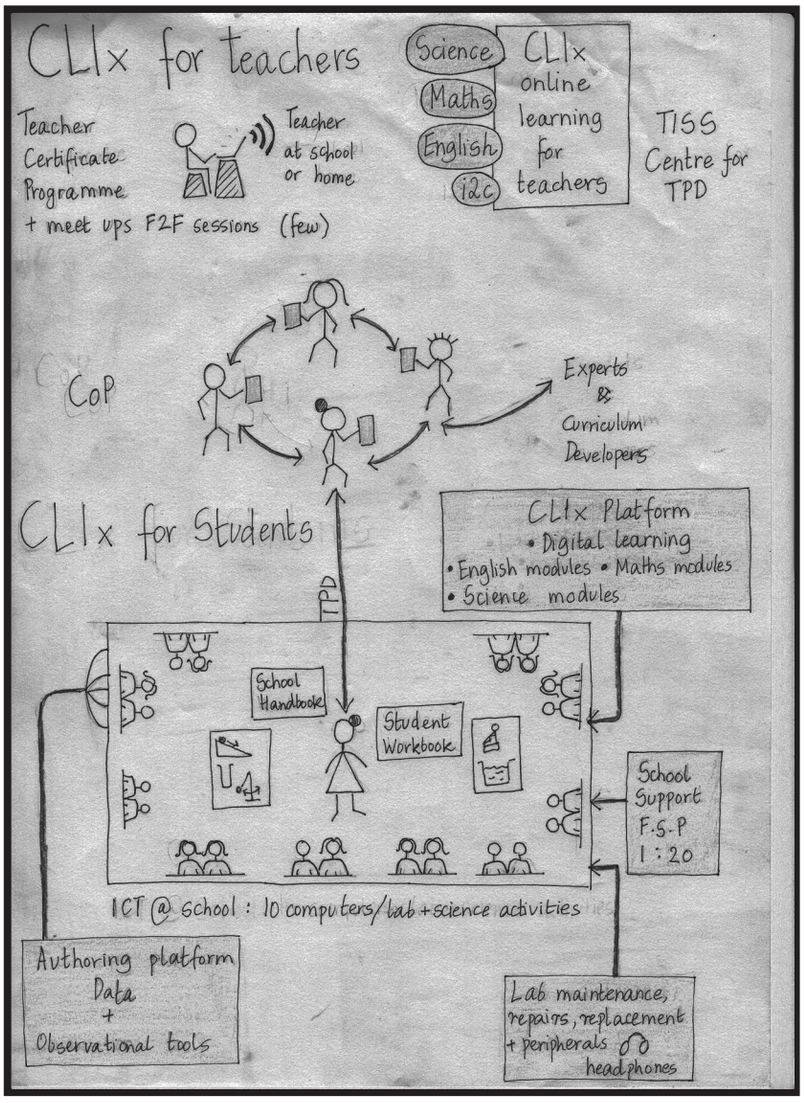
Responding to the requirements of a changing world has involved stepping outside the disciplinary boundaries of conventional higher education curricula, systems and processes to create innovative solutions to problems. During 2004–2006, a process was initiated to adapt the academic structure of TISS in order to respond to the changing conditions in the country. It was felt that the higher education system needed to evolve to respond to the challenges of and utilise the opportunities created by globalisation. The broad objective was to strengthen the Institute's existing capacities and to develop new skills and initiatives to expand its mandate. The aim for TISS was to grow while maintaining continuity with and indeed strengthening its tradition of grassroots engagement and rootedness in the concerns of less privileged persons and groups in India.

Over the years, the Institute has made consistent contributions to civil society and the development sector through its education, research, field action and extension activities. Today, TISS has earned recognition as an institution of repute from different ministries of the central government; various state governments; international agencies such as the United Nations; and the non-government sector, both national and international. A high degree of freedom and autonomy shape the positive work ethos and creativity in the Institute, facilitating strong linkages between education, research, field action and dissemination

1.2 Centre for Education Innovation and Action Research (CEI&AR)

The Centre for Education Innovation and Action Research (CEI&AR) is an independent research centre at TISS Mumbai. It was established in February 2015 to promote innovation in school curriculum, teacher education and higher education curriculum and pedagogy. The Centre provides incubation and promotion of innovations that address the needs of Indian education and engages with innovative use of new technologies and media to raise relevance, quality and standards of education. Towards this end, the Centre collaborates and engages with research, development, teaching and field action. (https://www.tiss.edu/academics/schools-centres/)

1.3 Connected Learning Initiative (CLIx)



The Connected Learning Initiative (CLIx) is an innovative field action programme launched by CEIAR to improve the professional and academic prospects of teachers and high school students from unde served communities in India. CLIx incorporates thoughtful pedagogical design and leverages contemporary technology to provide quality educational experiences at scale across disciplines. The project is currently being implemented in the four states of Chhattisgarh, Mizoram, Rajasthan and Telangana. It is seeded by the Tata Trusts (India), with TISS and the Massachusetts Institute of Technology (MIT, Cambridge, MA, USA) as founding partners (http://clix.tiss.edu).

The two core elements of CLIx are CLIx for students and CLIx for teachers (i.e., professional development). The CLIx platform currently hosts exemplar modules for digital literacy, English, mathematics and science. The platform offers formative assessment features for teachers to monitor student progress. The CLIx platform is available offline in the school ICT labs as well as online at (https://clixplatform.tiss.edu).

CLIx for teachers through the TISS centre for teacher professional development is offering the postgraduate certificate programme Reflective Teaching with ICT (RTICT) that includes pedagogical courses in digital literacy, English, mathematics and science. The courses are practice-based where participants will implement CLIx student modules in their classrooms and share and reflect on their experiences in the community of practice developed for each course.

CLIx's initial development and implementation partners include: Centre for Education Research and Practice, Rajasthan; Eklavya, Madhya Pradesh; Homi Bhabha Centre for Science Education, Mumbai; National Institute of Advanced Studies, Bangalore; Government of Chhattisgarh, Government of Mizoram; Government of Rajasthan; Government of Telangana; Tata ClassEdge, Mumbai; UNICEF Chhattisgarh; The State Council of Educational Research and Training, Telangana; and The University of Mizoram, Mizoram.

1.4 Key Positions

Director :	Prof. S. Parasuraman, M.Sc. (Pune), C.P.S. (IIPS), D.P.D. (ISS, The Hague), Ph.D. (Mumbai)
Deputy Director (Academic) :	Prof. Shalini Bharat, M.A., D.Phil. (Allahabad)
Deputy Director (Research and Development) :	Prof. Surinder Jaswal, M.A. (TISS), Ph.D. (London)
Deputy Director, TISS Hyderabad :	Prof. S. Siva Raju, M.Sc., M.A., Ph.D. (SVU)
Deputy Director, TISS Guwahati :	Prof. D.K. Srivastava, M.Com., D.Phil. (Allahabad), F.D.P.M. (IIM-A)
Deputy Director, TISS Tuljapur :	Prof. Abdul Shaban, M.A. (Delhi), M.Phil., Ph.D. (IIT-Bombay)
Registrar :	Dr. C.P. Mohan Kumar, M.Com. (Madras), Diploma Finance Management (ICFAI), Ph.D.
Chairperson, Centre for Education, Innovation and Action Research :	Prof. Padma Sarangapani, M.Sc. (IIT-Madras), M.Phil., Ph.D. (Delhi)

2.0 REFLECTIVE TEACHING WITH ICT (RTICT) PROGRAMME

2.1 Introduction

The Postgraduate Certificate (PGC) in Reflective Teaching in ICT (RTICT) is designed as an in-service programme of teacher professional development that aims to enhance the practice of elementary (upper primary) and secondary school teachers, with a special focus on the use of ICT in improving the quality of education and pedagogy. The programme has been specifically designed in conjunction with the Centre's work in and development of ICT-enabled student learning modules that aim to strengthen the quality of secondary schools, particularly government schools, and use Indian languages through the Connected Learning Initiative (CLIx).

The research and field action undertaken by the Centre in collaboration with MIT, Cambridge, MA; the Homi Bhabha Centre for Science Education (TIFR), Mumbai; Eklavya, Madhya Pradesh; and other organisations, with support from the Tata Trusts, has provided experience in and understanding of the strategic uses of ICT to support the spread of quality education and teachers' pedagogy.

The PGC in RTICT aims to strengthen teacher practice by:

- Developing professional learning communities
- Supporting the (re)formation of practice through opportunities to use pedagogies with contextual, authentic practices for teachers
- Enabling teachers to reflect on their practice
- Developing critical perspectives on and skills to use ICT in the classroom and for teachers own development.

2.2 Rationale for the Programme

The programme is designed with the conviction that teachers need opportunities to develop their practice and that this learning can be made rigorous and valued through appropriate mechanisms of certification. This programme is based on the premise that new models of teacher professional development must

- Establish and nurture long-term relationships between the instructors and the practicing teachers
- Extend support for learning into the workplace of the teacher
- Value teachers' time, efforts and learning while introducing new ideas, supporting teachers to engage with the ideas, setting new expectations, providing opportunities to engage in peer learning and so on
- Establish new cultures of learning and allow a long period of engagement for these cultures to be established in the classrooms

2.3 Programme Objectives

- To develop one's practice as a reflective secondary school subject teacher
- To develop the understanding and skills necessary to nurture an interactive, active and inclusive classroom.
- To develop a critical perspective on and understanding and skills of ICT use for professional development and ICT as a resource in the classroom to promote student learning.
- To become an active member and participant of a community of professional practice.
- To develop specialised additional skills relevant to secondary school students and teaching.

2.4 Eligibility and Requirements

2.4.1 Eligibility (Initially open to Mathematics, Science and English teachers)

I. Secondary and senior secondary school teachers with an under graduate and teaching degree (i.e. TGT or PGT)
II. Middle school subject teachers with a graduate and teaching degree (TGT or DEd/BElEd with BA/BSc)

2.4.2 Requirements

I. Teachers must be practicing teachers with access to middle and secondary school students and learning labs to try out and implement ICT resources for student learning.
II. The school management must have provided a no-objection certificate to the teacher participating in the programme.
III. Teachers must have access to the following computing devices with connectivity for the entire duration of the programme:
    A. A smart phone with internet to participate in online communities of practice.
    B. A computer with internet access to access the course and complete and upload assignments.

2.5 Programme Structure

Course	Objectives	Duration
YEAR 1: 2017-18		
Compulsory		
C01 Introduction to ICT in Education	• Develop and teach digital literacy skills • Utilise ICT for professional development • Implement ICT- based pedagogy and reflect on the experience	12 weeks / 4 credits
Subject Specialisation (any one)*		
S01 Communicative English Language Teaching	• Examine the impact of sociocultural factors in language learning • Engage with learning principles to facilitate language learning with a focus on communicative language teaching	12 weeks / 4 credits
S02 Reflective Mathematics Teaching	• Develop an understanding of core mathematics ideas, processes and interconnections • Engage with students' thinking and formative assessment	12 weeks / 4 credits
S03 Interactive Science Teaching	• Orient to the aims of science education • Enrich science pedagogical content knowledge	12 weeks / 4 credits
YEAR 2 : 2018-19		
Compulsory		
C02 Action Research / Digital Portfolio	• Conduct research in teaching • Compile reflective portfolio using practice-based artefacts	12 weeks / 3 credits
Electives (Select any three)**		
E01 Values Development in Adolescents	• Understand the values development process in the adolescent child • Develop sensitivity to social context and issues	6 weeks / 2 credits
E02 Using Media in the Classroom	• Develop an understanding of nature of media • Integrate media tools in lessons	6 weeks / 2 credits
E03 Hands-on learning through toy-making	• Practise hands-on skills, problem solving and open-ended thinking through toy-making	6 weeks / 2 credits

Notes:
**In future, more subject specialisations will be offered, including the medium of instruction (mother tongue) or first language, the social sciences.*
***More electives will be added to the*

2.6 Course Modalities

The course is a blended learning programme.

- Face-to-Face (F2F) Workshops and Meetups: Teachers are required to participate in F2F workshops conducted by TISS faculty. The F2F workshops will enable teachers to socialise and interact with the course faculty and gain hands-on experience with the technology-enabled teaching-learning resources. Additional meetups may be organised locally to enable teachers to meet each other, work on small activities, share their experiences and reflect on their practice to develop best practices. Seminars may be organised for teachers to interact with peers as well as experts on specific topics of interest.
- Online Learning: Teachers are required to engage with the course curriculum via a learning platform. The coursework will include watching videos, reading articles, participating in quizzes, submitting assignments, and interacting and engaging with peers and experts on the platform discussion forum.
- Classroom Practice and Implementation: Teachers are required to implement (teach students) the exemplar technology-enabled CLIx student modules in the classroom, record and reflect on classroom practice and complete other such school-based activities as part of the course.
- Self-Study: To complete the course, teachers will independently engage in course readings or other materials, assignments, research, project work, and group assignment work as part of the self-study component of the course.

2.7 Evaluation

Learning in each course in the programme will be assessed through the following assessment types with prescribed weightages as per a predefined schedule, which will be provided at the commencement of the course. The following are indicative assessment components that may involve individual or group work:

I. Presentations held during the face-to-face mode
II. Reflective journals, fieldwork reports or field diaries
III. Essay-type answers with or without media
IV. Reports or dissertations or productions
V. Assessment of class participation or fieldwork or process aspects of fieldwork
VI. Examination or tests (on the online platform) conducted during or at the end of the course

No course shall have only one type of evaluation instrument (Example – 100% assignments). Each course will have a minimum of two types of assessment.

2.7.1 Grading Scheme

A grade point of 4.0 is the minimum passing requirement for individual courses. A minimum grade point average (GPA) of 4.0 is required for passing the programme. Letter grades and corresponding qualifying descriptions and grade point range are given below.

Letter Grade	Level of Performance or Competence	Grade Point Range	Percentage
0	Outstanding Performance – demonstrating high level mastery and ability to apply concepts to new situations	9.0 –10.0	95 – 100%
A+	Excellent – demonstrating mastery of all learning or assessment situations	8.0 – 8.9	85 – 94%
A-	Very Good – demonstrating mastery of most learning or assessment situations	7.0 – 7.9	75 – 84%
B+	Good – demonstrating thorough competence in most situations	6.0 – 6.9	65 – 74%
B-	Moderate – showing reasonably acceptable competence in some situations, minimal competence in others	5.0 – 5.9	55 – 64%
C+	Average Competence – demonstrating minimal competence in most situations, while showing considerable capacity for improvement in others	4.0 – 4.9	45 – 54%
C-	Below Average Competence – Not passing, but still showing some capacity for improvement or development	3.0 – 3.9	35 – 44%
D	Unsatisfactory Competence – Below satisfaction level performance marked by lack of engagement or inability to apply concepts	2.0 – 2.9	25 –34%
E	Highly Unsatisfactory competence – Complete lack of engagement and comprehension; also frequent absence	1.0 – 1.9	15 – 24%
F	Unacceptable – Non-completion of assignments or blank responses in a test or activity	0 – 0.9	0 – 14%

Remarks in the Semester Grade Sheet
S1 - Supplementary – 1
S2 - Supplementary – 2
Re - Repeat Course
I - Improvement Examination

2.7.2 Programme Completion and Credit Requirements Fulfilment

I. The programme requirements include credited and non-credited activities.
II. The cumulative grade point average (CGPA) is computed as the credit-weighted average over all courses undertaken as part of the programme, and all credits accumulated until that assessment period. The CGPA is reported to one decimal place and is also reported upon completion of each course.
III. A participant must maintain a GPA of 4.0 in each course, in order to remain in the programme.
IV. A participant must receive a CGPA of 4.0 points to be considered to have completed the programme successfully.
V. The courses will run once every school academic year. If a participant is not able to complete the course requirements in the stipulated time, s/he can enrol into the course in the following year. A participant will have to complete the entire programme within a maximum period of 5 years from the date of registration.
VI. A minimum of 75% attendance is required in all the face-to-face workshops for all courses.
VII. A marksheet and a certificate will be issued only on the successful completion of all the six courses a participant takes.
VIII. Any changes or exceptions regarding course completion must be brought to the notice of the programme coordinator and dealt with on a case-by-case basis and the decisions will be communicated to the participant(s).

2.7.3 Supplementary and Improvement Assessments

I. Supplementary and improvement assessment will be announced along with the declaration of course results.
II. These are applicable in the following situations:
    A. GPA score less than 4.0 for a course
    B. Attendance shortfall of more than 25% and up to 33%
    C. Beyond the permissible limits that amount to plagiarism
    D. Delayed or non submission of assignments (including due to medical emergency)
    E. Delay or inability to complete the practice component of the course
III. Courses completed through supplementary or improvement assessments will be identified using the following codes placed against the grade for the respective courses in the grade card: 'S1' for Supplementary-1, 'S2' for Supplementary-2 and 'I' for Improvement. Grades received through the Supplementary or Improvement mode will not be considered for award of any prize in which the relevant degree is conferred even if the participant tops the class, fieldwork or research.

2.7.4 Progress on TISSx

An individual participant's progress through the course can be seen on the TISSx course platform. Exhibit 2 is a snapshot of how the platform will display progress in the course assignments (not a real participant).

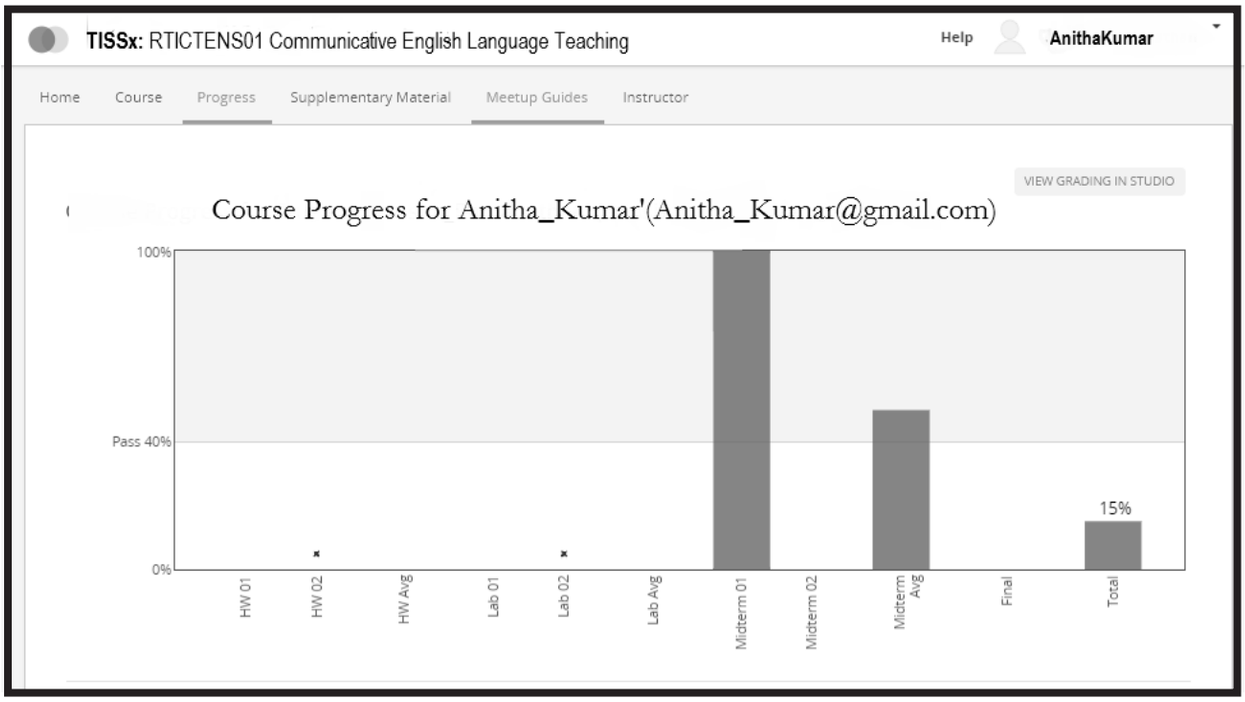


Exhibit 2: Progress on TISSx

At the end of the course, an online verification of the overall performance in the course with a 'Pass' or 'Fail' grade will be displayed. This can be printed.

3.0 RTICT PROFESSIONAL DEVELOPMENT PLATFORM

The RTICT is a postgraduate certificate programme offered through blended pedagogy using the TISSx online platform and face-to-face interactions with TISS faculty in workshops. The RTICT courses are practice-based, facilitating teachers' implementation of the CLIx student modules in their school ICT labs and classrooms. The student modules are available in all the school labs and online.

Reflective teaching is a process that involves inquiring into one's own teaching to improve one's practice. This process is more effective when one engages in discussions about one's practice with colleagues, subject experts and teacher educators within a community of practice (CoP). The RTICT professional development platform includes an online CoP platform via a mobile messaging application Telegram.

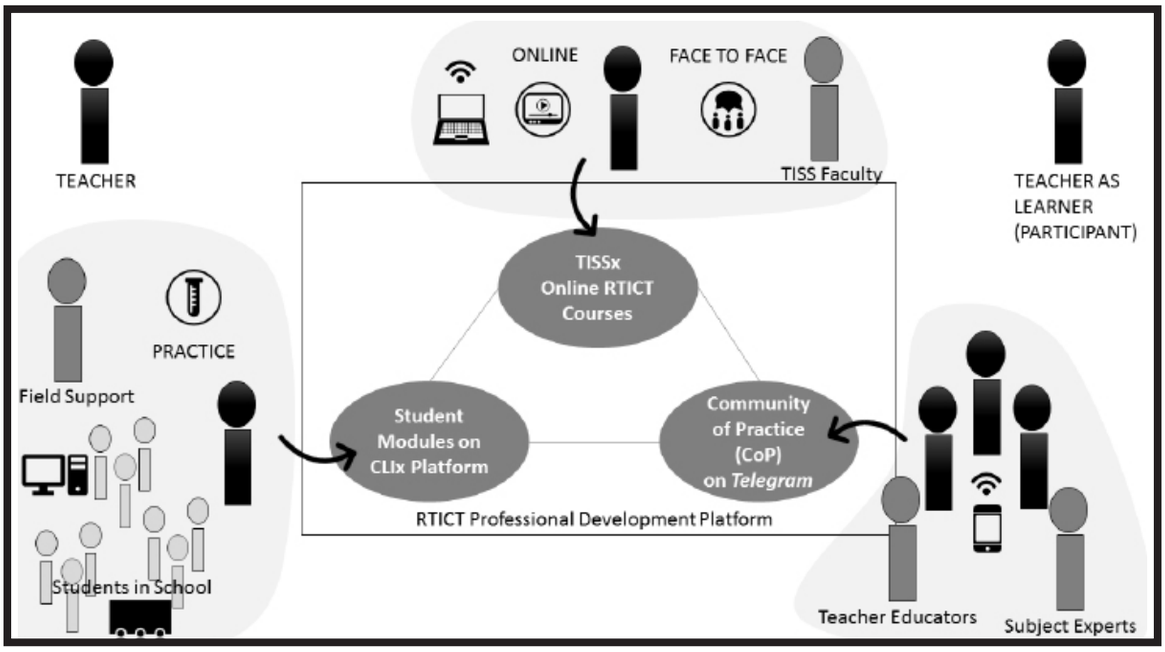


Exhibit 3: RTICT Professional Development Platform

3.1 TISSx

The online course will be conducted on the TISSx platform that is currently powered by Open edX. To become a part of the TISSx Learning Community and complete the courses offered participants must

1. Share their personal email ID with the local CLIx team.
2. Register on the platform https://TISSx.tiss.edu
   a. Give their details using the same email ID.
   b. Make a note of the password they use to register on the site.
   c. Click on the Activate Course link sent on their email ID.
3. Enrol into the course of the teacher's state.
4. Click on their name (top right corner) and click on the dashboard to see the course/s they are enrolled in.

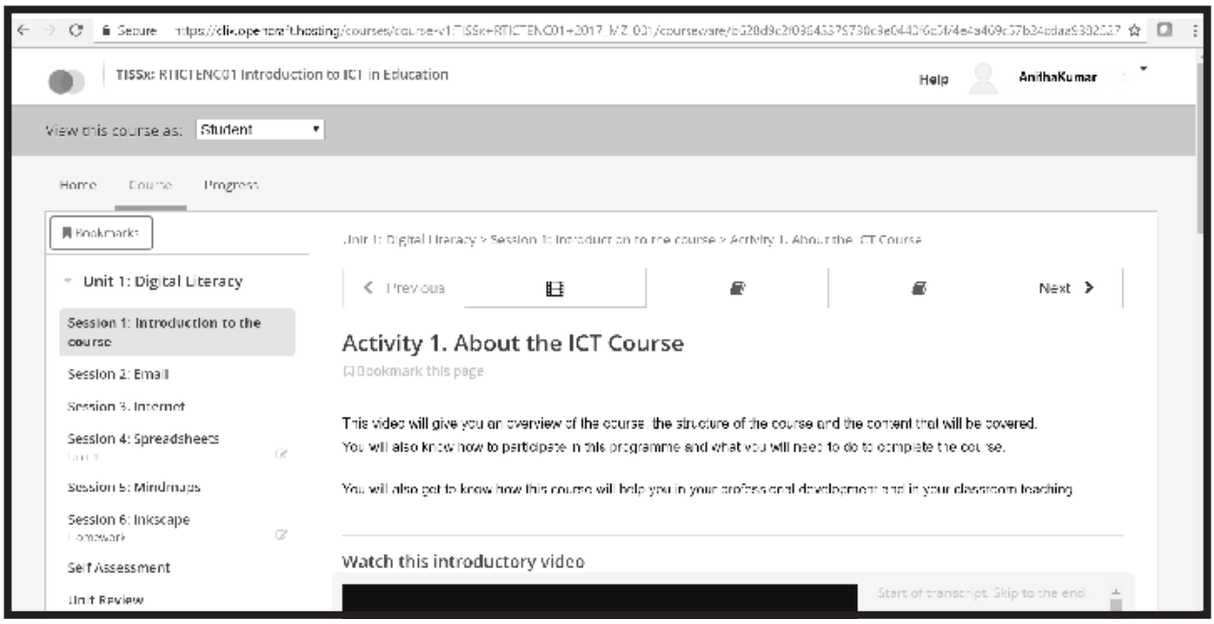


Exhibit 4: RTICTENCO1 Course on TISSx

5. Click on the course they wish to complete.
6. Click on Course, the second link on the left, to view the course details.
7. View, using the left navigation bar, the course units and sessions.
8. View on the top navigation bar the activities within each session.
9. Open the last accessed activity when returning to a course since the platform remembers participants.
10. Click on Progress to see their grades.

3.2 Community of Practice

The RTICT programme will nurture online teacher communities of practice using a mobile-based messaging tool called Telegram. This online community is meant for teachers to share ideas and practices, engage in discussions about teaching and learning and support each other in their work.

Teachers will join a state Telegram channel for the RTICT programme -level announcements.

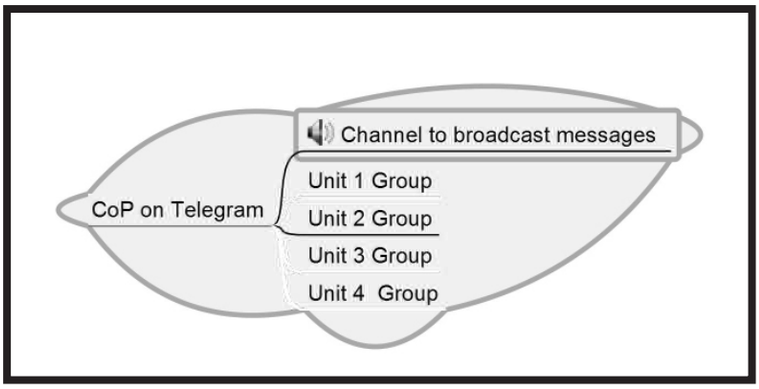


Exhibit 5: Telegram Channel and Groups for TISSx Course

The CoP will run for each course and will include

1. A Telegram channel where course announcements, reminders, and resource links will be broacast.
2. Telegram groups per unit of the course for teachers to engage in discussions, and complete course Telegram activities pertaining to the unit.
3. Channels named as <State><Course Code><Course Name>
   for example, MZC01 Introduction to ICT in Education
   1. Groups named as <State><Course Code> Unit <Unit No> for example, MZC01 Unit 1

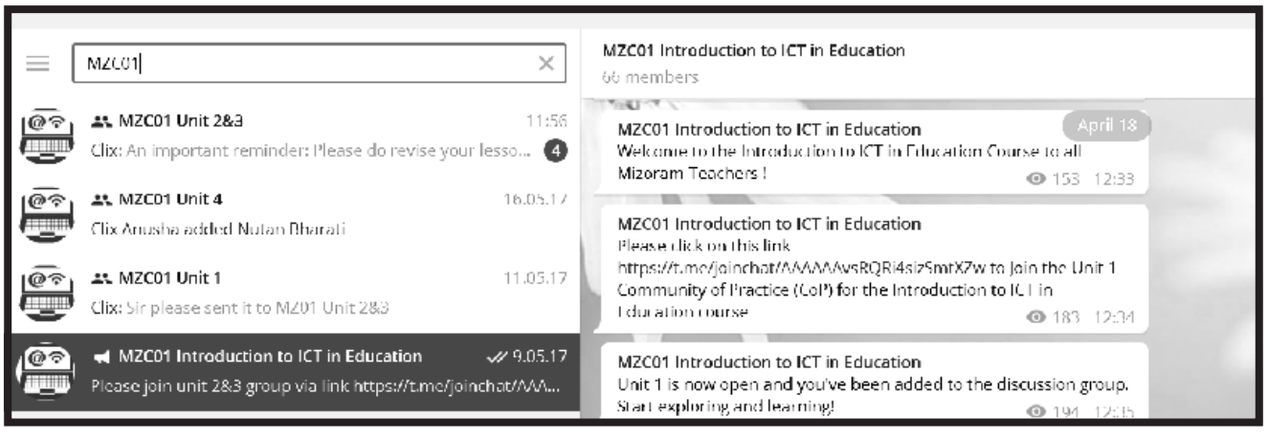


Exhibit 6: CoP on Telegram

To participate in the CoP, teachers will

1. Have a smartphone, tablet or computer with internet access
2. Download the Open Source Telegram application on the smartphone, tablet or computer
3. Join the Telegram channel for the course by clicking on the link sent to the RTICT programme channel.
4. Join each unit group by clicking on the link provided in the course Telegram channel.

3.3 Student Modules on CLIx Platform

The CLIx platform facilitates connected learning of students and teachers. The CLIx platform runs on a school server. It is available offline in the school IC

For Students

For students, CLIx learning tree comprises of Mod containing Units which are formed by Lessons tha turn contain activities.

Students begin their learning journey by enrolling a unit. In every unit, students learn through engag content that comprises text, images, audios, vid games and simulations. On the CLIx platform, stud also create their own artefacts using vari interactive tools and upload the artefacts onto a gall create and share notebook notes as well as pro feedback and discuss with one another. For ev learning activity completed, students score poi

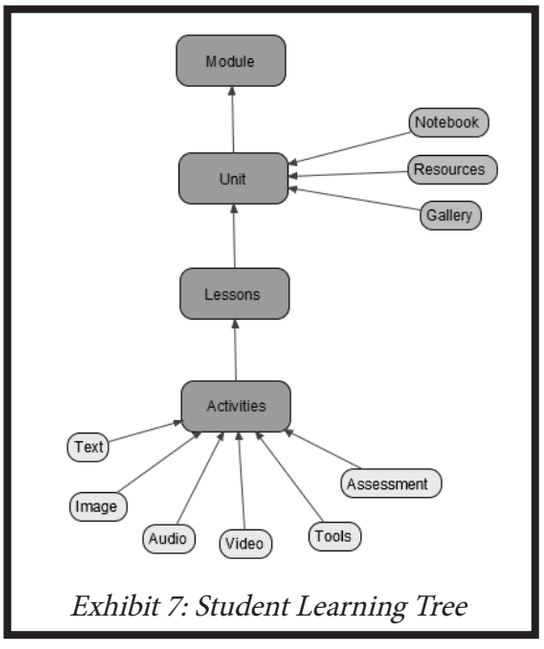


Exhibit 7: Student Learning Tree

One of the unique features of the CLIx platform is Buddy. In the case of more than one students using the same computer, students log in as buddies. Buddies are learning partners. Buddies learn together and help each other.

The CLIx platform is multilingual. Students can choose to see the content in English, Hindi or Telugu.

For Teachers

The CLIx platform offers formative assessment in which students are given feedback to correct any misconceptions. On the CLIx platform, teachers play the role of facilitators and moderate (edit or delete) students' artefacts and comment on and track every student's progress.

The CLIx platform is available online at https://clixplatform.tiss.edu

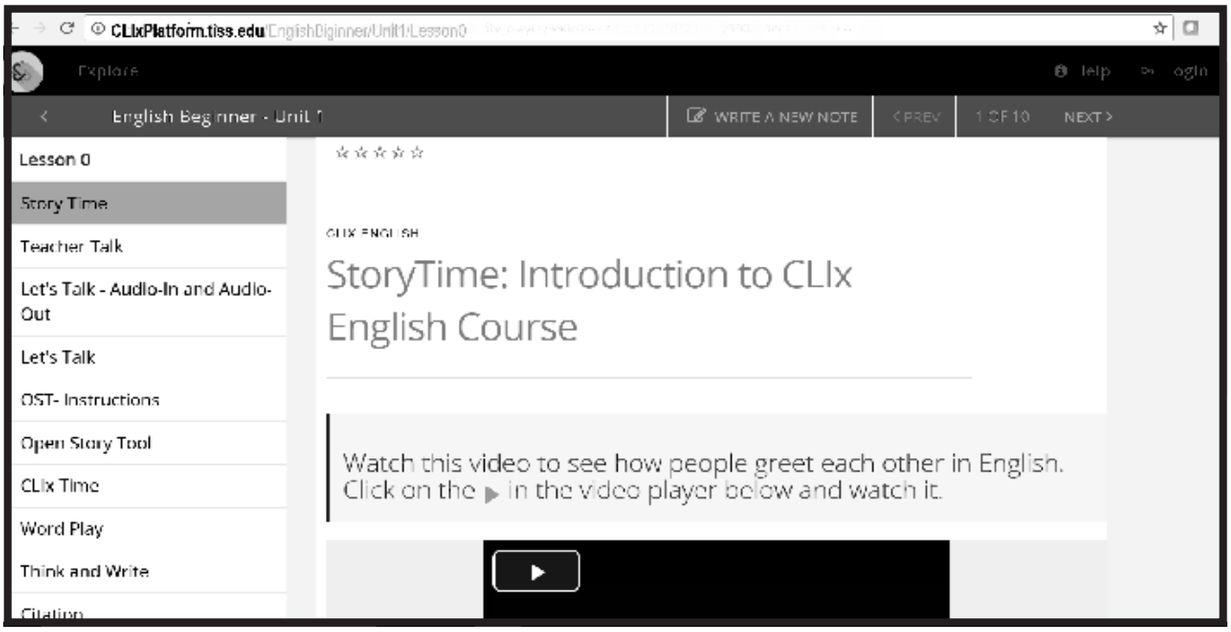


Exhibit 8: CLIx English Student Module on CLIx Platform

4.0 IMPLEMENTATION & SUPPORT

4.1 Field Support

TISS is committed to helping participants complete the course/s they are enrolled in. The RTICT is a bold and innovative blended programme. The 2017–19 batch of the programme is supported by the CLIx team and the state teams in collaboration with state governments where CLIx modules are also being implemented.

The CLIx team does the following to support participants:

- Plan and/or organise workshops at cluster or district level and help coordinate local meetups.
- Install CLIx student modules in the CLIx schools and ensure working systems are in place.
- Troubleshoot any technological issues through Telegram and in person.
- Establish a teacher task group based on domain-specific face-to-face training batches with dedicated personnel to help with programme completion.

4.2 Online Support

In the blended mode, TISS faculty are committed to facilitating the face-to-face workshops and online interactions via the RTICT professional development platform. The CLIx student module designers provide academic and subject expertise support online and in face-to-face workshops.

MiTi Chat Bot on Telegram

MiTi is a friendly robot teachers can chat with to view course material and get help with the course and with technical and implementation problems. To talk with MiTi, teachers start a chat in the Telegram App with @MiTiRobot

- Users communicate with MiTi primarily by selecting options via button taps - she won't understand if real language text is typed.
- MiTi can help users access certain (not all) course materials from the phone or computer without logging into TISSx.
- MiTi can also provide answers to some FAQs.
- If the buttons at the bottom disappear, tapping the icon in the text box will bring up the custom keyboard.
- To go back to the beginning at any point, users can type '/start'.

Exhibit 9: @MiTiRobot

4.3 Key Contacts

Contact information : https://www.tiss.edu/contact/
+91 8277524556 between 10 am and 4 pm Mon-Fri

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There are many more people working on the programme directly and indirectly; only a few key contacts have been named for ease of communication. To know more about the TISS faculty and CLIx team members, see https://www.tiss.edu/faculty-staff/ and https://clix.tiss.edu/teams/

5.0 COURSE DESCRIPTIONS

5.1 YEAR 1 Courses

C01: Introduction to ICT in Education

Course Overview
The goal of this course is to develop a critical awareness and a deeper understanding of the role of technology in teaching and learning. It provides an opportunity to critically evaluate some technology-enabled projects in India. The course will also offer hands-on preparation in basic digital literacy and ICT use by teachers.

Objectives

- Understand the concept of learning and the role of technology in constructivist learning.
- Critically evaluate efforts to integrate ICT in education in India.
- Integrate and implement ICT pedagogy (including pillars) and 21st century skills into classroom practice.
- Develop digital literacy and facilitate acquisition of these skills in students.
- Utilise ICT for professional development.

Unit 1: Digital Literacy
Through this unit, participants will develop basic digital literacy to enable them to participate in the course. The course will be practice-based, focusing on the use of spreadsheets, mind maps, multimedia and advanced drawing applications.

Unit 2: Learners and Learning
This unit focuses on the concept of digital natives and discusses students' sense of autonomy in using ICT for learning in the context of constructivist learning.

Unit 3: Curriculum
This unit will allow hands-on experience of integrating ICT in the curriculum and instruction through designing learning activities and exploring ICT applications and open educational resources.

Unit 4: ICT Access
In this unit, teachers will discuss issues of digital divide, the elements of digital citizenship and their roles and responsibilities as teachers in the 'digital age'. They will be exposed to the skills and knowledge needed to prepare themselves and their students to become digital citizens. Teachers will also survey the ICT infrastructure and curricular material available in their schools.

Unit 5: ICT Practices in Education in India
In this unit, teachers will interpret and appraise the Indian ICT in Education policy and programme by examining the status of its implementation in their schools.

Unit 6: ICT for Professional Development
In this unit, participants will be exposed to a variety of tools, platforms, resources and uses of ICT to enhance their professional development and to help them make learning meaningful.

S01: Communicative English Language Teaching

Course Overview
This course aims to build on teachers' on-going practice and enhance their existing repository of skills and strategies to teach Communicative English. Teachers will implement innovative teaching practices to glean principles and adapt their existing teaching methods to enhance student learning.

Objectives

- Examine the sociocultural influences on language learning practices.
- Develop a critical understanding of their classrooms and understand their roles and their students' roles in language learning and teaching.
- Develop skills to conduct a technology-enabled language learning course.
- Examine language learning principles and appraise current best practices other than those given in the prescribed materials.
- Improve capabilities to create and sustain a learning environment fostering learner autonomy, peer learning and self-reflection.
- Create or collate new resources for language learning and teaching.
- Reflect on practices continually for professional growth in a community of practice.

Unit 1: Social Context of Language Learning
This unit is concerned with the social reality that affects language learning, an awareness of which enables teachers to identify resources for effective teaching of language. Teachers will reflect on their own and their students' sociocultural backgrounds to be able to link the language/s used in the local context as well as the language/s in the home environment.

Unit 2: The Second Language Classroom
This unit will build on Unit 1 to enable teachers to examine multiple sources and methods of providing language input within and outside the classroom that can be used in their teaching practices as they do lesson planning.

Unit 3: New Possibilities for Language Teaching
The unit aims to enable teachers to reflect on and plan their teaching to cater to a range of practices and strategies and to include an array of resources, such as technology, as tools for language learning. In this unit, teachers achieve a discriminated view of language teaching as they are introduced concepts that help them reflect on their teaching practices and change those practices as needed.

Unit 4: Developing Language Proficiency
Teachers will deliberate upon what language proficiency involves and the various skills that students need to become proficient language users. They will explore the concepts of fluency and accuracy and the importance of each.

Unit 5: Resources for Language Learning and Teaching
Teachers will engage in an exploration of other materials in addition to the textbooks to review materials and design tasks based on the best practices for using technology to aid self-paced self-learning and to make explicit in their classrooms the 'learning to learn' processes.

S02: Reflective Mathematics Teaching

Course Overview
This course will provide teachers opportunities to develop their understanding of mathematics pedagogy by engaging in practice-based tasks and reflecting on their practice through participation in mathematics teacher communities. The course facilitates teachers' use of technology-enabled student modules in classroom instruction. Teachers will also explore mathematics ideas and concepts.

Objectives

- Develop an understanding of the core ideas of mathematics and its processes as well as interconnections within and across mathematical domains.
- Understand the value of engaging with student thinking and the role of assessment in informing teaching.
- Understand and meaningfully use, evaluate and curate technology (ICT)-based teaching learning resources for mathematics teaching.
- Understand the process of becoming a reflective practitioner, the role technology plays as a teaching and learning resource.

Unit 0: Overview and Introduction to the Course
Teachers will be introduced to the content, modalities for interactions and assessment and evaluation expectations of the course.

Unit 1: Exploring and Using a Technology Integrated Resource
Teachers will engage in depth with one of the CLIx technology-enabled student modules, with hands-on experience during the face-to-face workshop. The rationale of the module design will be discussed, specifically, the use of research-based evidence, integration of pedagogic pillars, values and the module's connection to the school curriculum and textbook chapters.

Unit 2: Student Learning
Teachers will use artefacts like teaching videos, students' work and evidence from their own practice to connect their practice with research-based theoretical ideas about mathematics learning and pedagogy.

Unit 3: Assessment
Teachers will analyse several examples of students' errors and tasks to make pedagogic decisions about tasks for assessment and ways of integrating assessment with teaching.

Unit 4: Resources for Teaching
Teachers will explore and evaluate open educational resources for teaching, including hands-on and ICT-based resources to develop criteria for selecting and using the resources in their classroom. Teachers will choose to collaborate on one of the given projects with a focus on using technology as a part of their teaching processes.

Unit 5: Mathematical Ideas, Concepts and Processes
Teachers will engage in problem solving activities and use the experience to reflect on the nature of mathematics, key concepts and ideas, the relationship between concepts and procedures, and mathematical processes.

S03: Interactive Science Teaching

Course Overview

This course will expose teachers to major issues in science education through readings, videos and activities. Some exemplar student modules will also be provided to teachers. The student modules are developed based on research in science education. They will serve as cases in discussions of practical and theoretical issues in science education. Teachers will engage with and implement one of the student modules simultaneously as they work through the course material to make the connections between broad issues and specific content in the modules.

Objectives

The course is designed with two primary objectives:

A. Development of the teacher at an individual level
   a. To expose teacher to the aims of science education as expressed in the National Curriculum Framework, 2005
   b. To bring out and develop teachers' pedagogical content knowledge
   c. To help teachers to reflect on and design educational practices pertaining to science, such as problem solving, demonstrations, experimentation and assessment.

B. Building communities of practitioners (in this case, high school science teachers) to support practical and theoretical discussion on a continual basis.

Unit 1: Nature of Science

In this unit, we will discuss how science develops and what its characteristics are. The aim of science education is not only to convey accurate content to students but also to encourage them to engage in the process of scientific enquiry. We will see how history of science could be used to convey the inquisitive, multicultural and tentative nature of science.

Unit 2: Pedagogical Content Knowledge

This unit will focus on pedagogical content knowledge (PCK) and deals with how to teach subject content. Some themes of this unit are students' alternative conceptions, conceptual change, representational competence and the cognitive abilities involved in learning science.

Unit 3: Principles and Practice of Science Education

In this unit, we will discuss how the principles of science education can be translated into a range of practices such as classroom exposition, demonstration, problem solving, experimentation, observations, assessment and the use of technology.

Unit 4: Objectives of Science Education

In this unit, we will explore some of the main objectives of science education and their relevance in the Indian context. The unit will also discuss the relation between science and some social issues and the implications of that relation for scientific literacy.

Unit 5: Science in Practice

Through hands-on experiments, teachers will explore the need for argumentation, the importance of experiments in science and the role of the teacher in facilitating these processes.

Unit 6: Implementing Student Modules

The student modules, introduced in the face-to-face workshops, are designed based on textbook chapters. They are to be implemented when the corresponding chapter is taught in school.

5.2 YEAR 2 Courses

C02: Action Research/Digital Portfolio

Action Research
Teachers will either work individually or in groups within their community of practice to study, design or reflect on a concept, problem or a classroom practice they encounter in this programme. Their study will be facilitated by a faculty they choose in a specific subject area in science, mathematics or English.

The various processes selected for research could be identifying a problem or a concept or tool to be developed, articulating and studying its context or attributes, observing and studying it in its context, inquiring and delving deeper through observations or trials, and analysing the findings and reflecting on the process and results or the final product. Teachers may also use digital communication tools such as blogs and other online forums for this purpose.

As an example of action research, teachers may choose to study and reflect on their teaching pedagogies and methods after they adopt ICT in their teaching; the level of interest in students and their ability to understand foundational concepts in mathematics when teachers use active versus lecture methods in mathematics teaching; and the benefits of collaborative learning in the classroom.

Teachers may also choose to develop a learning activity or a tool (such as webquest) for students on a particular topic (such as ecosystem challenges in a specific geographical zone) and study students' learning patterns and responses to this tool.

Digital Portfolio
Teachers may opt for developing an electronic portfolio instead of action research. This will be an individual activity in which teachers will collate the artefacts they have developed during the course, such as reflections on online platforms, assignments, small ideas from classroom practice and workshops, lesson plans, ICT projects done by students and rubrics created. A teacher educator will guide them to integrate these artefacts with the use of a background note or video reflecting on their learning and reflection journey in the course. Simple multimedia software, video or a wordpress document can be used for this purpose.

Whether action research or digital portfolio, participants will present their work at the district level towards completion of the certificate course. A well-articulated rubric will be used to assess the portfolios or studies and an external panel of faculty and state education resource persons will be invited for assessment.

E01: Values Development in Adolescent

Course Overview
Through this course, teachers will gain insight into their own selves, the knowledge they need about values and adolescent behaviour, and the skills required to facilitate reflective and critical discussions with students. They will gain knowledge of relevant terminology necessary to examine values development critically and learn to use this vocabulary in their daily practice.

Objectives

- Understand the values development process with specific reference to the adolescent.
- Develop sensitivity to students' social context and issues.
- Develop skills and practices to nurture values development based on working theories.

Unit 1: Values and Human Behaviour
Teachers will be helped to recognise how beliefs and assumptions about ourselves and others influence our behaviour. They will explore the extent to which a belief is a personal, social or cultural construct or has wide and universal applicability. They will examine how stereotypical attitudes towards gender, caste and other aspects lead to social discrimination and unequal treatment of individuals and groups. Teachers will appreciate the complexity of value dilemmas and the reasons people act contrary to their self-defined moral compass. Teachers will understand and use values terminology appropriately, for example, beliefs, values, principles, feelings, consequences.

Unit 2: Behavioural Patterns and Change
Teachers will be helped to appreciate how patterns of behaviour have a tendency to be reinforced through the 'Pygmalion effect'. They will recognise how paradigms underlying behaviour patterns can undergo change and understand the common barriers to behavioural change.

Unit 3: Facilitating Values Learning Discussions
Teachers should be able distinguish between understanding and agreeing and be open to understanding all voices in a discussion on values. They should move away from expecting a 'correct answer' to helping students understand their own thought processes and critique those. Teachers will develop the skill of listening to and paraphrasing what students say in a discussion, asking questions to spur reflection and discussion, and summarising and debriefing.

Unit 4: Understanding Context: Adolescence and Social Stereotypes
Teachers should understand that normative frameworks operate at different levels (self, community and society) and these levels interact with each other. They should be able to appreciate common interests, concerns and challenges of adolescents and have strategies to deal with adolescent emotions and common social stereotypes. Teachers should be able to reflect critically on their own beliefs about adolescents.

Unit 5: Reflections on the Role of the Teacher
Teachers should be able to reflect on their own motivations as teachers, assess where their current beliefs and practices stand in light of these and identify gaps they would like to work on.

E02: Media in the Classroom

Course Overview
This course will attempt to envisage creative use of ICT in the classroom, with the teaching and learning at the centre. It, therefore, foregrounds the importance of teachers while aiming to support their teaching. The 'class-divide' introduced through the evolution of multiple modes of ICT has to be addressed through a combination of existing methods and new technologies.

Objectives
- Develop an understanding of the nature of media.
- Develop skills in the use of ICT.
- Enhance the use of ICT in the classroom in teaching and learning.

Unit 1: Media Ecology
This unit will help teachers become aware of the media ecology of their classrooms by looking at the kinds of media they have in the classroom as well as in the larger milieu they work in. It will look at the nature of, access to and limitations of each kind of media. Teachers will create a media map of technologies which will be useful in teaching and learning. The aim here is to integrate the advantages of available media into the contexts of learning.

Unit 2: Media in Action
This unit will take teachers through different technologies and how to use them in class for the lessons. The technologies or media covered are: mobile phone photography and how to use it effectively as a demonstrative tool in teaching and learning; administrative applications and tools available on an android phone that can be used in the classroom such as calendar, reminders; and new media teaching applications and tools.

Unit 3: Implementing Media in the Classroom
This unit will cover the integration of the media discussed in Unit 2 in classroom teaching and learning by teachers implementing these technologies or media. Teachers will document this use in assignments and share their experiences. Drawing on the previous units, teachers will work towards integrating media tools into the lessons they earlier transacted in a didactic way by re-visualising the lessons with ICT.

E03: Hands-on Learning through Toy-making

Course Overview

This course aims to enhance the culture of hands-on learning with the aim of enriching classroom pedagogy. It draws from the seminal work of Arvind Gupta and brings these experiences into classrooms. It further aims to bring such a culture not just to science classrooms but also to other subjects. It uses 'toys' to engender this culture of hands-on activities.

Objectives

The course aims to give an opportunity to teachers to practice skills in order to change the classroom culture. In each week, we focus on a skill or experience with a tool or material critical to the activity in that week. Additionally, teachers are asked to make explicit some of the insights they would acquire.

This course also makes explicit the three pedagogic principles of authentic learning, collaborative learning and learning from errors.

- Move away from lecturing mode to facilitating students to work on their own (authentic learning)
- Practise hands-on skills, handle materials, design, solve problems in real life (authentic learning), and engage in open-ended thinking (learning from errors)
- Work in groups and help each other to overcome difficulties and manage classroom to strengthen CoP (collaborative learning)
- Guide students to work in groups (collaborative learning)
- Facilitate collaboration among students (collaborative learning)

Outline

The course is structured around the development of some core practices and, hence, is presented as a flow of activities centred on a toy artefact and not conventional units of content.

Unit 1: Toys: 1a: Sprinkler, 1b: Spray, 1c: Flute
Unit 2: Toys: 2a: Magnetic Pen Stand (vertical), Magnetic Pen Stand (horizontal)
Unit 3: Toys: 3a: DC Motor, 3b: Electric Generator
Unit 4: Geometric Shapes with Matchsticks and Tyre Tube

The content for each unit has a set of videos to prepare the toy for that week and worksheets for teachers. The facilitator provides a module, through the online community of practice, giving an accurate explanation of principles on which the toy selected for that week works, triggering important questions and suggesting project ideas that teachers implement with the support of the peer community.

6.0 CLIx & RTICT PLANNERS

6.0 CLIx & RTICT PLANNERS

Classes:		Classes:	
Email:		School:	
RTICT Registration Date:		State:	

Notes:

6.1 CLIx Student Implementation Planner

Please use this to select the modules you will be implementing in your school .

Module/Topic	Select (✓)	Dates of Implementation	# of Students	Class	# of batches	Notes
Digital Literacy (Invitation to CLIx)						
Spreadsheet	☐					
Mindmap	☐					
Drawing	☐					
Geogebra	☐					
English Beginner  **English Elementary** 						
English Beginner Unit 0.1	☐					
English Beginner Unit 0.2	☐					
English Beginner Unit 1	☐					
English Elementary Unit 1	☐					
English Elementary Unit 2	☐					

Module/Topic	Select (✓)	Dates of Implementation	# of Students	Class	# of batches	Notes
Mathematics						
 Geometric Reasoning	☐					
 Proportional Reasoning	☐					
 Linear Equations	☐					
Science						
 Physics: Motion	☐					
 Physics: Astronomy	☐					
 Physics: Sound	☐					
 Biology: Health & Disease	☐					
 Biology: Ecology	☐					
 Chemistry: Atomic Structure	☐					

6.2 RTICT Schedule and Planner

Please use this schedule to plan for your RTICT course.

C01 Introduction to ICT in Education (4 Credits/ 12 Weeks)

Course Unit	Week	Date	Modality	Notes
Unit 1: Digital Literacy	01-04		Cluster-level Face-to-face	
Unit 2: Learners and Learning	05-06		District-level Face-to-face	
Unit 3: The Curriculum	05-06			
Unit 4: ICT Access	07-09		Online (TISSx+Telegram CoP)	
Unit 5: Practices in Education in India	10		Online (TISSx+Telegram CoP)	
Unit 6: ICT for Professional Development	11-12		Online (TISSx+Telegram CoP)	
Implementation/ Practice CLIx Student Module			In School & Online (TISSx+Telegram CoP)	

S01 Communicative English Language Teaching (4 Credits/ 12 Weeks)

Course Unit	Week	Date	Modality	Notes
Unit 1: Social Context of Language Learning	01-02		District-level Face-to-face & Online (TISSx+Telegram CoP)	
Unit 2: Second Language Classroom	03-04			
Unit 3: New Possibilities for Language Teaching	05-07			
Unit 4: Developing Language Proficiency	08-10			
Unit 5: Exploration of Resources for Language Learning and Teaching	11-12			
Implementation/Practice **CLIx Student Module** **NOTE:** CLIx English Student Modules will be implemented in the school throughout the year.	01-12		In SchooL & Online (TISSx+Telegram CoP)	

S02 Reflective Mathematics Teaching (4 Credits/ 12 Weeks)

Course Unit	Week	Date	Modality	Notes
Unit 0: Introduction and Overview of the Course	Pre Course Work		Online (TISSx+Telegram CoP)	
Unit 1: Using ICT Integrated Student Module	01-12		District-level Face-to-face & Online (TISSx+Telegram CoP)	
Unit 2: Student Learning	02-03			
Unit 3: Assessment	04-05			
Unit 4: Resources for Teaching	06-09			
Unit 5: Mathematical Ideas, Concepts and Process	10-12			
Implementation/Practice **CLIx Student Module**	01-12		In SchooL & Online (TISSx+Telegram CoP)	

S03 Interactive Science Teaching (4 Credits/ 12 Weeks)

Course Unit	Week	Date	Modality	Notes
Unit 1: Nature of Science	01-02		District-level Face-to-face & Online (TISSx+Telegram CoP)	
Unit 2: Pedagogical Content Knowledge	03-04			
Unit 3: Principles and Practice of Science Education	05-08			
Unit 4: Objectives of Science Education	09-11			
Unit 5: Science in Practice	12		Online (TISSx+Telegram CoP)	
Unit 6: Implementing Student Module	01-12		In SchooL & Online (TISSx+Telegram CoP)	

C02 Action Research or Digital Portfolio (3 Credits)

Action Research ☐	**Digital Portfolio** ☐	**Week**	**Date**	**Modality**	**Notes**
Selecting a topic	**Purpose of portfolio**	Pre Course Work		Online (TISSx+Telegram CoP) & Online Mentoring time with Guide	
Literature Review	**Selecting ICT tools to build portfolio**	01-12			
Research Proposal & Question	**Generating your content**	02-03			
Collecting Data		04-05			
Analysing Data	**Compiling the portfolio**	06-09			
Reporting Results	**Presenting portfolio**	10-12			
Taking Informed Action	**Writing a reflective note on the experience of creating a portfolio**	01-12			

E01 Values Development in Adolescents (2 Credits/ 6 Weeks)

Course Unit	Week	Date	Modality	Notes
Unit 1: Values and Human Behaviour			District-level Face-to-face & Online (TISSx+Telegram CoP)	
Unit 2: Behavioural Patterns and Change				
Unit 3: Facilitating Values Learning Discussions				
Unit 4: Understanding Context: Adolescence and Social Stereotypes				
Unit 5: Reflections on the Role of the Teacher				

S02 Media in the Classroom (2 Credits/ 6 Weeks)

Course Unit	Week	Date	Modality	Notes
Unit 1: Media Ecology			Online (TISSx+Telegram CoP)	
Unit 2: Media in action				
Unit 3: Implementing media in the classroom			In School & Online (TISSx+Telegram CoP)	

E03 Hands-on Learning through Toy-making (2 Credits/ 6 Weeks)

Course Unit	Week	Date	Modality	Notes
Orientation			District-level Face-to-face	
Unit 1: Toys: 1a: Sprinkler, 1b: Spray, 1c: Flute			Online (TISSx+Telegram CoP)	
Unit 2: Toys: 2a: Magnetic Pen Stand (vertical), Magnetic Pen Stand (horizontal)				
Unit 3: Toys: 3a: DC Motor, 3b: Electric Generator				
Unit 4: Geometric shapes using matchsticks and tire tube				

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