

ICT in Teaching and Learning

Programme(s) in which it is offered: **B.A.B.Ed. English and B.Sc.B.Ed.**

Mathematics

Course Category: Core	Schedule of Offering: Odd
Course Credit Structure: 3	Course Code: EDN2112
Total Number of Hours: 45	Contact Hours Per Week: 3
Lecture: 1 Credit, 15 Hours	Tutorial: 2 Credits, 30 Hours
Practical: 0 Credits, 0 Hours	Medium of Instruction: English
Date of Revision:	Skill Focus: Employability
Short Name of the Course: ICTTL	Course Stream : NA
Grading Method: Pass/Fail, Regular	Repeatable: Non Repeatable
Course Level: Beginner	

Course Description

This course is offered as a Core Course for Integrated B.A.B.Ed and B.Sc.B.Ed Mathematics students. It is focused on the conceptual and working knowledge of information and communication technology in Education. The students will experience certain strategic tools to be used in a teaching and learning environment. Students will gain exposure to how technology is well integrated with Education.

Course Introduction

This course is meant to enhance the students' understanding and effective use of technology in a teaching and learning environment by providing a working knowledge on Information and Communication Technology (ICT), e-content and e-resources, along with the application of ICT in pedagogy, assessment, management and professional development.

Course Objectives

1. Understand the various concepts related to ICT and Education
2. Understand and Apply ICT competences to use and develop e-resources and e-content
3. Create e-resources for supporting Teaching Learning using TPACK approach
4. Analyse and create tools for assessment of pedagogical elements

Course Outcomes

At the end of this course, student teachers will be able to:

1. Describe the various concepts related to ICT and Education
2. Apply the competencies in ICT to use and develop e-resources and e –content
3. Create e-resources for supporting Teaching Learning using TPACK approach
4. Develop tools for assessment of pedagogical elements

PO-CO Mapping

This explains how the Course Outcomes (CO) are mapped with the Programme Outcomes (PO).

PO-CO Mapping Matrix

CO/PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6
CO1						
CO2						
CO3						
CO4						
CO5						

Pedagogy

This course employs classroom lectures, use and familiarisation of various online and offline ICT tools, development of e-content, quizzing, case discussions and presentations. All the students will have to submit an assignment and evaluate their peers' assignments.

Suggested Reading:

1. Bharihok, D. (2000). *Fundamentals of Information Technology*. New Delhi: Pentagon Press
2. CEMCA (2014). *Technology tools for teachers*. New Delhi: Commonwealth Educational Media Center for Asia.
3. David, M. (2009). *Project based learning- using Information Technology* (2nd ed.) New Delhi: Viva Books.
4. James, K.L. (2003). *The Internet: A user's guide*. New Delhi: Prentice Hall of India Pvt. Ltd:

5. MHRD-GOI (2004 and revised 2010). *National ICT @ schools scheme*. Department of School Education and literacy, New Delhi: MHRD, Govt. of India.
6. MHRD-GOI (2012) *National Mission on Education through ICTs (NME-ICT)*. New Delhi: Department of Higher Education, MHRD, Govt. of India.
7. Mishra, S. (Ed.) (2009). *STRIDE Hand Book 08: E-learning*. IGNOU: New Delhi. Available at http://webserver.ignou.ac.in/institute/STRIDE_Hb8_webCD/STRIDE_Hb8_index.html
8. Mohanty, L., & Vora, N. (2008). *ICT strategies for schools- a guide for school administrators*. New Delhi: Sage Publications.

Evaluation Pattern

Evaluation Matrix

	Component Type	Weightage Percentage	Total Marks	Tentative Dates	Course Outcome Mapping
Continuous Internal Assessment (CIA) Components	Mid-term Exam	50 % Of CIA Marks	15	10th week	1, 2
	Quiz	17% of CIA Marks	05	Weekly	1,2, 3 & 4
	Practical work report submission	33 % of CIA Marks	10	13 th week	1,2, 3 & 4
	CIA Marks	30%	30		
ESE		70%	70	End of the Semester	1,2,3 & 4

Module Sessions

Module I: ICT and Education

(9 Hours)

Computer hardware - LAN, WAN, and Internet. Software – proprietary and open source, system, and application software: Brief historical account of the development of various educational media (audio, print, video, storage, display, projection): Information and Communication Technology - meaning and nature: National ICT policy, curriculum, and

schemes: Role of technology in emerging pedagogical practices: Visual literacy, media literacy, and new media literacy: Emerging Trends in ICT and its educational applications: Augmented reality, e-books and rhizomatic learning, learning analytics, ubiquitous computing and mobile learning, Game based learning, cloud computing and software as service, 3D printing, and marker space

Readings:

- a) Bharihok, D. (2000). *Fundamentals of Information Technology*. Pentagon Press: New Delhi.
- b) NCERT (2013). Information and communication technology for school system: Curricula for ICTs in education (students and teachers), Version-1.2, New Delhi: CIET-NCERT.
- c) NCERT (2013). *National Repository of Open Educational resources (NROET)*, New Delhi: CIET-NCERT.
- d) Kumar, P. (2011). *Web Resources in pedagogy*. Oakville: Apple Academics.
- e) Semenov, A. (2005). *Information and communication technologies in schools. A handbook for teachers*. UNESCO.
- f) UNESCO. (2002). *UNESCO Report: Information and Communication Technologies in Teacher Education. A Planning Guide*, Division of Higher Education, UNESCO.
- g) UNESCO. (2002). *UNESCO Report: Information and Communication Technology in Teacher Education, A Curriculum for Schools and Programme of Teacher Development*. Division of Higher Education, UNESCO.

Activities:

- a) Hands on experience in setting up a desktop PC and working with various input devices, output devices, storage devices, and display devices

Module II: ICT and Pedagogy

(12 Hours)

Techno pedagogical content knowledge (TPCK), Approaches to integrating ICT in teaching and learning, Web 2.0 tools for creating, sharing, collaborating, and networking: Social networking, social book marking, blog, wiki, instant messaging, online forums/discussion groups and chats, and media streaming: E-learning: concept, types, characteristics, e-learning tools and technologies, Learning Management Systems (LMS); Subject specific ICT tools for creating and facilitating learning. Designing technology integrated authentic learning designs and experiences.

Readings:

- a) Pradeep Kumar (2011). Web Resources in Pedagogy. Apple Academics: Oakville.

Activities:

Conduct at least five activities from the list given below:-

- a) Hands on experience on subject specific software tools like geogebra, PhET.
- b) Developing a multimedia e-content for a topic using eXe Learning.
- c) Organize web conferencing using web tools.
- d) Readings on emerging ICT trends in education
- e) Review of national ICT policy and curriculum
- f) LMS experience- hands on various features of LMS – the ICT course may be provided through LMS

Module III: E-content and e-resources

(12 Hours)

Educational applications of word processing, spread sheet, presentation, and drawing tools – diagrams, concept maps, timelines, flow charts; Reusable Learning Objects (RLO), e-content standards, authoring tools- open source and proprietary alternatives; Multimedia - meaning and types, multimedia tools-audio editing, video editing, screen casting, graphic editing, basics of animation, and creating interactive media; Evaluation of multimedia resources; Open Educational Resources – Meaning and importance, various OER initiatives, creative common licensing; Locating internet resources – browsing, navigating, searching, selecting, evaluating, saving, and bookmarking;; Use of digital still and video camera, digital sound recorder, scanner, printer, interactive white board, visualizer, and multimedia projector for creating and using multimedia resources; Technology for pedagogical innovations: web quest, PBL, virtual tours, MOOC, flipped classroom Assistive technology for special needs and inclusion: tools and processes, ICT and Universal design for Learning (UDL)..

Readings:

- a) Aggarwal, J.C. (2010) *Landmarks in the history of modern Indian education* (7th Ed) New Delhi: Vikash Publishing Pvt Ltd.
- b) Das, K. K. (1993). *Development of education in India*. New Delhi: Kalyani Publishers.
- c) Gupta, M. (2007). *Education in India*. New Delhi. KSK Publisher and Distributions.
- d) Rawat, P. L. (1989). *History of Indian Education*. New Delhi: Ram Prasad & Sons.

Activities:

Conduct at least five activities from the list given below

- a) Using word processor, spread sheet, drawing and presentation software to produce various teaching learning resources and sharing it online.
- b) Locating internet resources – navigating, searching, selecting, saving, evaluating (use standard internet evaluation criteria), and bookmarking using social bookmarking.
- c) Creating digital concept maps, flow charts, timelines, and other graphics for a particular content.
- d) Creating screen cast video and podcast of a lesson.
- e) Shooting, editing, and sharing of videos segment on any educational topic.
- f) Creating account in YouTube/slide share and sharing the video/presentation, view and comment on others contributions.
- g) Creating account in wikispace / Wikipedia / media wiki and adding/editing content.
- h) Developing an educational blog in www.blogger.com, www.wordpress.com, or www.edublog.com.
- i) Creating resources for flipped classroom and Practicing flipped learning among peers
- j) Evaluating OER resources. Creating and sharing OER materials.

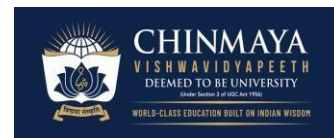
Module IV: ICT for Assessment and Management

(12 Hours)

ICT and Assessment: e-portfolio, electronic rubrics, online and offline assessment tools – rubrics, survey tools, puzzle makers, test generators, reflective journal, and question bank. Use of web 2.0 tools for assessment; ICT for professional development - tools and opportunities: electronic teaching portfolio, web 2.0 technologies, technology and design-based research, ICT for self-directed professional development, web conferencing, role of OER and MOOCs; ICT for personal management: email, task, events, diary, networking; ICT for educational administration: scheduling, record keeping, student information, electronic grade book, connecting with parents and community, school management systems; Managing the ICT infrastructure: software installation, troubleshooting of hardware, seeking, and providing help, storage and backup, updating and upgrading software; Computer security: privacy, hacking, virus, spy ware, misuse, abuse, antivirus, firewall, and safe practices, fare use and piracy.

Version No:

Approval Date:



Readings:

- a) MHRD-GOI (2004 and revised 2010). National ICT @ schools scheme. Department of School Education and literacy, New Delhi: MHRD, Govt. of India.
- b) MHRD-GOI (2012) National Mission on Education through ICTs (NME-ICT). New Delhi: Department of Higher Education, MHRD, Govt. of India.
- c) Mohanty, L., & Vora, N. (2008). ICT strategies for schools- a guide for school administrators. New Delhi: Sage Publications
- d) CEMCA (2014). Technology tools for teachers. New Delhi: Commonwealth Educational Media Center for Asia.
- e) David, M. (2009). Project based learning- using Information Technology (2nd ed.) New Delhi: Viva Books.

Activities:

- a) Planning and creating digital rubrics on any topic
- b) Create e-portfolio
- c) Enrolling and completing some MOOC courses of interest